

Central Arizona College

2026-2027 Catalog

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Welcome from the President


Dr. Jackie Elliott 2025

Central Arizona College is dedicated to providing a world-class learner experience.

Whether you are seeking a certificate or two-year degree, plan to transfer to a four-year institution, will be entering the career of your choice, or plan to complete courses for personal enhancement, I am pleased that you have chosen CAC to help you achieve your goals.

I encourage you to explore all that CAC has to offer, including the various academic offerings, programs and services that are available to assist you along your educational journey.

You are the future of our college. Please know that our team of dedicated faculty and staff is here to inspire you and help you achieve your full potential.

On behalf of Central Arizona College's faculty and staff, thank you for selecting CAC.

I wish you great success and look forward to seeing you around campus.

Sincerely,

Dr. Jackie Elliott

President/CEO Central Arizona College

Academic Calendar

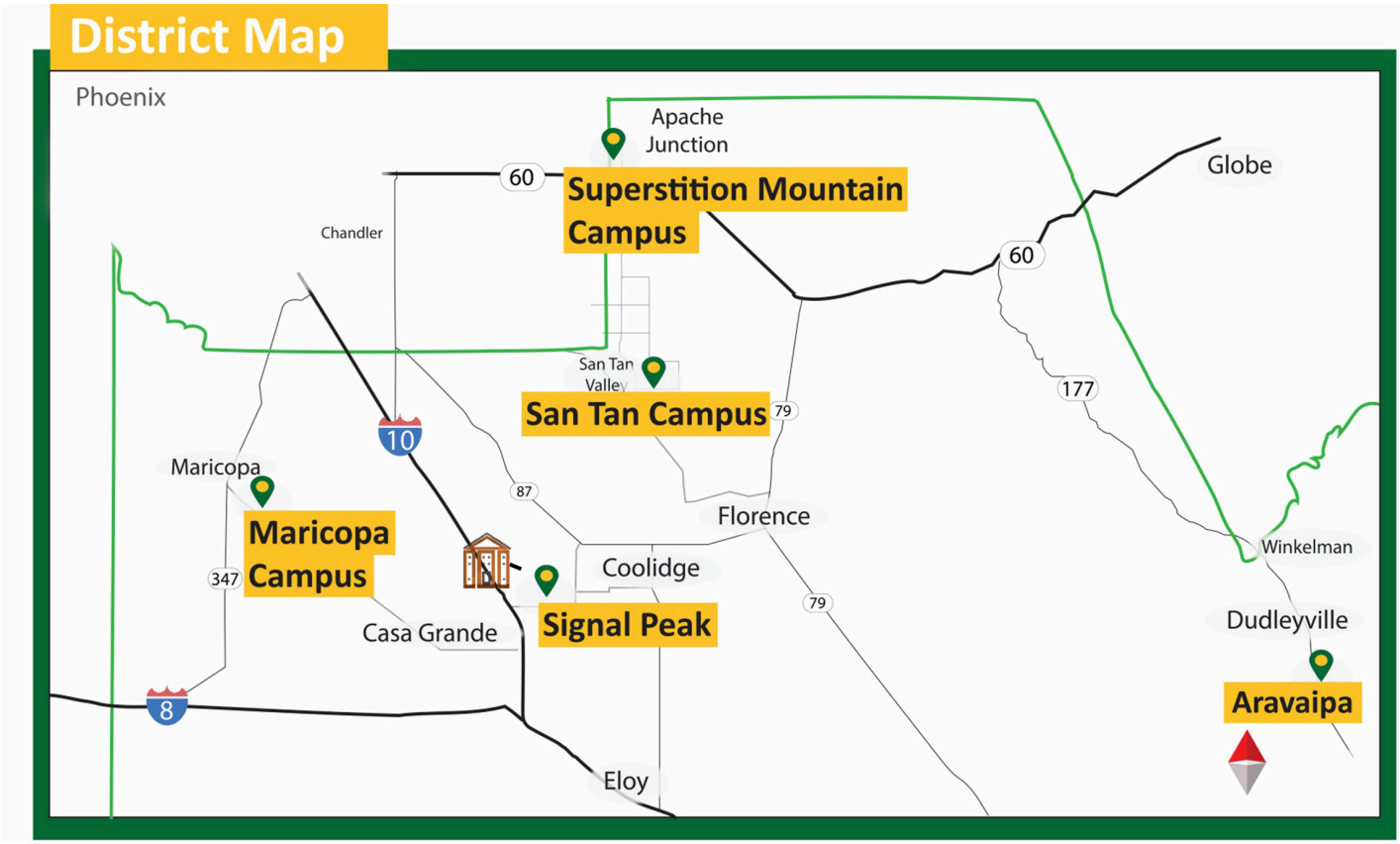
The college operates on a semester calendar with two 16-week semesters (including exams) beginning in August and January, and a shorter summer session beginning in May. There are also shorter term classes available during the regular semesters (8-week condensed terms). View at centralaz.edu/academic-cal/ & be sure to select the current catalog year.

Campus Locations

Central Arizona College opened its doors in 1969 as the first – and still the only – college in Pinal County. CAC serves and educates the diverse communities of Pinal County. From students of Hispanic and Native American descent to participants in the lifelong learners' program, the institution's diverse college community values the power of innovation, continuous quality improvement, and the contribution of the individual. With five campuses located strategically throughout the county, CAC provides accessible, educational, economic, cultural, and personal growth opportunities for those of all ages. The College's talented and innovative faculty and staff is dedicated to fostering a spirit of learning.

Visit centralaz.edu/locations.

Central Arizona College District Map (google.com/maps/d/u/0/viewer?mid=18TccXcu5ru6SSp5YNtHdpdGrnLFVSR_k&ll=33.15584338552674%2C-111.3877142487305&z=10)



Call CAC:

520-494-5111

Campus:

Signal Peak Campus
8470 N. Overfield Rd.
Coolidge, AZ 85128

Resident Life Housing
Signal Peak Campus
520-494-5470

Aravaipa Campus
80440 E. Aravaipa Rd.
Winkelman, AZ 85192

San Tan Campus
3736 E. Bella Vista Road
San Tan Valley, AZ 85143

Maricopa Campus
17945 N. Regent Drive
Maricopa, AZ 85138

Superstition Mountain Campus
805 S. Idaho Road
Apache Junction, AZ 85119

Campus Locations

Campus Locations

Signal Peak Campus

Location: Coolidge, AZ

Serving residents throughout Pinal County

Features

On-Campus Housing options for students; Men's & Women's Championship caliber athletic programs; Arts & Entertainment options for the Performing & Visual Arts.



Signal Peak Campus building

Campus Locations

Superstition Mountain Campus

Location: Apache Junction, AZ

Serving East Valley residents.

Features

Health programs with Massage Clinic open to the public; College Center that includes advising, testing, a student lounge, library, labs & classrooms.



Superstition Mountain Campus building

Campus Locations

San Tan Campus

Location: San Tan Valley, AZ

Serving Queen Creek, San Tan Valley, and Florence.

Features

CAC 's newest campus; Student Center, library, state-of-the-art classrooms & labs, culinary arts kitchen.



San Tan Campus building

Campus Locations

Maricopa Campus

Location: Maricopa, AZ

Serving residents of Maricopa, the Ak-Chin Indian Community, and western Pinal County.

Features

Eco -Friendly buildings complete with state-of-the-art science classrooms, community meeting space, library, & culinary arts kitchen.



Maricopa Campus building

Campus Locations

Aravaipa Campus

Location: Winkelman, AZ

Serving the communities of Hayden, Kearny, Mammoth, San Manuel & Winkelman.

Features

Education opportunities for residents living in the Copper Corridor; Community Room



Aravaipa Campus

Campus Locations

Prison Education

Central Arizona College operates in three Higher Learning Commission approved Arizona State Prison Complex locations. These include Florence Center ASCP, Eyman Prison ASCP and Winslow Prison ASCP. These locations offer specific CTE and Associate Degree programs in conjunction with the Arizona State Department of Corrections, and through the approval of the Higher Learning Commission. Programs at these locations are only offered within the prison complexes. They are intended to support preparation for re-entry, and are supported through state funding with respect to the CTE programs, and through tuition supported by Pell Grants with respect to the Associate Degree programs.

Degree & Certificate Information

Central Arizona College (CAC) offers students one- and two-year programs to meet their diverse interests and goals, including a variety of disciplines in nearly 100 degrees and certificates. These may be completed over an extended period to accommodate nontraditional students. Students completing these degrees with a cumulative grade point average (CGPA) of 2.0 on a 4.0 grade scale typically matriculate to an Arizona public university with junior status and only need an additional 56-60 university credits to complete a bachelor's degree consisting of 120 credits.

Students undecided about their academic program should meet with an academic advisor to explore career and life goals. Selecting a program that fits talents and interests and planning a timeline to achieve academic goals based on course offerings leads to successful degree/certificate completion.

Program Requirements

There are a number of programs at CAC, including the nursing program, that have specific program requirements in order to meet the criteria for their particular accrediting bodies and licensing boards. In the case of these programs, the requirements may differ from the requirements of the college. It is necessary that students meet all program requirements for the individual disciplines according to the policies in place for each specific program. Students using VA Benefits will need to meet CAC Residency for full benefits, regardless of special program requirements. Please contact the School Certifying Official for VA Benefits on Special program requirements.

Transferable Associate Degrees

All of CAC's transferable degrees conform to one of three degree structures and include at least 32 semester credits of general education studies and transfer directly to the three Arizona public universities: Arizona State University (ASU), Northern Arizona University (NAU) and the University of Arizona (UA). CAC's three transferable degree structures are:

- Associate of Arts (AA)
- Associate of Business (ABus)
- Associate of Science (AS)

CAC transferable associate degrees require at least 60 semester credits and share four basic categories in addition to CAC core degree requirements. Specific degree requirements follow within each degree. Visit the CAC Transfer Center for more information!

1. General Education - Each of CAC's transferable associate degrees include a block of at least 32 semester credits of lower-division general education requirements known as the Arizona General Education Curriculum (AGEC)*. This block provides clear and secure transfer pathways from community college to university studies.
2. Subject Options - Based on your major, review the specific associate degree requirements in this catalog, consult an academic advisor, and review Transfer Guides at aztransfer.com.
3. Electives - Students may need to select additional transferable courses to meet the number of semester credits required for the associate degree as designated by the transfer pathway. Electives must transfer to at least one of the three Arizona public universities as "elective or better."
4. Requirements for CAC Degrees
    - A minimum of 3 earned CAC credits numbered 100 or above;
    - A grade of "C" or better in each course.

*Notice of AGEC Revision: The Arizona General Education Curriculum has been updated effective 2026–2027 in accordance with statewide transfer policy.

Additional Associate Degrees

CAC offers two additional degree options:

- Associate of Applied Science (AAS)
- Associate of General Studies (AGS)

The AAS and AGS degrees prepare students to directly enter the workforce of their chosen program. Some state universities permit students with these degrees to transfer most or all of their credits to a university to pursue a Bachelor's Degree. Based on your major, review the specific associate degree requirements in this catalog, consult an academic advisor, and review Transfer Guides at aztransfer.com.

The Associate of Applied Science degree requires at least 60 semester credits and includes three basic categories:

1. General Education - The AAS degree requires a minimum of 19 semester credits of lower-division general education coursework. Students electing to transfer to one of the three Arizona public universities should earn an AGEC Certificate, which requires a minimum of 32 semester credits.
2. Core Requirements and Electives - Students must complete at least 41 semester credits to meet the number required for the degree. Based on your major, refer to the specific AAS degree requirements in this catalog and consult an academic advisor.
3. Requirements for CAC Degrees
    - A minimum of 3 earned CAC credits numbered 100 or above.
    - Earn a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale.

The Associate of General Studies degree is appropriate for students who do not plan to transfer, requires at least 60 semester credits, and includes three basic categories:

1. General Education - The AGS degree requires 29-30 semester credits of lower-division general education coursework. Students have the opportunity to transfer to one of the three Arizona public universities by completing requirements for both the AGS degree and an AGEC Certificate.
2. Electives - Students must complete at least 30 semester credits to meet the number required for the degree. Based on your major, refer to the specific AGS degree requirements in this catalog and consult an academic advisor.
3. Requirements for CAC Degrees
    - A minimum of 3 earned CAC credits numbered 100 or above;
    - Earn a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale.

NOTE: Consult information on specific degree and graduation requirements with the assistance of an academic advisor or program director.

Bachelor's Degree Waiver of General Education Requirements

Students who have already earned a bachelor's degree from a regionally accredited institution and are interested in pursuing an Associate of Applied Science (AAS) degree may use a bachelor's degree to satisfy the general education requirements for most AAS degrees. Exceptions are generally special admissions programs, such as those listed below, due to special accreditation requirements. Students should consult with an academic advisor to determine their eligibility to waive the general education requirements.

Area of Interest-Business & Professional Industries

- Business AAS
    - ECN 200, 201, or 202 for Social/Behavioral Sciences
    - BUS 101 for Mathematics
- Culinary Arts AAS
    - CUL 142 for Physical & Biological Sciences
    - BUS 101 for Mathematics

Area of Interest-Computer Technology, Engineering, & Math

- Networking Technologies AAS
    - ECN 200, 201, or 202 for Social/Behavioral Sciences
    - Specific Math requirements
- Software Development AAS
    - ENG 101 & ENG 102
    - COM 263
    - PHI 105
    - ECN 201 or 202 for Social/Behavioral Sciences
    - Specific Math requirements

Area of Interest-Industrial Technology & Skilled Trades

- Heavy Equipment Operator AAS
    - AGS 221 or any GLG (Geology) Class for Physical & Biological Science

Area of Interest-Nursing, Health, & Emergency Careers

- Health Information Management AAS
    - BIO201 and 202 for Physical & Biological Science
- Massage Therapy AAS
    - BIO160 OR BIO201 & 202 for Physical & Biological Science
- Medical Laboratory Technician AAS
    - BIO181 for Physical & Biological Science
- Nursing AAS is not eligible (SEE CATALOG/MAP)

- Nutrition and Dietetic Technician AAS
    - Specific CHM/BIO for Physical & Biological Science
- Paramedicine
    - BIO160 or BIO201 & 202 for Physical & Biological Science
- Radiologic Technology AAS
    - BIO201 & 202 for Physical & Biological Science

Area of Interest-Social/Behavioral Science & Public Service

- Justice Studies AAS
    - AJS123 for Arts/Humanities
    - AJS101 for Social/Behavioral Science

Area of Interest-Visual, Fine, & Performing Arts

- Digital Media Arts AAS
    - Requires 2 courses from ART 100, ART 207, and ART 208

Certificates

Certificate programs prepare students for entry-level employment opportunities and some build toward a state of Arizona General Education Curriculum (AGEC) Certificate or a CAC AAS or AGS Degree. Full-time students can complete most certificate programs in one or two semesters.

In addition to offering advanced training or building foundations for future credentials, many certificates build toward an Associate Degree which may transfer to the state universities and other higher education institutions.

Certificates require the following:

- Students must earn a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- Students must earn a minimum of 3 earned CAC credits numbered 100 or above;

To view the certificates and degrees available at CAC, consult the Programs Page in this catalog.

Bachelor Degrees

Central Arizona College is currently developing bachelor degree programs.
All bachelor degree programs will require:

· Students earn a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
· Students earn a minimum of 30 credits numbered 100 or above at CAC (CAC course residency requirement);
· Students earn a minimum of 30 general education credits (AGEC certificate preferred). Note: general education credits may also apply toward the core degree requirements;
· Students earn a minimum of 30 upper division (300/400) credits;
· Students earn at least 120 credits for a bachelor degree.

Course Information

Course Numbering System

Most college courses carry three-digit numbers. The course number designates the level of instruction:

COURSE NUMBER	LEVEL OF INSTRUCTION
070 - 079	Special Interest (non-degree)
080 - 099	Developmental
100 - 199	First-Year Level
200 - 299	Second-Year Level
300-399	Third-Year Level
400-499	Fourth-Year Level

Prerequisites and Corequisites

A prerequisite is a course which must be taken prior to taking another course. For example, if ENG 101 is a prerequisite for ENG 102, then ENG 101 must be taken prior to ENG 102. In order to satisfy a prerequisite course, a student must earn a grade of "C" or better in the prerequisite course or complete a competency examination. A prerequisite can also be a satisfactory score based on the English/Reading and Mathematics Course Placement tool.

A corequisite is a course which must be taken at the same time as another course. For example, if MTC 101 is a corequisite for MTC 100, then both MTC 101 and MTC 100 must be taken at the same time. Dropping a corequisite will result in the student being withdrawn from the course requiring the corequisite.

"*Instructor consent*" may be secured directly from the course instructor and permits a student to enroll in a course without the prerequisite or corequisite; however, it does not guarantee a waiver of prerequisites or corequisites for any other course.

Course prerequisites and corequisites are listed in the course descriptions. If you have questions about a prerequisite or corequisite, please see an academic advisor or faculty advisor. You may also determine a need for a prerequisite with the Course Placement Tool. In order to register for a course (other than English, mathematics, or reading) without having satisfied the prerequisite, a student must obtain the approval of the division chair/director if the course does not specifically state "or instructor consent". A complete contact list of division names, deans, and division chairs/directors is available at: Deans/Division Chairs Directory - Central Arizona College. Approvals may be in the form of e-mail messages from the division chair/director to the student's CAC email address. If you do not see the division chair/director listed in the directory, contact the respective dean or the Student Services Help Desk at (520) 494-5111 or by emailing centralhelpdesk@centralaz.edu.

Course Delivery

Central Arizona College offers classes in a variety of modalities and formats including face-to-face, online, live streaming, and hybrid. While assignments and methods vary, all classes, regardless of modality or format, hold students to the same rigorous, high academic standards. The Class Schedule indicates the delivery format of a class. Students are responsible for understanding the methods and expectations of the format for each course prior to the first day of class.

Definitions of learning modalities can be found at: https://catalog.centralaz.edu/catalog-listings-offerings/cac-offerings/learning-modalities

Courses for Programs with Special Requirements

Courses for programs with special requirements are not included in the CAC Academic Catalog. Students may find these courses via the CAC website in the online schedule. Students should contact the Advising Department for information about courses required for degrees and certificates with special requirements.

Additional Course Information: Times for Credit, Grading Options, Typically Offered, Credit Breakdown

Courses may not be repeated for credit unless it is noted in the course description. Courses may not be repeated in the same semester.

Students may select "*Satisfactory/Unsatisfactory*" grading for courses if that option is noted in the course description; however, students may not choose "*Satisfactory/ Unsatisfactory*" for courses applied to a certificate or degree.

If a course is consistently offered only for a specific semester, this information will be indicated at the end of the course description. Students should contact the Advising Department or check the course schedule to confirm whether a course will be offered during the semester they plan to enroll. Each course description will indicate the credit value for a course and how those credits break down. If a course credit value is reflected by practicum or internship credits, the credit breakdown will indicate how many contact hours may be expected for that course.

Special Courses

078/088/098/198/298/398/498 Selected Topics

Credit Varies

Courses numbered as 078, 088, 098, 198, 298, 398, or 498, also known as Selected Topics, offer experimental curriculum on a short-term basis. Learning competencies vary based on the level of the course and the subject matter. Selected Topics can be offered in any discipline with appropriate approvals; however, they may not transfer and are degree applicable only with special approval. They are valid for one academic year and ineligible for financial aid.

080-099 College Foundations

Credit Varies

Courses between 080 and 099 are considered college foundations, offering pre-college level learning competencies. They may be ineligible for financial aid.

196/296/396/496 Internships

Credit Varies

Offering hands-on application of skills in a work experience environment outside the college setting, courses numbered 196, 296, 396, or 496 are professionally supervised internships.

Cross Listed Courses

Courses indicated as cross listed with another course are identical in content. Students will only receive credit for one of the two courses. Students should consult an academic advisor to determine the best course to achieve their academic goal.

RDG100 College Reading

A course will be designated to specifically indicate that the course requires RDG100 or an equivalent reading assessment score as a prerequisite or corequisite.

Arizona General Education Curriculum (AGEC)

A course will be designated to specifically indicate if it is approved to fulfill one or more Arizona General Education Curriculum (AGEC) categories. A course will only apply to one of the AGEC categories for AGEC completion.

The AGEC allows students attending any Arizona public community college or tribal postsecondary institution to build a general education curriculum that is transferable upon completion to another Arizona public community college, tribal postsecondary institution, or state university. The AGEC Certificate is 32 credits.

Arizona community and tribal colleges are obligated to accept AGEC coursework from other Arizona community or tribal colleges. CAC accepts AGEC approved courses from Arizona colleges and universities and applies them toward CAC AGEC requirements.

The certified CAC AGEC Certificate (32 credits) is transferable from one Arizona public community college or tribal postsecondary institution to another Arizona public community college, tribal postsecondary institution, or Arizona public university.

AGEC Grandfather Clause

CAC accepts transferred general education courses toward AGEC requirements provided the courses were taken prior to fall 1999 and the current course equivalent at CAC fulfills one or more AGEC requirement. Students must provide evidence of fulfilling the Intensive Writing AGEC requirement.

Shared Unique Number System (SUN)

The Shared Unique Number (SUN) code for select general education and major preparation courses offers Arizona course transfer information. The SUN designation/ icon indicates transferability within the Arizona Transfer System that includes the three public universities and public and tribal community colleges. You will find a complete list of SUN courses on the AZTransfer website: aztransfer.com/sun/. For specific course transferability status consult the Course Equivalency Guide (CEG) on the AZTransfer website.

Learning Modality Offering Types

Face-to-Face (F2F)

Face-to-Face classes meet at designated dates, times, and locations as indicated in the Class Schedule.

Online

Online classes meet virtually online using a Learning Management System (LMS) such as Blackboard. Totally online classes do NOT meet at designated dates, times, or locations.

Live Streaming

Live Streaming classes meet virtually online at designated dates and times as indicated in the Class Schedule, but they do NOT meet at specific locations. These classes meet via live streaming using a Learning Management System (LMS) such as Blackboard.

Hybrid

Hybrid classes meet using a combination of Face-to-Face (F2F), Online, and/or Live Streaming modalities. Examples include:

Hybrid: F2F/Online

F2F/Online classes meet at designated dates, times, and locations as indicated in the Class Schedule, plus students complete additional coursework online.

Hybrid: Live Streaming/Online

Live Streaming/Online classes meet via live streaming at designated dates and times as indicated in the Class Schedule, plus students complete additional coursework online.

Hybrid: F2F/Live Streaming

F2F/Live Streaming classes meet at designated days, times, and locations; plus, they meet via live streaming at designated days and times as indicated in the Class Schedule.

For more information visit centralaz.edu/student-portal/.

High School Equivalency (HSE)/ GED Preparation & ESL Classes

High School Equivalency Classes

We provide a flexible program that meets the diverse needs of students and advances their goals in transitioning to college classes, passing GED® tests, and improving employment opportunities. The goal of HSE classes (formerly known as GED) is to assist adults in obtaining knowledge and skills necessary for employment, family empowerment and self-sufficiency. The classes include instruction in the five areas tested on the GED® 2014 tests: Reasoning through Language Arts, Mathematical Reasoning, Science, Social Studies and Civics. HSE classes are individualized and include computer-based instruction as well as College and Career Readiness activities and opportunities. The time it takes a student to prepare to take the GED® tests varies and depends on such factors as regular student attendance and skill level in reading, math, and writing upon entry. HSE classes are held at various locations throughout the county, as well as online.

Students who complete 12 or more attendance hours in a CAC HSE class, and who pass all 5 GED® tests-are eligible for a 12-credit CAC scholarship to be used in the year after passing the test.

Contact adult.education@centralaz.edu for more information.

We are more than a GED program; we are a path to your future: centralaz.edu/ged

GED® Tests

GED® tests are proctored at select Central Arizona College campuses and cost $173 to take all five subjects, including the $9 fee for the Civics Test (required as of January 1, 2017). Scheduling and payment of fees is done through the website GED.com.

ESL– English as a Second Language

We provide a flexible program that meets the diverse needs of students and advances their goals in transitioning to college classes, enriching English language skills, and improving employment opportunities. The goal of these classes is to assist adults in obtaining knowledge and skills necessary for employment, family empowerment and self-sufficiency.

ESL classes are individualized and include computer-based instruction. The program also includes a career component to assist students with their next steps. Learners are assessed upon entry to determine English skill levels and placed in the appropriate learning level. Learners progress at their own pace and may repeat the course to continue in the next level as they move toward completion of all six ESL levels.

ESL classes are held at various locations throughout the county, as well as online.

Contact adult.education@centralaz.edu for more information.

We are more than an ESL program; we are a path to your future: centralaz.edu/esl

Community & Continuing Education



Pursue Your Passion

Community & Continuing Education

Discover something unique for your personal enrichment, professional continuing education or industry training and certification. Community & Continuing Education offers a variety of non-credit options for personal and professional growth through courses, workshops, short series seminars, and CEU classes. The Community & Continuing Education non-credit offerings expand and change every semester based on interest and need. If there is something you are seeking and do not see it offered, please contact the Community & Continuing Education office and submit your request for consideration. Certain classes may have individual requirements to participate, but you do not need to be an admitted student of Central Arizona College to register for Community & Continuing Education classes. Classes begin throughout the semester and vary in length and cost. Whether you are seeking personal enrichment or professional training, Community & Continuing Education is ready to create a course or certificate that meets your needs.

For more information: visit the Community & Continuing Education webpage (https://centralaz.edu/community-and-continuing-education/) or email CommunityEducation@centralaz.edu.

Small Business Development Center

America's SBDC Arizona; Powered by SBA: U.S. Small Business Administration Logos

Small Business Development Center

Considering starting a business? CAC has been opening doors to business opportunity in Arizona since 1988. CAC's Small Business Development Center (SBDC) provides advising, training, and resources for business throughout Pinal County. Services are at no cost and offered for every industry and every stage of growth from start-ups to well-established companies. Visit centralaz.edu/sbdc for more information.

Find Your Path

Central Arizona College provides equal opportunity in employment and educational programs and activities. Discrimination is prohibited on the basis of race, color, religion, sex, age, disability, national origin, military status or genetic test information.

Find Your Path

Central Arizona College is committed to helping you get started successfully. Based on the type of student you are and your intention, there are different steps it takes to get enrolled at CAC. The Follow Your Path site: Find your Path - Central Arizona College helps you figure out the correct steps based on your enrollment intention.

Admission Requirements

CAC is an equal opportunity employer and complies with all applicable federal, state, and local laws regarding equal employment opportunity and anti-discrimination. CAC strictly prohibits and does not tolerate discrimination on the basis of the following protected classes and/or characteristics, in all of its operations, programs and activities, including but not limited to employment, promotion, admissions and access to all career and technical programs: race, color, religion, creed, national origin or ancestry, ethnicity, sex , age, physical or mental disability, citizenship, past, current, or prospective service in the uniformed services, genetic information, or any other characteristic protected under applicable federal, state, or local law. For more information contact: Laura Shepherd, Title IX Coordinator at 480-677-7853 or titleix@centralaz.edu; Section 504/ADA Coordinator at 520-494-5409 or studentaccessibility@centralaz.edu or Human Resources at 520-494-5577.

See below for specific admission requirements or click the applicable heading in the scroll menu above.

Regular Admission

Regular admission to the college is granted to any person who meets one of the following criteria:

- Graduate of a regionally accredited high school as defined by the United States Office of Education or any other appropriate state educational agency;
- Earned a high school certificate of equivalency (GED);
- 18 years of age or older and demonstrates evidence of potential success in the community college;
- Transfer student in good academic standing from another college or university.
- Visit centralaz.edu/registration for more information.

Special Admit (Admission of Students Under the Age of 18)

Special Admission is for admission of students under the age of 18.

No person under age 18 shall be denied admission because of age, lack of a high school diploma or high school certificate of equivalency, grade in school, lack of permission of school officials or lack of concurrent enrollment in a public or private school if the student meets one of the following test scores:

- PSAT (Preliminary Scholastic Aptitude Test – taken March 2016 or later) composite score of 720 or above
- SAT (Scholastic Aptitude Test-taken March 2016 or later) composite (Evidence Based Reading & Writing and Math portions combined) score of 720 or above;
- ACT (American College Test) composite score of 12 or above.

Students who are participating in a High School Program sponsored by the college, such as Dual Enrollment and Concurrent Enrollment, may be considered for Special Admissions. For a high school student to be admitted, the student must follow the High School Student Checklist for Enrollment found here: High School Student Checklist for Enrollment in CAC Courses [PDF] To be able to register for a course a high school representative must approve to verify the student is capable of completing college work registration. A student admitted under this criterion is not guaranteed admission to a specific degree program or to all courses offered at the college. The number of credits in which a student may enroll may be limited.

Students seeking Special Admissions, not participating in a High School Program, must complete the following process:

- Completion of the Admissions Form;
- Consultation with the Vice President of Academics;
- Email: Cristina.Gonzalez@centralaz.edu.

Admission of Returning Students

Students who have not attended in a year should follow the readmit process.

Service Members and Reservists who are temporarily unable to attend and must suspend their enrollment should contact Admissions *admissions@centralaz.edu* of intent to return to Central Arizona College. Immediate re-admissions of the Service Member will occur in the same program they were pursuing prior to their leave of absence under the same academic standing. For additional information, please contact the *Military and Veteran Specialist*.

Homeschool Students

Students who are homeschooled in high school should follow the High Schools Programs. The High School Representative needed to sign the registration form would be a parent. Homeschool students who are not at the high school level would follow the special admit process by contacting Cristina.Gonzalez@centralaz.edu.

Admission of F-1 Nonimmigrant Students - International Students

International students seeking admissions based on F-1 student visa status must submit the following to international.admissions@centralaz.edu:

- Graduation from a high school equivalent to the 12th grade level in the United States. It is recommended that students have graduated in the upper 50 percent of their secondary school (high school or equivalent) in order to ensure success in academic classes at this college. Official high school transcripts must be mailed directly to the Records Office;
- Completion of Test of English as a Foreign Language (TOEFL) with a score of at least 450 paper test or 133 on the computer test. The score must be submitted directly from the testing agency to the Records Office. Questions about the TOEFL should be directed to the Educational Testing Services at the following address: TOEFL Services, PO Box 6155, Princeton, NJ, 08541-6155;
- Evidence of financial support or deposit of tuition. The college has no provision for scholarships for international students; therefore, students must be prepared to meet the necessary financial obligations for the entire time they will be in the United States. It is estimated that each student will need at least $10,000 per academic year in order to meet all expenses, exclusive of travel. In addition, if an international student has dependents, there should be an additional $5,000 of financial support per dependent;
- Translation of documents into English, if required.
- Must enroll under full-time status with face to face and hybrid with a face to face component courses (minimum of 12 credits);
- Must communicate place of Arizona residency at all times to the Registrar Office;
- It is the responsibility of the student to request transfer of F-1 visa, if desired.

Student Records

Student records are maintained within the Admissions and Records Office. For additional information, please contact admissions@centralaz.edu.

Admission Requirements

Regular Admission

Regular admission to the college is granted to any person who meets one of the following criteria:

- Graduate of a regionally accredited high school as defined by the United States Office of Education or any other appropriate state educational agency;
- Earned a high school certificate of equivalency (GED);
- 18 years of age or older and demonstrates evidence of potential success in the community college;
- Transfer student in good academic standing from another college or university.
- Visit centralaz.edu/registration for more information.

Admission Requirements

Special Admit

Special Admission is for admission of students under the age of 18.

No person under age 18 shall be denied admission because of age, lack of a high school diploma or high school certificate of equivalency, grade in school, lack of permission of school officials or lack of concurrent enrollment in a public or private school if the student meets one of the following test scores:

- PSAT (Preliminary Scholastic Aptitude Test – taken March 2016 or later) composite score of 720 or above;
- SAT (Scholastic Aptitude Test-taken March 2016 or later) composite (Evidence Based Reading & Writing and Math portions combined) score of 720 or above;
- ACT (American College Test) composite score of 12 or above.

Students who are participating in a High School Program sponsored by the college, such as Dual Enrollment and Early College, may be considered for Special Admissions. A student admitted under this criterion is not guaranteed admission to a specific degree program or to all courses offered at the college. The number of credits in which a student may enroll may be limited.

Students seeking Special Admissions, not participating in a High School Program, must complete the following process:

- Completion of the Admissions Form;
- Consultation with the Vice President of Academics;
- Email: admissions@centralaz.edu.

Admission Requirements

Previous Status

Persons not meeting any of the provisions stated may be admitted on an individual basis with the approval of college officials, so long as such students meet the established requirements of the course(s) for which they enroll, and the College officials determine that such admission is in the best interest of the student. An admission form must be completed and a letter stating the reason for the special admission request is required.

Admission Requirements

International F-1 Nonimmigrant Students

International students seeking admissions based on F-1 student visa status must submit the following to international.admissions@centralaz.edu:

- Students who are participating in a High School Program sponsored by the college, such as Dual Enrollment and Early College, may be considered for Special Admissions. A student admitted under this criterion is not guaranteed admission to a specific degree program or to all courses offered at the college. The number of credits in which a student may enroll may be limited.
  Students seeking Special Admissions, not participating in a High School Program, must complete the following process:
- Graduation from a high school equivalent to the 12th grade level in the United States. It is recommended that students have graduated in the upper 50 percent of their secondary school (high school or equivalent) in order to ensure success in academic classes at this college. Official high school transcripts must be mailed directly to the Records Office;
- Completion of Test of English as a Foreign Language (TOEFL) with a score of at least 450 paper test or 133 on the computer test. The score must be submitted directly from the testing agency to the Records Office. Questions about the TOEFL should be directed to the Educational Testing Services at the following address: TOEFL Services, PO Box 6155, Princeton, NJ, 08541- 6155;
- Evidence of financial support or deposit of tuition. The college has no provision for scholarships for international students; therefore, students must be prepared to meet the necessary financial obligations for the entire time they will be in the United States. It is estimated that each student will need at least $10,000 per academic year in order to meet all expenses, exclusive of travel;
- Proof of health insurance that will cover medical expenses in the United States or purchase of health/accident insurance after arriving at CAC;
- Translation of documents into English, if required.
- Must enroll under full-time status (minimum of 12 credits);
- Must communicate place of Arizona residency at all times to the Registrar Office;
- It is the responsibility of the student to request transfer of F-1 visa, if desired.

Admission Requirements

Secondary School Supplement

- Completion of the Admissions Form;
- Submission of completed Approval for Enrollment of High School Student Form;
- Submission of a letter stating the reason for the special admission request;
- Provide copy of High School Transcript if required for the courses in which the student plans to enroll;
- Consultation with academic advising staff and/or consultation with an approved Special Admit designated official.

- Email: admissions@centralaz.edu.

Admission Requirements

Home School Supplement

- Completion of the Admissions Form;
- Submission of completed Approval for Enrollment of High School Student Form;
- Submission of a letter stating the reason for the special admission request;
- Provide copy of High School Transcript if required for the courses in which the student plans to enroll;
- Consultation with academic advising staff and/or consultation with an approved Special Admit designated official.
- Email: admissions@centralaz.edu.

Admission Requirements

College-Sponsored Program

- Completion of the Admissions Form;
- Completion of Registration Student Information Form;
- Provide copy of High School Transcript if required for the courses in which the student plans to enroll.
- Visit centralaz.edu/high-school-programs.

Admission Requirements

Dual Credit

- Completion of the Admissions Form;
- Completion of Registration Student Information Form;
- Provide copy of High School Transcript if required for the courses in which the student plans to enroll.
- Visit centralaz.edu/high-school-programs.

Admission Requirements

Absence Greater than 1 Year

- Completion of Admissions Form;
- Visit centralaz.edu/returning-cac-student.

Admission Requirements

Proposition 308

In November 2022, Arizona voters cast their ballots in support of Proposition 308, allowing qualifying non-citizen Arizona high school graduates to receive in-state tuition at Arizona's community colleges. This was signed into law in December 2022.

Proposition 308 or SCR (Senate Concurrent Resolution) 1044 was on the ballot for the November 8, 2022 Arizona State General Election. The measure allows all students who spent at least two years attending an Arizona high school and graduated from an Arizona high school, eligibility for in-state tuition rates and state-funded aid, regardless of immigration status. Proposition 308 only impacts eligibility for in-state tuition and does not change enrollment requirements into colleges and universities in Arizona.

To be eligible, these students must have done both of the following:
Attended a public or private high school or homeschool equivalent while physically present in Arizona for at least two years.
Graduated from any public or private high school option or homeschool equivalent while physically present in the state or obtained a high school equivalency diploma in this state.

Classification of Students

- Freshman: A student who has completed less than 30 semester hours of college credit.
- Sophomore: A student who has completed 30 or more semester hours of college credit.
- Part-Time Student: A student enrolled for fewer than 12 semester hours in a fall or spring semester or fewer than 6 semester hours in a summer session.
- Full-Time Student: A student enrolled for 12 or more semester hours in a fall or spring semester or 6 or more semester hours in a summer session.

Transfer Students

Transfer students are required to supply official transcript(s) from any previous college(s) for the purpose of evaluation of transfer credit(s). The college reserves the right to determine what credit(s) will be granted for courses transferred to the college to satisfy certificate or degree requirements. Students may use an unofficial transcript only once for registration purposes while waiting for an official transcript to be received.

Transfer of Credits

AZTransfer in conjunction with the Arizona Board of Regents developed the Arizona Higher Education Course Equivalency Guide (CEG) (See transfer from CAC to university or aztransfer.com) to assist students in transferring courses from one college to another within the state of Arizona.

The CEG equivalency does not mean that the community college course is identical to the university course or vice versa, but that the course is regarded as fulfilling the requirement of the designated university or college course. Prospective transfer students, as well as College advisors may refer to this guide to choose courses appropriate to their major. Due to changes that occur in the curriculum at the universities each year, students are encouraged to consult with the appropriate transfer institution's academic department for major course requirements before deciding on current class schedules.

Transferring Credits from CAC

To transfer credits, students may request that an official transcript be sent from CAC Records Office. Students must submit a written request to the Records Office including complete name, student ID number, a complete address of where the transcript is to be sent, along with the appropriate official transcript fee for each copy. Transcripts will not be released if students have any outstanding financial or institutional obligations. Students can also request official transcripts online at centralaz.edu/transcripts. Online requests will be processed with priority.

Transferring Credits to CAC

Transfer courses must have been acquired through a regionally accredited college or university.

Appropriate credit will be transferred from other institutions upon receipt of an official transcript. An official transcript must be in a sealed unopened envelope. Courses in which a grade of less than 2.0 was earned will not be accepted. Official transcripts must be submitted to the Records Office for evaluation.

Shared Unique Numbering system (SUN)

SUN courses are primarily AGEC or Common Courses at CAC or the partnering public and tribal community colleges and universities. SUN courses transfer to CAC as a direct equivalent course unless CAC does not offer that course. In the case that CAC does not offer the SUN course, the SUN course will be accepted to fulfill comparable CAC requirements based on the course content and student learning outcomes. Visit aztransfer.com.

Upper Division Course Transfer in Associate Degree versus Bachelor Degree Program

Upper division courses (300/400 level) from regionally accredited higher education institutions transfer to associates degrees as a CAC lower division course or as an elective, provided the student earned a grade of "C" or better. Students completing a CAC degree may find some of their CAC courses may transfer as 300-level courses to select CAC Transfer/Articulation Agreement institutions. Consult a CAC advisor and the program- or degree-specific Transfer Pathway document on that institution's website to confirm transferability and applicability of CAC coursework. Transfer Pathways are updated annually and Transfer/ Articulation Agreements state specific student eligibility requirements, scholarship opportunities and the programs available.

Students may be able to transfer some upper division coursework into CAC bachelor degree programs. Division specific upper division coursework will be evaluated by the division to determine if the transferred coursework may be used as an upper division course within that particular bachelor degree program. The Registrar will then designate course work applicability toward the bachelor degree as determined by the academic division.

Bachelor's Degree Waiver of General Education Requirements

Students who have already earned a bachelor's degree from a regionally accredited institution and are interested in pursuing an Associate of Applied Science (AAS) degree may use a bachelor's degree to satisfy the general education requirements for most AAS degrees. Exceptions are generally special admissions programs, such as those listed below, due to special accreditation requirements. Students should consult with an academic advisor to determine their eligibility to waive the general education requirements.

Area of Interest-Business & Professional Industries
• Business AAS
o ECN 200, 201, or 202 for Social/Behavioral Sciences
o BUS 101 for Mathematics

• Culinary Arts AAS
o CUL 142 for Physical & Biological Sciences
o BUS 101 for Mathematics

Area of Interest-Computer Technology, Engineering & Math
• Networking Technologies AAS
o ECN 200, 201, or 202 for Social/Behavioral Sciences
o Specific Math requirements

• Software Development AAS
o ENG 101 & ENG 102
o COM 263
o PHI 105
o ECN 201 or 202 for Social/Behavioral Sciences
o Specific Math requirements

Area of Interest-Industrial Technology & Skilled Trades
• Heavy Equipment Operator AAS
o AGS 221 or any GLG (Geology) Class for Physical & Biological Science

Area of Interest-Nursing, Health& Emergency Careers
• Diagnostic Medical Sonography
o BIO160 OR BIO201 & 202 for Physical & Biological Science
o PHY 101 Introduction to Physics for Physical & Biological Science
o MAT 151 College Algebra or Higher

• Health Information Management AAS
o BIO201 and 202 for Physical & Biological Science

• Massage Therapy AAS

o BIO160 OR BIO201 & 202 for Physical & Biological Science

• Medical Laboratory Technician AAS
o BIO181 for Physical & Biological Science

• Nursing AAS is not eligible

• Nutrition and Dietetic Technician AAS
o Specific CHM/BIO for Physical & Biological Science

• Paramedicine
o BIO160 for Physical & Biological Science

• Radiologic Technology AAS
o BIO201 & 202 for Physical & Biological Science

Area of Interest-Social / Behavioral Sciences & Public Service
• Justice Studies AAS
o AJS123 for Arts/Humanities
o AJS101 for Social/Behavioral Science

Area of Interest-Visual, Fine & Performing Arts
• Digital Media Arts AAS
o Requires 2 courses from ART 100, ART 207, and ART 208

Residency Guidelines

Students are classified for tuition purposes under one of the following resident classifications following Arizona Revised Statute 15-1802:

- Resident, in-state
- Non-resident (includes out-of-state, F-1 nonimmigrant students and students without legal immigration status)

Resident status will be assigned under the following conditions:

- Students who are U.S. citizens;
- Dependent students who have lived in Arizona for less than a year, but reside with their parents or legal guardians who have established domicile in Arizona for one year and claim the student as an exemption for state and federal tax purposes;
- Financially independent students who have resided in Arizona for at least 12 months prior to the start of the semester in which they are enrolling and have established Arizona as their permanent domicile;
- Students who have transferred to Arizona by their employer for employment purposes;
- Students who are members of Native American tribes whose reservation lands lie in Arizona and extend into another state and who are residents of that reservation.
- Students or spouses who are members of the armed forces of the United States, stationed in Arizona pursuant to military orders
- Under the provisions of the Veterans Access, Choice, and Accountability Act, the following individuals shall be charged a rate of tuition not to exceed the in-state rate for tuition and fees purposes:
    - A Veteran using educational assistance under either Chapter 30 (Montgomery – Active Duty Program), Chapter 31 (Veteran Readiness and Employment), Chapter 33 (Post-9/11), or Chapter 35 (Dependents' Educational Assistance Program [DEA]) of title 38, United States Code, who lives in Arizona while attending a school located in Arizona (regardless of their formal State of residence) and enrolls in the school with a period of active duty service of 90 days or more
    - Any student using transferred Chapter 33 (Post-9/11 benefits, 38 U.S.C. § 3319) who lives in Arizona while attending a school located in Arizona (regardless of their formal State of residence)
    - Any student described above while they remain continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school
    - Any student using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311 (b)(9)) who lives in Arizona while attending a school located in Arizona (regardless of their formal State of residence)
    -

Non-resident status will be assigned under the following conditions:

- Students who are claimed as exemptions by parents or legal guardians for U.S. federal or state income tax purposes and the parent or guardians are not residents of Arizona;
- Persons who have lived in Arizona less than one calendar year;
- Students who have not established Arizona as their permanent domicile after moving to Arizona;
- Winter visitors who have not established Arizona as their permanent domicile, even if residing in Arizona for more than one year;
- Students who are not U.S. citizens.

Proposition 308:

In November 2022, Arizona voters cast their ballots in support of Proposition 308, allowing qualifying non-citizen Arizona high school graduates to receive in-state tuition at Arizona's community colleges. This was signed into law in December 2022.

To be eligible, these students must have done both of the following:

- Attended a public or private high school or homeschool equivalent while physically present in Arizona for at least two years

- Graduated from any public or private high school option or homeschool equivalent while physically present in the state or obtained a high school equivalency diploma in this state

Official Residency Guidelines

The following guidelines concerning the determination of residency for tuition purposes are a compilation of statutory law (and A.R.S. 15-1801). Due to the complexity in interpreting these laws, students having difficulty in determining their residency should contact the Records Office for further explanation.

Questions/concerns? Email admissions@centralaz.edu.

Implementation of Guidelines

- Each student shall have the question of legal residence determined prior to the time of registration and payment of fees. It is the responsibility of the student to register under the correct resident determination.
- Enforcement of residency requirements shall be the responsibility of the President of Central Arizona College. The President has designated the Records Office to make the initial domicile classification. In determining a student's classification, the college may consider all evidence, written or oral, presented by the student and any other information received from any source that is relevant to determining classification. The college may request written sworn statements or sworn testimony of the student.
- A request for a review of the initial classification may be made to the Records Office. The request must be in writing, with a completed Domicile Affidavit signed by the student and accompanied by a sworn statement of all facts relative to the matter. The Domicile Affidavit must be filed prior to the end of the semester. Failure to properly file a request for review within the prescribed time limit constitutes a waiver of review for the current enrollment period. The decision of the Records Office shall be final.

Definitions

- "Armed Forces of the United States" means the: Army, Marine, Navy, Air Force, Coast Guard, National Guard, Commissioned Corps of the United States Public Health Services and National Oceanographic and Atmospheric Administration.
- "Continuous attendance" means student is enrolled at an Arizona educational institution; as such term is defined by the institution's governing body, for a normal academic year. Such person need not attend summer sessions or other such intercessions beyond the normal academic year in order to maintain continuous attendance.
- "Domicile" means a person's true, fixed and permanent home and place of habitation. It is the place where he/she intends to remain and to which he/she expects to return when he/she leaves without intending to establish a new domicile elsewhere.
- "Emancipated person" means a person who is neither under a legal duty of service to his parent nor entitled to the support of such parent under the laws of this state.
- "Parent" means a person's father or mother; if one parent has custody, that parent (or if there is no surviving parent or the whereabouts of the parents are unknown) or a guardian of an unemancipated person. There may not be circumstances indicating that such guardianship was created primarily for the purpose of conferring the status of an in-state student on such unemancipated person.

Proof of Residency

When a student's residency is questioned, or when a student wishes to have his/her residency status reviewed, the following proof will be required:

- A complete domicile affidavit signed by the student must be filed with the Records and Registration Office;
- Submitting evidence of one of the following items will be used in determining a student's domicile in Arizona:
    - Arizona driver's license
    - Arizona income tax return
    - Arizona voter registration
- The following items may be submitted as supporting information to the evidence listed above but will not be accepted as primary evidence:
    - Source of financial support
    - Notarized statement from employer
    - Place of high school graduation
    - Honorably discharged from the armed forces and demonstrates evidence of intent to be a resident of Arizona

Concurrent Enrollment: Non-resident Tuition

- It is unlawful for any non-resident student to register concurrently in two or more public institutions of higher education in this state, including any university or community college, for a combined student credit hour enrollment of more than six semester hours without payment of non-resident tuition at one of the institutions.
- Any non-resident student desiring to enroll concurrently in two or more public institutions of higher education in this state, including any university or community college, for a combined total of more than six semester hours shall pay the non-resident tuition at the institution of his choice in an amount equivalent to non-resident tuition for the combined total semester hours at all institutions in which he/she is currently enrolled.

Western Undergraduate Exchange Program

Students from 16 Western states are eligible to participate in the Western Undergraduate Exchange Program (W.U.E.). The program allows full-time students who are seeking degrees or certificates to pay 150 percent resident tuition, rather than out-of-state tuition. Central Arizona College participates in the program along with other colleges and universities in Arizona, Alaska, California, Colorado, Commonwealth of the Northern Marianas Islands, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington and Wyoming.

New Mexico Resident Tuition Waiver Program

Central Arizona College and Western New Mexico University in Silver City have established a tuition waiver agreement, which is subject to renewal. A New Mexico resident who attends Central Arizona College may qualify to be assessed in-state tuition. There are a limited number of waivers available and may only be used for four semesters. Contact the Records Office for an application form or additional information.

VA Education Benefits & Information:

Central Arizona College (CAC) is approved by the Arizona State Approving Agency (SAA), which is in authority to grant approval for the use of VA Education benefits for programs offered by an institution in Arizona. Eligibility for VA Education Benefits for all CAC degree/certificate program(s) is determined by the SAA. Not all programs are approved, for additional information for approved and non-approved programs, please visit centralaz.edu/va.

Per federal regulations, all students using VA Education Benefits will be required to submit all official transcripts, including both institutional and/or Military transcripts (CCAF/AU) before the start of their first term to the Admissions and Records Office. The VA Education Benefits may be denied or delayed without said transcripts on file. All regionally accredited transcripts will be evaluated by the Admissions and Records office.

Joint Service Transcripts (JST) are nationally accredited and therefore will not be sent through the Admissions and Records Office for evaluation but will still need to be on file. JST are evaluated and approved by the Military Service Advisor, School Certifying Official (SCO).
Please contact the Military Service Advisor, School Certifying Official (SCO) at centralaz.edu/va on how to submit the JST. *Please note, for the JST only, CAC only accepts what is given for the Physical Education, no other credit is being accepted.*

Institutional and Community College of the Airforce, (CCAF/AU) transcripts can be submitted electronically using the Record's Office email: Transcripts@centralaz.edu
Or via mail at:
Admissions and Records Office-Transcripts
8470 N. Overfield Rd.,
Coolidge, AZ 85128

All students using VA Education Benefits are required to meet with the school Military Service Advisor, School Certifying Official (SCO) every semester to be advised on transcripts, degree/class approval and certification of VA Education Benefits. It is the responsibility of the student to submit necessary paperwork to the SCO for processing and report all changes to the enrollment status prior to certification.

For information, please contact the Military Service Advisor, School Certifying Official (SCO):

- Military Service Advisor, School Certifying Official (SCO)
  Elizabeth Barrett at 520-494-5517 or Elizabeth.Barrett@centralaz.edu

Central Arizona College is in compliance with Executive Order 13607 also known as the Principle of Excellence (POE). Please visit CAC's VA webpage at centralaz.edu/va.

CAC is in Compliance with Title 38 USC 3679(e) for all students covered under Chapter 31 and 33 of the VA Education Benefits. No penalties will be imposed on the covered individual due to their inability to meet financial obligations due to the delayed disbursement of VA funding.



Military Friendly School Designations 2023-2024 through 2021-2022

Catalog Year of Admission

Students are encouraged to consult their academic advisors to determine which catalogs' rules they are eligible to follow and to select the most appropriate one for their personal and career goals.

Students are admitted under the current College Catalog Degree & Certificate Information or the individual Program in effect at the time of their initial enrollment. Students who enter the college and are continuously enrolled without a breakthrough subsequent fall and spring semesters (summers excluded) are subject to the graduation requirements of the catalog upon their initial entrance or a current year catalog. Students who do not earn credit for two consecutive semesters or more (summers excluded) follow the catalog year in effect upon their return.

- Transfer students' initial enrollment is the date upon which they enter Central Arizona College.
- Nursing students' catalog year is based on the year they are accepted into the nursing program.
- All students have the option to choose the current year catalog for degree or certificate graduation requirements or follow their initial enrollment catalog as long as they have been continuously enrolled.
- Students who complete one degree and then pursue a second one follow the catalog year in effect at the time they select the second degree.

Academic Calendar

The college operates on a semester calendar with two 16-week semesters (including exams) beginning in August and January, and a shorter summer session beginning in May. There are also shorter term classes available during the regular semesters (8-week condensed terms). View at centralaz.edu/academic-cal/ & be sure to select the current catalog year.

Registration Information

Students must be admitted to the college in order to register for classes. Admission is needed only once by applying at centralaz.edu/applynow. Admitted students who have not registered for classes for one or more semesters may be in withdrawn status. These students should contact Admissions and Registration and request reinstatement. A balance due the college must be cleared by the Student Accounts Office in order to register.

Registration is regarded as a commitment by the student to comply with all regulations of the College. Students may register either in-person or via online services. Any previous debt owed to the college must be cleared by the Student Accounts Office before students can register for classes. Photo identification is required for all transactions.

Tuition and fees are due at the time of registration: centralaz.edu/paying. Payment in full or an arrangement for payment of tuition and fees must be made at the time of registration. Payment arrangements may include a completed financial aid file, signing up for the college's student payment plan, submitting a third-party authorization, or an out-of-pocket payment that covers all tuition and fees. Failure to make payment arrangements may result in loss of registration.

Processes for registration for students using Department of Veterans Affairs (VA) benefits may differ. Please see the School Certifying Official (SCO) for information.

Registration dates are listed in the Academic Calendar on the website.

Multiple Measure Placement Tools

CAC uses two guided placement tools for students to determine which English/Reading and Math courses are best for them.

The English/Reading and Math placement tools use multiple measures (factors) to help with suggested course placements. These measures typically include:

- High School G.P.A. (within 3 years)
- Self-reported standardized Test Scores listed below (In some instances, students may need to provide those results to their Enrollment Advisor.)
    - GED (General Education Development) certificate
    - AZ Merit score
    - Accuplacer Next Gen score
    - SAT (spring 2016 or later) score / ACT score
    - Advanced Placement (AP) score
    - College Level Examination Program (CLEP) score
    - Cambridge International Exam score
    - International Baccalaureate (IB) score

Students will be able to view their suggested course placements upon completion of the Placement Tools on the last screen. Students should bring the recommendations with them when meeting with an Academic Advisor. Students may need to enroll in Foundational level courses to help gain the academic skills necessary for success at the college level.

The English/Reading and Math Placements should be completed by students new to the college or by students before:

- Registering for English, mathematics, or reading classes
- Registering for courses with an English, mathematics, or reading prerequisite
- Seeing an Enrollment Advisor for the first time

The English/Reading and Math Placements are self-administered through the CAC Website:

- English/Reading Placement Tool
- Mathematics Placement Tool

For guidance in appropriate math course placement, please use the Math Placement Guide for Students and Advisors.

Students with College Level Credits

Students who have earned 9 or more academic credit hours from a regionally accredited college or university may be exempt from the reading placement tool. The credit hours must be transferable (see Transfer of Credits section in catalog) and earned in courses that require college-level reading and writing activities as part of their core curriculum. Scores on certain placement assessments, administered at institutions other than CAC, are acceptable.

Reading Proficiency Requirement

Reading is a prerequisite or co-requisite for many courses and programs. Reading proficiency can be demonstrated by:

- High School Cumulative Grade Point Average of 3.0 (within 3 years or currently in high school)

- Testing as “college ready” using the English/Reading Course Placement Tool
- Transferring 9 or more academic credit hours from another college or university as described above.
- Achieving a minimum score of 18 on the Reading portion of the ACT or a minimum score of 480 on the Evidence-Based Reading & Writing portion of the SAT (taken March 2016 or later).

Academic Advising

Students are encouraged to participate actively in their learning experience by meeting regularly with a member of the advising team. Advisors, faculty, and staff are available to work with students in many capacities; they can help students become acquainted with the college and provide information and referrals. Advising is a developmental process that offers students the opportunity to understand the nature and purpose of higher education and to plan courses and activities that support their career objectives. Advisors offer personal and academic support, refer students to valuable campus resources, and assist students in developing a sense of community and identity with the college

Enrollment Advisors meet with students after they’ve completed their admissions application and help them through their first semester. Advisors help students determine an academic plan, register for classes, and provide support with navigating community college during their first semester. Their role is to offer guidance to new students and students who have not declared a specific area of interest. We believe your progress is best supported through a positive, intentional relationship with our Advising team. If you declare a specific area of interest, you will transition to your designated Academic Success Coach after your first semester. The mission of an Academic Success Coach is to ensure your academic and career goals align with your university transfer plan while sustaining ongoing support until degree completion. At heart, we empower you to construct a solid foundation for lifelong success.

Common appointment topics (but not limited to):

- Degree/Certificate (Pathway) selection
- Master Academic Plans (MAP) development based on the selected degree/certificate
- Discuss placement level for English, Reading, and Math
- Unofficial transcript evaluation
- Prerequisite override approval
- Course suggestions and the registration process
- Discuss satisfactory academic progress
- Career discovery: CAC Pipeline & Strong
- University transfer basics
- General paying for college information including the financial aid process and CAC Scholarship information
- Connect to college resources and referrals to department assistance:
    - Admissions & Registration, Financial Aid, Student Accounts, VA Educational Benefits, TRIO, Student Accessibility Services, Academic Assistance, Student Engagement Opportunities

Academic Success Coaches partner with students who have completed their first semester and declared a program in one of the nine Areas of Interest. We work collaboratively with the enrollment advisors and students to design an academic and career plan tailored to the student’s goals. We provide support without judgment and empower students to thrive both inside and outside the classroom.

Common appointment topics (but not limited to):

- Degree/Certificate (Pathway) Course suggestions
- Prerequisite override approval
- Goal setting: academic, career, and personal
- Early intervention, encouragement, and referrals to academic support
- Identify degree completion barriers and create a support plan
- Career dream and design: CAC Pipeline & Strong
- University transfer assistance and planning
- Academic progress status
- Prerequisite override approval
- Connect to college resources and student support

Advising Appointments

Students who plan to transfer to one of Arizona’s three public universities, or any other college or university, should access resources at the CAC Career and Transfer Center. Additional transfer tools for ASU, NAU, and UA can also be found at aztransfer.com

High School Students Attending CAC

Students in High School Programs: Dual Enrollment and Concurrent Enrollment work with their high school guidance counselor and CAC Outreach team. Follow the steps outlined on the High School Programs webpage for admissions and registration. When registering for classes there is an electronic form that will be signed by the student, parent, and high school counselor before being submitted to the Records and Registration department.

Academic Load

College-level classes generally require two to three hours of outside-of-class preparation for each hour spent in class. For example, a three-credit-hour class will usually require 2.5 clock hours of class time and between 5 and 7.5 clock hours of outside-of-class work per week. Students carrying 12 or more credit hours during a spring or fall semester are considered full-time students. During summer sessions, 6 or more credit hours are considered full time. Students may enroll in a maximum of 20 credit hours during a spring or fall semester and 12 credit hours during a summer session. Students who wish to enroll in more than the maximum must obtain approval from an academic dean: Deans/Division Chairs Directory - Central Arizona College.

New Student Orientation

New Student Orientation (NSO) provides new and returning students and their families the opportunity to connect with other students, faculty, and staff. Learn how to access academic resources and successfully navigate through your Central Arizona College experience.

New Student Orientations are provided virtually and in-person. Visit centralaz.edu/orientation for available dates and times. Don't forget to register!

Credit by Evaluation

CAC does not generally evaluate or award credits for non-collegiate training or experience with few exceptions for some industry-recognized trainings in specific programs, such as training programs for first responders. The additional exceptions for credit by evaluation listed below are treated as articulated credit and may be treated differently by another institution should the student transfer.

Credit by Examination

Students currently or previously enrolled at Central Arizona College may earn a maximum of 30 credit hours through credit by examination. Students cannot receive credit by examination for a course that is equivalent to - or a lower level than - a course in which they are currently enrolled or have previously completed. Credit by examination is offered on the principle that students may have previously acquired college level learning in certain areas and that this knowledge may be demonstrated through an examination of course competencies. Instructors are not responsible for helping students develop this knowledge in order to prepare for an examination. Should a student transfer to another institution, credits earned through credit by examination may be treated differently by that institution. Please refer to the AZ Transfer Examination Equivalency Guide (EEG) for credit by exam scores accepted by CAC and their CAC course equivalencies: aztransmac2.asu.edu/cgi-bin/WebObjects/ATASS.woa/wa/ examquery

Central Arizona College Examinations for Credit

With approval, students have the opportunity to earn credit by successfully completing an examination at the beginning of the semester. This option is not available for all courses. Check with the course instructor and division chair as to the availability of credit by exam.

Advanced Placement from High School

These examinations are administered in various high schools and are designed to test competence in specific subject areas at the lower division college level. High school students may request the opportunity to participate in advanced placement examinations through their high school counselor's office. Credit may be earned for successfully completed exams. It is the student's responsibility to submit an official score report. Please refer to the AZ Transfer Examination Equivalency Guide (EEG) for credit by exam scores accepted by CAC and their CAC course equivalencies: aztransmac2.asu.edu/cgi-bin/WebObjects/ATASS.woa/wa/ examquery

College Level Examination Program (CLEP)

CLEP examinations are nationally developed and administered. The examinations provide an opportunity for students to demonstrate college level learning in a variety of subjects. CAC offers general and subject CLEP examinations. CAC will award credit for successfully completed exams upon the receipt of an official score report.

Subject/General CLEP Examinations

These exams cover material typical of college level courses. A listing of available on the CLEP website: clep.collegeboard.org/.

High School Equivalency (HSE)/ GED Preparation & ESL Classes

High School Equivalency Classes

We provide a flexible program that meets the diverse needs of students and advances their goals in transitioning to college classes, passing GED® tests, and improving employment opportunities. The goal of HSE classes (formerly known as GED) is to assist adults in obtaining knowledge and skills necessary for employment, family empowerment and self-sufficiency. The classes include instruction in the five areas tested on the GED® 2014 tests: Reasoning through Language Arts, Mathematical Reasoning, Science, Social Studies and Civics. HSE classes are individualized and include computer-based instruction as well as College and Career Readiness activities and opportunities. The time it takes a student to prepare to take the GED® tests varies and depends on such factors as regular student attendance and skill level in reading, math, and writing upon entry. HSE classes are held at various locations throughout the county, as well as online.

Students who complete 12 or more attendance hours in a CAC HSE class, and who pass all 5 GED® tests are eligible for a 12-credit CAC scholarship to be used in the year after passing the test.

Contact adult.education@centralaz.edu for more information.

We are more than a GED program; we are a path to your future: centralaz.edu/ged

GED® Tests

GED® tests are proctored at select Central Arizona College campuses and cost $173 to take all five subjects, including the $9 fee for the Civics Test (required as of January 1, 2017). Scheduling and payment of fees is done through the website GED.com.

ESL– English as a Second Language

We provide a flexible program that meets the diverse needs of students and advances their goals in transitioning to college classes, enriching English language skills, and improving employment opportunities. The goal of these classes is to assist adults in obtaining knowledge and skills necessary for employment, family empowerment and self-sufficiency.

ESL classes are individualized and include computer-based instruction. The program also includes a career component to assist students with their next steps. Learners are assessed upon entry to determine English skill levels and placed in the appropriate learning level. Learners progress at their own pace and may repeat the course to continue in the next level as they move toward completion of all six ESL levels.

ESL classes are held at various locations throughout the county, as well as online.

Contact adult.education@centralaz.edu for more information.

We are more than an ESL program; we are a path to your future: centralaz.edu/esl

Schedule Changes (Adding and Dropping Class)

Changes may be made to a current student's schedule before or during the first week of classes for semester-length classes. Please see Tuition Refunds for refund information.

Adding Classes

Classes may be added prior to their start dates or during the Add period. Classes should be added using the student portal. Alternatively, classes can be added using the online Registration/Add/Drop Transaction Request form. Adding a class initiates a tuition charge to a student's account. Add deadlines are listed in the Academic Calendar on the website.

Dropping Classes

"Unregister," "drop," and "withdraw" are transactions that end registration in a class. An unregistration occurs prior to, or shortly after, the start of a class. The class is deleted entirely from the student's record and the tuition charge is reversed. The deadline to unregister varies according to the number of weeks that the class meets. Drops are allowed after the unregistration period but before the end of a class. The class remains on the student's record with a grade of "W" recorded. The "W" grade has no effect on GPA but can affect eligibility for financial aid. Tuition is not reversed and remains the student's responsibility. Unregistration and drop deadlines are listed in the Academic Calendar. Unregistrations and drops may be initiated by students before the deadlines regardless of reason and do not require advisor or instructor approval. Students can request unregistrations and drops in the student portal. Alternatively, requests can be made using the online Registration/Add/Drop Transaction Request form.

Nonattendance and Nonparticipation

Federal regulations require the Financial Aid Office to base awards on enrollment and attendance/participation in classes. Students who do not attend/participate in classes will be administratively unregistered (commonly referred to as a "no show"). Students should read the syllabus for each course to learn how attendance/participation is measured (e.g., discussion board postings, physical presence, turning in first assignment on time, etc.).

Withdrawing from Classes/College

Students can request an official withdrawal based on the academic calendar indicated in each course syllabus. During this period a student may withdraw regardless of reason and must initiate and complete the withdrawal request through the registration office. Instructor permission is not needed. When a student withdraws from a class, the class remains on a transcript with a W and the student is financially responsible for the class. A withdrawal does not count toward GPA, but does impact completion rate, which may impact financial aid. After the official withdrawal period as indicated in the course syllabus, if there are extenuating circumstances, a student can request an official withdrawal. Students wishing to submit a withdrawal request after the allotted time period should complete and submit the Registration Appeal Request Form to registration.appeal@centralaz.edu.

Medical Withdrawal

If a student requests a medical withdrawal, it will follow the same procedure as above in the section, "Withdrawing from Classes/College."

Academic Withdrawal

The college reserves the right to withdraw students from classes at any time during the semester.

Federal Financial Aid Recipients Who Totally Withdraw from Classes

The financial aid office will perform a Return to Title IV Calculation (R2T4) to determine the amount of aid required to be refunded to the federal financial aid program(s). If a grant overpayment is due from the student; the student will be notified by mail and/or email. The student may pay the grant overpayment directly to the school during the same academic year. At the end of the academic year, any uncollected overpayments will be turned over to the Department of Education for collections.

Tuition Refunds

Regular Semester-Length Classes

100% of tuition fees will be refunded for a regular semester-length class if the official withdrawal is made prior to the final date of the Drop/Add period (please refer to the academic calendar for specific dates). There are no refunds for classes dropped after the official drop/add period ends.

Short-Term Classes

Any student officially withdrawing before end of the drop/add period will be entitled to a 100% refund. There are no refunds for short-term classes dropped after the drop/add period.

Students withdrawing during the official withdrawal period for medical reasons or any extenuating circumstance can submit a Registration Appeal accompanied by adequate supporting documentation to registration.appeal@centralaz.edu or visit centralaz.edu/current-students/student-support/student-forms-2/ for additional options. All refunds and deposits that may be due to a student will be first applied to any outstanding debts owed the college. Visit centralaz.edu/admissions/paying-for-college for more information.

Auditing

Students may register to audit classes by indicating on the registration form that the course is to be audited. Auditing students register and pay tuition and fees in the same manner as students registering in courses for credit. No changes in student status from credit to audit or vice versa will be permitted after the end of the official class add/drop date. Students do not receive credit in courses for which they enroll as audit. Audit (AU) grades do not count in the grade point average calculation.

Repetition of Courses

Students may repeat courses in order to improve their grades or to update their knowledge of the course material. Unless the course is identified in the College Catalog course description as being repeatable for credit, (such as some physical education, music, or other activity courses) the course only may be counted once for graduation. When other courses are repeated, or when a repeatable course is taken beyond the number of allowable repeats, credits for those courses will not be applied toward degree or certificate requirements and may not be funded through financial aid. All grades earned will be posted to students' transcripts: however, only the highest grade will be calculated in the grade point average. If the student earns the same grade when repeating the course, only the most current grade will be included in the grade point average. Students should review academic transcripts for including/excluding of repeated courses.

University Department Time Limit for Coursework

In areas of study in which the subject matter changes rapidly, material in courses taken long before graduation may become obsolete or irrelevant. Please check with your transfer university/college to see what their policy is regarding the transfer of courses to the university/college and specific majors/programs at that university/college.

Academic Honors Recognition

Dean's and Honors List

Students will be placed on the Dean's list with a 3.5 semester GPA or above. Students will be placed on the Honors List with a semester GPA of 3.0-3.49. Both lists require:

- Completion of 12 or more credits or;
- Completing 12 credits and enrolled in at least 6 credit hours each term.

Graduation with Honors

Students awarded an associate degree with a cumulative GPA of 3.5 or above will be awarded the distinction of "Graduating with Honors."

Phi Theta Kappa

Phi Theta Kappa, the international honor society for community college students, is open to students who have a grade point average of 3.5 or better and have completed 12 college-level credit hours at CAC. Through this organization, students have an opportunity to develop leadership skills and to perform service to the college, campus and community. A PTK seal will be posted to the diploma/ certificate. Visit centralaz.edu/honors for more information.

Honors Program

The Honors Program is available for academically exceptional students. It encourages students to question, research, discover and debate ideas in various curricular areas. The scholarly inquiry in this program will provide a strong base for a lifelong quest for knowledge and excellence. For more information about Honors, please visit centralaz.edu/honors.



All-AZ group 2025

Bookstore

Signal Peak and Superstition Mountain campuses provide full-service bookstores to accommodate students with textbooks, supplies, clothing, and snacks. Extended hours are available the week prior to and week of semester start. Regular bookstore hours vary by location. Please contact your campus location for more information or visit centralaz.bncollege.com.

Course Material Pickup- San Tan and Maricopa Campuses

Course materials may be delivered to the Maricopa and San Tan Campus Libraries for pickup by selecting the appropriate student pickup location when ordering course materials. Students will receive an official email from the bookstore with detailed information regarding the pickup date and time once materials are available. Students should monitor the email address provided to the bookstore for updates and instructions.

Bookstore Rental Policy

Rented materials must be returned to the bookstore from which they were originally rented by the rental return date designated by the bookstore at the time of rental and in salable condition. Rented materials not returned by the rental return date or returned on or before that date not in salable condition will be subject to non-return processing fees equal to 75% of the new book price (at the time of rental) plus a 7.5% non-return processing fee.

Bookstore Refund Policy

A full refund will be provided in the original form of payment if textbooks are returned during the first week of classes with the original receipt. With proof of a schedule change and the original receipt, a full refund will be provided in the original form of payment during the first 30 days of classes. No refunds will be provided for unwrapped loose-leaf books, shrink wrapped books, access codes, or activated eBooks. Textbooks must be in original condition. No refunds or exchanges are permitted without the original receipt. For more information visit Contact Us | Central Arizona College Official Bookstore: centralaz.bncollege.com/customer-service.

Application for Graduation

Students applying for graduation must file an Application for Graduation with the Records office by emailing grad.application@centralaz.edu.

Please see the official Academic Calendar for application deadlines. Graduation cycles are May, August, and December of each year.

To ensure that students satisfy their graduation requirements, it is recommended that students file their application one semester prior to the start of their final semester. Visit centralaz.edu/graduation.

Students may request a duplicate diploma and/or certificate for a duplication charge. The diploma and/or certificate will be stamped 'Duplicate'. Please see Tuition & Fee schedule for appropriate fee. Students who borrowed a student loan while attending CAC, must complete an Exit Counseling session to prepare for loan repayment. Please contact the Financial Aid Office at finaid@centralaz.edu for additional information.

Application for Graduation

Catalog Under Which a Student Graduates

Students maintaining continuous enrollment at any public Arizona community college or university may graduate according to the requirements of the catalog in effect at the time of initial enrollment or according to the requirements of any single catalog in effect during subsequent terms of continuous enrollment. Students may maintain continuous enrollment whether attending a single public community college or university in Arizona or transferring among public institutions in Arizona while pursuing their degrees.

- A semester in which a student earns course credit will be counted toward continuous enrollment. Non-credit courses, audited courses, failed courses, or courses from which the student withdraws do not count toward the determination of continuous enrollment for catalog purposes.
- Students who do not meet the minimum enrollment standard stipulated above during three consecutive semesters (fall/ spring), and the intervening summer term at any public Arizona community college or university, are no longer considered continuously enrolled. They must meet requirements of the public Arizona community college or university catalog in effect at the time they are readmitted or of any single catalog in effect during subsequent terms of continuous enrollment after readmission.
- Students are not obligated to enroll and earn course credit during summer terms, but summer enrollment may be used to maintain continuous enrollment status.
- Students admitted or readmitted to a public Arizona community college or university during a summer term must follow the requirements of the catalog in effect the following fall semester or of any single catalog in effect during subsequent terms of continuous enrollment.
- Students transferring between Arizona public higher education institutions must meet the admission requirements, residency requirements, and all curricular and academic requirements of the degree-granting institution.

Application for Graduation

Conferring a Second Degree

Students who complete an Associate in Arts, Associate in Applied Science, Associate in Business, Associate in Science, or Associate in General Studies degree program at Central Arizona College may earn a second degree. Students who wish to obtain an additional degree must meet the following criteria:

- Students must have completed the requirements for an associate degree.
- Students must meet all the requirements of the second degree as outlined in the catalog in effect at the time of initial enrollment in the second degree program.
- Student must apply through the normal graduation application process.
- The Associate of General Studies will not be awarded as a second degree.

Arizona Transfer Information

Please work with an Academic Success Coach to discuss various transfer program options. There are a variety of Transfer Tools that can assist you in university on the Transfer from CAC to University webpage

Completion of an associate degree does not necessarily guarantee admission to a particular university's program of study. Students planning to earn a four-year baccalaureate degree should go to the Arizona Transfer website (aztransfer.com/) for detailed information on the Arizona Transfer Model and options.

The Arizona public and tribal universities and community colleges collaboratively determine transfer articulation policies and procedures to help students easily transfer community college credits to the universities. These "transfer articulation agreements" apply to all Arizona public and tribal community colleges and universities.

In addition, CAC Articulation Agreements with select four-year colleges/universities provide a wide array of opportunities to students graduating with an associate's degree. Students are strongly encouraged to discuss Transfer/Articulation Agreement Options with their academic success coach during their first year. Some options require students to sign the agreement and follow a prescribed program course sequencing guide. Contact a CAC academic success coach for assistance and to review other special transfer agreement options and scholarship opportunities.

Use the following Arizona Transfer Resources-

- Arizona Transfer (AZTransfer) - aztransfer.com
- Course Equivalency Guide (CEG): https://aztransmac2.asu.edu/cgibin/WebObjects/CEG, and the Reverse CEG (university to college transfer) located at the lower left of the CEG website. Both provide specific course transfer information based on academic year.

To determine Credit by Examination equivalencies for Advanced Placement (AP), College Level Examination Program (CLEP), International Baccalaureate Diploma Program (IB) and DANTES/DSST exams, see the Exam Equivalency Guide (EEG): https://aztransmac2.asu.edu/cgi-bin/WebObjects/ATASS.woa/wa/examquery

Arizona Transfer Information

Articulation and Transfer Options for Degree Completers

Please feel free to use the Transfer Tools found on the Transfer from CAC to University webpage.
CAC Academic Success Coaches are available to assist you regarding your CAC degree and your transfer related questions.

Albright College

1621 N. 13th St., Reading, PA 19604
610-921-2381
albright.edu/

Arizona Christian University

2625 E. Cactus Road, Phoenix, AZ 85032
800-247-2697
arizonachristian.edu/

Arizona State University

1151 S. Forest Ave., Tempe, AZ 85287
480-965-2100/855-278-5080
transfer.asu.edu/cac

Benedictine University

225 E. Main Street, Mesa, AZ 85201
602-888-5500/866-295-3104
ben.edu/mesa

Chamberlain College of Nursing

2149 W. Dunlap Avenue, Phoenix, AZ 85021
602-331-2720
chamberlain.edu/phoenix

College of St. Scholastica (Health Information Management)

http://www.css.edu/

Frontier Nursing University

195 School Street, Hyden, Kentucky 41749
606-672-2312
frontier.edu/

Grand Canyon University

3300 W. Camelback Road, Phoenix, AZ 85017
602-639-7500
gcu.edu/

National University

8667 East Hartford Drive, Suite 100, Scottsdale, AZ 85255
866-776-0331
ncu.edu/community-colleges

Northern Arizona University

Signal Peak Campus
8470 N. Overfield Road, Coolidge, AZ 85128
520-421-1394
jackspath.nau.edu/join2nau

NAU has a variety of 90/30 Programs: NAU offers a 90/30 bachelor's degree program where students can transfer up to 90 lower-division credits and then complete 30 upper-division credits through NAU to earn a bachelor's degree. Here is a current list of NAU 90/30 programs.

Ottawa University

15950 N. Civic Center Plaza, Surprise, AZ 85374
855-546-1342
ottawa.edu/

Palmer College of Chiropractic

1000 Brady Street, Davenport, IA 52803
800-722-2586
palmer.edu/

Prescott College

220 Grove Avenue, Prescott, AZ 86301
877-350-2100
prescott.edu/

Southern New Hampshire University

2500 North River Road, Manchester, NH 03106
https://www.snhu.edu/

University of Arizona

University of Arizona-Pinal
8470 N. Overfield Road, M Bldg. Coolidge, AZ 85128
520-840-4878
arizona.edu/admissions/transfer

University of Arizona-Global Campus

180 S. Arizona Avenue, Suite #301
Chandler, AZ 85225
866-711-170000-888-8682
uagc.edu

University of Maryland-Global Campus

3501 University Blvd. East, Adelphi, MD 20783
800-888-8682
umgc.edu

University of Phoenix

1625 W. Fountainhead Parkway, Tempe, AZ 85282
888-766-0766
phoenix.edu/

Career Exploration

Explore career resources at centralaz.edu/career.

University Transfer Exploration

Explore the process of transferring to a four-year college or university. University transfer information, including transfer events, checklists, contacts, and more are available at centralaz.edu/transfer.

Arizona General Education Curriculum (AGEC)

The AGEC fulfills lower-division general education requirements for students planning to transfer to an Arizona public university or community college. The AGEC transfers as a block of 32-35 credits which meet the target institution's general education requirements provided students earn a minimum degree program grade point average (CGPA) of 2.0 on a 4.0 scale.

For assured admission to the Arizona public universities, AGEC completers are required to earn a minimum GPA of 2.5 in all AGEC courses and a degree program grade point average of 2.0. For assured admission to the universities, Associate degree completers are required to earn a minimum GPA of 2.0. Students are strongly encouraged to consult with both a CAC academic success coach and the target university's admissions advisor.

2026-2027 AGEC Course List

Arizona Shared Unique Numbering (SUN) System

Arizona community college students planning to transfer to Arizona State University (ASU), Northern Arizona University (NAU) or the University of Arizona (UArizona) may use the SUN System to identify transferable courses. Because each student has a unique academic plan, students are strongly encouraged to seek academic advising prior to enrollment.

The Shared Unique Number (SUN) course numbering system identifies more than 50 CAC courses that transfer among Arizona's public community colleges and three state public universities.

SUN courses are identified by a three-letter prefix, four-digit course number and a SUN icon. SUN courses are labeled in university and community college catalogs, schedules and websites, making it easy for students to find transferable courses. In the CAC Catalog, students and others will also find the AGEC icon next to many SUN courses.

SUN courses are a subset of the multitude of college courses that transfer among Arizona's colleges and universities. CAC accepts all SUN courses and applies them toward meeting CAC program requirements, provided the student earned a grade of "C" or better in each course. For more information about the Arizona SUN System go to aztransfer.com/sun/.

Financial Aid

Central Arizona College offers a variety of financial aid and scholarship programs to assist students in meeting their educational financial obligations. Details about federal and state aid, and CAC Institutional and Foundation Scholarship programs can be found on the web at centralaz.edu/finaid.

The following is a description of the federal financial aid programs and the institutional programs provided by CAC.

Ways to Classify Different Types of Financial Aid

Financial Aid you don't have to repay (unless, for example, you withdraw from school or owe an overpayment):

- Federal and State Grants
- CAC Institutional/ Foundation Scholarships
- Private and Corporate Scholarships
- Student Employment
- Native American Tribal Grants
- Veteran's Education Benefits

Financial Aid you do repay:

- Federal Direct Stafford Subsidized and Unsubsidized Student Loan
- Federal Direct Parent PLUS Loan for Undergraduate Students
- Interest-free Online Payment Plan
- Private/Alternative Student Loans

Financial Aid Contact Information

Central Arizona College Financial Aid Office, Signal Peak Campus-M Bldg.
8470 N. Overfield Road
Coolidge, AZ 85128

- Phone: (520)494-5425 or (520)494-5111
- Fax: (520)494-5091
- E-Mail: finaid@centralaz.edu
- Website: centralaz.edu/finaid
- In-person assistance is available at all campuses.

More Information on Federal Financial Aid Programs

Federal Student Aid Information Center

- 1-800-4-FED-AID (1-800-433-3243)
- TDD Number 1-800-730-8913

Information Available Online

For more information on federal financial aid programs:

- fafsa.gov/ - FAFSA on the Web
- finaid.org/ - The Financial Aid Information Page
- studentaid.gov/ - Federal Student Aid for students

Financial Aid

Federal Financial Aid Programs

The federal government places the primary responsibility of educational costs on the student and the student's family. The student and the student's family are expected to contribute financially toward the student's cost of attendance. The federal government offers grants, student employment, and loan programs to assist students in meeting their educational costs. Please visit centralaz.edu/finaid for more information.

General Eligibility Requirements for Federal Financial Aid Programs

- Be a degree seeking student in an Associate degree program or an eligible certificate program
- Have a high school diploma, General Education Development (GED) Certificate, or have completed a secondary school education in a home school setting as defined under State law
- Be admitted to the college as a "regular" student (see admission information)
- Be a U.S. citizen or eligible non-citizen and have a valid social security number
- Make and maintain satisfactory academic progress for financial aid purposes
- Be enrolled in courses required for student's declared degree or certificate program
- Not be in default on a federal student loan or not owe a repayment or overpayment to a federal grant program

- Not have been convicted for sale or possession of illegal drugs while receiving Title IV Funds
- Developmental education courses may effect financial aid eligibility

How to Apply for Federal Financial Aid

The college uses the Free Application for Federal Student Aid (FAFSA) as its application for federal financial aid programs.

The Process

- Apply for a FSA ID at: https://studentaid.gov/fsa-id/create-account/launch
- Complete and submit the FAFSA each academic year (to the Department of Education). It's available online at fafsa.gov. Be sure to include the CAC School Code: 007283.
- Check your CAC student email frequently. You will be notified by email when we receive your FAFSA results instructing you to check your eligibility requirements by logging into the CAC website, clicking on My CAC, Student Portal, and My Financial Aid. Respond to any requested information as soon as possible.
- Once your file is completed and eligibility is determined, awards will be outlined in your student portal.
- The award amount is applied to any outstanding funds you may still owe the college after the drop/add period. You may then receive a stipend for any remaining credit balance. Stipends are issued by the Cashiers/Student Accounts Office.

Academic Progress

Satisfactory Academic Progress (SAP) for Federal Financial Aid Recipients

Federal regulations require that financial aid students maintain Satisfactory Academic Progress (SAP) toward an eligible degree or certificate program. SAP is reviewed at the end of each semester to determine financial aid eligibility for the upcoming semester. SAP is evaluated on a student's entire academic history within the active program of study regardless of whether financial aid was received. For more information, please visit the section titled 'Satisfactory Academic Progress for Federal Student Aid' on the Financial Aid web page at centralaz.edu/finaid.

Standards of Satisfactory Academic Progress

At the end of each semester, the academic records of all financial aid recipients are reviewed for cumulative GPA, credit hours completed per semester and total hours/semesters completed.

Qualitative Measure

- Students must maintain at least a 2.0 program grade point average (GPA).

Incremental Assessment

- Earned credit hours must be at least 67 percent of attempted credit hours each semester to be considered satisfactory.

Quantitative Measure

- Maximum Time Frame – Attempted credit hours may not exceed 150 percent of the published program of study (major). All credit hours attempted are considered when determining financial aid eligibility, whether or not financial aid was received. Hours for repeated courses are always counted in the 150% rule. Regardless of the college/university where hours were attempted, Central Arizona College's Satisfactory Academic Progress policy will apply.
- To determine the maximum allowable hours for a specific program of study (major), refer to the degrees and certificates section of the College Catalog, note the total hours required for the program and multiply the figure by 1.5.

Determining Satisfactory Academic Progress

- At the end of each semester, the academic records of all federal aid recipients are reviewed for cumulative GPA, credit hours completed per semester, and total credit hours/semesters completed.
- Students are then placed on Satisfactory, FA Warning, or FA Suspension status based on the results from above.
    - All new and first time students to CAC are placed on satisfactory status.
    - Students that are deficient in any of the standards of measurement are placed on FA Warning status for one semester.
    - Students that do not meet SAP standards after the FA Warning semester are placed on suspension.
- Students on FA Suspension must fund their education using their own resources, without the assistance of federal financial aid or VA Education Benefits and some scholarship programs. Students who have been suspended are encouraged to meet with an advisor to be assigned to an academic plan to reinstate eligibility for aid. Students who become ineligible for federal financial aid by failing to meet the requirements of the satisfactory progress policy may appeal such a determination based on mitigating circumstances.

Appealing a Decision

If a determination is made that a student is not making satisfactory academic progress and on FA Suspension status, a student may appeal that decision based on mitigating circumstances that prevented from meeting SAP requirements. Procedures and forms for the appeal process are available online at centralaz.edu/finaid or by contacting the Financial Aid Office.

Resolving Financial Suspension

Students who do not appeal or whose appeal was denied may resolve their financial aid suspension on their own financial resources by meeting with an academic advisor to create an academic plan aiming to regain financial aid eligibility by restoring minimum SAP standards.

CAC Scholarship Opportunities

Central Arizona College offers a wide variety of scholarship programs to recognize students for their academic performance as well as for participation in athletics and other activities. A student may receive one or more of the following types of scholarships, not to exceed the cost of in-state tuition, registration and fees. To receive a scholarship, the student must meet the following conditions:

- Must be pursuing a degree or certificate;
- Must complete the Free Application for Federal Student Aid (FAFSA) at fafsa.gov.

All scholarships must be coordinated with federal financial aid, and the total of all awards may not exceed the student's need as determined by the Financial Aid Office. All scholarships have minimum academic progress requirements. Students may not appeal these requirements.

The Financial Aid Office has information and applications for institutional scholarship programs as well as other non-institutional programs. Interested students should visit the Financial Aid website at centralaz.edu/finaid for scholarship details and application process.

CAC Foundation Scholarships

The Central Arizona College Foundation serves and supports the college as a two-year institution of higher education with the primary role of providing student scholarships. The Foundation receives donations from individuals, organizations, corporations and foundations to fund these scholarships.

The purpose of Central Arizona College Foundation Scholarships is to assist students enrolled at Central Arizona College in achieving their educational goals. To receive a Central Arizona College Foundation Scholarship, the student must meet the following minimum qualifications:

- Pursue a degree or certificate;
- Coordinate with federal financial aid. The total of all awards may not exceed the student's need as determined by the Financial Aid Office;
- Enroll in a minimum of 6 credits per semester;
- Earn and maintain a 2.5 cumulative grade point average;
- Meet all other specific criteria as identified by each foundation scholarship.

Interested students should visit the financial aid website at centralaz.edu/finaid for scholarship details and application process.

Pinal Promise (formerly known as Promise for the Future) is an educational initiative launched in 2001 by a caring community that believed college should be a reality for every Pinal County student. This program was developed to encourage young people to stay in high school, graduate, and move on to a college or university. More than a twenty years later, the Promise continues with the original partnership of CAC Foundation, Central Arizona College, and Pinal County School Districts with a new focus on ease of access and equity for all Pinal County students.

Eligible students must:

- Reside and graduate from a Pinal County high school (online high schools must have a physical presence in Pinal County).
- Participate in 20 hours of community service that can be completed in high school or while attending CAC.

Eligible students receive two years of in-state tuition or four consecutive semesters (fall/spring + fall/spring). Pinal Promise provides funding for any tuition need that has not been met. This means that Pinal Promise funds will be applied after all other Financial Aid has been applied to the student's account (this excludes student loans).

- Begin the following semester after high school graduation;
- Complete the FAFSA (Free Application for Federal Student Aid);
- Upon high school graduation complete and submit the online CAC Scholarship application and in the application attach an unofficial high school transcript with graduation date;
- Enroll and Attend a minimum of 12 credit hours but no more than 20 credit hours per semester
- Pursue a CAC degree or certificate program

Visit the Pinal Promise webpage to view additional Pinal Promise guidelines and complete the CAC Scholarship application.

Payment Options

Central Arizona College accepts cash, check, credit or debit card (Visa, MasterCard, Discover, American Express) as forms of payment. Student payment plans are also available each semester with up to four monthly installments. Payments toward a payment plan are not automatically deducted and students must submit a payment each month using the payment link in the student portal. A $35 nonrefundable fee is required and must be paid every semester the student is enrolled. Student payment plans can be set-up online through the student portal. To pay online with a credit or debit card, visit the student portal. You may also visit your nearest CAC Student Accounts Office at any of the 5 campus locations, call (520) 494-5240 or email Student.Accounts@centralaz.edu for payment assistance. For more information visit centralaz.edu/admissions/paying-for-college.

Students can mail checks to the District Office at

Central Arizona College
ATTN: Student Accounts
8470 North Overfield Road
Coolidge, AZ 85128
**Please be sure to include your student ID number with your payment.*

TRIO Student Support Services

To apply to the TRIO SSS program visit the TRIO webpage at centralaz.edu/trio or call (520) 494-5007. TRIO SSS is on Facebook: trio cac and Instagram: cac_*sss*_trio.

The TRIO SSS program is funded through a grant from the U.S. Department of Education.

Payout of Financial Aid

A student's financial aid award is based on the number of credits in which the student is enrolled that apply toward a declared degree or certificate program. Financial aid awards are adjusted based on the student's enrollment status as determined after the Drop/Add period, or in the case of late awards, at the time the award is approved.

Each student must be meeting all of the eligibility requirements at the time payment is issued. Financial aid awards are disbursed after the Drop/Add period. For more information, please see the CAC Financial Aid webpage at centralaz.edu/admissions/paying-for-college.

Withdrawal/Repayment Guidelines for Federal Financial Aid Recipients

Central Arizona College is required to follow specific guidelines as directed by the U.S. Department of Education for students who withdraw from ALL courses. The guidelines are used to calculate the amount of federal aid that will be returned to the various financial aid programs.

When a student is dropped from class due to "No Show", awards are recalculated based on the adjusted enrollment status and Cost of Attendance (COA). This may result in the student having to repay funds already received through a stipend.

When a student withdraws from ALL courses, a return to Title IV calculation (R2T4) is completed to determine the amount of aid that has been earned, and any unearned aid will be required to be paid back. Please note that this repayment calculation will be determined for student who follow official withdrawal procedures as well as for student who stop attending classes. Any loan a student received will enter the grace period (as provided by the terms of that loan) and Central Arizona College will notify the lender(s) of the current enrollment status through the National Student Clearinghouse.

It is important to understand that the institutional tuition/fee refund schedule is different than the calculation for returning federal student aid funds to the federal government. Each one is a separate calculation and they do not directly complement each other. Contact the Financial Aid Office for details on CAC's refund schedule and how the return of federal student aid is calculated. More information can be found on the CAC Financial Aid webpage at centralaz.edu/admissions/paying-for-college.

Student Employment Opportunities

CAC offers student employment opportunities to students as they pursue future college and career aspirations. Visit the Student Employment Services web page at schooljobs.com/careers/centralaz/transferjobs.

Should you require more information or assistance, please email studentjobs@centralaz.edu.

Employment Eligibility Requirements

There are three employment options available for students. Each employment option has different eligibility requirements. All students are encouraged to complete the Free Application for Federal Student Aid (FAFSA) prior to seeking employment for an on-campus position.

College Federal Work Study Program

The Federal Work-Study Program is a federally funded program designed for students who have demonstrated financial need using the Free Application for Federal Assistance Aid (FAFSA). Students who are employed under this program must meet the additional eligibility requirements:

- Must be enrolled in an eligible program of study.
- Must maintain Satisfactory Academic Progress. More information is available under the Financial Aid section.
- Students must be enrolled in at least six (6) credits to qualify.

College Funded Student Employee

All students can apply for this type of employment option. Students are employed part-time by the department or division within the college and do not have to show financial need. The student should meet the same eligibility requirements as a Federal Work Study student employee.

Off-Campus Employment

There are no enrollment requirements for positions that are located off campus. This option is available for students seeking employment options that are not available on campus. Various external employers post available positions on the web-based job board, CAC Pipeline (cac.pipelineaz.com/) and students may apply for positions at their discretion. Off-campus job wages may be higher than on-campus positions.

Tuition & Fees

Please see the 2026-2027 Tuition Schedule, Additional Course Fees, and the Special Fee Schedules at:https://centralaz.edu/admissions/paying-for-college/#cost-of-college. Special Fees will include items such as Residence Hall Fees, HESI Exam fees, ID replacement fees, etc. Scroll down to the "Cost of College" tab to find the pdfs.

Academic Integrity

Central Arizona College recognizes the seriousness of plagiarism as an ethical issue. Blatant plagiarism results from dishonesty and/or infringement upon the rights of published authors. The first type of plagiarism is turning in writing that is falsely represented as one's own, including (but not limited to) a roommate or spouse's writing, or any other known individual, essays bought from the Internet, and passages copied from a research source such as a book, magazine, or website, without proper citation. Allowing another student to copy one's work is a second type of plagiarism. Students also are expected to avoid subtle plagiarism, which includes (1) turning in writing that uses paraphrased information from a source but fails to credit the source and (2) allowing someone else to make significant revision or editing changes to a student's own writing. Penalties for plagiarism, according to Violations of Code of Conduct, can be severe, including failure of an assignment and failure of a course at discretion of instructor. The underlying message of the Central Arizona College plagiarism policy is that instructors are committed to encouraging writers to develop the confidence to express themselves in their own unique ways.

SARA Complaint Process

For online students living outside Arizona, non-instructional complaints may be submitted at https://cm.maxient.com/reportingform.php?CentralAZCollege&layout_id=60.

Students may appeal SARA related complaints to the Arizona Community College Coordinating Council (AC4) at https://arizonacommunitycolleges.org/az-sara/.

Students who have completed the institution's grievance process and the applicable state grievance process, may appeal complaints to the AZ SARA Council at: https://azsara.arizona.edu/complaints. Complaints must be submitted within two years of the incident. Complaints regarding student grades or student conduct violations may NOT be appealed to the AZ SARA Council.

For additional information on the complaint process visit the AZ SARA Complaint Page at: https://azsara.arizona.edu/complaints

Family Educational Rights & Privacy Act (FERPA)

The Family Educational Rights and Privacy Act of 1974 (FERPA) regulates access to and release of educational records. Generally, the Act defines "education record" as personally identifiable information which applies directly to a student that is maintained by CAC. Some education records, such as student name, residence address, email address, telephone number, program of study, classification (freshman or sophomore), status (full- or part-time), participation in officially recognized activities and sports, degrees and awards received, and previous institutions attended by the student, are considered "directory information."

Students are entitled to access both types of their education records: nondirectory information (e.g., class schedules, grades) and directory information. Third parties, however, may not access nondirectory information without the student's prior written consent.

With respect to directory information, the Act allows the college to elect (1) not to disclose directory information of any student to third parties or (2) to disclose directory information to third parties unless the student has requested that it not be disclosed (opted out). CAC policy is not to disclose directory information to third parties other than the Department of Defense (see below).

Student may wish to allow third parties to access their education records. For example, a student may permit a parent to see class registration and grades. Students may consent for education records to be released to third parties using the "My FERPA" tab in the student portal. The consent must be renewed each year.

Effective March 19, 1997, colleges are required to provide directory information to the Department of Defense. Students may request in writing that this information not be released by contacting the Admissions and Registration office.

Student Records

Student records are maintained within the Admissions and Records Office. For additional information, please contact admissions@centralaz.edu.

Disclosure of Consumer Information

Student Right to Know Act (SRTK) , 34 C.F.R. 668, requires that institutions receiving Title IV funding disclose certain information to current and potential students and employees. It refers to a set of public disclosure documents that are designed to inform students and other stakeholders about aspects of the college including graduation and transfer rates, financial aid policies and information, costs of attendance, programs of study, policies, and contact information.

The Higher Education Opportunity Act requires colleges participating in federal student aid programs to make this information easily accessible for consumers at a single location. Please access the following links to read more about subjects that may be of interest: centralaz.edu/srtk.

Attendance Requirements:

Central Arizona College students are expected to attend all class meetings for courses with a scheduled component (face-to-face classes, and live streamed classes taught in real time). Students are also expected to participate in all class meetings and assignments in classes taught in other modalities.

Courses may be recorded. It is a student's responsibility to notify the course instructor if they do not wish to be recorded.

Non-Credit Classes

Attendance requirements in non-credit classes may be established by the instructor. These requirements will not be more stringent than those adopted for credit granting classes.

Absence Policies:

No Show Reporting During Drop/Add Period

Students must participate according to the course syllabus provided by their instructor during the first week of the semester. If a student doesn't participate the instructor is required to unregister the student from class. This ensures CAC is in compliance with federal regulations as the Financial Aid Office must recalculate student eligibility for federal student aid based on a revised enrollment status and Cost of Attendance.

Excused Absences

Absences from class due to authorized participation in College sponsored activities will be considered as excused absences. Absences due to student or family member illness, death of family member, all Active/Reservist service members of the United States Armed Forces, or other extenuating circumstances will be considered for excused absences. There will be no institutionally sanctioned penalty associated with excused absences. Designation of excused absences will be made by the Academic Dean.

The faculty or staff sponsoring an activity requiring students' absence shall provide a written list of students to all faculty at least one (1) week prior to the absence. One list may be distributed to cover absences during an entire semester.

Students who are absent for three or more classes due to a legitimate medical condition or a medical condition directly related to a disability should contact Student Accessibility Services (SAS). Medical leaves of absence and withdrawals are also processed by Student Accessibility Services.

Unexcused Absences

Absences other than excused will be considered unexcused absences. Instructors may recommend to the Division Chair the administrative withdrawal of a student from class for excessive unexcused absences, and no refunds will be authorized. At the time of such recommendation, it is the responsibility of the student to request the withdrawal with the registration office. Students may appeal withdrawals to the Academic Dean.

Make-Up Assignments and Exams

The student is responsible to make up any assignments or exams missed because of an excused absence. Arrangements for make-up assignments or exams must be made with the individual instructor prior to the absence. At the discretion of the instructor, a student may be denied the opportunity to make up assignments or exams missed because of an unexcused absence. Make-up assignments or exams for unexcused absences shall not be punitive in nature.

Punctuality

Students are expected to be prompt in attending each of their classes. Instructors are authorized to take appropriate actions, including recommending administrative withdrawal of a student from class because of excessive student tardiness.

Exception to Policy

An instructor wishing to employ a teaching strategy (such as contract learning) in which the attendance records required above are inappropriate, may propose to the Academic Dean a system which deviates from the above guidelines. If the Dean ascertains that the proposed system adequately monitors student activity and progress or is in compliance with certain professional licensing and/or certification regulations, it may be implemented.

Grading Information

Grades are designed to reflect content mastery and the student's performance in meeting the course objectives.

- A - Excellent Work (4 points)
- B - Good Work (3 points)
- C - Average Work (2 points)
- D - Below Average Work (1 point)
- F - Failing Work (0 points)
- I - Incomplete
- W - Withdrew
- AU - Audit
- CR - Credit (see explanation below)
- NC - No Credit (see explanation below)
- S - Satisfactory (see explanation below)
- U - Unsatisfactory (see explanation below)

Incomplete (I) Grade

Students who, because of circumstances beyond their control, cannot complete a course in the time allotted, may be given an extension and the temporary grade of Incomplete (I) by the instructor 1) at the instructor's discretion or 2) through the request of Student Accessibility Services or 3) through the request of Students Services for students in the Armed Forces.

Generally, an Incomplete is provided when the student has finished most of the coursework (approximately 70%) but cannot complete the remainder before the semester's end. When electing an Incomplete Grade, the student is forfeiting the option to withdraw from the class.

When warranted, the Student Accessibility Services office will advocate for a grade of Incomplete for students with temporary or established disabilities who may be unable to complete coursework by a course deadline. A grade of Incomplete as an accommodation is separate from a grade of Incomplete for other reasons: it is a direct result of a diagnosed condition and should not be scrutinized or denied based on a student's previous academic performance. Such requests will be granted by the faculty member provided doing so would not jeopardize the integrity of the instruction being offered.

An enrolled student who is a member of the Armed Forces who needs to take a leave of absence from a course(s) due to receiving orders for a period of service (active duty, inactive duty training, or state service) will be issued an Incomplete if requested, regardless of how much of the course has been completed. A withdrawal from the course will also be considered.

If a grade of Incomplete is given for whatever reason the:

I*nstructor shall:*

1) Provide an incomplete (I) on the final grade roster during the time of final grades.

2) State in writing on an Incomplete Grade Contract form located on the Employee Hub, the activities necessary to complete the course. The contract will clearly identify the expectations between faculty and student.

3) The faculty member will provide the student with a copy of the contract via email.

4) Complete a ServiceNow Ticket for Learning Technology, requesting that the student be given extended access to the course, if relevant. The instructor must provide the course ID, student's name, and the date through which the student needs access to the course and course content.

Student shall:

1) Complete the Incomplete within seven months after the end of the term in which the incomplete grade was given.

2) Take responsibility for the arrangements with the instructor(s) to complete course requirements. This may include contacting the instructor and requesting access to the Blackboard course.

Students should not re-register for the course to complete the contract.

If the work is completed within the specified time frame, the instructor shall submit a Change of Grade form indicating the grade the student has earned.

If the work is not completed within the specified time frame, the student will earn whatever grade the instructor indicated on the Incomplete Grade Contract will result if the work is not completed (often this is an F).

Audit (AU) Grade

Students may register for audit at the time of registration. Auditing students register and pay tuition and fees. No changes from audit to credit (or from credit to audit) are permitted after the class has begun. Students do not receive credit in courses for which they enroll as audit. Audit (AU) grades do not count in the grade point average calculation.

Credit/No Credit

Students receive a credit (CR) or no credit (NC) grade for self-interest courses numbered between 70-79. Credit (CR) signifies successful completion of the course, but the credit hours do not count toward completion of any degree or certificate listed in this catalog, nor does the grade count in the grade point average calculation. A grade of NC does not count in GPA calculation.

Satisfactory/Unsatisfactory

Satisfactory (S) indicates the student has a “C” or better work in class. The grade is not computed in the GPA.

Unsatisfactory (U) indicates the student has earned a “D” grade or failed the class. The grade is not computed in the GPA. If a course description in the College Catalog indicates a course may be taken for a satisfactory/unsatisfactory grade, the student may elect the satisfactory/unsatisfactory option. This must be done in writing in the Records and Registration Office no later than the deadline to add classes as published in the appropriate schedule of classes. The deadline to add classes also is the deadline to change from a satisfactory/unsatisfactory to regular A-F grading or audit status.

Students electing the satisfactory/unsatisfactory option should be aware that:

- Once awarded, the satisfactory or unsatisfactory grade may not be changed to a letter grade.
- The satisfactory grade is equivalent to a grade of “C” or better; however, neither the satisfactory nor the unsatisfactory grade is calculated in the GPA.
- The satisfactory grade may carry credit toward graduation or toward meeting professional requirements. A maximum of 12 credit hours of S grades may be applied toward a degree, and a maximum of 25 percent toward a certificate.
- The satisfactory grade shows on the transcripts as credit hours earned for the semester and will be used toward meeting the credit hours required of a full-time student and toward determining financial aid eligibility.
- The unsatisfactory grade shows on the transcript but not as credits earned for the semester; therefore, the unsatisfactory grade does not count toward meeting the hours required of a full-time student or toward determining financial aid eligibility.
- Courses taken for satisfactory/unsatisfactory credit for which a grade of satisfactory is earned will satisfy prerequisites and co-requisites; a grade of unsatisfactory does not fulfill prerequisites and co-requisites.
- It is the student’s responsibility to verify the transferability of satisfactory grades. Students are cautioned that satisfactory grades may not be accepted for transfer credit to other postsecondary institutions; some may translate the unsatisfactory grade as failing.

Calculation of Grade Point Averages

Grade point averages will be calculated for each student at the conclusion of each term. When a course is repeated, the highest grade will be included in the GPA.

Computing Your G.P.A. Worksheet

Use the following formula to compute your grade point average:

Grade points divided by the number of hours equals the grade point average. Grade points can be determined by multiplying the credit hours for a course by the grade as follows: A = 4 points, B = 3 points, C = 2 points, D = 1 point and F = 0 points, WF= 0 points Note: W does not compute into GPA.

The Formula:

1. Number of Hours for Each Class		Number of Points for Each Classby Class		Total
_____	X	_____	=	_____
_____	X	_____	=	_____
_____	X	_____	=	_____
_____	X	_____	=	_____
_____	X	_____	=	_____
_____				_____
2. Total Number of Hours				3. Total Points

4: _____ (Total Points) ÷ _____ (Total Number of Hours) = _____ GPA

Formula for calculating GPA

Grading Information

Grade Change/Appeal

The student has the right to an explanation of an instructor's grading procedure and how a particular grade was determined. Only in exceptional cases shall a grade appeal be heard at times other than during the regular academic year (fall and spring semesters.) The Academic Dean will determine if a case is exceptional and warrants a review and has the authority to extend the time limits of the appeal process, which should begin before the end of the 10th week of the semester following the semester in which the grade was assigned. In no case shall the appeal process extend beyond the end of the first semester following the awarding of the grade without the consent of all parties involved. The Dean will decide if the time constraints have been satisfied. The grade appeals procedure and form are located at https://cm.maxient.com/reportingform.php?CentralAZCollege&layout_id=4. Select grade appeal as the nature of the report and selecting Academic Concern in the description. A detailed reason why the student is requesting the appeal as well as steps taken up to the point of submission is required.

Please be aware that providing false information to a College Official is a violation of the Student Code of Conduct. A Student who is suspected of this will be adjudicated through the student conduct process as per the Student Handbook.

Academic Progress

Academic progress is a system of monitoring all students in order to assist them in achieving their educational objective. Criteria included in determining academic progress are program grade point average (GPA) and completion. Program GPA is based on an accumulation of all grades for credit bearing courses taken at CAC that pertain to a student's selected program of study. Completion refers to the requirement that a student complete 67% of the attempted credits of their program each semester including the summer session. As an example, a student taking 12 credits required for their program must successfully complete 8 in order to remain in good standing. Students receiving federal Financial Aid are also monitored for maximum timeframe (please see link to Financial Aid: centralaz.edu/finaid).

Academic Financial Aid Warning

A student placed on Academic Financial Aid Warning has an overall GPA of less than 2.0, and/or has completed less than 67% of their semester credits. The student will be notified of this designation via CAC email and will see an Academic Warning hold notification within their student portal. This designation alerts students that they are not making satisfactory progress toward completion in their selected program of study. Students placed on Academic Financial Aid Warning must meet with an academic advisor, collaboratively develop an Academic Warning Success Plan, and comply with the recommendations outlined within it.

A student who is receiving federal financial aid and on Academic Warning may continue to receive federal financial aid for that term. They will, however, be suspended from receiving aid if their overall GPA remains below 2.0 and/or their semester completion rate remains below 67% in a subsequent semester, or if they have exceeded maximum timeframe. This includes students using Military or Veterans' Educational Benefits. Visit centralaz.edu/finaid.

Academic Renewal Guidelines

A student returning to Central Arizona College after an absence of at least 3 years may petition the Registrar to have specific grades excluded from the computation of the program grade point average according to the following guidelines:

- The student must complete 12 or more credits with a grade point average of 2.0 following re-enrollment after the three-year absence.
- Only grades of D, F, WF are eligible for renewal.

- Academic renewal may be granted only once during a student's enrollment at Central.
- Grades remain on the student's transcript but are not computed in the program GPA.

Academic Concern

Students who have a question or concern regarding their grade(s) or course instructor should first speak to the instructor. E-mail addresses and telephone numbers of full-time faculty can be found at Deans/Division Chairs Directory - Central Arizona College. Part-time faculty do not have offices on campus but can be reached through email. Students can use the CAC Directory or contact the Central Help Desk at (520) 494-5111 or centralhelpdesk@centralaz.edu.

If the concern is not resolved, or if the student if unable to reach the instructor after making reasonable attempts to do so, then the student should speak to the division chair or department director. A complete contact list of department names, division chairs, & deans is available at Deans/Division Chairs Directory - Central Arizona College.

After unsuccessful attempts with the instructor and/or division chair, students may also submit a formal complaint via the Student Complaint Reporting Form.

Title IX (*pronounced Title Nine*)

Title IX is a federal law that prohibits discrimination.

Title IX of the Education Amendments of 1972, or "Title IX," is a federal law that prohibits discrimination based on sex in educational programs. The law is a key tool for ensuring that all people have an equal opportunity for education, regardless of their sex or gender.

"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal financial assistance."

Title IX protects students and employees of educational programs that receive federal funds; that includes students and employees of K-12 schools, colleges, universities, as well as educational programs in libraries, museums, vocational programs, and prisons. Title IX protects people of all sexes and genders from discrimination, not just women.

How do we define Title IX Sexual Harassment?

The 2020 Title IX Regulations define sexual harassment broadly to include any of three types of misconduct that – on the basis of sex – jeopardize the equal access to education and the educational programs/activities that Title IX is designed to protect.

These three types of misconduct are:

1. Any instance of an employee conditioning the provision of an aid, benefit, or service of the college on an individual's participation in unwelcome sexual conduct;
2. Any unwelcome conduct that a reasonable person would determine to be so severe, pervasive, and objectively offensive that it denies a person equal access to the college's education programs or activities;
3. Any instance of sexual assault (as defined in 20 U.S.C. 1092(f)(6)(A)(v)), including dating violence, domestic violence, or stalking (as defined in the Violence Against Women Act (VAWA). For definitions of sexual assault, dating/domestic violence, and stalking, please see the CAC Title IX Sexual Harassment Policy at centralaz.edu/titleix.

Title IX protections apply in and out of the classroom.

The law against sex discrimination covers all aspects of an educational program. This includes school-sponsored extracurricular activities and internships, athletics, financial aid and scholarships, career counseling, and lab and clinical work.

Title IX protects pregnant and parenting students.

Title IX makes it illegal to discriminate because of sex, which includes discrimination on the basis of pregnancy, childbirth, false pregnancy, miscarriage, abortion, or related conditions, including recovery. Title IX also ensures the right to take medically necessary leave and to be free of harassment, intimidation, or other discrimination because of pregnancy-related conditions.

Further, any rules concerning parental, family, or marital status may not apply differently based on sex. For example, colleges cannot provide women with time to bond with or care for their children and not men.

Title IX Grievance Process

Central Arizona College seeks to provide an educational, employment, and business environment free of sexual violence, unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct or communications constituting sexual harassment as prohibited by state and federal law. Discrimination under this Policy includes an unequal treatment of a student or employee based on their actual or perceived gender, sexual orientation, or pregnancy. This Policy prohibits sexual harassment, discrimination, and retaliation in any college education program or activity, which means all academic, educational, extracurricular, athletic, and other programs. Inquiries concerning the application of this Policy or the filing of a specific complaint may be referred to CAC's Title IX Coordinator at (520)494-5106/(520)840-1175, or at titleix@centralaz.edu.

File an anonymous report online at centralaz.edu/titleix.

CAC is an equal opportunity employer and complies with all applicable federal, state, and local laws regarding equal employment opportunity and anti-discrimination. CAC strictly prohibits and does not tolerate discrimination on the basis of the following protected classes and/or characteristics, in all of its operations, programs and activities, including but not limited to employment, promotion, admissions and access to all career and technical programs: race, color, religion, creed, national origin or ancestry, ethnicity, sex, age, physical or mental disability, citizenship, past, current, or prospective service in the uniformed services, genetic information, or any other characteristic protected under applicable federal, state, or local law. For more information contact: Laura Shepherd, Title IX Coordinator at 520-494-5106 or titleix@centralaz.edu; Section 504/ADA Coordinator at studentaccessibility@centralaz.edu or Human Resources at human.resources@centralaz.edu.

Civility Statement

The Central Arizona College's Civility Statement below, aligned with the college's vision, mission, and goals, is thoughtfully designed to be clear, concise, student-centered, action-oriented, and inclusive of all members of the CAC community:

Central Arizona College encourages & promotes an environment of civility and mutual respect among its diverse students, employees & community members.

As a community we are committed to building positive relationships, promoting well-being & safety.

As an institution of higher learning, it is essential that we continuously evaluate our strengths & weaknesses to demonstrate where we can & will do better.

We commit to making CAC a place where everyone finds the respect, dignity & support they deserve, not only as human beings, but as a member of our diverse CAC community.

Ethical Statement

The Ethical Statement below reaffirms our shared humanity and highlight the vital role of ethics as a cornerstone of decision-making and interactions at CAC:

Human Beings have dignity, worth, and uniqueness. For that reason, we commit ourselves to honesty, fairness, and integrity in all of our actions, practices, and behaviors so as to never harm or diminish the value, honor, and sacredness of the human personality.

Be the L.I.G.H.T. Initiative

The 'Be the L.I.G.H.T.' initiative was designed to foster an environment where all CAC faculty and staff exhibit the core values of L.I.G.H.T. when interacting with students and the community, at large. Each letter in the acronym L.I.G.H.T. is defined below:

- LISTENING: Listening to our students, employees & community to identify & assess the needs of ALL students with focus on underserved & underrepresented populations.
- INSPIRATION: Inspiring students, employees & community members to step-up & step-in when injustice, inequity & intolerance are exhibited.
- GUIDANCE: Guiding decision making with a culture of collaboration, respect, understanding & kindness.
- HOLISTIC: Holistic approach to education & support that emphasizes the power of focusing not only on intellectual growth, but also the emotional, social, physical, & creative needs of individuals.
- TRUST: Trust provides a foundation for understanding. Demonstrating integrity & leading with compassion fosters a greater sense of inclusion & community. Acting with these principles builds confidence that Central Arizona College is a trusted leader in T.R.U.E. Learning.



Be The L.I.G.H.T logo with "True Learning: Teaching Reaching Understanding Empowering Learning"

Student Code of Conduct & Student Handbook

The Student Code of Conduct (the Code) is designed to uphold the freedoms and rights of all members of the College community while ensuring that the College can function in an environment free from disruption. The Code establishes clear expectations for student behavior and provides a framework for maintaining an orderly, respectful, and stable campus climate.

It outlines students' rights and responsibilities and sets forth equitable and consistent procedures to address potential violations. Students accused of misconduct are guaranteed due process and, if found responsible for such misconduct, are subject to fair and appropriate disciplinary action.

Additionally, appeals are available for certain outcomes as set forth in the Student Code of Conduct Procedure. All students are expected to familiarize themselves with and adhere to the standards and procedures outlined within this Code.

Please view the Code in the Student Handbook: centralaz.edu/studenthandbook.

In addition, students who live in the SPC campus residence halls must also adhere to the community living guidelines found in the Housing and Residence Life Compendium.

If you would like to notify campus officials of a student issue or conduct concern, please use the Incident Reporting Form: https://cm.maxient.com/reportingform.php?CentralAZCollege&layout_id=00.

Student Concern or Complaint

Student Conflict or Complaint

At CAC, we are dedicated to fostering an open and supportive educational environment. We value all feedback—both positive and constructive—as it plays a vital role in our ongoing efforts to enhance the student experience. If you have a concern or complaint, we encourage you to first address it directly with the faculty member, staff, or administrator involved. If the issue remains unresolved, you may escalate it by contacting their immediate supervisor. In addition, the following form can be completed and will be considered a formal complaint with follow-up from an appropriate supervisor.

For a brief overview of the Complaint process and timeline, please see link to flowchart: https://cm.maxient.com/reportingform.php?CentralAZCollege&layout_id=60 (Student Complaint with a Specific Office)

Concern or Complaint regarding any Disability Accommodation (non-employee related) If you have a concern about a disability related issue, please contact the Student Accessibility Services department at 520-494-5409 or reference the following webpage to find reporting forms at centralaz.edu/student-support-and-care/.

If you need additional assistance, please contact the Dean of Student Development at DeanOfStudents@centralaz.edu.

An individual may file a discrimination complaint with the Office for Civil Rights, by visiting: https://www.hhs.gov/ocr/complaints/index.html

Central Help Desk Services

The Central Help Desk provides a central location for customer and student support. As the first point of contact for student services, the Help Desk offers a wide variety of assistance which includes obtaining a new or replacement CAC student ID card, scheduling a campus tour, resetting Online Services passwords, understanding Online Student Services features, troubleshooting Blackboard, using CAC e-mail, providing telephone numbers and e-mail addresses of faculty and staff. Also, whether you need to find out how to register for classes or where to go for tutoring, the Help Desk can point you to the right college department.

Central Help Desk Services Contact Information

- Phone: 520-494-5111
- Email: centralhelpdesk@centralaz.edu
- Campus Tour Email: campustours@centralaz.edu
- CAC's Website offers General Help/FAQ's/Vaquero Chat Bot: centralaz.edu

Campus locations are open Monday-Thursday | 8 a.m.-6 p.m.

- Signal Peak Campus (SPC) in the M Building (Student Services)
- Superstition Mountain Campus (SMC) in the F Building
- San Tan Campus (STC) in the B building
- Maricopa Campus in the A building

The Central Help Desk Services, at any of the campus locations or online, are the primary point of contact for issues related to Student Services including:

- Online services assistance
- General customer service
- Campus Tours
- Telephone numbers and e-mail addresses of faculty and staff
- Troubleshoot issues related to:
    - Registration/schedule printing
    - Financial aid
    - Unofficial transcripts
    - Admissions
    - Student IDs

Information Technology Services – (ITS) Service and Support Desk

For student loaner laptop or calculator check out, please reserve a time here. For equipment return, please use any CAC library location.

The Information Technology Services - Service Desk troubleshoots technical issues for the following:

- Password Self Service and Self Service Password Instructions are available at centralaz.edu/information-technology.
- Troubleshoot problems with O365, Blackboard and E-mail
- Classroom Multimedia and Technology support
- Computer and district software related issues
- Web Help trouble ticket submission assistance
- Network/WIFI assistance
- Campus Nexus trouble tickets
- Account reactivation, access & permissions, MFA (Multi-Factor Authentication) resets
- Technical problem with issued Student Loaner Laptop

ITS Office Information

- ITS Help Desk: 520-494-5111
    - Phone support available 24 x 7, 365 days a year
- Service Ticket submission: centralaz.service-now.com/
- Service Desk Locations: Signal Peak Campus - O108, Superstition Campus F118, Maricopa Campus B111, San Tan Campus C125
- SPC Office Hours: Monday - Thursday, 7:30am- 6pm. Other locations are posted.
    - Not staffed on CAC holidays or weekends. See academic calendar for details.

Bookstore

Signal Peak and Superstition Mountain campuses provide full-service bookstores to accommodate students with textbooks, supplies, clothing, and snacks. Extended hours are available the week prior to and week of semester start. Regular bookstore hours vary by location. Please contact your campus location for more information or visit centralaz.bncollege.com.

Course Material Pickup- San Tan and Maricopa Campuses

Course materials may be delivered to the Maricopa and San Tan Campus Libraries for pickup by selecting the appropriate student pickup location when ordering course materials. Students will receive an official email from the bookstore with detailed information regarding the pickup date and time once materials are available. Students should monitor the email address provided to the bookstore for updates and instructions.

Bookstore Rental Policy

Rented materials must be returned to the bookstore from which they were originally rented by the rental return date designated by the bookstore at the time of rental and in salable condition. Rented materials not returned by the rental return date or returned on or before that date not in salable condition will be subject to non-return processing fees equal to 75% of the new book price (at the time of rental) plus a 7.5% non-return processing fee.

Bookstore Refund Policy

A full refund will be provided in the original form of payment if textbooks are returned during the first week of classes with the original receipt. With proof of a schedule change and the original receipt, a full refund will be provided in the original form of payment during the first 30 days of classes. No refunds will be provided for unwrapped loose-leaf books, shrink wrapped books, access codes, or activated eBooks. Textbooks must be in original condition. No refunds or exchanges are permitted without the original receipt. For more information visit Contact Us | Central Arizona College Official Bookstore: centralaz.bncollege.com/customer-service.

Student Accessibility Services

Student Accessibility Services (SAS) at Central Arizona College is the central resource for students with disabilities to ensure access to their education. SAS helps students with disabilities by providing accommodations that ensure equal access to classes, programs, and activities. These accommodations are supports designed to reduce the challenges caused by a disability, allowing students to fully demonstrate their knowledge and abilities.

Accommodations are customized for each student and determined through a collaborative process involving the student, accessibility staff, faculty, college partners, and the use of universal design principles. The needs are assessed on a course-by-course basis to ensure the best support.

Students who might qualify for accommodations include those who:

- Had an Individualized Education Plan (IEP) or 504 Plan in K-12,
- Received accommodations at another school or college, or
- Have a diagnosed condition that affects major life activities.

Our Goals

- Provide reasonable accommodations and support services.
- Support students in achieving their educational and career goals.
- Develop strong self-advocacy skills, independence, and self-reliance.
- Enhance self-awareness, self-esteem, and personal identity.
- Overcome challenges and achieve academic success

Support is available for students with:

- Specific Learning Disabilities,
- Physical Disabilities,
- Vision, Speech, and/or Hearing Impairments,
- Cognitive, neurological, and/or psychological impairments,
- Other medical conditions not listed above that are documented by a qualified professional and present a barrier to the student's education,
- Temporary medical illness or injury

How Do I Request Accommodations?

There is a Student Accessibility Services (SAS) representative located at each of the Central Arizona Campuses. Students, faculty, and staff are invited to speak with an SAS specialist for more information about accommodations. Academic accommodations may be provided to Central Arizona College students who have registered with the Student Accessibility Services and have appropriate documentation.

Students with disabilities who require accommodations must first complete the registration form. Once this form is submitted, you may schedule your initial appointment to establish eligibility and determine your accommodations.

1. Complete *REGISTRATION FORM*
2. Schedule an appointment: https://calendly.com/laura-corr-centralaz

Questions? Contact us:

- Website: https://centralaz.edu/disability-resources/
- Email: studentaccessibility@centralaz.edu
- Phone: (520) 494-5524



Central Arizona College Student Accessibility Services logo

The CAC Student Accessibility Services (SAS) Office is located at each campus by appointment. Click to schedule your appointment

Signal Peak Campus, SPC
8470 N. Overfield Rd. Building M. Coolidge, AZ 85128

Superstition Mountain Campus, SMC
805 S. Idaho Rd., Apache Junction, AZ 85119

San Tan Campus, STC
3736 E. Bella Vista Rd., San Tan Valley, AZ 85143

Maricopa Campus, MAR
17945 N. Regent Dr, Maricopa, AZ 85138

Note

*Email Documentation of Disability to the department BEFORE scheduling your initial appointment. Documentation should come from a qualified professional, identified disability, and outline the impact on the student's learning. **It is the student's responsibility to obtain documentation. The Student Accessibility Services department does not request information on the student's behalf.*

Please see guidelines for acceptable forms of documentation: Documentation of Disability Guidelines (PDF)

Support is available for students with:

- Specific Learning Disabilities,
- Physical Disabilities,
- Vision, Speech, and/or Hearing Impairments,
- Cognitive, Neurological, and/or Psychological Impairments,
- Other medical conditions not listed above that are documented by a qualified professional and present a barrier to the student's education,
- Temporary medical illness or injury

Student Accessibility Additional Guides

- *Central Arizona College Service Animal Guidelines [PDF]*
- *SAS Process Service Animals [PDF]*

Learning Center

Central Arizona College provides free tutoring for students in most academic areas of study through the Learning Centers located at each campus. Tutors work with students individually or in small groups to address the various learning needs of students. In addition, tutors use several modalities including face to face, online, email and phone to assist students in their academic work. The Learning Centers offer customized workshops and computerized tutorials for many CAC courses as well as computer-assisted instructional programs for coursework or independent study.

Academic & Proctored Testing

centralaz.edu/academic-proctored-testing/

Contact one of our Learning Centers near you:

- Aravaipa: 520-357-2821
- Maricopa: 520-494-6438
- San Tan: 480-677-7861
- Signal Peak: 520-494-5042
- Superstition Mountain: 480-677-7761

Library

The library has locations at all 5 CAC campuses- Maricopa, San Tan, Signal Peak, Superstition Mountain and Aravaipa campuses. Librarians are available for both online and in-person assistance with student research needs. The library also offers research workshops throughout the semester. The library facilities have computer workstations, printing, Wi-Fi, and study areas. Online resources, including millions of journal articles and over 125,000 eBooks, are available to students 24 hours a day. The library's print book collection contains over 85,000 volumes district-wide, includes government resources, and can be searched through the library's online catalog or by asking library staff for assistance.

Student Health & Wellness Resources

centralaz.edu/wellness

Central Arizona College has a variety of programs and partnerships to contribute to the health & wellness of students. Our college recognizes that health is multifaceted, encompassing physical, mental, and emotional well-being. From promoting balanced nutrition and regular exercise to supporting mental health through counseling and stress management resources, we strive to provide students with support in a range of areas.

The College partners with local and national agencies to provide support for those students in need of mental health services:

1. Better Mynd offers 24-hour Crisis Line support and can be reached at 844-287-6963
2. CAC is also partnered with Better Mynd Online Therapy: https://centralaz.edu/current-students/student-support/mental-health/ for free mental health and therapy.

Food Services

Signal Peak Campus offers on-campus food service open to the public. At Signal Peak Campus, meals are served seven days per week for residence students. Our Campus Dining at Signal Peak offers food service for students, staff and public. For menus, hours and locations, visit https://centralaz.edu/food-services/ or call (520) 494-5450.

Catering

Catering service may be arranged by contacting Catering Manager at 520-494-5450 or by visiting https://centralaz.edu/food-services/catering/.

Central Arizona College Police Department

The Central Arizona College Police Department (CACPD) is a full-service law enforcement agency. Officers are assigned to all five campuses - Signal Peak, Superstition Mountain, Maricopa, Aravaipa, and San Tan.

CACPD Contact Information

- Signal Peak Campus, Room I200
- Non-Emergency Number: 520-836-9655
- On-Duty Officer Cell Phone: 520-709-0131
- Business Line: 520-494-5445
- Silent Witness: 520-494-5011
- Fax: 520-494-5568
- Email: cacpolice@centralaz.edu
- Visit: centralaz.edu/contact-us/cac-police-department/

The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act require the distribution of an annual security report to all current faculty, staff, and students and notice of its availability to prospective students, faculty, and staff. The annual security and fire safety report includes statistics for the previous three years concerning reported crimes that occurred on campus, in certain off-campus buildings or property owned or controlled by Central Arizona College, and on public property within, or immediately adjacent to and accessible from the campus. The report also includes institutional policies concerning campus security, such as policies concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assault, and other matters. You can obtain a copy of this report by contacting the Police Department, or by visiting centralaz.edu/contact-us/cac-police-department/.

Get Connected with CAC Today!



CAC Mobile app QR codes

Intercollegiate Athletics

Women's sports at the Signal Peak Campus include basketball, softball, track & field, cross country, volleyball, and rodeo.

Men's sports at the Signal Peak Campus include basketball, baseball, track & field, cross country, and rodeo.

Central Arizona College is a member of the National Junior College Athletic Association (NJCAA), the Arizona Community College Athletic Conference (ACCAC) and National Intercollegiate Rodeo Association (NIRA). Central Arizona College has one of the most successful athletic programs in the ACCAC and NJCAA. It has posted 43 national championships and numerous second- and third-place finishes over the past four decades.

Individuals desiring information concerning Central Arizona College's intercollegiate athletic programs under the Equity in Athletics Disclosure Act of 1994, Section 360B of Publication L.103-382, may obtain this information from one of the following offices: Student Services Office or the Athletic Department at 520-494-5300.

Athletic Records

National Championship teams and year:

- Baseball 1976, 2002, 2019, 2022
- Women's Basketball 1989, 1998, 2005, 2009
- Men's Cross Country 1988, 2002, 2003, 2005, 2012, 2013, 2016, 2018
- Women's Cross Country 2005, 2009
- Women's Rodeo 1978, 1979, 2014
- Softball 1984, 1985, 1988, 1989, 1990, 1991, 1992, 1995, 1997, 1999, 2003, 2005
- Men's Track & Field 1996, 2005, 2006, 2007
- Women's Track & Field 1998, 1999, 2006, 2007, 2008
- Volleyball 1983

The George Young Activity Center is used for all home basketball games. Outdoor athletic facilities include: an eight-lane all-weather track & field, baseball and softball fields and rodeo arena. For more information, contact the athletic department at 520-494-5300 or 800-237-9814, ext. 5300. Also, please visit our website: vaquerosports.com.



Athletics Collage

Student Employment Opportunities

CAC offers student employment opportunities to students as they pursue future college and career aspirations. Visit the Student Employment Services web page at schooljobs.com/careers/centralaz/transferjobs.

Should you require more information or assistance, please email studentjobs@centralaz.edu.

Employment Eligibility Requirements

There are three employment options available for students. Each employment option has different eligibility requirements. All students are encouraged to complete the Free Application for Federal Student Aid (FAFSA) prior to seeking employment for an on-campus position.

College Federal Work Study Program

The Federal Work-Study Program is a federally funded program designed for students who have demonstrated financial need using the Free Application for Federal Assistance Aid (FAFSA). Students who are employed under this program must meet the additional eligibility requirements:

- Must be enrolled in an eligible program of study.
- Must maintain Satisfactory Academic Progress. More information is available under the Financial Aid section.

- Students must be enrolled in at least six (6) credits to qualify.

College Funded Student Employee

All students can apply for this type of employment option. Students are employed part-time by the department or division within the college and do not have to show financial need. The student should meet the same eligibility requirements as a Federal Work Study student employee.

Off-Campus Employment

There are no enrollment requirements for positions that are located off campus. This option is available for students seeking employment options that are not available on campus. Various external employers post available positions on the web-based job board, CAC Pipeline (cac.pipelineaz.com/) and students may apply for positions at their discretion. Off-campus job wages may be higher than on-campus positions.

Housing & Residence Life

The Signal Peak Campus offers an on-campus living and a learning environment with space for approximately 240 students. The Residence Life Staff provide programs that promote personal growth and development, including cultural diversity, and community responsibility. These programs work towards enhancing the student's overall college experience.

If you wish to live in on-campus housing, you must be admitted to the College, complete the online application, and meet all the living requirements which can be found at centralaz.edu/reslife. For more information about Housing & Residence Life, please visit centralaz.edu/reslife or contact the office directly at 520-494-5470.

Food Services

Students planning to live on campus must purchase the designated college meal plan. The College provides food services to on-campus residents during periods of the official academic year, which excludes Thanksgiving Day, winter and summer break periods. The last day of food service each semester will be the same day that Residence Halls close. Visit centralaz.edu/reslife.

For dining room hours and any specific information about our dining halls, please visit https://centralaz.edu/food-services/.



CAC residence life leaders jumping in air

TRIO Upward Bound

TRIO Upward Bound (centralaz.edu/future-students/high-school-programs/upward-bound/) at Central Arizona College seeks to promote a college-going culture among Pinal County high school youth. Operating at Casa Grande Union High School, Vista Grande High School, and Coolidge High School, the program is funded by a $1.3 million dollar grant from the United States Department of Education. Services offered include academic tutoring, college campus visits, and career advisement for students in grades 9 through 12. The signature event is a six-week intensive summer institute free of charge to students that includes college-level coursework, academic tutoring, mentoring, and social events. For more information, contact Upward Bound Project Director, April Ortega, at 520-494-5114 or April.Ortega@centralaz.edu.

TRIO Student Support Services

centralaz.edu/trio

The TRIO Student Support Services program, focuses on academic success and access to higher education, located on the Signal Peak Campus and available to all eligible students from all CAC campus sites, is designed to assist students to graduate in professional programs, and transferable programs to a four-year institution within guidelines set by the U.S. Department of Education. TRIO SSS applicants must meet certain criteria, such as being a first-generation college student,

completing the FAFSA application, and enrolled in a professional or transferable program that prepares them to transfer to a university. TRIO student services include personalized academic advising, peer/faculty mentoring, peer tutoring, grant-aid scholarship opportunities, and more. The goal of the program is to increase the retention, graduation, and transfer rates of TRIO SSS participants. For more information visit the TRIO SSS webpage at centralaz.edu/trio or call (520) 494-5007. TRIO is on Facebook: TRIO.CentralArizonaCollege (facebook.com/TRIO.CentralArizonaCollege) and Instagram: @cac_sss_trio.

The TRIO SSS Program at Central Arizona College is funded by a grant through the U.S. Department of Education.

TRIO Summer Bridge



TRIO Summer Bridge Group Photo 2025

The TRIO Summer Bridge Program (centralaz.edu/summer-bridge/) is FREE! It is an exciting and invaluable five-day "Experiential Learning - By Doing" program designed to give incoming students an edge in succeeding at CAC. This is a FREE program for eligible recent high school graduates or GED recipients that takes place on the Signal Peak Campus. For the duration of the program, students will be assigned to a CAC college department to gain knowledge, skills, and hands on experience through job shadowing, complete "Lunch and Learn" workshops, meet, connect, and make lifelong friendships, enjoy and explore college life. This program is a full week of FREE engaging and interactive events with your peers, CAC faculty, administration, and staff at Central Arizona College/ Signal Peak Campus. For more information, please visit centralaz.edu/summer-bridge or call 520-494-5007.

Student Engagement & Activities

The Office of Student Life provides students a variety of involvement opportunities. Co-curricular programs include leadership development and engagement through the Campus Activities Board, clubs and organizations, and community service.

Student Engagement & Activities

Campus Activities Board (CAB)

The Campus Activities Board (C.A.B.) promotes student engagement in the college experience by sponsoring activities, offering programs, developing leadership potential, and coordinating clubs and organizations all under the supervision of the Director of Student Life. If interested, reach out to our Student Engagement Coordinators at student.engagement@centralaz.edu.

Benefits to taking on a leadership role in CAB:

- Event planning and management skills
- Leadership training & national conferences
- Community involvement

Visit centralaz.edu/student-leadership to learn more.

Student Engagement & Activities

Student Clubs & Organizations

Student Clubs and Organizations are organized student groups with a common interest and a shared goal. Clubs and Organizations provide students opportunities for social interaction, recreation, leadership development, and enhancement of career-academic interests. Each group has a faculty or staff advisor for guidance and support. There are a variety of opportunities to be involved in leadership, social, service, religious, educational, ethnic, and cultural clubs and organizations.

Anyone interested in joining or starting their own group can visit centralaz.edu/clubs-organizations.

Creating a new student organization is an excellent way to develop leadership skills and provide your fellow Vaqueros and Vaqueras with a way to get involved at CAC! Student Organizations help build community and create learning for students outside of the classroom. New student clubs are welcome to register at any point during the school year. There is no fee associated with registering a new student organization. If there are any questions on the requirements or steps involved in starting a new organization, please contact our Student Engagement Coordinators at student.engagement@centralaz.edu.



Student Engagement Collage

Recognized Clubs/Organizations:

- Business Club – *Signal Peak campus*
- Campus Activities Board (CAB) – *San Tan and Superstition Mountain campuses*
- Campus Activities Board (CAB) – *Maricopa and Signal Peak campuses*
- Central Arizona Student Nursing Association (CASNA) – *Signal Peak campus*
- Christian Challenge – *Maricopa, Signal Peak campuses*
- Crafting Club – *Superstition Mountain Campus*
- Common Cultural Connections (C-III) Club – *Signal Peak Campus*
- Entertainment Industry Technology Club (EIT) – *Signal Peak Campus*
- E-Sports Club – *All campuses*
- Korean Club – *Superstition Mountain campus*
- LIDER Club – *Signal Peak Campus*
- Native Voices Club – *Signal Peak campus*
- Phi Theta Kappa (PTK) Honor Society – *All campuses*
- Voices of Change Club – *All campuses*
- Young Americans for Freedom (YAF) – *Signal Peak campus*
- Alpha Delta Kappa Collegiate Club (ΑΔΚCC) for Education students - *All campuses*

Accreditation

Central Arizona College is accredited by the Higher Learning Commission. For information about Central Arizona College's accreditation, you can contact the Higher Learning Commission at 230 South LaSalle Street, Suite 7-500, Chicago, IL 60604-1411, 312-263-0456, info@hlcommission.org, or online at hlcommission.org. You may also contact Central Arizona College, 8470 North Overfield Road, Coolidge, AZ 85128 or call 520-494-5111. In addition, several CAC programs maintain external accreditations.

Education

Early Childhood Education AAS Degree

National Association for the Education of Young Children
Commission on the Accreditation of Early Childhood Education
Higher Education Programs (NAEYC)
1401 H Street NW Suite 600
Washington, DC 20005
202-232-8777
naeyc.org
help@naeyc.org

Emergency Medical Services

Paramedicine Program Degree/Certificate

The Central Arizona College Paramedic Program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).

Commission on Accreditation of Allied Health Education Programs
9355 - 113th St. N, #7709
Seminole, FL 33775
727-210-2350
caahep.org

Committee on Accreditation of Educational Programs for the Emergency Medical Services Programs
8301 Lakeview Parkway Suite 111-312
Rowlett, TX 75088
Phone: 214.703.8445
Fax: 214.703.8992
coaemsp.org

Fire Science Technology

Arizona Center for Fire Service Excellence
PO Box 132,
Avondale, AZ 85323
azfiretraining.org

Allied Health

Aesthetician Certificate

Arizona Barbering and Cosmetology Board
1740 W. Adams St., #4400
Phoenix, AZ 85007
480-784-4539
bcb.az.gov

Diagnostic Medical Sonography

Commission on Accreditation of Allied Health Education Programs (CAAHEP)
Application in process

Dietary Managers Training Program Certificate & Foodservice Professional Training Program Certificate

Association of Nutrition & Foodservice Professionals (ANFP)
P.O. Box 3610
St. Charles, IL 60174
800-323-1908
anfponline.org/home

Health Information Management Degree

The Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)
200 East Randolph Street, Suite 5100
Chicago, IL 60601
312-235-3255
cahiim.org

Massage Certificate and Degree

Arizona State Board of Massage
1740 W. Adams St, #3401
Phoenix, AZ 85007
602-542-8103

massagetherapy.az.gov

Medical Assistant Degree

Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Medical Assisting Education Review Board (MAERB)
9355 - 113th St. N, #7709
Seminole, FL 33775
727-210-2350 OR 727-210-2350
caahep.org

Medical Assisting Education Review Board (MAERB)
2020 N. California Ave., #213, Suite 7
maerb.org

Medical Laboratory Technician AAS Degree

National Accreditation Agency for Clinical Laboratory Sciences (NAACLS)
5600 N. River Rd. Suite 720
Rosemont, IL 60018-5119
773.714.8880
naacls.org

Nutrition & Dietetic Technician AAS Degree

Accreditation Council for Education in Nutrition and Dietetics (ACEND)
120 S. Riverside Plaza, Suite 2190
Chicago, IL 60606-6995
800-877-1600
eatrightpro.org/acend

Nursing Certificate & Degree Programs

Certified Nursing Assistant/Licensed Nursing Assistant (LNA):
Arizona State Board of Nursing,
1740 W. Adams, Suite 2000
Phoenix, AZ 85007
602-889-5150
azbn.gov

LPN Step out option for Licensed Practical Nurse (LPN)
After completion of Block II of the Nursing program students can register with the Arizona State Board of Nursing and sit for the NCLEX-PN:
Arizona State Board of Nursing,
1740 W. Adams, Suite 2000
Phoenix, AZ 85007
602-889-5150
azbn.gov

Registered Nurse (RN):
After completion of the four-semester registered nurse program or the LPN-RN bridge program the student is awarded the Associates of Applied Science and can register with the Arizona State Board of Nursing and sit for the NCLEX-RN:
Arizona State Board of Nursing,
1740 W. Adams, Suite 2000
Phoenix, AZ 85007
602-889-5150
azbn.gov

Accreditation Commission for Education in Nursing, Inc.
3343 Peachtree Road NE, Suite 850
Atlanta, GA 30326
404-975-5000
acenursing.org

Pharmacy Technician Certificate

Collaboration between the American Society of Health-System Pharmacists and the Accreditation Council for Pharmacy Education (ASHP/ACPE),
4500 East-West Highway, Suite 900
Bethesda, MD 20814
866-279-0681
ashp.org

Radiography Degree

Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 N. Wacker Dr., Suite 2850
Chicago, IL 60606-3182
312-704-5300
jrcert.org

Technology

Diesel Technology

Associated Equipment Distributors Foundation
615 W. 22nd Street
Oak Brook, IL 60523
630-574-0650
aednet.org

Heavy Equipment Operators

National Center for Construction Education and Research (NCCER)
13614 E. Progress Blvd.
Alachua, FL 32615
386-518-6500
nccer.org

Welding

National Center for Construction Education and Research (NCCER)
13614 E. Progress Blvd.
Alachua, FL 32615
386-518-6500
nccer.org

All programs and courses are submitted through SAA approval. Please see CAC's Military/Veteran Specialist for a list of programs and courses not approved.

This publication and its provisions do not constitute, and should not be regarded as, a contract between CAC and any party or parties. At the time of publication, reasonable effort was made to ensure the factual accuracy of the information. However, this publication is not a complete statement of all policies, procedures, rules, regulations, academic requirements, and tuition and fees applicable to CAC, its students, or its programs. In addition, changes or additions may be made to the policies, procedures, rules, regulations, and academic requirements set out in this publication. CAC reserves the right to make these changes and additions to the information in this publication without prior notice. When a curriculum or graduation requirement is changed, it is not made retroactive unless the change is to the student's advantage and can be accommodated within the span of years normally required for graduation. *See an academic advisor for additional CAC policies.*

Our Vision

Create a world-class learning experience and a great place to work.

Our Mission

Central Arizona College serves as TRUE Learning community by empowering our students and staff to succeed. Teaching. Reaching. Understanding. Empowering. Learning.

Our Values

1. Accountability (internal & external stakeholders)
2. Communities (students, employees, public)
3. Trust

Wildly Important Goals (WIGS):

Improve first-to-second term persistence for all new students from 49% to:

55% by 2025

62% by 2026

70% by 2027

COMMON STUDENT LEARNING OUTCOMES (CSLOs) for Central Arizona College

The College shall strive to improve student success and academic achievement by providing quality education which encompasses continuous improvement in teaching and learning. The primary focus will be on the learning process that adds value to the learners.

Common Student Learning Outcomes indicate the comprehensive skills, abilities, attitudes and knowledge necessary for being a productive and educated citizen in the 21st century. CAC graduates attain these outcomes through cumulative quality learning experiences. The four Common Student Learning Outcomes are:

1. Cultural and Civic Engagement – Participate in diverse environments while demonstrating global citizenship and social consciousness
2. Integrative Knowledge – Identify, comprehend, apply and synthesize facts, concepts, theories and practices across broad and specialized knowledge areas
3. Personal and Professional Skills – Demonstrate skills which enhance personal and professional development
4. Reasoning Skills – Inquire and analyze to solve problems, draw logical conclusions, or create innovative ideas

The Governing Board expects the faculty, in conjunction with the instructional administration, to establish Learning Outcomes for assessing student achievement.

1. Learning Outcomes are statements describing essential, measurable learning that students achieve and can reliably demonstrate at the end of a course or program.
2. The Common Student Learning Outcome statements are the basis for student performance criteria used to evaluate the level of student achievement.

In supporting CAC's commitment to quality learning experiences for lifelong success, students may be asked to participate in activities that assess their learning. Assessment activities such as projects, presentations, portfolios, satisfaction surveys or nationally normed examinations assist the faculty and staff in discovering how well students reach the expected learning outcomes of their course, program, and institution. CAC faculty and staff use the data to develop strategies that improve instruction and curriculum for overall continuous improvement.

COLLEGE ADMINISTRATION

Board of Governors

		
Gilbert Lopez District 1	Dr. David Odiorne District 2	Evelyn Casuga District 3

College Administration

Jackie Elliott, Ed.D. President/CEO	Angela Askey, MAGR Executive Director of Public Relations and Marketing
Jenni Heath, Ed.D. Vice President of Student Services	Craig Kurtz, B.A. Executive Director of Institutional Development
Michael Parker, Ph.D. Vice President of Academic Affairs	Domingo Barragan Executive Director of Facilities
Terry Quest, M.B.A. Vice President of Operations & Finance/CFO	Dustin Maroney, M.S. Executive Director of Institutional Effectiveness and Research
Scooter Freeney, SPHR, M.B.A. Chief Human Resources Officer	Michelle Clapp, B.A. Executive Director of Budget & Accounting Services
Francisco "Frank" Alanis, M.B.A. Chief of Police	Andrew Clegg, M.B.A. Academic Dean of Workforce Development & Skilled Trades
Cameron Sanders, B.A. Chief Information Officer of Information Technology Services	Patrick Moyer, Ph.D. Academic Dean of Arts & Sciences
Ryan Beauford, E.M.P.A. Chief Enterprise Risk Management & Compliance Officer	Suzonne Crockett, Ed.D. Academic Dean of Programs & Services
Andrew Long, M.S. Dean of Enrollment Services	Tina Berry, Ph.D. Academic Dean of Allied Health, Nursing, & Emergency Services
David Leenhouts, M.A. Dean of Student Development	Shelby Barnette, M.Ed. Athletic Director

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All Programs

AA01_26-27 - Associate of Arts, Liberal Studies

Program Information

Program Title
Associate of Arts, Liberal Studies

Description
The Associate of Arts (AA) Degree is appropriate for students who plan to transfer to the university to earn a baccalaureate degree in various areas of study, typically within the Arts and Humanities and/or Social and Behavioral Sciences disciplines. Students should select a pre-designed pathway or work with an academic advisor to customize a pathway to align with their specific career and/or transfer goals.

Area of Interest
Institutional Degree

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Understand, analyze, and articulate the major topics in the Liberal Arts for university transfer, including specific pathway concentrations in:
Administration of Justice,
Agriculture,
Communication,
English Literature,
English (Secondary Education),
History,
Mathematics,
Political Science,
Psychology,
Recreation and Tourism Management,
Sociology,
Spanish
(CSLOs 1, 2)

2. (Understanding Level) Demonstrate effective written, oral, or visual communication for specific audiences in the context of the field of study. (CSLO 3)

3. (Applying Level) Use field of study frameworks to investigate issues and/or solve problems. (CSLO 2, 4)

4. (Applying Level) Apply scientific concepts and methodologies within the field of study. (CSLO 2)

5. (Understanding Level) Interpret quantitative information and/or utilize mathematical concepts and techniques. (CSLO 4)

6. (Evaluating Level) Examine how diverse perspectives impact the human experience within a field of study. (CSLO 1)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social/Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Select 1 or 2 additional AGEC courses to fulfill the 32-33 minimum credit requirement for AGEC with a grade of C or higher

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Select 27-28 transferable elective credits to fulfill the minimum 60-credit degree requirement with a grade of C or higher.

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA02_26-27 - Associates of Arts, Sociology Pathway

Program Information

Program Title
Associates of Arts, Sociology Pathway

Description
The Sociology Pathway allows students to study social life, social change, and social causes that impact consequences in society relating to social group behavior. The sociology pathway explores and examines critical social problems involving race, ethnicity, education, deviance, social structures, equipping students with important analytical and research skills.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Analyzing Level) Examine different situations using multiple lenses and sociological theories. (CSLOs 2, 4)

2. (Analyzing Level) Recognize some of the ways in which individuals` biographies and identities, including our own, are shaped through social institutions, patterns of social inequalities, privileges, cultural practices, and biases. (CSLO 4)

3. (Understanding Level) Explain the uniqueness of sociology as a social science discipline.

4. (Application Level) Apply the sociological perspective about the social world. (CSLO 2)

5. (Evaluating Level) Evaluate the diversity of the US, including, but not limited to, race, ethnicity, ability, gender, and sexualities, and their place in the global context. (CSLO 1)

6. (Evaluating Level) Critically evaluate diverse social, cultural, and political perspectives and ideas using evidence- based data. (CSLOs 1, 4)

7. (Understanding Level) Communicate in a manner that demonstrates empathy, self-awareness, open mindedness and responsiveness. (CSLO 3)

8. (Creating Level) Formulate effective and convincing written, oral and visual arguments that integrate sociological evidence. (CSLO 3)

9. (Applying Level) Employ ethical standards and social responsibility to guide decisions and behaviors. (CSLO 1)

10. (Remembering Level) Locate and evaluate quantitative and qualitative research to analyze social outcomes, behaviors and problems. (CSLO 2)

11. (Application Level) Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field. (CSLO 3)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher - PHI105 and HIS104 recommended

Social/Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher - SOC101 & HIS103 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher - HIS107 recommended

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Select 1 or 2 additional AGEC courses to fulfill the 32-33 minimum credit requirement for AGEC with a grade of C or higher

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits to fulfill the 60-credit degree requirement with a grade of C or higher - ANT102; SOC202; PSY101; SOC212; SOC203 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA03_26-27 - Associate of Arts, History Pathway

Program Information

Program Title
Associate of Arts, History Pathway

Description
Studying history opens doors to understanding the human past, interactions between cultures and our environment, and how processes take place. Students in history learn how to examine and analyze sources, build arguments, engage in debates of divergent viewpoints, and understand whose stories are told and whose are left out. Understanding the modern world and our potential future requires understanding what came before. History is a field that is constantly changing: there are always new perspectives and new discoveries, as well as vital conversations about how to understand what took place and understand where we fit in the narrative. Students of history interact with new and old media, perform quantitative and qualitative analyses, and strive to present material in innovative and compelling ways for audiences of all backgrounds.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Applying Level) Employ historical methods to analyze patterns of continuity and change. (CSLO 2)

2. (Evaluating Level) Interpret the impact of historical figures, events, movements, and patterns. (CSLO 4)

3. (Creating Level) Formulate questions using existing arguments, methodology, and frameworks and apply to research. (CSLO 2)

4. (Evaluating Level) Critically assess sources for authority, relevance, and application. (CSLO 4)

5. (Analyzing Level) Analyze historical evidence to gain understanding of one`s self and different perspectives. (CSLO 4)

6. (Creating Level)) Collaborate with people of diverse backgrounds to solve problems. (CSLO 1)

7. (Creating Level) Construct an evidence-based historical argument that incorporates primary and secondary sources. (CSLO 2)

8. (Understanding Level) Articulate the diversity of human experience over time within a global context. (CSLO 1)

9. (Understanding Level) Communicate findings of historical research to a diverse audience. (CSLO 3)

10. (Applying Level) Apply historical awareness to a range of professional settings, civic engagement, and everyday life. (CSLO 1)

11. (Applying Level) Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field. (CSLO 3)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete 2 with a grade of C or higher - HIS102 or PHI105 recommended

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete 2 with a grade of C or higher - HIS101 or HIS103 recommended

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete 1 with a grade of C or higher - HIS201 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete 1 with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete 1 with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 1-2 additional AGEC requirement courses with a grade of C or higher to fulfill the 32-33 credit AGEC requirement - HIS105 and/or POS101 recommended

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits with a grade of C or higher to fulfill the 60-credit degree requirement - CIS120; HIS107; SPA101; SPA102; SPA201; SPA202; ASL101; ASL102; ASL201; ASL202 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA04_26-27 - Associate of Arts, Psychology Pathway

Program Information

Program Title
Associate of Arts, Psychology Pathway

Description
The psychology pathway aims to help students graduate with an understanding of contemporary psychology through practical experience. The psychology program uses an applied approach by coordinating psychological theory with real world application. Students are encouraged to use guiding principles in a variety of settings.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Explain how Psychology is a science and interdisciplinary. (CSLO 2)

2. (Applying Level) Identify interrelationships between biological, psychological and socio-cultural processes. (CSLO 2)

3. (Applying Level) Apply Psychological science to everyday life and career goals. (CSLO 3)

4. (Applying Level) Utilize a systematic method of investigation, design and conduct a psychology research project. (CSLO 4)

5. (Understanding Level) Locate, interpret and evaluate research findings. (CSLO 4)

6. (Analyzing Level) Analyze and interpret data using quantitative and qualitative methods. (CSLO 4)

7. (Applying Level) Utilize scientific findings and theories to generate new ideas. (CSLO 2)

8. (Evaluating Level) Evaluate the impact of socio-cultural diversity and societal inequality on social and psychological issues and research. (CSLO 1)

9. (Understanding Level) Interact effectively with others using an understanding of the role culture, values and biases play in communication. (CSLO 1)

10. (Applying Level) Utilize effective written, oral and visual communication skills in varied contexts, in accordance with the professional conventions within the field of psychology. (CSLO 3)

11. (Applying Level) Apply ethical standards and social responsibility to evaluate psychological science and practice. (CSLO 1)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:

- AGEC Arts & Humanities Courses

Complete 2 with a grade of C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Complete 2 with a grade of C or higher - PSY101 & PSY203 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete 1 Science course with a grade of C or higher - PSY290 recommended

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete 1 course with a grade of C or higher - MAT187 recommended

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete 1 course with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Select 1-2 additional AGEC courses to fulfill the 32-33 credits minimum AGEC requirements

Transferable Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits to fulfill the 60-credit minimum degree requirement - PSY230 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA05_26-27 - Associate of Arts, Political Science Pathway

Program Information

Program Title
Associate of Arts, Political Science Pathway

Description
The Political Science Pathway allows students to specialize in the study of the organization and behavior of people, groups, and institutions which make up our governments and larger political system. This Pathway is designed to assist students who wish to transfer to the university as a Political Science major and prepares them for a variety of careers.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Applying Level) Develop and sustain a lifelong interest in local, national, and global civic engagement through active citizenship. (CSLO 1)

2. (Remembering Level) Define, cite examples of, differentiate between, and critique basic political concepts, systems, and theories. (CSLO 2)

3. (Applying Level) Apply knowledge of politics by using the theoretical foundations and analytical tools of multiple sub-fields of political science. (CSLOs 2, 4)

4. (Understanding Level) Appraise a situation, formulate an argument; collect, evaluate, and utilize evidence about key issues of public policy and politics. (CSLO 4)

5. (Understanding Level) Demonstrate effective communication skills for a diverse, political world. (CSLO 3)

6. (Applying Level) Collaborate effectively and ethically with diverse individuals and institutions to achieve common goals. (CSLO 1)

7. (Applying level) Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field. (CSLO 3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete 2 Arts and Humanities courses - PHI105 recommended

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete 2 Social and Behavioral Science courses - POS104, POS220 recommended

Natural Sciences

Earn at least 4 credits from the following:
- AGEC Natural Sciences

Complete 1 Natural Science course

Quantitative Reasoning

Earn at least 3 credits from the following:
- AGEC Quantitative Reasoning

Complete 1 Quantitative Reasoning course

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete 1 Institutions of the Americas course - POS101 recommended

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 credits of additional AGEC requirement to fulfill the 32-33 minimum credits AGEC requirement

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits to fulfill the 60-credit degree requirement - SPA101; SPA102; SPA201; SPA202; ASL101; ASL102; ASL201; ASL202; WGS100; CIS120 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA06_26-27 - Associate of Arts, Elementary Education

Program Information

Program Title
Associate of Arts, Elementary Education

Description
The Associate of Arts, Elementary Education (AAEE) Degree is appropriate for students who require practical and professional skills and knowledge that can lead to upper division programs in elementary education for seeking teacher certification credentials with the Arizona Department of Education. This course examines and evaluates the Model Code of Ethics for Educators (MCEE). Coursework lays the foundation for taking upper division coursework paving the way for entering the Bachelor of Science in Elementary Education (BSEE) at CAC, leading to a standard teaching certificate in grades kindergarten - grade 8 with the Arizona Department of Education. The AAEE provides preparation for para-educators.

Area of Interest
Education

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Analyze Level) Analyze and integrate legal issues that affect students, teachers, parents and administration in contemporary education using cases in which the concept of equity and equal opportunity have evolved into educational policy. (InTASC 2, 9) (CEC 6) (CSLO 1 & 2)

2. (Evaluating Level) Compare and contrast current trends in education through classroom-based observations, current event analysis, reactions to readings, and discussion with professional educators. (InTASC 9, 10)(CEC 6, 7) (CSLO 2, 3, 4)

3. (Creating Level) Analyze and explain the prominent educational theorists and theories and describe their impact on contemporary practice in education. (InTASC 9, 10) 9CEC0 6, 70 (CSLO 2 & 4)

4. (Creating Level) Analyze the tenets of the Model Code of Ethics for Educators (MCEE). (InTASC 9) (CEC 6) (CSLO1,3)

5. (Creating Level) Construct a personal philosophy of teaching for what it means to be a professional educator. (InTASC1,2,3,4,5,6,7,8,9,10) (CEC1,2,3,4,5,6,7) (CSLO 1,2,3,4)

6. (Creating Level) Examine multicultural education by evaluating the effect of cultural and linguistic diversity on classroom procedures and teaching strategies while identifying the significance of multiple cultures and /or language on classroom dynamics. (InTASC 1,2) (CEC 1,5) (CSLO 1, 3)

7. (Evaluating Level) Examine and evaluate historical and contemporary trends in service delivery to individuals with disabilities utilizing the important components of Section 504 of the Rehabilitation Act, The Education for All Handicapped Children Act (PL 94-142), Public Law 99-457, and the Individuals with Disabilities Education Act. (InTASC 1,2,3,4,5) (CEC 1,2,3,4, 5, 6) (CSLO 2 & 4).

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Complete ALL of the following Courses:
- HIS101 - United States History I
- LIT291 - Children's Literature for Educators

Complete with a grade of C or higher

Social/Behavioral Sciences

Complete ALL of the following Courses:
- POS220 - U.S. and Arizona Constitutions
- PSY101 - Introduction to Psychology

Complete with a grade of C or higher

Natural Sciences

Earn at least 8 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AAEE/BSEE Quantitative Reasoning

Complete 3-4 credits with a grade of C or higher (excluding MAT201 & MAT202)

Program Requirements

Complete ALL of the following Courses:

- EDU221 - Introduction to Education
- EDU222 - Introduction to Special Education
- EDU228 - Creating an Effective Learning Environment
- EDU230 - Cultural Values in Education
- EDU240 - Structured English Immersion
- EDU275 - Writing Across Content Areas
- MAT201 - Math for Elementary Teachers I - Number, Operations and Numerical Systems
- MAT202 - Math for Elementary Teachers II - Geometry, Measurement and Visualization

Complete all courses with a grade of C or higher. *NOTE: EDU230 fulfills the Institutions of the Americas AGEC requirement.

Transferable Electives

Earn at least 6 credits from the following:

- Electives
- Transfer Electives

Complete 6-7 credits with a grade of C or higher to fulfill the minimum degree requirement of 60 credits. Recommended: ECE271; ECE276; ECE283 or any math, science or literature courses.

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA07_26-27 - Associate of Arts, Administration of Justice Studies Pathway

Program Information

Program Title
Associate of Arts, Administration of Justice Studies Pathway

Description
The Administration of Justice pathway prepares students to transfer to an accredited university for a higher level degree or to immediately pursue a career in specific criminal justice occupations. Note: Many occupations require a Bachelor's degree. Also note that many justice-related occupations require a background check.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Discuss the structure of the criminal justice system and key issues within it. (CSLO 1,2,3)
2. (Evaluating Level) Assess current ethical issues within the criminal justice system. (CSLO 1,2,3,4)
3. (Evaluating Level) Critique current issues in criminal justice systems along with associated laws and policy decisions. (CSLO 1,2,3,4)
4. (Analyzing Level) Explain particulars of criminal law. (CSLO 2,3,4)
5. (Evaluating Level) Summarize the history, philosophy, and process of the juvenile justice system. (CSLO 1,2,3,4)
6. (Evaluating Level) Critique qualities, behaviors and actions of law enforcement administrators. (CSLO 1,2,3,4)
7. (Understanding Level) Explain theories of criminal causation. (CSLO 2,4)
8. (Understanding Level) Describe the history, role, purpose and variety of law enforcement in the United States. (CSLO 1,2,3)
9. (Understanding Level) Describe the history, role, purpose and variety of corrections in the United States. (CSLO 1,2,3)
10. (Applying Level) Examine rights and procedural safeguards as applicable to the criminal justice system. (CSLO 1,2,3,4)
11. (Evaluating Level) Appraise the relationship between criminal justice components and the community. (CSLO 1,2,3,4)
12. (Applying Level) Articulate key elements, procedures, and legal issues as related to the investigative function. (CSLO 2,3,4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete 1 with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete 2 Arts & Humanities courses with a grade of C or higher - AJS123 recommended

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete 2 Social & Behavioral Science courses with a grade of C or higher- AJS101; PSY101 or SOC101 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete 1 Science course with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 credits of additional AGEC requirement with a grade of C or higher to fulfill the 32-33 AGEC minimum credit requirement

Core Requirements

Complete ALL of the following Courses:

- AJS209 - Substantive Criminal Law
- AJS260 - Procedural Criminal Law

Complete with a grade of C or higher

Electives

Earn at least 21 credits from the following:

- Transfer Electives
- Electives

Complete 21-22 transferable elective credits to fulfill the minimum 60-credit degree requirement with a grade of C or higher - AJS200; AJS230; AJS240; AJS224; AJS225; AJS270 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA08_26-27 - Associate of Arts, Agriculture Pathway

Program Information

Program Title
Associate of Arts, Agriculture Pathway

Description
The Agriculture Pathway is designed for those interested in a career or a transfer pathway degree in animal science, biotechnology, plant science, agriculture business, agriculture education, and other agriculture based programs.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Explain foundational principles of agricultural science, including biological systems, environmental processes, and the role of agriculture in local and global contexts. (CSLOs 1, 2)

2. (Applying Level) Apply scientific methods and agricultural practices to analyze and address issues related to food systems, sustainability, natural resources, and production. (CSLOs 2, 4)

3. (Analyzing Level) Analyze the economic, environmental, and social factors that influence agricultural systems and policy decisions. (CSLO 4)

4. (Applying Level) Interpret and apply quantitative data, including basic statistical and financial information, to agricultural scenarios and problem-solving. (CSLO 4)

5. (Evaluating Level) Evaluate the impact of agricultural practices on ecosystems, communities, and global food security using evidence-based reasoning. (CSLO 1)

6. (Creating Level) Develop solutions or recommendations for agricultural challenges that integrate scientific knowledge, ethical considerations, and sustainability principles. (CSLO 6)

7. (Understanding Level) Communicate agricultural concepts effectively in written, oral, and/or visual formats for diverse audiences. (CSLO 3)

8. (Applying Level) Demonstrate professional behaviors, ethical decision-making, and collaborative skills appropriate to agricultural and related career pathways. (CSLOs 1, 3)

Simple Requisites

General Education Requirement
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Select 1

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete 2 courses - ANS104 & AGS235 recommended

Social & Behavioral Sciences

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Complete 2 courses - AGS122 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete 1- AGS221 or AGS240 recommended

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Select 1

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Select 3-4 credits to fulfill the minimum 32-33 credits AGEC requirement

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Select 27-28 transferable elective credits to fulfill the 60-credit degree requirement - AGB100 & AGB124 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA09_26-27 - Associate of Arts, Communication Pathway

Program Information

Program Title
Associate of Arts, Communication Pathway

Description
The Communication Pathway promotes the effective and ethical practice of human communication, allowing students to explore how people use messages to generate meanings within and across various contexts, cultures, channels and media. This pathway is designed to help students transfer to a university as a Communication major and prepares them for an ever expanding variety of careers.

Area of Interest
Communication & English

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Describe the communication discipline and its central questions. (CSLO 2)

2. (Application Level) Apply communication theories and practices to develop, maintain and manage effective personal and professional relationships. (CSLO 2)

3. (Understanding Level) Demonstrate problem solving and decision-making techniques in a variety of communication settings. (CSLO 4)

4. (Analyzing Level) Analyze messages in various communication settings and channels. (CSLO 4)

5. (Creating Level) Research and create messages appropriate to the audience, purpose, and context. (CSLO 4)

6. (Understanding Level) Demonstrate the ability to accomplish communicative goals (self-efficacy). (CSLO 3)

7. (Applying Level) Apply ethical communication principles and practices. (CSLO 3)

8. (Applying Level) Utilize communication to embrace differences in individual, group and public settings. (CSLO 1)

9. (Evaluating Level) Evaluate public discourse and discuss and/or advocate a course of civic action. (CSLO 1)

10. (Remembering Level) Display competence in oral, written, and visual communication in various personal and professional contexts. (CSLO 3)

11. (Understanding Level) Engage in scholarly research in the communication discipline. (CSLO 2)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Select 1 course - COM263 recommended

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Select 2 courses

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Select 2 courses - COM206 and COM259 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select 1 course

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Select 1 course

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Select 3-4 additional AGEC credits from list to fulfill the minimum 32-33 AGEC credits - COM101 recommended

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits to fulfill the minimum 60-credit degree requirement - SPA101; ASL101; SPA102; ASL102; SPA201; ASL201; SPA202; ASL202; CIS120; COM275 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA10_26-27 - Associate of Arts, Spanish Pathway

Program Information

Program Title
Associate of Arts, Spanish Pathway

Description
The Spanish Pathway strives to provide students with the skills necessary to read, write, speak, and listen, as well as understand the cultural norms, values, beliefs, and regional variations where Spanish is spoken. This pathway is designed to help students transfer to a university as a Spanish or Spanish Education major or provides them with a degree that is ideal as a double-major for many programs, as knowledge of Spanish assists with nearly all career opportunities.

Area of Interest
Communication & English

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Analyzing Level) Ask and answer questions, give instructions and commands, and maintain conversations in the past, present, and future. (CSLO 3)

2. (Understanding Level) Demonstrate comprehension of authentic written and oral passages that include detailed descriptions and narrations in the past, present, and future. (CSLO 2)

3. (Remembering Level) Employ the writing process to provide detailed descriptions and narrations in the past, present, and future. (CSLO 3)

4. (Applying Level) Apply critical thinking skills to analyze and evaluate information, including authentic cultural products. (CSLOs 2, 4)

5. (Applying Level) Apply knowledge of cultural norms, values, beliefs, and regional variations to settings where the target language is used. (CSLO 1)

6. (Evaluating Level) Compare and contrast target cultures and the students` native culture(s). (CSLO 1, 4)

7. (Applying Level) Use linguistic concepts to describe basic differences and commonalities of various languages. (CSLO 2)

8. (Applying Level) Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field. (CSLO 3)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Select 1 - COM263 recommended

Arts and Humanities

Earn at least 6 credits from the following:

- AGEC Arts & Humanities Courses

Select 2

Social and Behavioral

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select 2

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select 1

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Select 1

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 additional AGEC credits to fulfill the 32-33 AGEC minimum credits requirement

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits to fulfill the 60-credit minimum degree requirement - SPA101; SPA102; SPA201; SPA202; CIS120 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA11_26-27 - Associate of Arts, Mathematics Pathway

Program Information

Program Title
Associate of Arts, Mathematics Pathway

Description
The Mathematics Pathway is designed to transfer to a university major where students can specialize in one of these areas: actuarial sciences, statistics, secondary education, cryptology, cartography, topology, data science, and research.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Demonstrate knowledge of proportional relationships, spatial reasoning, algebra, geometry, trigonometry, and calculus. (CSLO 2)

2. (Understanding Level) Demonstrate the interconnectedness of mathematical ideas and how they build on one another. (CSLO 2)

3. (Creating Level)) Use patterns and relationships to make generalizations and predictions. (CSLO 4)

4. ()Understanding Level) Present information accurately in various ways (graphically, numerically, symbolically, and verbally). (CSLO 2, 3)

5. (Application Level) Apply appropriate mathematical strategies and reasoning to solve problems. (CSLO 4)

6. (Evaluating Level) Justify mathematical processes and results. (CSLO 4)

7. (Creating Level) Use technology to assist in learning and investigating mathematical ideas. (CSLO 2, 3)

8. (Evaluating Level) Determine and apply appropriate technologies to solve problems efficiently. (CSLO 3, 4)

9. (Evaluating Level) Critically evaluate information for relevance, usefulness, and applicability. (CSLO 4)

11. (Applying Level) Collaborate effectively and appropriately in a diverse, multicultural setting to solve problems. (CSLO 1, 3)

12. (Analyzing Level) Critique the reasoning of others. (CSLO 4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Select 1

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Select 2

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Select 2 - EDU221 & POS220 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select 1 - PHY121 recommended

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Select 1 - MAT221 recommended

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Select 3-4 additional AGEC credits to fulfill the 32-33 credits minimum AGEC requirement - PHY122 recommended

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Select 27-28 transferable elective credits to fulfill the 60-credit minimum degree requirement - MAT231; MAT241; MAT275; CIS216; CIS231 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA12_26-27 - Associate of Arts, Early Childhood Education

Program Information

Program Title
Associate of Arts, Early Childhood Education

Description
The Associate of Arts, Early Childhood Education (AA ECE) Degree is appropriate for students working in early childhood environments who want to increase their knowledge, practical, and professional skills in the field, and for students who want to pursue advanced degrees in Early Childhood Education teacher certification. Recommended proficiencies: Individuals preparing to observe in an early childhood setting in Arizona obtain verification of a negative Mantoux TB test and maintain a valid IVP fingerprint clearance card. College-level English, math, and reading courses or placement test scores to demonstrate proficiency.

Area of Interest
Education

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Analysis Level) Analyze major theoretical perspectives and research on child development (birth–age 8), including brain development, executive function, and protective/risk factors. Evaluate how cultural, familial, and societal contexts shape development and apply this analysis to inform equitable practices. (CSLO 4; NAEYC 1)

2. (Evaluation Level) Evaluate diverse family structures and stages of development to cultivate responsive, respectful, and reciprocal partnerships. Analyze potential conflicts between family preferences and program practices. Propose solutions that foster trust, shared decision-making, and culturally responsive approaches. Develop and implement strategies that leverage community resources to strengthen family engagement and child transitions. (CSLO 1; NAEYC 2)

3. (Analysis Level) Critically evaluate and practice using a range of observation and assessment tools for developmental, cultural, and linguistic appropriateness. Analyze assessment data to set individualized learning goals. Create assessment plans in partnership with families and colleagues to ensure equity and positive outcomes. (CSLO 4; NAEYC 3)

4. (Evaluation Level) Demonstrate and defend differentiated practices that incorporate play, inquiry, and executive function skills. Evaluate the effectiveness of culturally and linguistically responsive, anti-bias strategies, and design inclusive learning environments that foster resilience, curiosity, and critical thinking. (CSLO 2, NAEYC 4)

5. (Synthesis Level) Synthesize knowledge of core academic areas to implement pedagogical methods that are inclusive of young children with diverse abilities. Evaluate curriculum for developmental appropriateness and cultural responsiveness, and design learning experiences that extend children's thinking across disciplines. (CSLO 2; NAEYC 5)

6. (Analysis Level) Analyze and resolve professional dilemmas using the NAEYC Code of Ethical Conduct. Evaluate emerging issues in the field, and create advocacy strategies that support children, families, and educators within early learning settings and broader policy contexts. (CSLO 3, NAEYC 6)

7. (Evaluate) Critically reflect on professional practice and biases using stakeholder feedback and evidence. Create individualized professional development goals and resiliency practices to maintain ethical, effective engagement and intentional approaches with children and families. (CSLO 3, NAEYC 6)

Simple Requisites

Recommended Proficiencies
Individuals preparing to observe in an early childhood setting in Arizona obtain verification of a negative Mantoux TB test and maintain a valid IVP fingerprint clearance card. College-level English, math, and reading courses or placement test scores to demonstrate proficiency.

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a C or higher - EDU230 recommended

Arts & Humanities

Earn at least 6 credits from the following:

- AGEC Arts & Humanities Courses

Complete with a grade of C or higher - LIT291 recommended

Social & Behavioral Sciences

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher - ECE276 required and HIS101 recommended

Natural Sciences

Earn at least 8 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Degree Requirements
Type
Completion Requirement

Core Program Requirements

Complete ALL of the following Courses:

- ECE105 - Foundations Early Child Education
- ECE216 - Early Childhood Observation and Assessment
- ECE229 - Early Childhood Practicum
- ECE271 - Creating Early Childhood Environments
- ECE278 - Early Childhood Curriculum Development
- ECE283 - Building Family and Community Partnerships

Complete with a grade of C or higher

Electives

Earn at least 8 credits from the following:

- Transfer Electives
- Electives

Complete 8-9 transferable elective credits to fulfill the 60-credit degree requirement with a grade of C or higher

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA13_26-27 - Associate of Arts, English (Literature) Pathway

Program Information

Program Title
Associate of Arts, English (Literature) Pathway

Description
The Associate of Arts, English (Literature) Pathway allows students to explore the world of literature as they read and analyze classic and modern texts. This pathway is designed to help students transfer to a university as an English major and prepares them for an ever expanding variety of careers.

Area of Interest
Communication & English

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Applying Level) Utilize effective written and oral communications skills to meet the needs of various audiences and contexts, with a special emphasis on scholarly concepts and conventions within the field of English studies. (CSLO 3)

2. (Evaluating Level) Perform academic research pertaining to works of literature utilizing scholarly practices and ethical standards. (CSLO 2)

3. (Analyzing Level) Analyze literature and other relevant texts in relation to the social, cultural, and historical contexts within which they are produced and consumed. (CSLOs 1, 4)

4. (Analyzing) Analyze literature and other relevant texts in relation to genre, movement, national tradition, and themes. (CSLOs 1, 4)

5. (Creating Level) Synthesize theory, scholarly work, and personal insights to develop and support textual analysis. (CSLOs 2, 4)

Simple Requisites

Program Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a grade of C or higher - COM263 recommended

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher - LIT201 & LIT203 recommended

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Earn at least 4 credits from the following:
- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 1-2 additional AGEC courses with a grade of C or higher to fulfill the 32-33 credit AGEC requirement

Transferable Elective Credits

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits with a grade of C or higher to fulfill the 60-credit minimum degree requirement - SPA101; ASL101; SPA102; ASL102; SPA201; ASL201; SPA202; ASL202; CIS120; LIT202; LIT204; 200 level ENG courses; 200 level LIT courses recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA14_26-27 - Associate of Arts, Fine Arts- Studio Art Emphasis

Program Information

Program Title
Associate of Arts, Fine Arts- Studio Art Emphasis

Description
The Associate of Arts, Fine Arts Degree prepares students to transfer to a university BA, BFA, or Bachelor of Teaching in Fine Arts degree programs. Students may choose the Studio Art Emphasis or Music Emphasis. Those planning to continue on at the university level may benefit by taking additional foreign language courses to apply to a future degree.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Evaluating Level) Evaluate music or art as evolving forms with aesthetic values and meaning and defend the concept of music or art as a universal language with organization and structure. (CSLOs 2, 3)
2. (Applying Level) Apply knowledge of traditional history and of the cultural diversity and heritage in the arts to new situations. (CSLO 1)
3. (Remembering Level) Referencing art or music from prehistoric times to the present, identify important artwork of the world when presented with visual or aural reproductions. (CSLOs 2, 3)
4. (Understanding Level) Describe a work of art by evaluating its formal properties in a written essay or group discussion. (CSLO 2,4)
5. (Applying Level) Demonstrate recognition of the components of composition in art or music. (CSLO 3)
6. (Evaluating Level) Describe a work of art by evaluating its formal properties in a written essay or group discussion (CSLO 1,2,3,4) OR perform a solo in recital on a primary instrument or voice part.
7. (Creating Level) Compose a portfolio of original designs using principles of color theory and use classical shading theory in a drawing OR perform music and accompany other musicians in a variety of genres on the piano. (CSLO 2)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a C or higher

Arts & Humanities

For Studio Art Emphasis

Complete ALL of the following Courses:
- ART101 - Two-Dimensional Design
- ART207 - Art History I

Complete with a C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a C or higher

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 credits of additional AGEC requirement with a C or higher to fulfill the minimum 32-33 credit AGEC requirement - ART100 required

Program Requirements
Type
Completion Requirement

Studio Art Emphasis Core

Complete ALL of the following Courses:

- ART102 - Three-Dimensional Design
- ART107 - Drawing I
- ART109 - Color Theory
- ART208 - Art History II
- DMA101 - Media and Society

Studio Art Emphasis Electives

Earn at least 12 credits from the following:

- ART103 - Beginning Jewelry and Metalwork
- ART104 - Advanced Jewelry and Metalwork
- ART105 - Ceramics I
- ART106 - Ceramics II
- ART108 - Intermediate Drawing
- ART201 - Painting I
- ART202 - Painting II
- DMA122 - Introduction to Web Design

Complete 12-13 selected transferable Studio Art electives with a grade of C or higher to fulfill the 60-credit degree minimum

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA15_26-27 - Associate of Arts, Fine Arts - Music Emphasis

Program Information

Program Title
Associate of Arts, Fine Arts - Music Emphasis

Description
The Associate of Arts, Fine Arts Degree prepares students to transfer to a university BA, BFA, or Bachelor of Teaching in Fine Arts degree programs. Students may choose the Studio Art Emphasis or Music Emphasis. Those planning to continue on at the university level may benefit by taking additional foreign language courses to apply to a future degree.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Evaluating Level) Evaluate music or art as evolving forms with aesthetic values and meaning and defend the concept of music or art as a universal language with organization and structure. (CSLOs 2, 3)
2. (Applying Level) Apply knowledge of traditional history and of the cultural diversity and heritage in the arts to new situations. (CSLO 1)
3. (Remembering Level) Referencing art or music from prehistoric times to the present, identify important artwork of the world when presented with visual or aural reproductions. (CSLOs 2, 3)
4. (Understanding Level) Describe a work of art by evaluating its formal properties in a written essay or group discussion. (CSLO 2,4)
5. (Applying Level) Demonstrate recognition of the components of composition in art or music. (CSLO 3)
6. (Evaluating Level) Describe a work of art by evaluating its formal properties in a written essay or group discussion (CSLO 1,2,3,4) OR perform a solo in recital on a primary instrument or voice part.
7. (Creating Level) Compose a portfolio of original designs using principles of color theory and use classical shading theory in a drawing OR perform music and accompany other musicians in a variety of genres on the piano. (CSLO 2)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a C or higher

Arts & Humanities

For Music Emphasis

Complete ALL of the following Courses:
- MHL100 - Music Appreciation
- MHL207 - Survey of Jazz and Popular Music

Complete with a C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 additional AGEC credits to fulfill the 32-33 minimum credits AGEC requirement - THE100 required

Program Requirements
Type
Completion Requirement

Music Emphasis Core

Complete with a grade of C or higher

Complete ALL of the following Courses:

- MTC102 - Integrated Music Theory I
- MTC106 - Integrated Music Theory II
- MTC202 - Integrated Music Theory III
- MTC206 - Integrated Music Theory IV
- MUP110 - Piano Class
- MUP109B - Private Instruction: Brass
  OR MUP109D - Private Instruction: Percussion
  OR MUP109G - Private Instruction: Guitar/Bass
  OR MUP109P - Private Instruction: Piano/Keyboard
  OR MUP109S - Private Instruction: Orchestral Strings
  OR MUP109V - Private Instruction: Voice
  OR MUP109W - Private Instruction: Woodwind

MUP110 must be completed four (4) times for a total of 4 credit hours.

One of the MUP109 courses must be completed twice for a total of 2 credit hours.

Music Emphasis Electives

Earn at least 5 credits from the following:

- MTC100 - Music Fundamentals
- MTC101 - Aural Fundamentals
- MUP104 - College Choir
- MUP105 - Voice Class
- MUP107 - Band
- MUP108 - Orchestra
- MUP111 - Guitar Ensemble
- MUP109B - Private Instruction: Brass
- MUP109D - Private Instruction: Percussion
- MUP109G - Private Instruction: Guitar/Bass
- MUP109P - Private Instruction: Piano/Keyboard
- MUP109S - Private Instruction: Orchestral Strings
- MUP109V - Private Instruction: Voice
- MUP109W - Private Instruction: Woodwind

Complete 5-6 credits from list with a grade of C or higher not used in the Core Requirements

Additional Comments:

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA16_26-27 - Associates of Arts, English (Secondary Education) Pathway

Program Information

Program Title
Associates of Arts, English (Secondary Education) Pathway

Description
The Associate of Arts, English (Secondary Education) Pathway prepares students for transfer to a university for secondary education with an English concentration.

Area of Interest
Communication & English

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Analyzing Level) Analyze and interpret a diverse range of literary texts (e.g., fiction, poetry, drama, and nonfiction) using appropriate critical frameworks. *(CSLO 2, 4)*
2. (Applying Level) Compose clear, coherent, and well-organized writing for academic and professional purposes, demonstrating effective use of grammar, style, and rhetorical strategies. *(CSLO 2, 3)*
3. (Analyzing Level) Develop and support analytical arguments using textual evidence, logical reasoning, and appropriate research. *(CSLO 2, 4)*
4. (Applying Level) Locate, evaluate, and integrate credible sources to support written and oral communication in accordance with academic standards. *(CSLO 2, 4)*
5. (Applying Level) Communicate ideas effectively in oral presentations and discussions, demonstrating organization, clarity, and audience awareness. *(CSLO 3)*
6. (Understanding Level) Explain foundational principles of secondary education, including learning theories, instructional strategies, and the role of the teacher. *(CSLO 2)*
7. (Analyzing Level) Analyze the impact of cultural, linguistic, and socioeconomic diversity on teaching and learning, and apply inclusive practices. *(CSLO 1, 4)*
8. (Applying Level) Apply basic instructional planning techniques, including lesson design, learning objectives, and assessment strategies appropriate for secondary English classrooms. *(CSLO 2, 3)*
9. (Evaluating Level) Demonstrate an understanding of ethical practices, professional standards, and responsibilities in education. *(CSLO 1, 3)*
10. (Creating Level) Integrate knowledge of English content with pedagogical strategies to support student learning in secondary classroom settings. *(CSLO 2, 3, 4)*

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a grade of C or higher - COM263 recommended

Arts and Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher - LIT201/202; LIT203/204 recommended

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher - EDU221, EDU222 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 additional AGEC credits with a grade of C or higher to fulfill the 32-33 credit AGEC requirement - LIT291 recommended

Electives

Earn at least 27 credits from the following:

- Electives
- Transfer Electives

Complete 27-28 transferable elective credits with a grade of C or higher to fulfill the 60-credit minimum degree requirement - CIS120 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA17_26-27 - Associate of Arts, Pre-Nursing Pathway

Program Information

Program Title
Associate of Arts, Pre-Nursing Pathway

Description
Pre-program admission requirements:

Before applying to the program, students need to have completed the following:

1. BIO181 General Biology I, BIO156 or placement assessment required to register for BIO201 or BIO205.
2. Completed BIO201 Anatomy & Physiology I with a grade of "C" or better (within 5 years prior to the application.)
3. Completed BIO202 Anatomy & Physiology II with a grade of "C" or better (within 5 years prior to the application.)
4. Licensed Nursing Assistant (LNA) or Licensed Practical Nurse (LPN)- CNA135: Nursing Assistant course is offered at CAC or other AZ Board of Nursing Approved Licensed Nursing Assistant programs can be found at:

   https://www.azbn.gov/education/nursing-programs-lists
5. Eligible to register for ENG101 College Composition I. Eligible to register for MAT141 College Mathematics or higher.

   -New Students-Find your suggested starting point for English/Reading & Math courses.
6. Application to the Nursing Program (Must attend an informational session within one year of application.) The program application will be provided in the information session.
7. HESI Nursing entrance exam at CAC prior to submitting application. The HESI must be completed within three attempts with the following scores: 80% minimum with 90-95% preferred on Reading Comprehension, Grammar, Vocabulary, and

   Mathematics and 70% minimum on Anatomy/Physiology. (A 30-day wait is required before retesting.)
8. Cumulative GPA of 2.75 or higher on nursing prerequisite/corequisite.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Applying Level) Apply foundational knowledge from biology, chemistry, microbiology, nutrition, and pathophysiology to explain normal and abnormal human body functions. (CSLO 2, 4)
2. (Analyzing Level) Analyze scientific and health-related information to support evidence-based understanding of human health and disease processes. (CSLO 2, 4)
3. (Applying Level) Apply mathematical and statistical reasoning to interpret health data and support informed decision-making in healthcare contexts. (CSLO 2, 4)
4. (Applying Level) Demonstrate effective written, oral, and interpersonal communication skills appropriate for academic and healthcare-related environments. (CSLO 1, 3)
5. (Understanding Level) Demonstrate knowledge of psychological, social, and cultural factors that influence health, behavior, and patient outcomes. (CSLO 1, 2)
6. (Applying Level) Utilize critical thinking and problem-solving skills to evaluate scenarios relevant to patient care and healthcare systems. (CSLO 4)
7. (Understanding Level) Demonstrate ethical reasoning, professionalism, and responsibility consistent with expectations in healthcare and nursing pathways. (CSLO 1, 3)
8. (Applying Level) Integrate knowledge from general education disciplines (arts, humanities, and social sciences) to support holistic perspectives on patient care. (CSLO 1, 2)
9. (Understanding Level) Demonstrate readiness for entry into nursing programs through effective study strategies, adaptability, and lifelong learning skills. (CSLO 3)
10. (Applying Level) Collaborate effectively with diverse individuals in academic and pre-professional settings to achieve shared goals. (CSLO 1, 3)

Simple Requisites
Pathway Requirements

Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher - COM263 recommended

Arts & Humanities

Earn at least 6 credits from the following:

- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher - PSY101 required & PSY203 recommended

Natural Sciences

Complete ALL of the following Courses:

- BIO201 - Human Anatomy and Physiology I
- BIO202 - Human Anatomy and Physiology II

Complete with a C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:

- BSN Quantitative Reasoning

Complete with a grade of C or higher - MAT162 strongly recommended

Core Requirements

Complete ALL of the following Courses:

- BIO181 - General Biology I
- BIO205 - Microbiology
- CHM130 - Fundamental Chemistry
- NTR200 - Human Nutrition
- PSY230 - Introduction to Statistics
- CNA135 - Nursing Assistant

Complete with a grade of C or higher

Electives

Earn at least 5 credits from the following:

- Transfer Electives
- Electives

Complete 5-6 transferable elective credits with a grade of C or higher to fulfill the 60-credit degree requirement

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;

- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AA18_26-27 - Associate of Arts, Recreation and Tourism Management Pathway

Program Information

Program Title
Associate of Arts, Recreation and Tourism Management Pathway

Description
The Associate of Arts, Recreation & Tourism Management Pathway prepares students for professional positions of employment in Parks, Recreation and Tourism Management program areas. The recreation-related professions represent a diverse field focusing on the role of leisure in youth and adult development; parks/ open space to community quality of life; leisure, sports and natural resource tourism to economic and community development; and providing human services in meeting community needs. Students will be ready for program delivery positions in diverse public, nonprofit and private organizations of Parks, Recreation and Tourism. This program also prepares students for transfer into Parks, Recreation and Tourism upper-level degree programs.

Area of Interest
Business & Professional Industries

Degree Type
AA - Associate of Arts

Total Credits Required
60

Program Learning Outcomes
1. (Creating Level) Develop and communicate the conceptual foundations of play, recreation, and leisure. (CSLO 2)
2. (Evaluating Level) Examine and appraise the significance of play, recreation and leisure in contemporary society and the relationship these concepts have with historical, multicultural, technological, economic, political, social/psychological, international, physical, philosophical, and environmental perspectives. (CSLO 2)
3. (Understanding Level) Explain the significance of play, recreation, and leisure throughout the lifespan to include the developmental, preventive, and therapeutic roles of these concepts. (CSLO 1,2,4)
4. (Analyzing Level) Research and analyze the interrelationship between leisure behavior and the natural environment, as well as how the natural environment facilitates the achievement of a state of leisure.(CSLO 1,2,4)
5. (Evaluating Level) Determine and critique the relationship of environmental ethics to leisure behavior, including environmental protection and preservation in park or recreation facility development and program provision. (CSLO 1,2)
6. (Analyzing Level) Examine and relate ethical principles and professionalism to professional codes of ethics and standards of conduct and how these areas are critical in defining leisure services as a profession. (CSLO 1,2)
7. (Analyzing Level) Differentiate between the roles, interrelationships and use of diverse delivery systems addressing recreation, park resources, and leisure to include an understanding of the public, private, profit, and not-for-profit delivery systems that address the leisure needs of the public, how they work together, and their importance. (CSLO 1,2)
8. (Analyzing Level) Examine and explain the importance of leisure service delivery systems for diverse populations. (CSLO 1,2,4)
9. (Analyzing Level) Analyze and explain the roles, interrelationships, and use of diverse leisure delivery systems in promoting community and economic development. (CSLO 1,2,4)
10. (Analyzing Level) Distinguish between and explain the variety of programs and services offered to enhance individual, group, and community quality of life. (CSLO 1,2,4)
11. (Evaluating Level) Demonstrate the ability to implement the following principles and procedures related to program/event planning for individual, group, and community quality of life: assessment of needs; development of outcome-oriented goals and objectives; selection and coordination of programs, events, resources; marketing of programs and events; preparation, operation, and maintenance of venues; implementation of programs and events; as well as evaluation of programs and events. (CSLO 1,2,3,4)
12. (Understanding Level) Demonstrate the ability to integrate various leadership techniques to enhance individual, group, and community experiences. (CSLO 1,2,4)

Simple Requisites

Pathway Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher - ECN202 strongly recommended

Arts & Humanities

Earn at least 6 credits from the following:

- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Science

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher - PEH101 & REC101 strongly recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher - NTR141 strongly recommended

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 additional AGEC credits with a grade of C or higher to fulfill the 32-33 credits AGEC requirement - ENV101; COM206 recommended

Electives

Earn at least 27 credits from the following:

- Transfer Electives
- Electives

Complete 27-28 transferable elective credits with a grade of C or higher to fulfill the 60-credit degree requirement - HRM145; HRM252; REC108; REC203; REC250; BUS190; HRM100; CIS120 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AA Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AB01_26-27 - Associate of Business, Liberal Studies

Program Information

Program Title
Associate of Business, Liberal Studies

Description
The Associate of Business, Liberal Studies degree suits students who plan to transfer to the university to earn a baccalaureate degree in Business-related areas, such as Accounting, Business Administration, Computer Information Systems, Economics, Finance, Human Relations, Marketing, and Public Administration. Contact an academic advisor for assistance.

Area of Interest
Business & Professional Industries

Degree Type
ABUS - Associate of Business

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Demonstrate knowledge of the practice of accounting, economics, entrepreneurship, management, and marketing in the business environment. (CSLO 2)

2. (Evaluating Level) Research, locate, and evaluate business information in order to support evidence-based decisions. (CSLOs 2, 4)

3. (Evaluating Level) Critically evaluate the alternatives faced in business decision making to select the most effective and efficient solution. (CSLO 4)

4. (Analyzing Level) Analyze the impact of decisions and activities on the financial position of an organization. (CSLOs 2, 4)

5. (Creating Level) Create and use effective oral, written, and visual business communication skills. (CSLOs 2, 3)

6. (Understanding Level) Recognize ethical, legal, and global dimensions in business practice and how business integrates social responsibility into operations/ decision making. (CSLOs 1, 2)

7. (Applying Level) Use team collaboration to solve business problems. (CSLOs 3, 4)

8. (Creating level) Develop skills, knowledge, and habits of mind necessary to transfer to and succeed at a university or college with junior status in business. (CSLOs 2, 3)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher - PHI105 recommended

Social & Behavioral Sciences

Complete ALL of the following Courses:
- ECN201 - Principles of Macroeconomics
- ECN202 - Principles of Microeconomics

Complete with a grade of C or higher

Quantitative Reasoning

Complete ALL of the following Courses:

- MAT211 - Brief Calculus, Standard

Complete MAT211 or higher with a grade of C or better

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 additional AGEC credits with a grade of C or higher to fulfill the 32-33 minimum AGEC credit requirement

Program Requirements

Complete ALL of the following Courses:

- ACC201 - Financial Accounting
- ACC202 - Managerial Accounting
- BUS201 - Legal Environment of Business
- BUS208 - Business Statistics
- CIS120 - Survey of Computer Information Systems
- MAT215 - Math for Business Analysis

Complete with a grade of C or higher

Electives

Earn at least 8 credits from the following:

- Electives
- Transfer Electives

Complete 8-9 transferable elective credits with a grade of C or higher to fulfill the 60-credit degree requirement - ACC121; BUS100; BUS260; MAT151 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AB Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AG01_20-21 - Associate of General Studies

Program Information

Program Title
Associate of General Studies

Description
The Associate of General Studies (AGS) Degree is appropriate for students who desire flexibility in pursuing a degree, directly entering the workforce, or do not plan to transfer.

Degree Type
AGS - Associate of General Studies

Total Credits Required
60

Program Learning Outcomes
1. Demonstrate effective written, oral, or visual communication for specific audiences in the context of the field of study.
2. Use field of study frameworks to investigate issues and/or solve problems.
3. Apply scientific concepts and methodologies within the field of study.
4. Interpret quantitative information and/or utilize mathematical concepts and techniques.
5. Examine how diverse perspectives impact the human experience within a field of study.

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I

Oral Communication

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC lists.

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 8 credits from the following:
- AGEC Natural Sciences

Select 2

Mathematics

Earn at least 3 credits from the following:
- BUS101 or MAT118 or higher

Electives

Earn at least 31 credits from the following:

- Transfer Electives
- Electives

Select elective credits to fulfill the 60-credit degree requirement

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP01_23-24 - Health Information Management AAS

Program Information

Program Title
Health Information Management AAS

Description
The Health Information Management (HIM) AAS Degree prepares students with the knowledge and technical skills necessary for managing and improving the quality of information within the healthcare delivery system with an emphasis on Data Management or Revenue Management. The degree focal points are the American Health Information Management Association (AHIMA) entry-level competencies.
The Health Information Management Degree is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM); graduates from this program are eligible to sit for the Registered Health Information Technician (RHIT) credentialing exam.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.1. Describe health care organizations from the perspective of key stakeholders.
I.2. Apply policies, regulations, and standards to the management of information.
I.3. Identify policies and strategies to achieve data integrity.
I.4. Determine compliance of health record content within the health organization.
I.5. Explain the use of classification systems, clinical vocabularies, and nomenclatures.
I.6. Describe components of data dictionaries and data sets.
I.6. Evaluate data dictionaries and data sets for compliance with governance standards (DM).

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2,4)
II.1. Apply privacy strategies to health information.
II.2. Apply security strategies to health information.
II.3. Identify compliance requirements throughout the health information life cycle.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.1. Apply health informatics concepts to the management of health information.
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.
III.5. Describe research methodologies used in health care.
III.6. Describe the concepts of managing data.
III.7. Summarize standards for the exchange of health information.
III.6. Manage data within a database system (DM).
III.7. Identify standards for exchange of health information (DM).

Domain IV. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.1. Validate assignment of diagnostic and procedural codes and groupings
in accordance with official guidelines.
IV.2. Describe components of revenue cycle management and clinical documentation improvement.
IV.3. Summarize regulatory requirements and reimbursement methodologies.
IV.1. Determine diagnosis and procedure codes and groupings according to official guidelines (RM)
IV.2. Evaluate revenue cycle processes (RM)
IV.3. Evaluate compliance with regulatory requirements and reimbursement methodologies (RM)

Domain V. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.1. Apply legal processes impacting health information.
V.2. Demonstrate compliance with external forces.
V.3. Identify the components of risk management related to health information management.
V.4. Identify the impact of policy on health care.

Domain VI. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
VI.1. Demonstrate fundamental leadership skills.
VI.2. Identify the impact of organizational change.
VI.3. Identify human resource strategies for organizational best practices.
VI.4. Utilize data-driven performance improvement techniques for decision making.
VI.5. Utilize financial management processes.

VI.6. Examine behaviors that embrace cultural diversity.
VI.7. Assess ethical standards of practice.
VI.8. Describe consumer engagement activities.
VI.9. Identify processes of workforce training for health care organizations.

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:

- ENG101 - College Composition I

Oral Communication

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM259 recommended

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list. PHI105 recommended.

Social & Behavioral Science

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list. PSY101 recommended.

Natural Sciences

Complete ALL of the following Courses:

- BIO201 - Human Anatomy and Physiology I
- BIO202 - Human Anatomy and Physiology II

Mathematics

Earn at least 3 credits from the following:

- AGEC Mathematics Courses

MAT141 or higher

Core Requirements

Complete ALL of the following Courses:

- MDA117 - Pathopharmacology for Health Occupations
- HIM115 - Introduction to Health Information Management
- HIM121 - Legal Aspects of Health Info
- HIM138 - ICD Coding
- HIM158 - CPT Coding
- HIM160 - Healthcare Data Management
- HIM200 - Introduction to Revenue Cycle Management
- HIM205FA23 - Healthcare Statistics and Research
- HIM210 - Leadership, Supervision and Quality
- HIM215 - Health Information Systems
- HIM296 - Health Information Management Practicum
- HIM220 - Advanced Revenue Management
  OR HIM230 - Advanced Data Management

Additional Comments:

Students must earn:
*a grade of C or better in all required courses;
*a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
*a minimum of 3 earned CAC credits numbered 100 or above;
*a minimum of 61-62 credits for this AAS degree.

Requisites

Prerequisites and Admission Requirements for Program:

Prerequisites
High School Diploma or GED, BIO181, CIS120, MDA116

Admission Requirements
In addition to the CAC admission requirements, applicants must meet the current requirements established by the HIM department. These requirements include, but are not limited to:

1. Competence in English, math, and reading
2. Completion of BIO181 with a final grade of C or higher
3. Completion of CIS120 with a final grade of C or higher within three years of application to the HIM program
4. Completion of MDA116 with a final grade of C or higher
5. Eligibility to register for MAT141
6. Eligibility to register for ENG101
7. Completion of an HIM program application indicating desired emphasis of Data Management or Revenue Management
8. Completion of HIM information session with HIM program director

AP01_24-25 - Cyber Security AAS

Program Information

Program Title
Cyber Security AAS

Description
Learn how to protect computers and network systems from various intrusions. The Cyber Security AAS provides the skills necessary for a career in the fast-growing information technology industry or to transfer to a 4-year college or university. Most of the courses offer regionally or nationally recognized certifications.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Create Level) Design and construct a secure and efficient network, including hardware and software. (CSLO 2)
2. (Understand Level) Identify types of Cryptoanalysis, types of Cryptographic attacks and effective countermeasures. (CSLO 4)
3. (Application Level) Manage users, groups, login security, and system resources in Linux. (CSLO 2)
4. (Understand Level) Explain each of the seven layers of the OSI model. (CSLO 4)
5. (Application Level) Install, customize, and troubleshoot workstations. (CSLO 2)
6. (Understand Level) Demonstrate Professionalism and Discuss why it is important. (CSLO 4)
7. (Application Level) Install and test the most current version of Windows server and Windows workstation, including users, DNS, and trust relationship.(CSLO 2)
8. (Analyze Level) Analyze network security options and techniques to create security plans.(CSLO 2)
9. (Application Level) Install and customize the Windows operating systems, and evaluate the features, prominent system properties, and common operating system commands.
10. (Synthesis Level) Create forensic investigation plans and demonstrate e-mail, social media, and cloud investigation techniques, per given case studies. (CSLO 4)
11. (Synthesis Level) Formulate, update, and communicate short- and long-term organizational cyber security strategies and policies. (CSLO 4)
12. (Evaluation Level) Interpret networking laws and regulations in which businesses operate, including local, regional, and global markets. (CSLO 4)
13. (Application Level) Use several penetration testing applications. (CSLO 4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Earn at least 3 credits from the following:

- Written Communication ENG101 or ENG121

Select one

Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM259 recommended

Arts and Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Social and Behavioral Sciences

Earn at least 3 credits from the following:

- ECN200 - Contemporary Economic Issues
- ECN201 - Principles of Macroeconomics
- ECN202 - Principles of Microeconomics

ECN200 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

MAT151 strongly recommended for transfer purposes and most jobs

Core Requirements

Complete ALL of the following Courses:

- CIS115 - Customer Service and Workplace Success
- CIS119 - Set-up and Maintenance of Personal Computers
- CIS120 - Survey of Computer Information Systems
- CIS121 - Windows Operating System Fundamentals
- CIS123 - Introduction to Programming
- CIS130 - Networking Essentials
- CIS153 - Network Security
- CIS176 - Python Programming
- CIS213 - Linux Server
- CIS225 - Practical Applications in CyberSecurity
- CIS252 - Windows Network Infrastructure
- CIS253 - Windows Server Identity
- CIS273 - Network Defense
- CIS275 - Computer Forensics & Investigation

Additional Comments:
Students must earn:
a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
a minimum of 3 earned CAC credits numbered 100 level or higher;
a minimum of 61 credits is required for this AAS degree.

AP01_25-26 - Digital Media Arts AAS, Animation & Motion Graphics Emphasis

Program Information

Program Title
Digital Media Arts AAS, Animation & Motion Graphics Emphasis

Description
The Digital Media Arts AAS provides the creative, technical, and visual communication skills required for employment in a variety of entry-level positions, as well as an in-depth understanding of the principles and foundations of digital media technologies and interactive communications. Topics include: graphic design, Web design, digital photography, and digital video production as well as animation and motion graphics. The program also prepares students for entry into a 4-year college or degree program. Recommended Proficiencies: Experience with Adobe Software; DMA115.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Evaluation Level) Compare and contrast the fundamentals of design history and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)

2. (Evaluation Level) Compare and contrast the fundamentals of the history of photography and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)

3. (Evaluation Level) Compare and contrast the fundamentals of the history of animation and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)

4. (Application Level) Apply the fundamental rules of design and typography to solve visual communication problems using industry standard software effectively. (CSLO 3 & 4)

5. (Evaluation Level) Compare and contrast the historic and contemporary perceived language of photographs in a cultural context and articulate the aesthetics used to communicate their visual message. (CSLO 1 & 2)

6. (Evaluation level) Communicate still, interactive, and time-based image solutions that recognize cultural and individual differences. (CSLO 1, 2, & 4)

7. (Synthesis Level) Create and integrate photographic imagery into design projects based upon an awareness of the relationship of photography to the visual disciplines and its influence on culture. (CSLO 1, 2, & 4)

8. (Evaluation Level) Apply the principles of color and 2D and 3D design, including; repetition, contrast, variety, rhythm, balance, emphasis, and economy to original designs and assess psychological factors that influence human response to the concept being communicated. (CSLO 2 & 4)

9. (Synthesis Level) Identify and define the technology and design components required to develop and implement a website using industry standard software and applications, and structure the website using current global usability and accessibility standards and recommendations according to the World Wide Web Consortium (W3C). (CSLO 1, 2 & 4)

10. (Synthesis Level) Identify and define the technology and design components required to develop animation and motion graphics projects for industry distribution. (CSLO 1, 2 & 4)

11. (Evaluation Level) Demonstrate the ability to form and defend value judgements about design choices and communicate ideas and concepts clearly using specialized terminology and knowledge relevant to graphic design, photography, and visual communication as a whole. (CSLO 4)

12. (Evaluation Level) Demonstrate the ability to critique and evaluate design solutions, taking into consideration cultural relevance, effectiveness, impact, ethics, and ecological sustainability. (CSLO 1 & 4)

13. *(Applying, Creating)* Develop a complete visual story, from concept to final storyboard, applying research insights and feedback to enhance narrative clarity and visual impact. CSLO 2,3)

14. (Synthesis Level) Plan, develop, and produce a professional design, animation and/or photographic portfolio, electronic and printed, demonstrating an understanding of visual communication, including; organization/composition, typography, photography, design aesthetics, and the ability to construct meaningful design solutions for contemporary design projects. (CSLO 3)

15. (Synthesis Level) Create, edit, and compress video for use in various delivery modes of digital media using standard digital video editing software.

16. (Synthesis Level) Produce fully rendered motion graphics and animation projects that incorporate color grading, compositing, and sound design, demonstrating mastery of advanced software techniques. (CSLO 2,3,4)

Simple Requisites

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Complete at least 2 of the following courses:

- ART100 - Art Appreciation
- ART207 - Art History I
- ART208 - Art History II

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC category.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ART107 - Drawing I
- ART109 - Color Theory
- DMA101 - Media and Society
- DMA115 - Digital Imaging
- DMA205 - Portfolio Development
- ART101 - Two-Dimensional Design

Animation & Motion Graphics Emphasis

Complete ALL of the following Courses:

- DMA118 - Animation I
- DMA121 - Motion Graphics I
- DMA202 - Digital Animation II
- DMA209 - 3D Computer Animation
- DMA215 - Motion Graphics II
- DMA217 - Visual Storyboarding and Storytelling
- DMA125 - Introduction to Illustrator

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP01_26-27 - HVAC AAS

Program Information

Program Title
HVAC AAS

Description
The Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC) Associate of Applied Science (AAS) degree at Central Arizona College prepares students for skilled technical careers in residential, commercial, and industrial HVAC systems. This comprehensive program combines hands-on training with theoretical instruction, emphasizing safety, system diagnostics, repair, and installation. The curriculum follows NCCER (National Center for Construction Education and Research) standards, ensuring students receive industry-recognized, competency-based training aligned with national benchmarks. Students gain foundational and advanced knowledge in electrical systems, refrigeration cycles, ductwork, HVAC system design, and energy efficiency. Graduates of the program will be prepared to pursue careers as HVAC technicians, installers, service specialists, or to continue education in related field.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
62

Program Learning Outcomes
1. (Application Level) Demonstrate proficiency in installing, maintaining, and troubleshooting HVAC systems using tools, materials, and practices consistent with NCCER standards. (CSLO #3)
2. (Analysis Level) Analyze HVAC system performance data to diagnose system inefficiencies and recommend solutions based on industry best practices. (CSLO #4)
3. (Synthesis Level) Integrate mechanical, electrical, and control system concepts to design or modify HVAC systems that meet specific client or building requirements. (CSLO #2)
4. (Evaluation Level) Evaluate environmental and energy efficiency impacts of HVAC technologies and practices to ensure compliance with sustainability and regulatory standards. (CSLO #1)
5. (Application Level) Demonstrate effective communication, teamwork, and professional conduct in diverse work environments and customer interactions. (CSLO #3)
6. (Understanding Level) Explain safety protocols and industry regulations as they relate to HVAC systems, emphasizing OSHA standards and workplace safety.
   (CSLO #2)

Simple Requisites

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:
- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

ENG121 recommended

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:
- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a 4-credit course with lab numbered 100 or above.

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

MAT106 recommended

Core Requirements

Complete ALL of the following Courses:

- BCT100 - NCCER Core
- BCT150 - Industrial Safety and OSHA 30
- HVA121 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level I
- HVA122 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level II
- HVA221 - Heating, Ventilation, Air-Conditioning & Refrigeration Level III
- HVA222 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level IV
- PLU121 - Plumbing Level I
- PLU122 - Plumbing Level II
- PLU221 - Plumbing Level III

Additional Comments:
Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 62-63 semester credits.

AP02_20-21 - Equine Management and Training AAS

Program Information

Program Title
Equine Management and Training AAS

Description
The Equine Management and Training AAS Degree contains two options for the Associate of Applied Science Degree. Students complete a Horse Trainer or an Equine Business Management program of study. The degree prepares students for employment in a variety of areas in the horse industry. Classroom activities and practical laboratory experiences are provided in both options. Students are required to supply their own horse and tack.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Knowledge Level) Define and list the most common tack, and describe its uses. (CSLO 2)
2. (Evaluation Level) Explain the diversity of the equine industry, and the problems and opportunities this diversity creates. (CSLOs 1, 2)
3. (Evaluation Level) Assess the capacity for the horse to perform as an athlete. (CSLOs 2, 4)
4. (Comprehension Level) List and explain the natural motivations and behavior of the horse. (CSLO 2)
5. (Synthesis Level) Collect information and create a business plan in the equine industry. (CSLOs 2, 4)
6. (Synthesis Level) Develop proper safety concerning horsemanship and handling of horses. (CSLOs 3, 4)
7. (Application Level) Demonstrate creative solutions to problems and demonstrate independent critical and analytical thought. (CSLOs 3, 4)
8. (Evaluation Level) Identify and evaluate proper safety techniques concerning horsemanship. (CSLOs 3, 4)
9. (Synthesis Level) Produce equine events, including developing a budget, marketing plan, personnel management plan and strategies for adhering to regulations and reporting functions. (CSLOs 2, 3, 4)
10. (Application Level) Demonstrate safe handling of animals 100% of the time. (CSLO 3)
11. (Evaluation Level) Demonstrate and justify skills used in properly caring for and preventing equine ailments. (CSLOs 2, 3)
12. (Application Level) Demonstrate handling skills for a variety of different equine activities, per given project plan/instructions. (CSLO 3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Earn at least 3 credits from the following:
- Written Communication ENG101 or ENG121

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:
- AGEC Arts & Humanities Courses

AGS235 or ANS104 recommended.

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

AGS122 or AGS204 recommended.

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

AGS221 or AGS240 recommended.

Or select any 4-credit Science course with lab numbered 100 or above.

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Core Requirements

Complete ALL of the following Courses:

- AGB124 - Microcomputers in Agriculture
- ANS102 - Horsemanship I
- ANS110 - Horse Event Production
- ANS111 - Horseshoeing I
- ANS121 - Equine Facility Management I
- ANS122 - Equine Facilities Management II
- ANS131 - Equine Behavior and Training I
- ANS200 - Introduction to Equine Science
- ANS202 - Horsemanship II
- ANS211 - Advanced Horseshoeing
- ANS216 - Equine Anatomy & Physiology
- ANS223 - Advanced Equine Training
- ANS226 - Feeds and Feeding
- ANS231 - Equine Behavior & Training II

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP02_23-24 - Entertainment Industry Technology AAS, Music Recording and Production Emphasis

Program Information

Program Title
Entertainment Industry Technology AAS, Music Recording and Production Emphasis

Description
This hands-on, technology-focused program will prepare students for an exciting career in the music industry. Students will learn to use state-of-the-art technology in practical settings to gain knowledge and experience to compete in the industry of modern music entertainment. The Entertainment Industry Technology AAS Degree offers two emphases: Music Recording & Production, and Stage Lighting & Live Audio. The Music Recording and Production Emphasis concentrates heavily on recording engineering, mixing, and mastering in a recording studio environment, as well as live sound production.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Analysis Level) Differentiate between the prominent rock styles from 1950 to present. *(CSLO 1,2)*
2. (Evaluation Level) Compare careers in the music industry including specialization tracks and job titles. *(CSLO 1,2,3)*
3. (Understanding Level) Explain contract law pertaining to the entertainment industry. *(CSLO 1,2)*
4. (Creating Level) Conduct basic sound reinforcement tasks for a variety of events. *(CSLO 2,3)*
5. (Creating Level) Create a recording project using Pro-Tools. *(CSLO 2,3)*
6. (Application Level) Produce a recording by applying recording console signal flow within the three aspects of multi-track recording: tracking, overdubbing, and mix-down. *(CSLO 2,3)*
7. (Evaluation Level) Assess an internship experience in relation to previous course work, completed contract(s), and future employment opportunities. *(CSLO 1,2,3,4)*
8. (Creating Level) Prepare and present a completed project to the faculty advisor, committee, and/or public forum for evaluation as appropriate, in accordance with established methodology, rubric(s), and guidelines. *(CSLO 2,3,4)*
9. (Creating Level) Develop a self-promotion package. *(CSLO 2,3)*
10. (Application Level) Operate a variety of live audio equipment including: sound mixers, equalization, amplifiers, speakers, monitors and various processing equipment. *(CSLO 2,3,4)*
11. (Evaluation Level) Determine problems and solutions in professional live audio and stage lighting systems, as well as anticipate possible problems and create processes to minimize problems occurring. *(CSLO 2,3,4)*
12. (Application Level) Demonstrate multi-track recording for a variety of situations using appropriate procedures. *(CSLO 2,3)*
13. (Creating Level) Engineer a recording session from recording through post production to include:
a) laying down basic tracks
b) overdubbing further instrumentation
c) mixing with appropriate effects
d) digital editing techniques
e) mastering *(CSLO 2,3)*
14. (Application Level) Apply classroom instruction in the Entertainment Industry Technology program to a practical work experience situation. *(CSLO 1,2,3,4)*
15. (Creating Level) Prepare a marketing plan and explain the plan's importance. *(CSLO 2,3)*
16. (Application Level) Produce web pages that attract and retain users. *(CSLO 3)*
17. (Application Level) Operate a standard computerized lighting control console. *(CSLO 2,3)*
18. (Creating Level) Create and maintain a quality house sound mix and multi-channel monitor mix for a variety of reinforcement situations. *(CSLO 2,3)*
19. (Creating Level) Devise color into a carefully documented light plot for a CAC Performing Arts concert or EIT event that reflects the physiological, time of day, dramatic, historical, landscape/cityscape, and/or mixing effects of color and the directors notes. *(CSLO 2,3)*

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I

Oral Communication

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list. EIT100 recommended

Social & Behavioral Science

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list. PSY101 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Core Requirements

Complete ALL of the following Courses:

- DMA122 - Introduction to Web Design
- EIT101 - Introduction to Entertainment
- EIT120 - Entertainment Law
- EIT130 - Live Audio Production I
- EIT151 - Digital Audio Workstation
- EIT203 - Entertainment Capstone Project
- EIT221 - Entertainment Marketing and Promotion
- EIT231 - Live Audio Production II
- EIT232 - Equipment Maintenance
- EIT296 - Entertainment Internship

Music Recording & Production Emphasis

Complete ALL of the following Courses:

- EIT153 - Recording Engineering I
- EIT171 - Songwriting I
- EIT254 - Recording Engineering II
- EIT255 - Recording Engineering III
- EIT272 - Songwriting II

Additional Comments:
Students must earn:

- all coursework must be completed with a “C” or higher;
- a cummulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP02_24-25 - Software Development AAS

Program Information

Program Title
Software Development AAS

Description
The Software Development AAS concentrates on analysis and design of algorithms through a variety of programming languages; teaching the programming skills necessary to prepare students for a career in the fast-growing software industry or to transfer to a 4-year college or university.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Synthesis Level) Plan and implement technology solutions. (CSLO 4)
2. (Comprehension Level) Identify common hardware components of computer systems and describe their uses. (CSLO 2)
3. (Comprehension Level) Identify and explain the hardware and software components of computers. (CSLO 2)
4. (Knowledge Level) Define various local area network topologies and communication standards. (CSLO 3)
5 (Application Level) Use Java data structures and the Java collection framework to solve problems. (CSLO 3)
6. (Synthesis Level) Code elementary programs in the C++, Python, C#, Ruby, and Java programming languages, utilizing input and output options, data types, decision-making techniques, structures, classes, and disk file operations. (CSLO 3)
7. (Analysis Level) Analyze programs for errors. (CSLO 4)
8. (Application Level) Complete DNS Configuration on a Windows Server. (CSLO 3)
9. (Synthesis Level) Produce web pages that retain users. (CSLO 3)
10. (Application Level) Use current object-oriented design and programming techniques to build complex programs working as a team. (CSLO 3)
11. (Analysis Level) Examine and explain the role of business economics in creating and distributing wealth and its stakeholders. (CSLO 2)
12. (Synthesis Level) Write standard business messages (i.e. memos, e-mail, inquiries, replies to inquiries, orders, credit and collection messages, claim, and adjustment messages). (CSLO 3)
13. (Comprehension Level) Describe the relational database model. (CSLO 2)
14. (Application Level) Implement simple and complex queries with Structured Query Language (SQL). (CSLO 3)
15. (Comprehension level) Discuss ethical and social issues of the computing world. (CSLO 1)
16. (Synthesis Level) Create interfaces with HTML and PHP.

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Earn at least 3 credits from the following:

- Written Communication ENG101 or ENG121

Choose one

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM259 recommended

Arts and Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Social and Behavioral Sciences

Earn at least 3 credits from the following:

- ECN200 - Contemporary Economic Issues
- ECN201 - Principles of Macroeconomics
- ECN202 - Principles of Microeconomics

ECN200 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

MAT151 strongly recommended for transfer purposes and most jobs

Core Requirements

Complete ALL of the following Courses:

- CIS112 - Web Design Fundamentals with HTML
- CIS115 - Customer Service and Workplace Success
- CIS120 - Survey of Computer Information Systems
- CIS121 - Windows Operating System Fundamentals
- CIS123 - Introduction to Programming
- CIS162 - Comparative Programming Languages
- CIS176 - Python Programming
- CIS178 - Database Fundamentals and Programming
- CIS213 - Linux Server
- CIS216 - Java Programming
- CIS218 - C++ Programming
- CIS231 - Object Oriented Programming and Data Structures
- CIS233 - Web Application Dev Using PHP

Additional Comments:
Students must earn:
a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
a minimum of 3 earned CAC credits numbered 100 level or higher;
a minimum of 61 credits is required for this AAS degree.

AP02_25-26 - Entertainment Industry Technology AAS, Stage Lighting and Live Audio Emphasis

Program Information

Program Title
Entertainment Industry Technology AAS, Stage Lighting and Live Audio Emphasis

Description
This hands-on, technology-focused program will prepare students for an exciting career in the music industry. Students will learn to use state-of-the-art technology in practical settings to gain knowledge and experience to compete in the industry of modern music entertainment. The Entertainment Industry Technology AAS Degree offers two emphases: Music Recording & Production, and Stage Lighting & Live Audio. The Stage Lighting & Live Audio Emphasis focuses on live venue stage lighting for concerts, theatrical performances, and live sound reinforcement leveraging the latest in concert technologies.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
1. (Analysis Level) Differentiate between the prominent rock styles from 1950 to present. *(CSLO 1,2)*
2. (Evaluation Level) Compare careers in the music industry including specialization tracks and job titles. *(CSLO 1,2,3)*
3. (Understanding Level) Explain contract law pertaining to the entertainment industry. *(CSLO 1,2)*
4. (Creating Level) Conduct basic sound reinforcement tasks for a variety of events. *(CSLO 2,3)*
5. (Creating Level) Create a recording project using Pro-Tools. *(CSLO 2,3)*
6. (Application Level) Produce a recording by applying recording console signal flow within the three aspects of multi-track recording: tracking, overdubbing, and mix-down. *(CSLO 2,3)*
7. (Evaluation Level) Assess an internship experience in relation to previous course work, completed contract(s), and future employment opportunities. *(CSLO 1,2,3,4)*
8. (Creating Level) Prepare and present a completed project to the faculty advisor, committee, and/or public forum for evaluation as appropriate, in accordance with established methodology, rubric(s), and guidelines. *(CSLO 2,3,4)*
9. (Creating Level) Develop a self-promotion package. *(CSLO 2,3)*
10. (Application Level) Operate a variety of live audio equipment including: sound mixers, equalization, amplifiers, speakers, monitors and various processing equipment. *(CSLO 2,3,4)*
11. (Evaluation Level) Determine problems and solutions in professional live audio and stage lighting systems, as well as anticipate possible problems and create processes to minimize problems occurring. *(CSLO 2,3,4)*
12. (Application Level) Demonstrate multi-track recording for a variety of situations using appropriate procedures. *(CSLO 2,3)*
13. (Creating Level) Engineer a recording session from recording through post production to include:
a) laying down basic tracks
b) overdubbing further instrumentation
c) mixing with appropriate effects
d) digital editing techniques
e) mastering *(CSLO 2,3)*
14. (Application Level) Apply classroom instruction in the Entertainment Industry Technology program to a practical work experience situation. *(CSLO 1,2,3,4)*
15. (Creating Level) Prepare a marketing plan and explain the plan's importance. *(CSLO 2,3)*
16. (Application Level) Produce web pages that attract and retain users. *(CSLO 3)*
17. (Application Level) Operate a standard computerized lighting control console. *(CSLO 2,3)*
18. (Creating Level) Create and maintain a quality house sound mix and multi-channel monitor mix for a variety of reinforcement situations. *(CSLO 2,3)*
19. (Creating Level) Devise color into a carefully documented light plot for a CAC Performing Arts concert or EIT event that reflects the physiological, time of day, dramatic, historical, landscape/cityscape, and/or mixing effects of color and the directors notes. *(CSLO 2,3)*

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I

Oral Communication

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list. EIT100 recommended

Social & Behavioral Science

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list. PSY101 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Core Requirements

Complete ALL of the following Courses:

- DMA122 - Introduction to Web Design
- EIT101 - Introduction to Entertainment
- EIT120 - Entertainment Law
- EIT130 - Live Audio Production I
- EIT151 - Digital Audio Workstation
- EIT203 - Entertainment Capstone Project
- EIT221 - Entertainment Marketing and Promotion
- EIT231 - Live Audio Production II
- EIT232 - Equipment Maintenance
- EIT296 - Entertainment Internship

Stage Lighting Emphasis

Complete ALL of the following Courses:

- BUS122 - Small Business Management
- EIT140 - Introduction to Lighting
- EIT241 - Concert Lighting
- EIT242 - Rigging

Additional Comments:
Students must earn:

- all coursework must be completed with a “C” or higher;
- a cummulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP02_26-27 - Plumbing AAS

Program Information

Program Title
Plumbing AAS

Description
Central Arizona College's *Plumbing Associate of Applied Science (AAS)* program prepares students for successful careers in the plumbing trade through a combination of hands-on training, classroom instruction, and industry-recognized curriculum. Utilizing the National Center for Construction Education and Research (NCCER) curriculum, this program covers the fundamental and advanced skills required for residential, commercial, and industrial plumbing systems. Students will gain proficiency in areas such as blueprint reading, pipefitting, drainage systems, water supply, and plumbing code compliance. The program integrates safety, professionalism, and technical competencies aligned with current industry standards. Graduates are prepared for entry-level positions in the plumbing field and may continue on a pathway toward journeyman licensing and other industry certifications. The Plumbing AAS program supports career development by incorporating work-based learning opportunities, such as internships or apprenticeships, and stackable credentials that can lead to long-term advancement in the skilled trades.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
62

Program Learning Outcomes
1. (Application Level) Demonstrate proper installation, maintenance, and repair procedures for residential and commercial plumbing systems using NCCER standards (students will apply technical knowledge from the NCCER curriculum in real-world settings). *(*CSLO #2)

2. (Evaluating Level) Evaluate plumbing system designs for compliance with building codes, safety standards, and environmental regulations (students will assess and interpret technical drawings, plans, and specifications to ensure code-compliant installations). (CSLO #4)

3. (Creating Level) Construct and test water supply, drainage, and venting systems using industry-standard tools and techniques in a team setting (students will engage in hands-on collaboration to develop and troubleshoot functional systems). (CSLO #3)

4. (Analyzing Level) Analyze cross-cultural differences in water use, sanitation infrastructure, and sustainable plumbing practices globally (students will explore global plumbing challenges and develop culturally responsive solutions). (CSLO #1)

5. (Understanding Level) Interpret blueprints, schematics, and specifications to accurately plan and execute plumbing installations (students will integrate theoretical knowledge with technical drawings to plan system layouts). (CSLO #2)

6. (Understanding Level) Demonstrate professional behavior, communication, and adherence to workplace safety and ethics standards (students will follow ethical and safety guidelines expected in the plumbing profession). (CSLO #3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Earn at least 3 credits from the following:

- Written Communication ENG101 or ENG121

ENG121 recommended

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher

Arts and Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC list.

Social and Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a 4-credit course with lab numbered 100 or above.

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

MAT106 recommended

Program Requirements

Complete ALL of the following Courses:

- BCT100 - NCCER Core
- BCT150 - Industrial Safety and OSHA 30
- HVA121 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level I
- HVA122 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level II
- HVA221 - Heating, Ventilation, Air-Conditioning & Refrigeration Level III
- PLU121 - Plumbing Level I
- PLU122 - Plumbing Level II
- PLU221 - Plumbing Level III
- PLU222 - Plumbing Level IV

Additional Comments:
Student must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 62 semester credits.

AP03_22-23 - Medical Laboratory Technician AAS

Program Information

Program Title
Medical Laboratory Technician AAS

Description
The Medical Laboratory Technician AAS program prepares students to perform routine laboratory testing on blood, urine, cultures and other body fluids under the supervision of a medical laboratory scientist. Students gain hands-on experience with modern analyzers, quality control procedures, and evaluation of test results to support accurate patient diagnosis. Daily instruction is guided by the program's mission to teach evidence-based collaborative practice, empower future healthcare professionals, and emphasize the critical role of laboratory data in patient care.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
All Program Measurable Student Learning Outcomes and Standards are based on the National Accrediting Agency for Clinical Laboratory Science (NAACLS) Standards for Medical Laboratory Technician Competencies Core Module.

1.0 (Knowledge Level) Define the role of the medical laboratory technician in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,3)
2.0 (Application Level) Use common medical terminology. (CSLO 1,2,3)
3.0 (Application Level) Demonstrate knowledge of infection control and safety practices. (CSLO 1,2)
3.1 (Application Level) Demonstrate accepted practices for infection control, isolation techniques, aseptic techniques, and methods for disease prevention. (CSLO 1,2)
3.2 (Synthesis Level) Incorporate the mandated regulations with federal, state, and local guidelines regarding all the safety practices required by NAACLS. (CSLO 2,3)
3.2.1 (Application Level) Observe the OSHA bloodborne Pathogens Standard and Needle Safety Precaution Act. (CSLO 2)
3.2.2 (Application Level) Use prescribed procedures to handle electrical, radiation, biological, and fire hazards. (CSLO 2)
3.2.3 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standards, including the correct use of the Material Safety Data Sheet, as directed. (CSLO 2)
4.0 (Application Level) Follow standard operating procedures to collect specimens. (CSLO 1,2)
4.1 (Synthesis Level) Perform assigned specimen collection tasks incorporating knowledge of the circulatory, urinary, and other body systems. (CSLO 2,4)
4.2 (Comprehension Level) Describe the difference between whole blood, serum, and plasma. (CSLO 2)
4.3 (Application Level) Identify and use blood collection equipment. (CSLO 2)
4.31 (Evaluation Level) Evaluate and identify the additive by the evacuated tube color. (CSLO 2)
4.32 (Application Level) Identify and properly use equipment needed to collect blood by venipuncture and capillary (dermal) puncture. (CSLO 2)
4.4 (Application Level) Collect blood specimens by venipuncture. (CSLO 2,4)
4.5 (Application Level) Collect blood specimens by capillary (dermal) puncture. (CSLO 2,4)
4.6 (Knowledge Level) Identify special precautions necessary during blood collections by venipuncture and capillary (dermal) puncture. (CSLO 2,4)
4.7 (Application Level) List and apply the criteria that would lead to rejection or recollection of a patient sample. (CSLO 2,4)
4.8 (Synthesis Level) Instruct patients in the proper collection and preservation for non-blood samples. (CSLO 1,2)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 2,4)
5.1 (Application Level) Follow standard operating procedures for labeling, transporting, and processing of specimens, including transport to reference laboratories. (CSLO 2)
5.2 (Synthesis Level) Follow the criteria for reporting specimens and test results that will be used as legal evidence. (CSLO 2,4)
6.0 (Application Level) Prepare/reconstitute reagents, standards and controls according to standard operating procedure. (CSLO 2)
6.1 (Analysis Level) Follow laboratory protocol for storage and suitability of reagents, standards, and controls. (CSLO 2)
6.2 (Synthesis Level) Recognize and report contamination and/or deterioration in reagents, standards, and controls. (CSLO 2,4)
7.0 (Synthesis Level) Perform appropriate tests at the medical laboratory technician level, according to standard operating procedures. (CSLO 2,4)
7.1 (Synthesis Level) Identify and report potential pre-analytical errors that may occur during specimen collection, labeling, transporting, and processing. (CSLO 2,4)
7.2 (Evaluation Level) Compare and evaluate test results to reference intervals. (CSLO 2,4)
7.3 (Synthesis Level) Record results by manual method or computer according to laboratory protocol. (CSLO 2)
7.4 (Synthesis Level) Report STAT results of completed tests according to laboratory protocol. (CSLO 2)
7.5 (Synthesis Level) Recognize critical values and follow established protocol regarding reporting. (CSLO 2)
7.6 (Application Level) Use and handle measurement equipment appropriately. (CSLO 2)
9.0 (Comprehension Level) Follow established quality control protocols to include maintenance and calibration of equipment. (CSLO 2,4)
9.1 (Synthesis Level) Perform quality control procedures. (CSLO 2)
9.2 (Synthesis Level) Record quality control results. (CSLO 2)
9.3 (Synthesis Level) Identify and report control results that do not meet pre-determined criteria. (CSLO 2,4)
10.0 (Application Level) Communicate (verbally and nonverbally) effectively and appropriately in the workplace. (CSLO 1,3)
10.1 (Application Level) Demonstrate confidentiality expectations of privileged information for individuals. (CSLO 1,2,3)
10.2 (Evaluation Level) Evaluate and defend the value of diversity in the workplace. (CSLO 1,2)
10.3 (Application Level) Demonstrate appropriate and professional interaction when working with other individuals. (CSLO 1,3)

10.4 (Analysis Level) Examine and discuss the major points of the American Hospital Association Patients Bill of Rights and the Patients Bill of Rights from the institution. (CSLO 1,3)
10.5 (Application Level) Demonstrate professional appearance and appropriate work behaviors. (CSLO 1,3)
10.6 (Application Level) Apply written and verbal instructions in carrying out testing procedures. (CSLO 2,4)
11.0 (Application Level) Use information systems necessary to accomplish job functions. (CSLO 2)
12.0 (Synthesis Level) Record data using the appropriate form when documenting potential pre-analytical errors that may occur during specimen collection, labeling, transporting, and/or processing. (CSLO 4)

Simple Requisites

Pre-Program Requirements
Type
Prerequisite

Additional Comments:

1. Current immunization records are required to apply to the program. Student must pay for and pass a background check and urine drug screen. A current 2 part TB skin test, or chest X-Ray or negative blood test for tuberculosis required.
2. High School Diploma or GED
3. For admission to the MLT program, cumulative GPA must be at least 2.5.
4. PHL155 AND PHL255
5. All general education required courses must be completed, with a grade of C or better, prior to admission to the Medical Laboratory Technician program.

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I

Oral Communcations

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC lists.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list. PSY101 recommended.

Natural Sciences

Complete ALL of the following Courses:

- BIO181 - General Biology I

Mathematics

Earn at least 3 credits from the following:

- MAT121 or higher

MAT121 or higher

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BIO205 - Microbiology
- CHM130 - Fundamental Chemistry
- MLT210 - Clinical Laboratory Operation
- MLT221 - Clinical Hematology and Hemostasis
- MLT231 - Clinical Urinalysis and Body Fluids Analysis
- MLT241 - Clinical Immunohematology and Immunology
- MLT251 - Clinical Chemistry
- MLT270 - Clinical Parasitology, Virology, Mycology
- MLT275 - Clinical Microbiology (Inactive)
- MLT281 - Clinical Practicum I
- MLT282 - Clinical Practicum II

*CHM130 or higher

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.5 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP03_25-26 - Diagnostic Medical Sonography AAS

Program Information

Program Title
Diagnostic Medical Sonography AAS

Description
The Diagnostic Medical Sonography (DMS) program at Central Arizona College is designed to prepare students for entry-level positions in the field of sonography. This comprehensive program begins each Fall semester and offers an Associate of Applied Science (AAS) Degree in Diagnostic Medical Sonography, spanning two years of full-time study across six sequential semesters, including summer sessions. In addition, two specialty certificates will be embedded with the AAS degree, the OB/GYN sonography for OB registered nurses and the pediatric sonography certificate for practicing sonographers.

Curriculum Overview

The DMS program focuses on General Sonography concentration, with graduates eligible for registration in Abdominal, vascular, pediatric, and Obstetrics and Gynecology specialties. The curriculum comprises 77-theory and clinical hours covering essential topics such as:

- Cross-sectional anatomy
- Ethics and legal considerations
- Patient care and pathology
- Physics and instrumentation
- Clinical case studies
- Abdominal imaging
- OB/GYN imaging
- Small parts and specialized sonography topics

Courses taken at Central Arizona College are recognized by other educational institutions and may serve as electives for those wishing to further their education.

Admission Requirements

Applicants with an AAS degree in a direct patient care healthcare occupation from an accredited institution must ensure all General Education requirements are completed prior to admission. These include coursework in Biology, Humanities, Mathematics, and Communications.

For those who have not taken a Physics course, it is strongly recommended to complete a 100-level or higher Physics course to prepare for the rigors of the DMS curriculum.

Program Structure

The DMS program offers face-to-face, online, or hybrid class formats. All laboratory sessions are conducted hands-on at the college, while clinical rotations take place in various hospitals and clinics. The program's core curriculum aligns with the guidelines established by the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS) and the American Registry of Diagnostic Medical Sonographers (ARDMS).

Students will complete approximately 1,900+ hours of clinical training, requiring a commitment of 4 to 5 days per week for 8.5 to 10.5 hours each day. This may involve travel to distant clinical sites and include shifts during nights and weekends, necessitating reliable transportation and a flexible schedule.

Certification and Graduation

Students who achieve a grade of C or better in all courses will be eligible to graduate and take the ARDMS certification examinations in Physics and Instrumentation (SPI) as well as the Abdominal and OB/GYN specialties. The AAS degree awarded by Central Arizona College meets the ARDMS minimum standards for certification.

Graduates of the AAS program will:

1. Obtain an AAS degree in Diagnostic Medical Sonography.
2. Sit for the ARDMS certification examinations.
3. Pursue employment as entry-level Diagnostic Medical Sonographers.

Certificate program recipients will:

1. Obtain a certificate of OB/GYN sonography certificate or pediatric sonography certificate.
2. Sit for the ARDMS certification examinations.

For more information on certification requirements, please refer to the ARDMS website; www.ardms.org

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
101

Program Learning Outcomes

1. (Application Level) Students will be able to demonstrate proficiency in performing diagnostic medical sonographic procedures, including appropriate patient positioning, transducer manipulation, and image acquisition for abdominal, obstetric, gynecologic, and vascular examinations. *(CSLO 3)*
2. (Application Level) Students will be able to explain the anatomical structures, physiological processes, and common pathologies identified through sonographic imaging, demonstrating a thorough understanding of human anatomy as it relates to diagnostic imaging. *(CSLO 2)*
3. (Analysis Level) Students will be able to analyze sonographic images to assess normal and abnormal findings, applying critical thinking skills to differentiate between pathologies and make recommendations for further clinical action. *(CSLO 4)*
4. (Evaluation Level) Students will be able to evaluate and apply safety protocols in the clinical environment, ensuring adherence to patient safety, equipment standards, and bioethical practices during all sonographic procedures. *(CSLO 3)*
5. (Synthesis Level) Students will be able to synthesize knowledge of ultrasound physics, instrumentation, and imaging techniques to produce high-quality diagnostic images and effectively troubleshoot technical issues in a clinical setting. *(CSLO 2)*
6. (Application Level) Students will be able to demonstrate effective communication and interpersonal skills, interacting with patients from diverse cultural backgrounds and ensuring comfort and understanding during sonographic examinations. *(CSLO 1)*
7. (Application Level) Students will be able to apply ethical decision-making and professional standards in their sonographic practice, maintaining patient confidentiality, professionalism, and legal compliance in all aspects of their work. *(CSLO 3)*
8. (Application Level) Students will be able to integrate knowledge from various medical disciplines, including anatomy, pathology, and clinical practices, to deliver comprehensive sonographic assessments and collaborate with healthcare teams in patient care. *(CSLO 2)*

These PMSLOs ensure that upon completion of the AAS degree in Diagnostic Medical Sonography, students will have the necessary knowledge, technical skills, and professional attributes to succeed in clinical practice and contribute to the healthcare field.

Simple Requisites

Degree Requirements
Type
Completion Requirement

Program Requirements

Complete ALL of the following Courses:

- DMS101 - Introduction to Diagnostic Medical Sonography
- DMS101L - Introduction to Sonography Laboratory
- DMS102 - Clinical Pharmacology for Sonographers
- DMS120 - Cross Sectional Anatomy for Medical Imaging
- DMS120L - Cross Sectional Anatomy for Medical Imaging Laboratory
- DMS130 - Sonographic Principles and Instrumentation I
- DMS130L - Sonographic Principles and Instrumentation I Laboratory
- DMS132 - Abdominal Ultrasound Imaging I
- DMS132L - Abdominal Ultrasound Imaging Laboratory
- DMS135 - Small Parts Ultrasound Imaging
- DMS135L - Small Parts Ultrasound Imaging Laboratory
- DMS140 - Sonographic OB/GYN Imaging
- DMS140L - OB/GYN Sonography Lab
- DMS149 - Pathophysiology for Sonographers
- DMS150 - Clinical Sonography Practicum I
- DMS151 - Clinical Sonography Practicum II
- DMS152 - Clinical Sonography Practicum III
- DMS154 - Abdominal Sonography Imaging II
- DMS154L - Abdominal Sonography Imaging II Laboratory
- DMS158 - Practical Case Studies in Sonography I
- DMS159 - Practical Case Studies in Sonography II
- DMS234 - Sonographic Principles and Instrumentation II
- DMS234L - Sonographic Principles and Instrumentation II Laboratory
- DMS242 - Sonographic OB/GYN Imaging II - High Risk OB
- DMS242L - OB/GYN Imaging Laboratory II - High Risk OB
- DMS250 - Basics of Clinical Laboratory Science
- DMS254 - Clinical Sonography Practicum IV
- DMS255 - Clinical Sonography Practicum V
- DMS256 - Clinical Sonography Practicum VI

- DMS259 - Sonography Case Studies III
- DMS271 - Concepts of Vascular Imaging
- DMS271L - Vascular Imaging Laboratory
- DMS273 - Advanced Sonography Applications
- DMS273L - Advanced Sonography Applications Laboratory
- DMS274 - Pediatric/Neurological Sonography
- DMS274L - Pediatric/Neurological Sonography Laboratory
- DMS280 - Physics and Instrumentation Registry Review
- DMS281 - Abdominal Sonography Registry Review
- DMS282 - OB/GYN Sonography Registry Review
- DMS283 - Pediatric Sonography Review
- DMS289 - Vascular Technology RVS/RVT Registry Exam Review
- DMS290 - Sonography Capstone Senior Project
- DMS200 - Advanced Medical Terminology for Nursing and Healthcare Professionals
  OR NUR200 - Advanced Medical Terminology for Nursing and Healthcare Professionals

DMS275 Musculoskeletal Sonography and DMS275L Musculoskeletal Sonography Laboratory are optional courses and not required.

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Complete ALL of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology
- PHY101 - Introduction to Physics

Quantitative Reasoning

Earn at least 4 credits from the following:

- MAT151 - College Algebra, Standard
- MAT187 - Pre-Calculus
- MAT221 - Analytical Geometry and Calculus I

Select one

Additional Comments:

- a grade of B or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 101 semester credits.

Pre-Program and Admissions Requirements

Type
Prerequisite

Additional Comments:
The general education requirements for the Diagnostic Medical Sonography AAS degree are required for entry in the Diagnostic Medical Sonography program.

Admission Requirements

Applicants with an AAS degree in a direct patient care healthcare occupation from an accredited institution must ensure all General Education requirements are completed prior to admission. These include coursework in Biology, Humanities, Mathematics, and Communications.

All General Education and Prerequisite requirements must be completed with a "B" or higher prior to final admissions to the program.

For those who have not taken a Physics course, it is strongly recommended to complete a 100-level or higher Physics course to prepare for the rigors of the DMS curriculum.

AP03_26-27 - Hotel and Restaurant Management AAS

Program Information

Program Title
Hotel and Restaurant Management AAS

Description
The Hotel and Restaurant Management AAS Degree includes hospitality industry certified courses, university-level business courses and the Arizona General Education Curriculum (AGEC). The AGEC requirements in this AAS Degree fulfill university transfer with remaining courses to be evaluated on a course-by-course basis. Please consult with an academic advisor. Note: Students must complete a graduation application for both the AGEC Certificate and the AAS degree in order to be awarded both.

Area of Interest
Business & Professional Industries

Degree Type
AAS - Associate of Applied Science

Total Credits Required
63

Program Learning Outcomes
1. (Knowledge Level) Describe the elements of a foodservice business plan. (CSLO 2,3)
2. (Application Level) Apply management solutions to issues related to food service and/or lodging interior and exterior facility sites. (CSLO 2,3,4)
3. (Analysis Level) Identify, analyze, and discuss food safety system development and issues using Hazard Analysis Critical Control Point (HACCP) methods. (CSLO 2,3,4)
4. (Evaluation Level) Critique management policies and procedures in the hotel/hospitality industries. (CSLO 2,3,4)
5. (Application Level) Identify and use the procedure to forecast revenues by market segmentations. (CSLO 2,3,4)
6. (Analysis Level) Analyze and explain the implications of global, U.S., and regional events on the enterprise of the establishment. (CSLO 1,2,3,4)
7. (Analysis Level) Analyze and apply the law to general hotel operation issues and employment workplace laws. (CSLO 2,3)
8. (Evaluation Level) Analyze and critique roles played by hospitality managers in controlling operating costs. (CSLO 2,3,4)
9. (Evaluation Level) Analyze and critique leadership and supervisory concepts within the hospitality industry. (CSLO 2,3,4)
10. (Synthesis Level) Create a professional career path. (CSLO 2,3,4)
11. (Evaluation Level) Evaluate food service and lodging establishments. (CSLO 2,3,4)
12. (Evaluation Level) Appraise standards in guest services that promote the spirit of hospitality. (CSLO 2,3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

Complete with a grade of C or higher - COM263 highly recommended

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Sciences

Complete at least 2 of the following courses:

- BUS123 - Business Relations
- BUS190 - Principles of Management and Leadership
- ECN201 - Principles of Macroeconomics
- ECN202 - Principles of Microeconomics
- PEH101 - Personal Health

Complete with a grade of C or higher - do not select ECN201 or ECN202 if selected for Institutions of the Americas

Social & Behavioral Sciences

Complete at least 1 of the following courses:

- GEO101 - Introduction to Cultural and Historical Geography
- PSY101 - Introduction to Psychology
- SOC101 - Introduction to Sociology

Complete with a grade of C or higher - GEO101 highly recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete with a grade of C or higher - CUL142 recommended if not chosen in Core Requirements, but if CUL142 is already applied NTR141 is strongly recommended

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete with a grade of C or higher

Institutions of the Americas

Complete at least 1 of the following courses:

- ECN201 - Principles of Macroeconomics
- ECN202 - Principles of Microeconomics

Complete with a grade of C or higher

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CUL105 - Food Safety Foundations
- CUL170 - Dining and Beverage Operations
- HRM100 - Introduction to Hospitality
- HRM101 - Facilities Management
- HRM102 - Management of Guest Services
- HRM103 - Managing Foodservice Operation
- HRM145 - Convention and Meeting Management
- HRM252 - Managing Hospitality Human Resources
- REC101 - Recreation, Leisure and the Quality of Life
- CUL130 - Culinary Principles Application I
  OR CUL160 - Baking and Pastry I
  OR CUL142 - Applied Food Science
- CUL290 - Culinary Hospitality Internship

Complete with a grade of C or higher

Additional Comments:

Other Requirements

Students must earn:

- a grade of C or better in each course;
- a cumulative grade point average (CGPA) of at least 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 63 semester credits.

AP04_20-21 - Business AAS

Program Information

Program Title
Business AAS

Description
The Business AAS Degree prepares students for entrylevel positions in business and provides skills necessary for helping them begin their own business.

Area of Interest
Business & Professional Industries

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Evaluation Level) Create a Business Operation Plan. (CSLO 2,3)
2. (Application Level) Demonstrate effective techniques with regards to oral and written communications. (CSLO 3)
3. (Application level) Apply basic computer skills to analyze business data. (CSLO 4)
4. (Analysis level) Explain the ways businesses are financed. (CSLO 2,4)
5. (Evaluation level) Interpret and communicate a business' financial information. (CSLO 2,4)
6. (Analysis level) Examine legal and ethical issues from the perspective of a business manager or owner. (CSLO 1)

Simple Requisites

Recommended Proficiencies
A solid background in reading, math, and analytical skills.

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Earn at least 3 credits from the following:
- AGEC Arts & Humanities Courses

Students may also select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE.

Social & Behavioral Sciences

Complete ANY of the following Courses:
- ECN200 - Contemporary Economic Issues
- ECN201 - Principles of Macroeconomics
- ECN202 - Principles of Microeconomics

ECN200 recommended.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a 4-credit course with lab numbered 100 or above.

Mathematics

Complete ALL of the following Courses:

- BUS101 - Business Mathematics

Core Requirements

Complete ALL of the following Courses:

- ACC121 - Income Tax Fundamentals
- ACC201 - Financial Accounting
- ACC202 - Managerial Accounting
- BUS100 - Introduction to Business
- BUS123 - Business Relations
- BUS201 - Legal Environment of Business
- BUS207 - Business Communications
- BUS260 - Applied Business Seminar
- CBA133A - Spreadsheet Applications in Excel
- CIS120 - Survey of Computer Information Systems

**Students may be advised to complete ACC100 prior to enrolling in ACC201 .*

Elective Requirements

Select courses numbered 100 or above for a total of 6 credits from the following prefixes and 6 credits of general electives to fulfill 61-credit degree requirement

- ACC
    - ACC100 Fundamentals of Accounting recommended
- AGB
- BUS
    - BUS190 Principles of Management and Leadership recommended
- CBA
- CIS
- CUL
- ECN
- HRM

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 credits.

AP04_22-23 - Agribusiness AAS

Program Information

Program Title
Agribusiness AAS

Description
This Degree provides students with specialized agricultural workplace skills for entry and mid-level agribusiness positions.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
1. (Comprehension Level) Describe the commodity marketing system including raw materials and undifferentiated food products. (CSLO 3)
2. (Comprehension Level) Describe the food marketing system beginning with raw materials and ending with the consumer. (CSLO 3)
3. (Knowledge Level) Identify the purpose and need for agricultural financial records. (CSLO 4)
4. (Synthesis Level) Develop an enterprise analysis system. (CSLO 2)
5. (Comprehension Level) Explain accounting principles and rules. (CSLO 3)
6. (Application Level) Demonstrate knowledge of the role of agriculture in economic development. (CSLO 1 & 2)
7. (Application Level) Demonstrate the ability to use various applications of computer technology for agricultural management and problem solving. (CSLO 3 & 4)
8. (Analysis Level) Calculate appropriate financial ratios from an income statement and a balance sheet. (CSLO 3 & 4)
9. (Comprehension Level) Understand the basic functions of operating a business. (CSLO 4)
10. (Application Level) Maintain a complete set of accounting records for a sole proprietorship, including the financial statements and completion of the accounting cycle. (CSLO 2 & 3)
11. (Synthesis Level) Utilize accounting information to make business decisions. (CSLO 2 & 3)
12. (Application Level) Identify and apply leadership critical thinking skills. (CSLO 1 & 3)
13. (Application Level) Use writing and reading for inquiry, thinking, learning and communicating. (CSLO 4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

Arts & Humanities

ANS104 Human and Animal Interrelationships from Domestication to Present recommended - Or select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC list.

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Social & Behavioral Sciences

AGS204 Environmental Sustainability recommended -or select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Science AGEC list.

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Natural Sciences

Complete at least 2 of the following courses:

- AGS221 - Soil Science
- AGS240 - Plant Biology
- AGS101 - World of Plants
- AGS106 - Entomology

AGS221 & AGS240 recommended.

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher - MAT118 or higher recommended.

Core Requirements

Complete ALL of the following Courses:

- AGB100 - Intro to Agriculture Business
- AGB121 - Fundamentals of Agriculture and Environmental Economics
- AGB123 - Agriculture Accounting
- AGB124 - Microcomputers in Agriculture
- AGB213 - Intro to Agricultural Commodity and Food Marketing
- AGB225 - Agriculture Business Analysis
- AGB234 - AG Leadership Development
- ECN201 - Principles of Macroeconomics

Elective Requirements

Complete at least 4 of the following courses:

- ACC100 - Fundamentals of Accounting
- ACC201 - Financial Accounting
- ACC202 - Managerial Accounting
- AGS122 - Natural Resources & Conservation
- AGS235 - Principles of Sonoran Horticulture
- AGS296 - Agriculture Internship
- ANS101 - Animal Industry
- ANS110 - Horse Event Production
- ANS121 - Equine Facility Management I
- ECN202 - Principles of Microeconomics
- ENG102 - College Composition II

If student selects 3-credit math course an additional elective course must be selected.

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (GPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP04_23-24 - Nursing AAS, RN Traditional Emphasis

Program Information

Program Title
Nursing AAS, RN Traditional Emphasis

Description
Central Arizona College's Registered Nursing Program prepares students for the medical workforce or to complete further education to specialize in clinical practice, teaching or administration. The CAC Nursing Program is approved by the Arizona State Board of Nursing, 1740 W. Adams St. Suite 2000 Phoenix, AZ 85007 (602-771-7803), www.azbn.gov., and accredited by the Accreditation Commission for Education in Nursing, 3343 Peachtree Road NE, Suite 850, Atlanta, Georgia 30326 (404-975-5000), www.acenursing.org.

Current Nursing students may sit for the Practical Nurse Licensing Examination (NCLEX-PN) after completing the general education requirements listed in the Master Academic Plan (MAP) for Block I and II, NUR121, NUR122 and NUR 150 immediately following Semester 2. Students can also sit for the NCLEX-PN following successful completion of the third semester in the program.
Completion of the four-semester Program qualifies the student for the Nursing Associate of Applied Science Degree and for taking the Registered Nurse Licensing Examination (NCLEX-RN).

Concurrent Enrollment Programs (CEP) are available for those who wish to consider obtaining their Baccalaureate Degree by taking classes along with AAS courses. Please schedule an information session for more information by visiting the URL:
http://www.centralaz.edu/Home/Academics/Divisions_and_Programs/Nursing_Division.htm

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
Upon completion of the program, the graduate will be able to:
1. (Evaluation Level) Support healthy physiological, psychosocial, cultural and spiritual functioning for patients, families, communities and themselves. (CSLO 1)
2. (Application Level) Employ sound critical thinking/clinical judgment skills in practice, using evidenced based nursing competencies to promote safe, quality nursing care. (CSLO 2, 4)
3. (Synthesis Level) Continue in developing a professional identity by integrating the nursing role using integrity, ethical and legal practices, and advocating for patients, families and communities. (CSLO 1, 3)
4. (Analysis Level) Practice and maintain a spirit of inquiry by examining evidence that underlies nursing practice and offer insights to improve quality of care to patients, families and communities (CSLO 3).
5. (Evaluation Level) Provide patient centered care using effective communication and collaboration with patients, families and other members of the healthcare team). (CSLO 1, 3)
6. (Application Level) Apply informatics to all areas of nursing. (CSLO 2, 4)

Simple Requisites

General Education Requirement
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Choose an AGEC Arts & Humanities course or select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Complete with a grade of C or higher.

Social & Behavioral Science

Complete ALL of the following Courses:

- PSY101 - Introduction to Psychology

Complete with a grade of C or higher.

Natural Sciences

Complete ALL of the following Courses:

- BIO205 - Microbiology

Complete with a grade of C or higher.

Quantitative Reasoning

Earn at least 4 credits from the following:

- AGEC Mathematics Courses

MAT141 or higher (excluding MAT201 & MAT202) with a grade of C or higher.

Core Requirements

Complete ALL of the following Courses:

- NUR121AX - Transitions Across the Lifespan
- NUR121BX - Fundamentals of Health/Illness Transitions
- NUR125X - Nursing Psychiatric Care and Developmental Transitions
- NUR126AX - Introduction to Principles and Application of Drug Dosage Calculations
- NUR126C - Advanced Principles and Application of Drug Dosage Calculations
- NUR135X - Nursing in Obstetric and Pediatric Transitions
- NUR145A - Introduction to Pathopharmacology
- NUR145B - Advanced Pathopharmacology
- NUR200 - Advanced Medical Terminology for Nursing and Healthcare Professionals
- NUR201 - Advanced Nursing in Health/Illness Transitions
- NUR222 - Nursing in Organizational Transitions
- NUR223 - Transition to the Nursing Workforce

Complete with a grade of C or higher. Concurrent Enrollment Programs (CEP) are available for those who wish to consider obtaining their Baccalaureate Degree by taking classes along with AAS courses. Please schedule an information session for more information by visiting the URL: https://centralaz.edu/divisions-programs/nursing-health-emergency-careers/nursing-aas/

Admission Requirements

Admission Requirements
In addition to CAC admission requirements, applicants must meet the current requirements established by the Nursing Division Faculty. These requirements include, but are not limited to:
1. Competence in math, English, and reading
2. Completion of BIO201 and BIO202 (For students who need prerequisite for BIO201/BIO205; recommendation for nursing is BIO181.)
3. LNA or LPN License from the Arizona State Board of Nursing must be included in the application to the CAC Nursing program.
(Request LNA License early to allow shipping and processing time);
4. Attendance at a Nursing Information session within the past year;
5. Eligibility to register for MAT141 or higher MAT course;
6. Eligibility to register for ENG101;
7. Successful completion of the HESI Entrance Test at CAC (within 3 attempts 30 days apart);
8. Cumulative GPA of 2.75 or higher;
9. Completed CAC Nursing program application.

Students must be able to meet the Essential Functions of the Nursing Program as listed in the Nursing Application and Information Packet.

Admission to the Nursing Program is selective and based on a point system (specific established criteria).

Acceptance to CAC does not guarantee acceptance into the Nursing Program. Further information may be obtained at URL: http://www.centralaz.edu/Home/Academics/Divisions_and_Programs/Nursing_Division.htm

Additional Comments:
Students must earn:
*a grade of C or better in all required courses;
*a cumulative grade point average (CGPA) of at least a 2.75 on a 4.0 scale;
*a minimum of 3 earned CAC credits numbered 100 or above;
*a minimum of 60 credits for this AAS degree.

Requisites

Program Prerequisites:

Prerequisites (8)
BIO201 Human Anatomy and Physiology I (4)
BIO202 Human Anatomy and Physiology II (4)
(Must be taken within five years of application to the Nursing Program)
Arizona Licensed Nursing Assistant (LNA) or LPN and acceptance into Nursing Program.
Competence in math, English and reading

AP04_25-26 - Administration of Justice AAS

Program Information

Program Title
Administration of Justice AAS

Description
The Administration of Justice AAS Degree prepares students for professional careers in law enforcement, corrections, parole, probation, the judiciary, and juvenile social work. Recommended Proficiencies: Basic reading and writing skills, advanced skills (e.g. ENG 101 and ENG 102) are a part of the degree.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
1. (Comprehension Level) Identify the components of the criminal justice system. (CSLO 2)
2. (Comprehension Level) Identify and define at least five theories of criminal causation. (CSLO 1,2,4)
3. (Synthesis Level) Demonstrate the ability to understand the relationship of the legislature and judiciary to the enactment and interpretation of law. (CSLO 1,2,3,4)
4. (Evaluation Level) Demonstrate the ability to understand the criteria for the admissibility of evidence in a criminal trial. (CSLO 2,3,4)
5. (Knowledge Level) Identify at least three current trends in how modern police agencies interact with their communities. (CSLO 1,2,3,4)
6. (Knowledge Level) Identify the purposes and roles of Arizona Post. (CSLO 3)
7. (Knowledge Level) Identify the purpose and function of a criminal investigation unit. (CSLO 2,3)
8. (Comprehension Level) Identify the steps, from arrest through appeal, that a criminal case flows through the criminal justice process. (CSLO 1,2,3,4)
9. (Comprehension Level) Identify and describe the objectives and normal activities of police patrol. (CSLO 2,3)
10. (Comprehension Level) Identify at least three major police administrative problems common to most police agencies. (CSLO 1,2,3,4)
11. (Comprehension Level) Identify the key points of each of the U.S. Constitutional Amendments 1 through 10 and the 14th as they relate to the rights of a criminal defendant. (CSLO 1,2,3,4)
12. (Comprehension Level) Identify the key concepts of ARS Title 13 and Victims' Rights Legislation in Arizona. (CSLO 1,2,3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Complete ALL of the following Courses:
- AJS123 - Ethics and the Administration of Justice

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- SOC101 - Introduction to Sociology
- POS101 - American Politics
- POS220 - U.S. and Arizona Constitutions
- PSY101 - Introduction to Psychology

Select 2 courses

Natural Sciences Courses

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a Science lab course

Mathematics

Earn at least 3 credits from the following:

- MAT118 or higher

MAT118 or higher

Program Requirements

Complete ALL of the following Courses:

- AJS101 - Introduction to Administration of Justice
- AJS200 - Current Issues in Administration of Justice
- AJS209 - Substantive Criminal Law
- AJS212 - Juvenile Justice Procedures
- AJS225 - Criminology
- AJS230 - The Police Function
- AJS240 - The Corrections Function
- AJS260 - Procedural Criminal Law
- AJS270 - Community Relations

Choose a 3-credit AJS elective

Earn at least 3 credits from the following:

- 3-credit AJS course

Electives

Complete ANY of the following Course Sets:

- Electives
- Transfer Electives

Select 4-5 elective credits (depending on math option) 100 level or higher to fulfill the 60-credit degree requirement

Additional Comments:
Students must earn:
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 credits for this AAS degree.

AP05_23-24 - Nursing AAS, LPN to RN Emphasis

Program Information

Program Title
Nursing AAS, LPN to RN Emphasis

Description
Central Arizona College's Registered Nursing Program prepares students for the medical workforce or to complete further education to specialize in clinical practice, teaching or administration. The CAC Nursing Program is approved by the Arizona State Board of Nursing, 1740 W. Adams St. Suite 2000 Phoenix, AZ 85007 (602-771-7803), www.azbn.gov., and accredited by the Accreditation Commission for Education in Nursing, 3343 Peachtree Road NE, Suite 850, Atlanta, Georgia 30326 (404-975-5000), www.acenursing.org.

Central Arizona College's Registered Nursing Program prepares students for the medical workforce or to complete further education to specialize in clinical practice, teaching, or administration.
The CAC Nursing Program is approved by the Arizona State Board of Nursing, www.azbn.gov.

Current Nursing students may sit for the Practical Nurse Licensing Examination (NCLEX-PN) after completing the general education requirements listed in the Master Academic Plan (MAP) for Block I and II.
Completion of the four-semester Program qualifies the student for the Nursing Associate of Applied Science Degree and for taking the Registered Nurse Licensing Examination (NCLEX-RN). Students can also sit for the NCLEX-PN following successful completion of the third semester in the program.

Admission Requirements
In addition to CAC admission requirements, applicants must meet the current requirements established by the Nursing Division Faculty. These requirements include, but are not limited to:
1. Competence in math, English, and reading
2. Completion of BIO201 and BIO202 (For students who need prerequisite for BIO201/BIO205; recommendation for nursing is BIO181.)
3. LNA or LPN License from the Arizona State Board of Nursing must be included in the application to the CAC Nursing program.
(Request LNA License early to allow shipping and processing time);
4. Attendance at a Nursing Information session within the past year;
5. Eligibility to register for MAT141 or higher MAT course;
6. Eligibility to register for ENG101;
7. Successful completion of the HESI Entrance Test at CAC (within 3 attempts 30 days apart);
8. Cumulative GPA of 2.75 or higher;
9. Completed CAC Nursing program application.
Students must be able to meet the Essential Functions of the Nursing Program as listed in the Nursing Application and Information Packet.
Admission to the Nursing Program is selective and based on a point system (specific established criteria).
Acceptance to CAC does not guarantee acceptance into the Nursing Program. Further information may be obtained at URL: http://www.centralaz.edu/Home/Academics/Divisions_and_Programs/Nursing_Division.htm
Concurrent Enrollment Programs (CEP) are available for those who wish to consider obtaining their Baccalaureate Degree by taking classes along with AAS courses. Please schedule an information session for
more information by visiting the URL:
https://centralaz.edu/divisions-programs/nursing-health-emergency-careers/nursing-aas/

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
Upon completion of the program, the graduate will be able to:
1) (Evaluation Level) Support healthy physiological, psychosocial, cultural and spiritual functioning for patients, families, communities and themselves (CSLO 1).
2) (Application Level) Employ sound critical thinking/clinical judgment skills in practice, using evidenced based nursing competencies to promote safe, quality nursing care (CSLO 2 & CSLO 4).
3. (Synthesis Level) Continue in developing a professional identity by integrating the nursing role using integrity, ethical and legal practices, and advocating for patients, families and communities.
4. (Analysis Level) Practice and maintain a spirit of inquiry by examining evidence that underlies nursing practice and offer insights to improve quality of care to patients, families and communities (CSLO 3).
5. (Evaluation Level) Provide patient centered care using effective communication and collaboration with patients, families and other members of the healthcare team).
6. (Application Level) Apply informatics to all areas of nursing.

Simple Requisites

General Education Requirement

Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Choose an AGEC Arts & Humanities course or select course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Complete with a grade of C or higher.

Social & Behavioral Science

Complete ALL of the following Courses:

- PSY101 - Introduction to Psychology

Complete with a grade of C or higher.

Natural Sciences

Complete ALL of the following Courses:

- BIO205 - Microbiology

Complete with a grade of C or higher.

Quantitative Reasoning

Earn at least 4 credits from the following:

- AGEC Mathematics Courses

MAT141 or higher (excluding MAT201 & MAT202) with a grade of C or higher.

Core Requirements

Complete ALL of the following Courses:

- NURLPN - Nursing AZ Licensed Practical Nurse
- NUR126B - Bridge Introduction to Principles & Application of Drug Dosage Calculations
- NUR126C - Advanced Principles and Application of Drug Dosage Calculations
- NUR131 - LPN to RN Bridge Course
- NUR145B - Advanced Pathopharmacology
- NUR200 - Advanced Medical Terminology for Nursing and Healthcare Professionals
- NUR201 - Advanced Nursing in Health/Illness Transitions
- NUR222 - Nursing in Organizational Transitions
- NUR223 - Transition to the Nursing Workforce

Complete with a grade of C or higher. Concurrent Enrollment Programs (CEP) are available for those who wish to consider obtaining their Baccalaureate Degree by taking classes along with AAS courses. Please schedule an information session for
more information by visiting the URL:
https://centralaz.edu/divisions-programs/nursing-health-emergency-careers/nursing-aas/

Additional Comments:
Students must earn:
*a grade of C or better in all required courses;
*a cumulative grade point average (CGPA) of at least a 2.75 on a 4.0 scale;
*a minimum of 3 earned CAC credits numbered 100 or above;
*a minimum of 60 credits for this AAS degree.

AP10_20-21 - Early Childhood Education AAS

Program Information

Program Title
Early Childhood Education AAS

Description
The Early Childhood Education AAS Degree prepares competent early childhood professionals for working with young children and families. Students are provided opportunities to gain specialized knowledge and implement best practices in early childhood settings. The Early Childhood Education AAS Degree is accredited by the National Association for the Education of Young Children (NAEYC) Commission on the Accreditation of Early Childhood Education Higher Education Programs located at P.O. Box 96261, Washington, DC 20090-6261. 202-232-8777. naeyc.org

Area of Interest
Education

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
Students will be able to demonstrate proficiency at the appropriate pre-established levels for the following standards and competencies:

1. (Analysis Level) Analyze major theoretical perspectives and research on child development (birth–age 8), including brain development, executive function, and protective/risk factors. Evaluate how cultural, familial, and societal contexts shape development and apply this analysis to inform equitable practices. (CSLO 4; NAEYC 1)
2. (Evaluation Level) Evaluate diverse family structures and stages of development to cultivate responsive, respectful, and reciprocal partnerships. Analyze potential conflicts between family preferences and program practices. Propose solutions that foster trust, shared decision-making, and culturally responsive approaches. Develop and implement strategies that leverage community resources to strengthen family engagement and child transitions. (CSLO 1; NAEYC 2)
3. (Analysis Level) Critically evaluate and practice using a range of observation and assessment tools for developmental, cultural, and linguistic appropriateness. Analyze assessment data to set individualized learning goals. Create assessment plans in partnership with families and colleagues to ensure equity and positive outcomes. (CSLO 4; NAEYC 3)
4. (Evaluation Level) Demonstrate and defend differentiated practices that incorporate play, inquiry, and executive function skills. Evaluate the effectiveness of culturally and linguistically responsive, anti-bias strategies, and design inclusive learning environments that foster resilience, curiosity, and critical thinking. (CSLO 2, NAEYC 4)
5. (Synthesis Level) Synthesize knowledge of core academic areas to implement pedagogical methods that are inclusive of young children with diverse abilities. Evaluate curriculum for developmental appropriateness and cultural responsiveness, and design learning experiences that extend children's thinking across disciplines. (CSLO 2; NAEYC 5)
6. (Analysis Level) Analyze and resolve professional dilemmas using the NAEYC Code of Ethical Conduct. Evaluate emerging issues in the field, and create advocacy strategies that support children, families, and educators within early learning settings and broader policy contexts. (CSLO 3, NAEYC 6)
7. (Evaluate) Critically reflect on professional practice and biases using stakeholder feedback and evidence. Create individualized professional development goals and resiliency practices to maintain ethical, effective engagement and intentional approaches with children and families. (CSLO 3, NAEYC 6)

Simple Requisites

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Art or Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 6 credits from the following:

- ECE276 - Child Development

Select another course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ECE105 - Foundations Early Child Education
- ECE110 - Health, Safety, and Nutrition
- ECE11617 - Effective Interactions and Guidance
- ECE216 - Early Childhood Observation and Assessment
- ECE229 - Early Childhood Practicum
- ECE271 - Creating Early Childhood Environments
- ECE276 - Child Development
- ECE278 - Early Childhood Curriculum Development
- ECE283 - Building Family and Community Partnerships

Elective Requirements

Select Elective courses numbered 100 or above to complete the total number of credits required for this AAS degree. Recommended courses: ECE124, ECE254, ECE280.

Earn at least 12 credits from the following:

- Electives
- Transfer Electives

Based on your major, consult an academic advisor in the ECE Department, review the specific AAS degree requirements in the CAC catalog, and see the Transfer Guides at aztransfer.com/college.

Additional Comments:

Other Requirements

Students must earn:

- a grade of C or better in all courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP12_20-21 - Automated Industrial Technology AAS

Program Information

Program Title
Automated Industrial Technology AAS

Description
The Associate in Applied Science (AAS) in Automated Industrial Technology prepares students to troubleshoot, maintain and repair a variety of automated electromechanical, product assembly, process control, and product distribution systems that use programmable controls and other methodologies to accomplish system management. These systems include robotic, mechanical, hydraulic, pneumatic, electrical, and electronic devices. Through this degree, graduates will gain the skills to define, integrate, install, program, and maintain complex control systems. Additionally, students will gain the communication, problem-solving and professional skills needed to be successful in this field. The Automated Industrial Technology courses are designed to prepare students for industry recognized certifications. Certificates of Completion (CCL) in Automated Industrial Technology I and II are also available. Recommended: Fundamental computer skills.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
1. (Application Level) Install, test, and troubleshoot Programmable Logic Controllers (PLCs). (CSLO 2,3)
2. (Analysis Level) Analyze AC/DC circuits, and analog and digital systems. (CSLO 2,3)
3. (Application Level) Calibrate, adjust and test process control systems. (CSLO 2,3)
4. (Application Level) Install, test, operate and troubleshoot motor drives in an electrical control system. (CSLO 2,3)
5. (Analysis Level) Perform, monitor and interpret machine operation. (CSLO 2,3)
6. (Analysis Level) Interpret electrical and electronic control and power schematics and measure current, voltage and resistance. (CSLO 2,3)
7. (Analysis Level) Analyze and perform preventive and predictive maintenance on robotic and other automated industrial equipment. (CSLO 2,3,4)
8. (Application Level) Utilize computer information systems, microcomputer applications, and programming techniques. (CSLO 2,3,4)
9. (Application Level) Apply electronic and mechanical fabrication techniques. (CSLO 2,3)
10. (Comprehension Level) Describe and adhere to safety, health and environmental rules and regulations. (CSLO 2,3,4)
11. (Application Level) Practice professional standards of the industry and ethical behavior. (CSLO 2,3)
12. (Comprehension Level) Communicate effectively, both orally and in writing, in varied settings in a culturally responsive manner. (CSLO 2,3,4)
13. (Synthesis Level) Collaborate with diverse individuals and entities to achieve common goals. (CSLO 2,3,4)

Simple Requisites

Recommended Proficiencies
Type
Prerequisite

Additional Comments:
Fundamental computer skills.

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:
- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:
- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a 4-credit course with lab numbered 100 or above.

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

MAT106 or higher

Core Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- AIT100 - Industrial Safety
- AIT105 - Maintenance Operations
- AIT110 - Mechanical Power Transmission Systems
- AIT115 - Hydraulic Systems
- AIT120 - Pneumatic Systems
- AIT125 - DC and AC Components and Circuits
- AIT205 - Power Electronics and Variable Frequency Drives
- AIT210 - Programmable Logic Controller Programming and Troubleshooting
- AIT215 - Process Control Systems
- AIT225 - Industrial Motors and Motor Control
- AIT270 - Robotics I
- AIT275 - Robotics II
- MET289 - Advanced Technology Capstone
- WLD221 - Gas Tungsten Arc Welding

* WLD221 or any 3-credit WLD course.

Additional Comments:
Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP13_20-21 - Diesel Technology AAS

Program Information

Program Title
Diesel Technology AAS

Description
Formerly known as Diesel and Heavy Equipment Technology AAS

The Diesel Technology AAS Degree prepares students for employment as diesel technicians with an array of career opportunities within the industry. A typical graduate will seek employment with an equipment dealer, equipment rental company, or a heavy highway construction company. Students receive training applicable for serving and repairing all types of diesel equipment.

The Diesel Technology Degree is accredited by the Associated Equipment Distributors Foundation (AEDF) located at 600 22nd Street Suite 220 Oak Brook, IL 60523; 630-574-0650; https://aedfoundation.org/

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
65

Program Learning Outcomes
1. (Synthesis Level) Model safe procedures in the workplace, per OSHA. (CSLO #2)
2. (Comprehension Level) Explain the fundamentals of diesel engine and fuel system design and operation used in Heavy Equipment. (CSLO #2)
3. (Analysis Level) Diagnose and repair malfunctions related to diesel engines and fuel systems used in Heavy Equipment.(CSLO #4)
4. (Comprehension Level) Explain the fundamentals of power train and chassis system design and operation used in Heavy Equipment.(CSLO #2)
5. (Analysis Level) Diagnose and repair malfunctions related to power train and chassis systems used in Heavy Equipment.(CSLO#4)
6. (Comprehension Level) Explain the fundamentals of hydraulic, electrical, and electronic systems used in Heavy Equipment. (CSLO #2 & #4)
7. (Analysis Level) Diagnose and repair malfunctions related to hydraulic, electrical, and electronic systems used in Heavy Equipment.(CSLO #4)
8. (Application Level) Operate Heavy Equipment in accordance with the operator's handbook.(CSLO #2 & #4)
9. (Application Level) Recondition Heavy Equipment in accordance with the manufacturer's service and repair manual. (CSLO #2 & #4)

Simple Requisites

Prerequisites
Type
Prerequisite

Additional Comments:
Students must be admitted to DIE TECH cohort and hold current and valid driver license, or instructor consent.

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:
- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:
- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course rom the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Complete ANY of the following Course Sets:

- BUS101 or MAT106 or higher

BUS101 or MAT106 or higher

Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- DIE116 - Intro to Diesel Technology
- DIE118 - Computer Systems Equip Techs
- DIE132 - Diesel Engines and Fuel Systems
- DIE133 - Diesel Power Trains
- DIE215 - Diesel Electrical Systems
- DIE216 - Diesel Hydraulic Systems
- DIE222 - Mobile Refrigeration
- HEO100 - Intro to Heavy Equip Operation
  OR HEO121 - Heavy Equipment Operations Core

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 65 semester credits

AP14_20-21 - Heavy Equipment Operator AAS

Program Information

Program Title
Heavy Equipment Operator AAS

Description
The Heavy Equipment Operator AAS degree prepares students to operate, maintain and service heavy equipment and layout construction projects. In this hands-on program, students will be operating motor graders, scrapers, front end loaders, bull dozers, water trucks, dump trucks, belly dump trucks, backhoes, excavators and other specialized equipment. The equipment in our fleet gives the student a feel for up-to-date equipment and for older equipment still used in the industry.

The Heavy Equipment Operator Degree is accredited by the National Center for Construction Education and Research (NCCER), 13614 Progress Boulevard, Alachua, FL 32615; 888-622-3720; https://www.nccer.org/

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
1. (Synthesis Level) Plan and explain a diesel related dilemma using effective critical thinking processes to problem solve. (CSLO-4)
2. (Comprehension Level) Explain the importance of work safety, punctuality, and a team approach to develop and present class projects. (CSLO-2)
3. (Comprehension Level) Explain the importance of good listening, requesting clarification for total comprehension, and accurately carrying out both verbal and written instructions. (CSLO-3)
4. (Comprehension Level) Read for comprehension detailed equipment manuals, technical support materials, and career-related information.
5. (Application Level) Apply math/science computational concepts and principles to everyday living and to a career choice.
6. (Application Level) Adhere to safe work practices while operating, servicing, and repairing heavy equipment. (CSLO-3)
7. (Application Level) Safely operate various types of heavy equipment to exacting specifications. (CSLO-3)
8. (Synthesis Level) Perform in a safe and professional manner the preventive maintenance of heavy construction equipment. (CSLO-3)
9. (Synthesis Level) Analyze and explain the process to repair various malfunctions of heavy equipment and concisely report the problems. (CSLO-4)
10. (Application Level) Demonstrate surveying and layout of construction projects related to earth moving. (CSLO-3)
11. (Comprehension Level) Explain the principles of approximating volumes of material that are related to moving, processing, and completing various construction projects. (CSLO-2)
12. (Synthesis Level) Record manpower and machine data used to analyze equipment cost and efficiency as applied to a construction project. (CSLO-3)
13. (Synthesis Level) Develop a resume focusing on the principles of applying for an operator position in the heavy equipment operator field.
14. (Evaluation Level) Interpret documents used for the layout and construction of projects as related to shaping of earth, aggregates, and other such materials. (CSLO-2)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:
- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences category.

Natural Sciences

Earn at least 4 credits from the following:

- Any Geology course or AGS221

AGS221 or any GLG (geology) course.

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT106 or higher

BUS101 or MAT106 or higher

Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CET125 - Intro to Earthmoving Methods & Operations
- CET221 - Basic Surveying & Grade Stakng
- HEO121 - Heavy Equipment Operations Core
- HEO122 - Heavy Equipment Operations I
- HEO127 - Heavy Equipment Reconditioning
- HEO128 - Diesel Equipment Service and Repair
- HEO221 - Heavy Equipment Operations II
- HEO222 - Heavy Equipment Operations III

Elective Requirements

Earn at least 4 credits from the following:

- COM202 - Small Group Communication
  OR DIE196 - Diesel Equip/HEO Internship I
  OR DIE222 - Mobile Refrigeration
  OR DIE296 - Diesel Equip HEO Internship II
  OR HEO100 - Intro to Heavy Equip Operation
- CIS120 - Survey of Computer Information Systems
  OR AGB124 - Microcomputers in Agriculture

Choose 4 credits from the list above. Students may also take any BUS (Business) course or any WLD (Welding) course.

CIS120 recommended for students transferring to NAU.

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP15_20-21 - Pipefitting/Pipe Welding Technology AAS

Program Information

Program Title
Pipefitting/Pipe Welding Technology AAS

Description
The Pipefitting/Pipe Welding AAS prepares students for employment as a pipe welder/fitter with an array of career opportunities within the industry. Topics include advanced pipefitting, specialty tools as well as welding processes of shielded metal arc welding, gas metal arc welding, gas tungsten arc welding, pipe fabrication, and trade math. A typical graduate seeks employment in power generation, cross-country pipeline, pressure vessel fabrication, process piping, and related maintenance and construction industries.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Synthesis Level) Show motivation, dependability, reliability, willingness to learn, willingness to work as a team member and the ability to work safely. (CSLO 3)
2. (Synthesis Level) Demonstrate skills related to applied science, basic computers, applied mathematics/measurements, reading for information, business writing, listening and following directions, locating/using information and speaking/presentation skills. (CSLO 2,3)
3. (Evaluation Level) Demonstrate, explain and critique teamwork, adaptability/flexibility, business fundamentals, marketing and customer focus, planning and organizing, problem-solving, decision-making, and applied technology. (CSLO 2,3)
4. (Evaluation Level) Evaluate and demonstrate welding competencies in manufacturing process development and design, production, maintenance installation and repair, quality assurance/continuous improvement, and health and safety.(CSLO 2,3)
5. (Synthesis Level) Apply welding fundamentals and processes, and the correct and safe use of welding equipment and tools.(CSLO 2,3)
6. (Comprehension Level) Identify the physical characteristics and mechanical properties of metals. (CSLO 4)
7. (Synthesis Level) Demonstrate competencies in pipefitting practices, safety and health, drawing and symbols, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
8. (Synthesis Level) Create completed projects by demonstrating proficient pipefitting techniques while performing SMAW, GMAW, FCAW, GTAW, thermal cutting, OFC, PAC, CAC, and inspection.(CSLO 2)
9. (Evaluation Level) Demonstrate, evaluate and explain weld imperfections and their causes. Explain the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society. Demonstrate consistent, high quality workmanship to ensure public safety and to protect the environment. (CSLO 1)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher - COM259 recommended

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

OR Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list. ART103 recommended

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

OR Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list. PEH101 recommended

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a 4-credit Natural Sciences course with lab numbered 100 or above - AGS221 recommended.

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

MAT106 or higher - MAT106 recommended

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- WLD115 - Welding NCCER Core
- WLD125 - Pipe Welding I
- WLD128 - Intro to Structural Drawings & CAD
- WLD143 - Pipefitting I
- WLD243 - Pipefitting II
- WLD246 - Pipefitting III
- WLD247 - Pipefitting IV
- WLD255 - Advanced Pipe Welding II

Other Requirments

Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

Requisites

Recommended Proficiencies: Prior experience in welding or knowledge from high school agriculture programs.

AP16_20-21 - Structural Welding Technology AAS

Program Information

Program Title
Structural Welding Technology AAS

Description
The Structural Welding Degree prepares students for employment as a welder/fabricator with an array of career opportunities within the industry. Topics include Shielded Metal Arc Welding, Flux Cored Arc Welding, Gas Tungsten Arc Welding, Gas Metal Arc Welding, welding design and fabrication, detail drawing and CAD skills. A typical graduate finds employment in mining, steel fabrication, steel erection, aerospace, manufacturing and other industries.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
AAS - Associate of Applied Science

Total Credits Required
63

Program Learning Outcomes
1. (Synthesis Level) Show motivation, dependability, reliability, willingness to learn, willingness to work as a team member and the ability to work safely. (CSLO 3)
2. (Synthesis Level) Demonstrate skills related to applied science, basic computers, applied mathematics/measurements, reading for information, business writing, listening and following directions, locating/using information and speaking/presentation skills. (CSLO 2,3)
3. (Evaluation Level) Demonstrate, explain and critique teamwork, adaptability/flexibility, business fundamentals, marketing and customer focus, planning and organizing, problem-solving, decision-making, and applied technology. (CSLO 2,3)
4. (Evaluation Level) Evaluate and demonstrate welding competencies in manufacturing process development and design, production, maintenance installation and repair, quality assurance/continuous improvement, and health and safety.(CSLO 2,3)
5. (Synthesis Level) Apply welding fundamentals and processes, and the correct and safe use of welding equipment and tools.(CSLO 2,3)
6. (Comprehension Level) Identify the physical characteristics and mechanical properties of metals. (CSLO 4)
7. (Synthesis Level) Demonstrate competencies in safety and health, drawing and symbols, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
8. (Synthesis Level) Create completed projects by demonstrating proficient techniques in SMAW, GMAW, FCAW, GTAW, thermal cutting, OFC, PAC, CAC, and inspection.(CSLO 2)
9. (Evaluation Level) Demonstrate, evaluate and explain weld imperfections and their causes. Explain the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society. Demonstrate consistent, high quality workmanship to ensure public safety and to protect the environment. (CSLO 1)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher - COM259 recommended

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list - ART103 recommended.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list - PEH101 recommended.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select a 4-credit Natural Sciences course with lab numbered 100 or above - AGS221 recommended.

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

MAT106 or higher - MAT106 recommended

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- IRW130 - Structural Steel Erection I
- WLD110 - Survey of Welding Processes
- WLD118 - Physical Characteristics & Mechanical Properties of Metals
- WLD128 - Intro to Structural Drawings & CAD
- WLD129 - Intro to Shielded Metal Arc Welding & Thermal Cutting Processes
- WLD130 - Intro to Flux Cored Arc Welding & Fabrication
- WLD221 - Gas Tungsten Arc Welding
- WLD222 - Gas Metal Arc Welding
- WLD228 - Welding Inspection Technology
- WLD229 - Advanced Shielded Metal Arc Welding
- WLD230 - Advanced Flux Cored Arc Welding

Other Requirements

Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 63 credits.

Requisites

Recommended Proficiencies: Fundamentals of Structural Welding Certificate, Advanced Structural Welding and Fabrication Certificate.

AP18_20-21 - Fire Science Technology AAS

Program Information

Program Title
Fire Science Technology AAS

Description
The Fire Science Technology AAS Degree offers advanced training for professional firefighters, including practical firefighting, hazardous materials, related operations, history and theory and fire service management. The completion of Basic Fire Operations Certificate is highly recommended.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Evaluation Level) Recognize, evaluate and identify the chemical and physical properties of hazardous materials. (FSC129) (CSLO 2)
2. (Analysis Level) Analyze and explain processes used when dealing with hazardous materials. (FSC129) (CSLO 2)
3. (Evaluation Level) Assess and solve problems concerning fire prevention techniques, procedures, regulations, code enforcement and occupancy survey. (FSC108) (CSLO 4)
4. (Evaluation Level) Describe and evaluate the characteristics and behavior of fire and extinguishing agents and apply to case scenarios. (FSC140) (CSLO 2)
5. (Analysis Level) Analyze and describe fire suppression organization, basic fire fighting tactics and public relations as affected by fire suppression. (FSC140) (CSLO 1)
6. (Evaluation Level) Describe, analyze, implement, evaluate and justify the methods of attacking, controlling and extinguishing various types of fires. (FSC140) (CSLO 4)
7. (Analysis Level) Describe and analyze the roles/responsibilities of the Incident Commander in managing various types of major emergencies. (FSC204) (CSLO 3)
8. (Analysis Level) Analyze the methods used for ensuring firefighter safety in various case scenarios.
9. (Evaluation Level) Evaluate the reactions of various types of construction to fire and heat. (FSC208) (CSLO 4)
10. (Analysis Level) Analyze the theory of fire behavior, phases of fire, types of fire behavior and methods of fire control. (FSC140) (CSLO 2)
11. (Application Level) Describe and demonstrate the types, functions and maintenance of fire apparatus. (FSC140) (CSLO 2)
12. (Application Level) Explain and demonstrate the tactical operations applied to a structural fire and the importance of early salvage. (FSC140) (CSLO 2)
13. (Analysis Level) Analyze and demonstrate pounds per square inch, gallons per minute, friction loss, nozzle pressure and engine pressure as they relate to fire hydraulics and solve various hydraulic problems. (FSC118) (CSLO 2)
14. (Evaluation Level) Demonstrate ability to evaluate the situation and disentangle a patient from a wrecked automobile using extrication tools. (EMS125) (CSLO 3)
15. (Application Level) Demonstrate patient care, immobilization and stabilization skills according to local EMT protocols and the U.S. Department of Transportation Basic EMT curriculum. (EMS125) (CSLO 3)
16. (Analysis Level) Describe and analyze the responsibilities of personnel operating on the fire ground related to firefighter safety. (FSC208) (CSLO 3)
17. (Evaluation Level) Describe, demonstrate and critique the methods of attacking, controlling and extinguishing various types of fires. (FSC204) (CSLO 4)
18. (Comprehension Level) Describe local and interagency relationships in the Arizona Wildland Firefighting system and their roles for Wildland Fire suppression. (FSC180) (CSLO 1)
19. (Comprehension Level) Describe maintenance, safety and efficient use of Wildland Fire suppression personal protective equipment. (FSC180) (CSLO 2)
20. (Knowledge Level) Identify and define common Wildland Fire terms. (FSC180) (CSLO 2)
21. (Comprehension Level) Identify and discuss early traditions and the history of the fire service. (FSC106) (CSLO 1)
22. (Comprehension Level) Describe the role and functions of public and private fire protection organizations. (FSC106) (CSLO 1)
23. (Comprehension Level) Describe the entrance requirements and career opportunities for firefighters.(FSC106) (CSLO 2)

Simple Requisites

Prerequisite and Recommended Proficiencies	Type

Prerequisite

Prerequisite and Recommended Proficiencies

Completion of Basic or Advanced Fire Operations certificate is highly recommended. Recommended Proficiencies: 1. Arizona, (AzCFSE) Certification(s). 2. State of Arizona Dept. of Health Services Certification(s). 3. American Heart, Red Cross, or other certifying agency course completion in CPR. 4. International Fire Service Accreditation Congress (IFSAC) certification(s).

Additional Comments:
Some courses require:
-State of Arizona, (AZCFSE) Certification(s) State of Arizona Fire Marshal Certification(s)
-State of Arizona Department of Health Services Certification(s)
-American Heart, Red Cross, or other certifying agency course completion in CPR
-IFSAC (International Fire Service Accreditation Congress) certification

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

ENG121 recommended

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher - COM206 recommended

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIt, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC lists.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- PSY101 - Introduction to Psychology
- SOC101 - Introduction to Sociology

Select one - SOC101 recommended

Natural Sciences

Complete ALL of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher - MAT118 or higher recommended

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- FSC106 - Introduction to Emergency Services

- FSC108 - Fundamentals of Fire Prevention
- FSC129 - Haz-Mat Awareness/Operations
- FSC134 - Fitness and Conditioning for Firefighters
- FSC140 - Firefighter I and II
- FSC180 - Wildland Fire, Module 1
- FSC208 - Building Construction for the Fire Service
- EMS125 - Emergency Medical Technician
- EMS125A - Basic EMT Psychomotor Evaluation
- EMS110 - Introduction to Emergency Medical Services
- FSC119 - Fire Service Ethics

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above.;
- a minimum of 61 semester credits.

Additional Comments:
Some courses require:
-State of Arizona, (AZCFSE) Certification(s) State of Arizona Fire Marshal Certification(s)
-State of Arizona Department of Health Services Certification(s)
-American Heart, Red Cross, or other certifying agency course completion in CPR
-IFSAC (International Fire Service Accreditation Congress) certification

AP20_20-21 - Massage Therapy AAS

Program Information

Program Title
Massage Therapy AAS

Description
The Massage Therapy AAS Degree includes 1140 hours of basic curriculum which prepares individuals for entry-level positions performing massage therapy in a variety of settings. With additional classes in general education and expanded medical courses, students may attain the AAS in Massage Therapy with a 735-hour certificate. This program includes relaxation massage, therapeutic massage, massage therapy for special populations and spa treatments and hydrotherapy. Included in the program is a Chiropractic Assistant certification program. Additional topics include physiotherapy, body mechanics, acupuncture, anatomy, pathophysiology, business skills, and complementary and alternative medicine.

Central Arizona College requires all students on an international visa to complete the TOEFL (Test of English as a Foreign Language) with a score of 450 paper test or 133 computer test (see Admission of International Students in College Catalog). The Arizona Board of Massage Therapy additionally requires all students whose first language is not English to also pass a TOEFL test as a part of the licensure process. Please consult with the Massage Therapy Program Director for questions and assistance with this process prior to enrolling in the program.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
65

Program Learning Outcomes
1. (Synthesis Level) Correlate the knowledge acquired in the general education courses with massage therapy concepts and practice. (CSLO 2)
2. (Evaluation Level) Demonstrate, explain and critique various methods of massage therapy. (CSLO 2,3,4)
3. (Evaluation Level) Apply knowledge of massage history, benefits and contraindications, body mechanics, draping, hygiene, sanitation and safety to critique client care. (CSLO 2,3)
4. (Synthesis Level) Apply medical law and ethics, including legal guidelines/requirements for health care, medical ethics and related issues and risk management in case studies. (CSLO 1,2,4)
5. (Synthesis Level) Demonstrate knowledge of anatomy and physiology, medical terminology, pathophysiology and psychology in application of various massages to clients with specific needs.(CSLO 1,3,4)
6. (Synthesis Level) Incorporate appropriate and effective communications, including verbal and nonverbal interactions with others. (CSLO 3)
7. (Synthesis Level) Adapt for individualized needs in massage therapy. (CSLO 3,4)
8. (Application Level) Demonstrate application of electronic technology in massage therapy.
9. (Synthesis Level) Combine professional components, including operating a business, personal attributes, job readiness and workplace dynamics as they relate to massage therapy.(CSLO 3,4)
10. (Evaluation Level) Critique and problem solve issues related to the field of massage therapy. (CSLO 4)
11. (Analysis Level) Summarize the roles of the chiropractic assistant in the chiropractic office atmosphere including professional standards of conduct. (CSLO 3)
12. (Evaluation Level) Demonstrate and critique entry-level competencies in administrative procedures in office management including history taking, record keeping, scheduling and phone etiquette. (CSLO 3)
13. (Synthesis Level) Apply the concepts of acupuncture and physiotherapy for chiropractic therapy to clients and create a care plan. (CSLO 1,2,4)

Simple Requisites
Prerequisites & Pre-Program Requirements
Type
Prerequisite

Pre-Program Requirements: Students must apply for admission to the degree program with the Massage Therapy Director before enrolling in the degree specialty requirements. Central Arizona College's (CAC's) Massage Therapy program follows the Arizona Board of Massage Therapy guidelines. CAC requires all students on a Visa or students whose first language is not English to submit a passing score on the TOEFL (Test of English as a Foreign Language) Test prior to receiving Program Director approval to pursue the Massage Therapy AAS degree. TOEFL examination results must be submitted prior to receiving Program Director approval.
Program Preequisite: High School Diploma or GED. RDG100 recommended.

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Or select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list - PSY101 recommended.

Natural Sciences

Complete ANY of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology
- BIO201 - Human Anatomy and Physiology I
  AND BIO202 - Human Anatomy and Physiology II

Please select BIO160 OR BIO201 AND BIO202

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Degree Requirements
Type
Completion Requirement

Core Requirements

Prior to enrollment in any practicum courses, mandatory requirements must be met. CPR certification must be current for at least six months at the start of the Practicum.

Complete ALL of the following Courses:

- PHI105 - Introduction to Ethics
- MDA116 - Medical Terminology
- LMT173 - Pathophysiology
- LMT136 - Business Skills for Massage Therapy
- LMT154 - Complementary and Alternative Medicine
- LMT160 - Applied Anatomy for Massage
- LMT100 - Introduction to Massage Therapy/Relaxation
- LMT101 - Practicum for Relaxation
- LMT102 - Introduction to Deep Tissue and Kinesiology Concepts
- LMT103 - Practicum: Introduction to Deep Tissue and Kinesiology Concepts

- LMT200 - Special Populations Massage
- LMT201 - Practicum: Special Populatons Massage
- LMT202 - Spa Massage
- LMT203 - Practicum: Spa Massage
- LMT204 - Advanced Deep Tissue and Kinesiology Concepts
- LMT250 - Chiropractic Assistant Training

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 65 semester credits.

Requisites

LMT154 (3)
LMT160 (3)
LMT100 (4)
LMT101 (1)
LMT102 (4)
LMT103 (1)
LMT173 (3)
LMT136 (3)
LMT200 (4)
LMT201 (1)
LMT202 (4)
LMT203 (1)
LMT204 (4)
LMT250 (4)
BIO160 or BIO201 & BIO202 (4)
ENG101 or ENG121 (3)
BUS1021 or MAT118 (3-4)
COM100 or higher (3)
MDA116 (3)
PHI105 (3)
PSY101 (recommended) [SB] (3)
Arts & Humanities course (3)
=65 Credits

AP21_20-21 - Medical Assistant AAS

Program Information

Program Title
Medical Assistant AAS

Description
The Medical Assistant AAS Degree prepares entry-level Medical Assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains as established by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Medical Assisting Education Review Board (MAERB). The degree includes general education requirements and prepares individuals to perform administrative and clinical procedures in ambulatory settings, including physician's offices, clinics and group practices.

Prior to enrollment, consult the program director for specific mandatory requirements. Prior to enrollment in MDA175, Core Requirements must be successfully completed. Healthcare Provider CPR and First Aid certification is required before enrolling in MDA175 and must be current for at least 6 months after the start of MDA175.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
60

Program Learning Outcomes
Upon completion of this program the students will incorporate critical thinking based on cognitive knowledge in performance of psychomotor (skills) and affective (behavior) domains in their practice as medical assistants in the following areas:

1. General Education competencies applied to the following:
    1. (Evaluation Level) Correlate the knowledge acquired in the general education courses to medical assistant concepts and practice. (CSLO#4)
2. Foundation for Clinical Practice: Provide patient care applied to the following:
    1. (Application Level) Using knowledge of anatomy and physiology, perform the following tests: vital signs, venipuncture, capillary puncture, pulmonary function testing, ECG, patient screening, administration of oral and parenteral medications, quality control measures, CLIA waived hematology, chemistry, urinalysis and immunology testing while demonstrating respect for patient diversity. (CSLO#2)
    2. (Evaluation Level) Using knowledge of applied mathematics, prepare and verify proper doses of medication for administration, maintain laboratory test results using flow sheets, distinguish normal and abnormal test results, nutritional values, and maintain growth charts. (CSLO#4)
    3. (Synthesis Level) Using knowledge of microbiology/infection control, practice standard precautions using appropriate barrier/personal protective equipment, hand washing, sterilization techniques, and specimen collection and testing while showing awareness of patient rights, feelings and concerns. (CSLO#2)
3. Applied Communications competencies applied to the following:
    1. (Analysis Level) Use concepts of effective verbal, nonverbal and written communications to analyze appropriate means of effective communication with patients verbally, nonverbally and in documentation of patient care. (CSLO#4)
4. Medical Business Practices competencies applied to the following:
    1. (Synthesis Level) Using knowledge of administrative functions, manage scheduling and organization of patient medical records using electronic health care records and hardware and software to maintain office system while incorporating time management principles to maintain effective office functions. (CSLO#2)
    2. (Analysis Level) Using knowledge of basic practice finances, apply basic bookkeeping procedures to manual and computerized systems used in ambulatory health care with implementation of time management principles to maintain effective office functions. (CSLO#4)
    3. (Application Level) Using knowledge of managed care and insurance and procedural and diagnostic coding, apply these policies and procedures to implementing both managed care and insurance plans using third party guidelines and using effective communication with patients and managed care and insurance providers. (CSLO#2)
5. Medical Law and Ethics competencies applied to the following:
    1. (Synthesis Level): Integrate knowledge of appropriate local, state and federal health care legal and ethical regulations and laws in providing patient care, practice within the standard of care and scope of practice for a medical assistant, apply HIPAA rules in regard to confidentiality, privacy and release of information, accurately document information and demonstrating sensitivity to patient rights. (CSLO#2)

6. Safety and Emergency Practices competencies applied to the following:
    1. (Analysis Level) Using knowledge of safety and emergency practices, apply quality control measures in following health and safety policies and procedures to prevent illness and injury including recognition of the effects of stress on all persons involved in emergency situations. (CSLO#4)

(*All of the Learning Outcomes listed are based on the Medical Assisting Education Review Board (MAERB) Appendix B Core Curriculum for Medical Assistants 2015 Curriculum Plan.)

Simple Requisites

Prerequisites & Pre-Program Requirements
Type
Prerequisite

Prerequisites

1. HS diploma or GED.
2. Complete Preprogram Requirement courses with a 2.5 GPA.
3. Information session with Program Director within 1 year of beginning the program.
4. After completion of the above requirements, students must be approved for admission to the program by the Program Director before enrolling in courses requiring Director Approval.

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC lists.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- PSY101 or higher

PSY101 or higher

Natural Sciences

Complete ALL of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology

Mathematics

Earn at least 3 credits from the following:

- MAT118 or higher (4-credit course only)

MAT118 or higher 4-credit math course

Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CIS120 - Survey of Computer Information Systems
- NTR255 - Nutrition Medical Terminology
- MDA117 - Pathopharmacology for Health Occupations
- MDA116 - Medical Terminology

Contact Medical Assistant Program Director prior to enrolling in NTR255.

Specialty Requirements

Complete ALL of the following Courses:

- MDA131 - Introduction to Insurance and Insurance Billing I
- MDA139 - Fundamentals of Medical Assisting
- MDA171 - Administrative Medical Procedures
- MDA175 - Medical Assistant Degree Practicum
- MDA150 - Medical Assisting Skills I
- MDA151 - Medical Assisting Skills II

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) during the first two semesters of at least a 2.5 on a 4.0 scale to continue in the program ;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.

AP23_20-21 - Nutrition and Dietetic Technician AAS

Program Information

Program Title
Nutrition and Dietetic Technician AAS

Description
The Nutrition and Dietetic Technician Associate of Applied Science degree prepares students for careers in healthcare, schools, community programs, wellness, and foodservice management. The curriculum integrates classroom instruction with supervised practice experiences to develop knowledge and skills in nutrition care, management, leadership, and foodservice operations.

Graduates are eligible to take the National Registration Examination for Nutrition and Dietetic Technicians (NDTR) administered by the Commission on Dietetic Registration, the credentialing agency of the Academy of Nutrition and Dietetics. Graduates are also eligible to take the Certified Dietary Manager, Certified Food Protection Professional (CDM, CFPP) examination administered by the Certifying Board for Dietary Managers.

This program is approved by the Accreditation Council for Education in Nutrition and Dietetics (ACEND), located at 120 S. Riverside Plaza, Suite 2190, Chicago, IL 60606-6995; 1-800-877-1600 or 312-899-0040, ext. 5400. It is also approved by the Association of Nutrition & Foodservice Professionals (ANFP).

It is important to contact the NDT advisor at diettechadvisor@centralaz.edu for degree mapping and guidance.

Note: Application for admission to the Nutrition and Dietetic Technician Program is required. See prerequisites listed below. Central Arizona College recommends that students work in a nutrition-related field, which is desirable for obtaining a supervised practice site.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
64

Program Learning Outcomes
1. (Evaluation) Evaluate and integrate evidence based scientific information and translate research into practice.(CSLO#2)

2. (Application) Practice and maintain the beliefs, values, attitudes and behaviors for the professional nutrition and dietetic technician level of practice. (CSLO#3)

3. (Synthesis) Develop and deliver information, products and services to individuals, groups and populations. (CSLO#1)

4. (Application) Strategically apply principles of management and systems in the provision of services to individuals and organizations. (CSLO#4)

5. (Application) Demonstrate leadership potential and professional growth by applying the skills, knowledge, and experience required for success in the field of nutrition and dietetics. (CSLO#3)

Simple Requisites

Recommended Proficiencies & Prerequisites
Type
Prerequisite

Recommended Proficiencies

High School Diploma or GED.

Prerequisites

Acceptance for admission to the Dietetic Technician Program is required.

Applications for admission to the Nutrition and Dietetic Technician program are accepted from February 1 st to June 15th. Application information can be found at https://centralaz.edu/

Before applying to the program, the courses with the following general education prefixes must be completed with a C or better. BIO, CHM, ENG, and MAT. Completion of required Chemistry (CHM) course within the last (5) years.

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select a course numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Arts and Humanities AGEC lists.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC lists.

Natural Sciences

Earn at least 8 credits from the following:

- BIO160 - Intro to Human Anatomy and Physiology
- CHM130 - Fundamental Chemistry

*CHM130 or higher

Mathematics

Earn at least 3 credits from the following:

- MAT151 or higher

MAT151 College Algebra or higher

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- NTR123 - Nutrition Throughout the Life Cycle
- NTR142 - Applied Food Science
- NTR150 - Overview Nutrition Professions
- NTR163 - Orientation to Dietetic Technician Program
- NTR191 - Nutrition Counseling Skill Development
- NTR200 - Human Nutrition
- NTR219 - Community Nutrition
- NTR222A - Medical Nutrition Therapy I
- NTR222B - Medical Nutrition Therapy II
- NTR223 - Food Service Management
- NTR244 - Nutrition Management & Leadership
- NTR256 - Nutrition Medical Terminology
- NTR295 - Dietetic Technician Professional Practice Internship
- NTR296 - Dietetic Technician Internship
  OR NTR296A - Dietetic Technician Food Service Management Internship
- NTR296B - Dietetic Technician Education and Clinical Internship

Internship NTR296 OR NTR296A & NTR296B

Other Requirements

Completion of NTR course requirements within three (3) years of beginning the program.

Meet all ACEND requirements

With assistance from NTR295 Dietetic Technician Professional Practice Internship faculty, students set up their own internship sites and preceptors.

Students must earn:

- a grade of C or better in all required courses for this AAS Degree;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 64 semester credits.

AP24_20-21 - Paramedicine AAS

Program Information

Program Title
Paramedicine AAS

Description
The Paramedicine AAS Degree prepares students to work as paramedics with knowledge and skills required for emergency care, stabilization, and immobilization of victims of illness and injury.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
64.5

Program Learning Outcomes
1. (Analysis Level) Describe and analyze the roles and responsibilities of the advanced emergency medical technician (paramedic).
2. (Evaluation Level) Describe and evaluate the actions, indications, contraindications, precautions, side effects and dosages of the drugs included in the current Arizona Department of Health Services approved paramedic drug box.
3. (Analysis Level) Administer parenteral medications based on an analysis of patient needs and patient's current prescribed and OTC medications.
4. (Application Level) Identify, treat and record infiltration and discontinuing intravenous (IV) lines. Demonstrate competency of discontinuing intravenous (IV) lines.
5. (Application Level) Obtain and record blood samples on any patient requiring the procedure. Demonstrate compentency of this procedure.
6. (Evaluation Level) Describe the paramedic's role in a patient care situation as defined by the US Department of Transportation and conduct self- and peer-critiques.
7. (Analysis Level) Describe, analyze, and discuss the components of the Well-Being of a Paramedic as defined by the US Department of Transportation.
8. (Evaluation Level) Describe, evaluate and discuss the objectives listed under injury prevention for the patient and the caregiver.
9. (Analysis Level) Describe and analyze the components of medico-legal issues involving the paramedic and the Standard of Care.
10. (Evaluation Level) Define, evaluate and describe ethics related to patient care.
11. (Evaluation Level) Describe, evaluate, and discuss the importance of human systems to include anatomy and physiology as it relates to paramedicine.
12. (Evaluation Level) Describe, evaluate and discuss the general principles of pathophysiology.
13. (Evaluation Level) Outline, evaluate, and discuss the objectives in therapeutic communications with patients.
14. (Synthesis Level) Based on the mechanics of respiration and the elements of airway management and ventilation, successfully intubate and demonstrate competency on all classes of humans, and perform successful ventilation, both advanced and basic forms.
15. (Evaluation Level) Define, analyze, treat and evaluate treatment of all types of respiratory compromise based on effective treatment modalities authorized by DHS and National Registry of EMTs-Basic and Paramedic.

Simple Requisites

Prerequisites & Recommended Proficiencies
Type
Prerequisite

Prerequisites

Complete ALL of the following Courses:
- EMS125 - Emergency Medical Technician
- FSC129 - Haz-Mat Awareness/Operations

Current American Heart Association CPR/BLS certification

or Director Consent

Recommended Proficiencies

Students must meet eligibility requirements established by the Arizona Department of Health Services, Bureau of EMS.

General Education Requirements

Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list.

Social & Behavioral Sciences

Complete ALL of the following Courses:

- PSY101 - Introduction to Psychology

Natural Sciences

Complete ANY of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology
- BIO201 - Human Anatomy and Physiology I
  AND BIO202 - Human Anatomy and Physiology II

Select BIO160 OR BIO201 AND BIO202

Mathematics

Earn at least 3 credits from the following:

- MAT118 or higher (excluding MAT201 & MAT202)

MAT118 or higher (excluding MAT201 & MAT202)

Degree Requirements
Type
Completion Requirement

Core Requirments

Complete ALL of the following Courses:

- EMS190 - Pediatric Advanced Life Support
- EMS240 - Advanced Cardiac Life Support
- EMS245 - Prehospital Trauma Mgt/PHTLS
- EMS272A - Advanced Emergency Medical Technology/Paramedic, Module I
- EMS272B - Advanced Emergency Medical Technology/Paramedic, Module II
- EMS272C - Advanced Emergency Medical Technology/Paramedic, Module III
- EMS272D - Advanced Emergency Medical Technology/Paramedic, Practicum I
- EMS272E - Advanced Emergency Medical Technology/Paramedic, Practicum II

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 64.5 semester credits.

The Central Arizona College Paramedic Program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP)."

Commission on Accreditation of Allied Health Education Programs
25400 U.S. Highway 19 North, Suite 158
Clearwater FL 33763
727-210-2350
www.caahep.org

Committee on Accreditation of Educational Programs for the Emergency Medical Services Programs
8301 Lakeview Parkway Suite 111-312
Rowlett, TX 75088
Phone: 214.703.8445
Fax: 214.703.8992
www.coamsp.org

CoAEMSP | Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions
www.coamsp.org

AP25_20-21 - Justice Studies AAS, Law Enforcement Emphasis

Program Information

Program Title
Justice Studies AAS, Law Enforcement Emphasis

Description
This degree is designed to upgrade the skills and knowledge of correctional officers or peace officers who are currently working in the field.

This is a closed enrollment degree and has special admission requirements. For the Corrections pathway, students must have obtained COTA certification, for the Law enforcement pathway students must have obtained AZPOST certification. Please submit copy of the certification to the Registrar's office.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
Law Enforcement Track
1. (Understanding Level) Discuss the structure of the criminal justice system and key issues within it. (CSLOs 2,3,4)
2. (Evaluating Level) Assess current ethical issues within the criminal justice system. (CSLOs 1,2,3,4)
3. (Evaluating Level) Critique current issues in criminal justice systems along with associated laws and policy decisions. (CSLOs 1,2,3,4)
4. (Evaluating Level) Appraise the relationship between criminal justice components and the community. (CSLOs 1,2,3,4)
5. (Analyzing Level) Explain particulars of criminal law. (CSLOs 2,3)
6. (Understanding Level) Describe the history, role, purpose, and variety of law enforcement in the United States. (CSLOs 1,2,4)
7. (Applying Level) Examine rights and procedural safeguards as applicable to individuals and the criminal justice system. (CSLOs 1,2,3,4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

Arts & Humanities

Complete ALL of the following Courses:
- AJS123 - Ethics and the Administration of Justice

Social & Behavioral Sciences

Complete ALL of the following Courses:
- AJS101 - Introduction to Administration of Justice

Natural Sciences

Earn at least 4 credits from the following:
- AGEC Natural Sciences

Choose 4 credits from Natural Sciences course

Quantitative Reasoning

Earn at least 3 credits from the following:
- AGEC Quantitative Reasoning

MAT141 or higher.

Degree Requirements
Type
Completion Requirement

Law Enforcement Emphasis

AZ POST Certification-minimum 585 hour academy (30 AZPOST applied credits)

Complete ALL of the following Courses:

- AJS200 - Current Issues in Administration of Justice
- AJS270 - Community Relations
- AZPOST30 - AZ Post
- AJS260 - Procedural Criminal Law

Other Requirements

This is a closed enrollment degree and has special admission requirements. Students must have obtained COTA certification or AZPOST certification. Please submit copy to Registrar's office.
For law enforcement or corrections credit to be awarded, students must present a copy of the COTA or AZ POST certification to the Registrar's office for review and approval. Credit will be awarded only as Applied Credit.

Students cannot "double-dip" by seeking credit for COTA or POST certification along with academic credit previously awarded at CAC or elsewhere for coursework that led to that COTA or POST certification.

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP26_20-21 - Digital Media Arts AAS, Graphic Design Emphasis

Program Information

Program Title
Digital Media Arts AAS, Graphic Design Emphasis

Description
Previously known as Graphic Design AAS

The Digital Media Arts AAS provides the creative, technical, and visual communication skills required for employment in a variety of entry-level positions, as well as an in-depth understanding of the principles and foundations of digital media technologies and interactive communications. Topics include: graphic design, Web design, digital photography, and digital video production. The program also prepares students for entry into a 4-year college or degree program.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Evaluation Level) Compare and contrast the fundamentals of design history and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)
2. (Evaluation Level) Compare and contrast the fundamentals of the history of photography and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)
3. (Application Level) Apply the fundamental rules of design and typography to solve visual communication problems using industry standard software effectively. (CSLO 3 & 4)
4. (Evaluation Level) Compare and contrast the historic and contemporary perceived language of photographs in a cultural context and articulate the aesthetics used to communicate their visual message. (CSLO 1 & 2)
5. (Synthesis Level) Create and integrate photographic imagery into design projects based upon an awareness of the relationship of photography to the visual disciplines and its influence on culture. (CSLO 1, 2, & 4)
6. (Evaluation Level) Apply the principles of color and 2D and 3D design, including; repetition, contrast, variety, rhythm, balance, emphasis, and economy to original designs and assess psychological factors that influence human response to the concept being communicated. (CSLO 2 & 4)
7. (Synthesis Level) Identify and define the technology and design components required to develop and implement a website using industry standard software and applications, and structure the website using current global usability and accessibility standards and recommendations according to the World Wide Web Consortium (W3C). (CSLO 1, 2 & 4)
8. (Evaluation Level) Demonstrate the ability to form and defend value judgements about design choices and communicate ideas and concepts clearly using specialized terminology and knowledge relevant to graphic design, photography, and visual communication as a whole. (CSLO 4)
9. (Evaluation Level) Demonstrate the ability to critique and evaluate design solutions, taking into consideration cultural relevance, effectiveness, impact, ethics, and ecological sustainability. (CSLO 1 & 4)
10. (Synthesis Level) Plan, develop, and produce a professional design and/or photographic portfolio, electronic and printed, demonstrating an understanding of visual communication, including; organization/composition, typography, photography, design aesthetics, and the ability to construct meaningful design solutions for contemporary design projects. (CSLO 3)
11.(Synthesis Level) Create, edit, and compress video for use in various delivery modes of digital media using standard digital video editing software.

Simple Requisites

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Complete at least 2 of the following courses:

- ART100 - Art Appreciation

- ART207 - Art History I
- ART208 - Art History II

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC category.

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ART107 - Drawing I
- ART109 - Color Theory
- DMA101 - Media and Society
- DMA115 - Digital Imaging
- DMA122 - Introduction to Web Design
- DMA205 - Portfolio Development

Graphic Design Emphasis

Complete ALL of the following Courses:

- ART101 - Two-Dimensional Design
- ART102 - Three-Dimensional Design
- DMA120 - Graphic Design and Adobe in Design
- DMA125 - Introduction to Illustrator
- DMA210 - Publications and Packaging Design
- DMA220 - Advanced Graphic Design
- DMA223 - Designing with Type

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP31_20-21 - Justice Studies AAS, Corrections Emphasis

Program Information

Program Title
Justice Studies AAS, Corrections Emphasis

Description
This degree is designed to upgrade the skills and knowledge of correctional officers or peace officers who are currently working in the field.

This is a closed enrollment degree and has special admission requirements. For the Corrections pathway, students must have obtained COTA certification, for the Law enforcement pathway students must have obtained AZPOST certification. Please submit copy of the certification to the Registrar's office.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
Corrections Track
1. (Understanding Level) Discuss the structure of the criminal justice system and key issues within it. (CSLOs 2,3,4)
2. (Evaluating Level) Assess current ethical issues within the criminal justice system. (CSLOs 1,2,3,4)
3. (Evaluating Level) Critique qualities, behaviors, and actions of criminal justice administrators. (CSLOs 1,2,3,4)
4. (Understanding Level) Explain theories of criminal causation. (CSLOs 1,2,4)
5. (Understanding Level) Describe the history, role, purpose, and variety of corrections in the United States. (CSLOs 1,3,4)
6. (Applying Level) Examine rights and procedural safeguards as applicable to individuals and the criminal justice system. (CSLOs 1,2,3,4)
7. (Remembering Level) Identify physiological and psychological systems involved in cognition, sensation, perception, and states of consciousness. (CSLOs 2,3)
8. (Evaluating Level) Evaluate the impact of various social interactions on one's identity, relationships, role behavior, and attitudes toward other individuals. (CSLOs 1,2,3,4)
9. (Evaluating Level) Evaluate clinical definition of abnormal behavior and the issues currently underlying classification and treatment of mental illness. (CSLOs 1,2,3,4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

Arts & Humanities

Complete ALL of the following Courses:
- AJS123 - Ethics and the Administration of Justice

Social & Behavioral Sciences

Complete ALL of the following Courses:
- AJS101 - Introduction to Administration of Justice

Natural Sciences

Earn at least 4 credits from the following:
- AGEC Natural Sciences

Choose 4 credits Natural Sciences course

Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

MAT141 or higher.

Degree Requirements
Type
Completion Requirement

Corrections Emphasis

COTA Certification-minimum 280 hour academy (COTA 18 applied credits)

Complete ALL of the following Courses:

- PSY101 - Introduction to Psychology
- PSY200 - Social Psychology
- PSY202 - Psychology of Abnormality
- PSY205 - Personality & Social Adjustment
- AJS225 - Criminology
- COTA18 - COTA18
- AJS212 - Juvenile Justice Procedures
  OR SPA101 - Elementary Spanish I
- AJS260 - Procedural Criminal Law

Other Requirements

This is a closed enrollment degree and has special admission requirements. Students must have obtained COTA certification or AZPOST certification. Please submit copy to Registrar's office.
For law enforcement or corrections credit to be awarded, students must present a copy of the COTA or AZ POST certification to the Registrar's office for review and approval. Credit will be awarded only as Applied Credit.

Students cannot "double-dip" by seeking credit for COTA or POST certification along with academic credit previously awarded at CAC or elsewhere for coursework that led to that COTA or POST certification.

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP32_20-21 - Digital Media Arts AAS, Digital Photography and Video Production Emphasis

Program Information

Program Title
Digital Media Arts AAS, Digital Photography and Video Production Emphasis

Description
The Digital Media Arts AAS provides the creative, technical, and visual communication skills required for employment in a variety of entry-level positions, as well as an in-depth understanding of the principles and foundations of digital media technologies and interactive communications.
Students will develop technical skills while focusing on the latest production techniques for generating computer-based graphics and media-rich productions.
Digital Photography & Video Production emphasis concentrates on video production, digital photography, lighting, video and image editing, and cinema studies.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
AAS - Associate of Applied Science

Total Credits Required
61

Program Learning Outcomes
1. (Evaluation Level) Compare and contrast the fundamentals of design history and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)
2. (Evaluation Level) Compare and contrast the fundamentals of the history of photography and theory and identify the influence, cultural and technical, on contemporary practices. (CSLO 1 & 2)
3. (Application Level) Apply the fundamental rules of design and typography to solve visual communication problems using industry standard software effectively. (CSLO 3 & 4)
4. (Evaluation Level) Compare and contrast the historic and contemporary perceived language of photographs in a cultural context and articulate the aesthetics used to communicate their visual message. (CSLO 1 & 2)
5. (Synthesis Level) Create and integrate photographic imagery into design projects based upon an awareness of the relationship of photography to the visual disciplines and its influence on culture. (CSLO 1, 2, & 4)
6. (Evaluation Level) Apply the principles of color and 2D and 3D design, including; repetition, contrast, variety, rhythm, balance, emphasis, and economy to original designs and assess psychological factors that influence human response to the concept being communicated. (CSLO 2 & 4)
7. (Synthesis Level) Identify and define the technology and design components required to develop and implement a website using industry standard software and applications, and structure the website using current global usability and accessibility standards and recommendations according to the World Wide Web Consortium (W3C). (CSLO 1, 2 & 4)
8. (Evaluation Level) Demonstrate the ability to form and defend value judgements about design choices and communicate ideas and concepts clearly using specialized terminology and knowledge relevant to graphic design, photography, and visual communication as a whole. (CSLO 4)
9. (Evaluation Level) Demonstrate the ability to critique and evaluate design solutions, taking into consideration cultural relevance, effectiveness, impact, ethics, and ecological sustainability. (CSLO 1 & 4)
10. (Synthesis Level) Plan, develop, and produce a professional design and/or photographic portfolio, electronic and printed, demonstrating an understanding of visual communication, including; organization/composition, typography, photography, design aesthetics, and the ability to construct meaningful design solutions for contemporary design projects. (CSLO 3)
11.(Synthesis Level) Create, edit, and compress video for use in various delivery modes of digital media using standard digital video editing software.

Simple Requisites

General Education Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Complete at least 2 of the following courses:
- ART100 - Art Appreciation
- ART207 - Art History I

- ART208 - Art History II

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select a course numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC category.

Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Select one

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 or MAT118 or higher

Degree Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ART107 - Drawing I
- ART109 - Color Theory
- DMA101 - Media and Society
- DMA115 - Digital Imaging
- DMA122 - Introduction to Web Design
- DMA205 - Portfolio Development

Digital Photography & Video Production Emphasis

Complete ALL of the following Courses:

- DMA130 - Digital Photography I
- DMA132 - Digital Video I
- DMA135 - Lighting for Photography and Video
- DMA230 - Digital Photography II
- DMA232 - Digital Video II
- DMA245 - Independent Projects Photography / Video
- THE115 - Introduction to Cinema

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 61 semester credits.

AP34_20-21 - Radiologic Technology AAS

Program Information

Program Title
Radiologic Technology AAS

Description
Radiologic Technology is a health care profession involving the use of ionizing radiation to generate diagnostic images in the diagnosis and treatment of disease. The Associate of Applied Science Degree in Radiologic Technology is a two-year program (six sequential semesters including summers) that prepares students for entry-level positions as radiographers. The program starts once per year in the Spring Semester.

The curriculum is designed in accordance with the Radiography Curriculum established by the American Society of Radiologic Technologists. Students are required by Arizona State Statute to complete 1,800 practicum hours within the two years. The Radiologic Technology course of study is a demanding experience and involves a full-time commitment of at least 40 hours per week plus homework. Students must earn a grade of 75% or better in all required courses.

Graduates of the program are eligible to:

1. Receive a Radiologic Technology Associate of Applied Science Degree;
2. Sit for the American Registry of Radiologic Technologists examination (ARRT);
3. Apply for an Arizona license to practice Radiography - CRT (Certified Radiologic Technologist).

The Radiologic Technology Degree is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 North Wacker Drive, Suite 2850, Chicago, Illinois 60606-3182; 312-704-5300; mail@jrcert.org

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
AAS - Associate of Applied Science

Total Credits Required
78

Program Learning Outcomes
In addition to the outcomes of each required prerequisite course, general education requirements, and major core courses, the Radiography Curriculum established by the American Society of Radiologic Technologists (ASRT) is designed to support skill development in specific content areas and to ensure that entry-level radiologic technologists meet the following general program outcomes:

1. (Application Level) Demonstrate technical competence to perform diagnostic imaging procedures. (CSLO 2)
2. (Evaluation Level) Demonstrate prudent judgment in administering ionizing radiation to produce diagnostic images. (CSLO 1,2,4)
3. (Synthesis Level) Demonstrate an ability to provide optimum patient care in a society that is becoming increasingly diverse and experiencing generational, cultural and ethnic shifts. (CSLO 1,2,3,4)
4. (Application Level) Demonstrate the ability to work with other members of the healthcare organization in a team relationship. (CSLO 1,3,4)
5. (Synthesis Level) Demonstrate an understanding of the intricacies associated with providing direct patient care in today's health care setting. (CSLO 1,2,4)
6. (Evaluation Level) Demonstrate the skill to use modern technologies to research and retrieve information, weigh and discriminate between good and poor sources of information, and take action based upon the acquisition of new information and knowledge. (CSLO 2,4)
7. (Analysis Level) Demonstrate stewardship over the security and confidentiality associated with patient medical information. (CSLO 1,2)
8. (Synthesis Level) Demonstrate skills that promote career-long learning, where the radiographer assumes the role of student and that of teacher. (CSLO 3)
9. (Application Level) Demonstrate compliance with the requirements for primary certification of the American Registry of Radiologic Technologists (ARRT) including the ARRT Rules and Regulations, the ARRT Standards of Ethics and competency in didactic coursework and an ARRT-specified list of clinical procedures. (CSLO 2,4)

Simple Requisites

Prerequisites & Recommended Proficiencies
Type
Prerequisite

Recommended Proficiencies

Enrollment is limited and the selective admission process is highly competitive. Students must meet the minimum admission requirements of the program and those required for admission to Central Arizona College. Admission to the program is based on a point value system. Points are calculated by a formula related mainly to grade point average, residency, work experience, committee interview and other criteria.

CAC highly recommends candidates complete BIO201 and BIO202 . Achieving a high level of success in the courses taken before applying to the program will improve a student's chance for admission to the radiography program.

Admission Requirements

- High School Diploma or equivalency (GED)
- Record of Immunizations
- Pre-admission testing to prove college-level English, reading and math proficiency
- Pass screening tests that will include: drug testing, criminal background check and fingerprinting
- Possess the ability to perform basic physical tasks as required
- Submission of the Radiologic Technology Program Application Form
- Two letters of recommendation

Prerequisites

Radiologic Technology Cohort student

Complete ALL of the following Courses:

- RAD103 - Radiographic Positioning Terminology

or equivalent course(s) and Radiologic Technology Cohort student.

General Education Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher.

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

Select courses numbered 100 or above from the following: ART, HMC, LIT, MHL, PHI, and THE. Students may also choose any course from the Art and Humanities AGEC list.

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Select courses numbered 100 or above from the following: ANT, ECN, GEO, HIS, POS, PSY, and SOC. Students may also choose any course from the Social and Behavioral Sciences AGEC list.

Natural Sciences

Complete ALL of the following Courses:

- BIO201 - Human Anatomy and Physiology I
- BIO202 - Human Anatomy and Physiology II

Mathematics

Earn at least 3 credits from the following:

- MAT121 or higher

MAT121 or higher.

Program Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- RAD100 - Fundamentals of Radiologic Science & Health Care
- RAD110 - Radiographic Positioning I
- RAD110LB - Radiographic Positioning I Lab
- RAD120 - Principles of Radiographic Exposure I
- RAD130 - Patient Care in Radiologic Science
- RAD140 - Practicum I
- RAD150 - Radiation Physics I
- RAD160 - Radiographic Positioning II
- RAD160LB - Radiographic Positioning II Lab
- RAD170 - Principles of Radiographic Exposure II
- RAD180 - Practicum II
- RAD200 - Practicum III
- RAD210 - Radiation Physics II
- RAD230 - Radiobiology & Radiation Protection
- RAD240 - Practicum IV
- RAD250 - Pharmacology and Venipuncture
- RAD260 - Radiographic Pathology
- RAD270 - Advanced Imaging
- RAD280 - Registry Review
- RAD290 - Practicum V

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a grade of C is at least 75% in RAD courses;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 78 semester credits.

AS01_26-27 - Associate of Science, Liberal Studies

Program Information

Program Title
Associate of Science, Liberal Studies

Description
The Associate of Science, Liberal Studies (AS) Degree is appropriate for students who plan to transfer to the university to earn a baccalaureate degree in Biological and Physical Sciences areas. Students should select a pre-designed pathway or work with an academic advisor to customize a pathway to align with their specific career and/or transfer goals.

Visit the CAC webpage under Areas of Interest, to access a list of common pathways within the Biological and Physical Science-related disciplines. A list of Common Courses associated with specific programs of study is available at aztransfer.com

AGEC courses are transferable to all three Arizona public universities provided students earn a grade of "C" or better. Contact an academic advisor for assistance.

Area of Interest
Institutional Degree

Degree Type
AS - Associate of Science

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Understand, analyze, and articulate the major topics in the Sciences for university transfer, including specific pathway concentrations in: Biology, Chemistry, Computer Science, Engineering, and Geology. (CSLO 2, 4)
2. (Understanding Level) Demonstrate effective written, oral, or visual communication for specific audiences in the context of the field of study. (CSLO 1, 3)
3. (Applying Level) Use field of study frameworks to investigate issues and/or solve problems. (CSLO 2, 4)
4. (Applying Level) Apply scientific concepts and methodologies within the field of study. (CSLO 2, 4)
5. (Understanding Level) Interpret quantitative information and/or utilize mathematical concepts and techniques. (CSLO 2, 4)
6. (Analyzing Level) Examine how diverse perspectives impact the human experience within a field of study. (CSLO 1, 4)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:
- AGEC Institutions of the Americas

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Earn at least 8 credits from the following:

- BIO181 - General Biology I
  AND BIO182 - General Biology II
- CHM151 - General Chemistry I
  AND CHM152 - General Chemistry II
- GLG101 - Physical Geology
  AND GLG102 - Historical Geology
- PHY121 - University Physics I: Mechanic
  AND PHY122 - University Physics II: Electricity & Magnetism

Complete the Lab Sequence with a grade of C or higher

Quantitative Reasoning

Complete ALL of the following Courses:

- MAT221 - Analytical Geometry and Calculus I

Complete with a grade of C or higher

Subject Options

Earn at least 6 credits
Complete 6-8 additional AGEC Natural Sciences/Math credit hours (if math selected must be MAT231 or higher) with a grade of C or higher

Electives

Earn at least 19 credits from the following:

- Transfer Electives
- Electives

Complete 19-21 transferable elective credits to fulfill the 60-credit degree requirement with a grade of C or higher

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AS Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

Requisites

General Education (33)
Written Communications (6)
-ENG101 College Composition I
-ENG102 College Composition II

Institutions in the Americas (3)
-Select any AGEC (IA) courses

Arts & Humanities (6)
-Select any AGEC (AH) course

Social/Behavioral Sciences (6)
-Select any AGEC (SB) courses

Natural Sciences (8)
-Select two of the following:
BIO182, CHM152, GLG102 or PHY122

Quantitative Reasoning (4)
-MAT221 (required)

Subject Options (6):
-Students may select two mathematics or science courses. Select Mathematics courses above the first course in the calculus sequence and/or Science courses from: Agriculture, Astronomy, Biology, Botany, Chemistry, Engineering, Environmental Science, Geology, Nutrition, Physics, or Zoology.

Transfer Electives (21):
-Select elective courses (7 courses)

AS02_26-27 - Associate of Science, Computer Science Pathway

Program Information

Program Title
Associate of Science, Computer Science Pathway

Description
The Associate of Science, Computer Science Pathway is intended for students wanting to transfer to a university in the fields of Computer Science, Software Engineering, and Cybersecurity.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
AS - Associate of Science

Total Credits Required
60

Program Learning Outcomes
1. (Creating Level) Write programs in a variety of programming languages and computing environments. (CSLOs 2, 3, 4)

2. (Applying Level) Apply knowledge of computing and mathematics to model situations in a variety of disciplines. (CSLOs 2, 4)

3. (Analyzing Level) Analyze a problem, and identify and define the computing requirements appropriate to its solution. (CSLO 4)

4. (Creating Level) Design, implement, and evaluate a software solution to meet required specifications. (CSLOs 2, 3, 4)

5. (Applying Level) Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of software, and demonstrate an understanding of tradeoffs involved in design choices. (CSLOs 2, 4)

6. (Understanding level) Demonstrate creativity, adaptability, and flexibility in solving problems. (CSLOs 3, 4)

7. (Applying Level) Apply design and development principles in the construction of software systems of varying complexity. (CSLOs 2, 3, 4)

8. (Understanding Level) Demonstrate ethical reasoning and professional conduct in computing disciplines. (CSLOs 1, 3)

9. (Applying Level) Collaborate with people from diverse backgrounds to accomplish a common goal. (CSLOs 1, 3)

10. (Understanding Level) Effectively communicate with a variety of audiences orally, visually, and in writing. (CSLOs 1, 3)

11. (Understanding Level) Demonstrate the ability to learn and adapt in a constantly evolving technical environment. (CSLOs 2, 3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Complete ALL of the following Courses:
- BIO181 - General Biology I

- BIO182 - General Biology II

Complete with a grade of C or higher

Subject Option Courses

Earn at least 6 credits
Complete 6-8 additional AGEC Natural Sciences/Math (MAT231 or higher) credits with a grade of C or higher - MAT231 & MAT241 recommended

Quantitative Reasoning

Complete ALL of the following Courses:

- MAT221 - Analytical Geometry and Calculus I

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher

Electives

Earn at least 19 credits from the following:

- Electives
- Transfer Electives

Complete 19-21 transferable elective credits with a grade of C or higher to fulfill the 60-credit degree requirement - EGR102; EGR120; CIS216; CIS231 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AS Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AS03_26-27 - Associate of Science, Engineering Pathway

Program Information

Program Title
Associate of Science, Engineering Pathway

Description
Associate of Science, Engineering Pathway degree is directed towards students pursuing university degrees in this area. Engineering is the application of scientific and mathematical knowledge to design and build structures and products widely used in our everyday life. Engineers are problem solvers and seek solutions that contribute to the comfort and betterment of society.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
AS - Associate of Science

Total Credits Required
60

Program Learning Outcomes
1. (Applying Level) Apply principles of engineering, science, and mathematics to model and solve an engineering problem. (CSLOs 2, 4)

2. (Applying Level) Utilize the engineering design process to produce solutions that meet technical specifications and societal needs (e.g. public health, sustainability, and environmental). (CSLOs 2, 4, 1)

3. (Applying Level) Apply visual and spatial reasoning to solve engineering problems. (CSLOs 2, 4)

4. (Creating Level) Develop and conduct appropriate experimentation and testing, analyze and interpret data, and use engineering judgment to draw conclusions. (CSLOs 2, 3, 4)

5. (Understanding Level) Demonstrate ability to think globally, inclusively, equitably, and sustainably in engineering and societal contexts. (CSLOs 1, 2)

6. (Understanding Level) Demonstrate effective collaboration and participation on a diverse and inclusive engineering team to establish goals, plan tasks, and meet objectives. (CSLOs 1, 3)

7. (Applying Level) Use effective written, visual, and oral strategies to communicate to a range of audiences. (CSLOs 1, 3)

8. (Remembering Level) Recognize ethical and professional responsibilities in engineering situations and the implications for society at large. (CSLOs 1, 3)

9. (Understanding Level) Demonstrate creativity, curiosity, and adaptability in a variety of contexts. (CSLOs 3, 4)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Science

Complete ALL of the following Courses:
- ECN201 - Principles of Macroeconomics

Complete with a grade of C or higher

Social & Behavioral Science

Earn at least 3 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Complete ALL of the following Courses:

- CHM151 - General Chemistry I
- CHM152 - General Chemistry II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher

Quantitative Reasoning

Complete ALL of the following Courses:

- MAT221 - Analytical Geometry and Calculus I

Complete with a grade of C or higher

Subject Options Courses

Earn at least 6 credits
Complete 6-8 additional credits in Natural Sciences/Math (higher than MAT221) with a grade of C or higher - PHY121 & PHY122 recommended

Electives

Earn at least 19 credits from the following:

- Electives
- Transfer Electives

Complete 19-21 transferable elective credits with a grade of C or higher to fulfill the 60-credit degree requirement - EGR102; MAT231; MAT241; MAT275 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AS Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AS04_26-27 - Associate of Science, Biology Pathway

Program Information

Program Title
Associate of Science, Biology Pathway

Description
The Associate of Science, Biology Pathway degree is for the student seeking a degree in biology and/or a professional discipline (e.g., medical, dental, pharmacy). Students will discover principles of laboratory science and build foundations in cell biology, genetics, ecology, evolution, and more. Students will study living organisms at a micro and macro level and will gain a perspective on both the unity and diversity that living organisms demonstrate.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
AS - Associate of Science

Total Credits Required
60

Program Learning Outcomes
1. (Understanding Level) Explain the relationship between structure and function at the molecular, cellular, and organismal levels. (CSLOs 2, 4)

2. (Applying Level) Apply fundamental theories of physical and life sciences to explain the diversity of living things and modes of energy exchange. (CSLOs 2, 4)

3. (Applying Level) Apply the scientific method to investigate fundamental and novel questions regarding natural phenomena. (CSLOs 2, 4)

4. (Applying Level) Utilize technology to conduct experiments and collect, analyze and communicate data. (CSLOs 2, 3, 4)

5. (Applying Level) Adhere to standard safety protocols when performing experiments and collecting data. (CSLO 3)

6. (Evaluating Level) Critically evaluate the internal and external validity of scientific studies to inform decisions. (CSLO 4)

7. (Applying Level) Effectively communicate orally, visually and in writing in an articulate, respectful and culturally responsive manner. (CSLOs 1, 3)

8. (Applying Level) Collaborate with diverse individuals to solve problems. (CSLOs 1, 3)

9. (Understanding Level) Demonstrate dependability, adaptability and persistence to set and achieve goals. (CSLO 3)

10. (Applying Level) Integrate social and ethical responsibility in decision making and actions. (CSLOs 1, 3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Complete ALL of the following Courses:
- BIO181 - General Biology I
- BIO182 - General Biology II

Complete with a grade of C or higher

Quantitative Reasoning

Complete ALL of the following Courses:

- MAT221 - Analytical Geometry and Calculus I

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher

Subject Option Courses

Earn at least 6 credits
Complete 6-8 additional Natural Sciences/Math (higher than MAT221) credits with a C or higher - CHM151 & CHM152 recommended

Electives

Earn at least 19 credits from the following:

- Electives
- Transfer Electives

Complete 19-21 transferable elective credits with a grade of C or higher to fulfill the 60-credit minimum degree requirement - CHM235 , CHM236 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AS Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AS05_26-27 - Associate of Science, Chemistry Pathway

Program Information

Program Title
Associate of Science, Chemistry Pathway

Description
The Associate of Science, Chemistry Pathway degree is for the student seeking a degree in chemistry. Students will discover principles of laboratory science and build foundations in organic and inorganic chemistry. Additionally, students will complete a broad array of math and science transferrable coursework in preparation for university transfer.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
AS - Associate of Science

Total Credits Required
60

Program Learning Outcomes
1. (Creating Level) Construct qualitative and quantitative models to draw conclusions concerning physical and chemical phenomena. (CSLO 2)

2. (Applying Level) Using a fundamental understanding of scientific inquiry, solve problems within the discipline of chemistry. (CSLO 2)

3. (Creating Level) Design experiments and collect data, using appropriate technology and equipment. (CSLO 4)

4. (Analyzing Level) Analyze and interpret data, using technology as appropriate. (CSLO 4)

5. (Evaluating Level) Report data, results, and analysis and the experimental processes used to generate those data in formal and informal settings. (CSLO 4)

6. (Creating Level) Design a procedure that promotes safety and manages risk in a laboratory setting. (CSLO 3)

7. (Understanding Level) Demonstrate professional and ethical behavior appropriate to the chemistry discipline. (CSLO 3)

8. (Analyzing Level) Analyze real world problems and synthesize real world solutions applying chemistry theory and principles. (CSLO 2)

9. (Applying Level) Collaborate with diverse individuals and groups to solve problems. (CSLO 1)

10. (Understanding Level) Effectively communicate in an articulate, respectful, ethical and culturally responsive manner. (CSLOs 1, 3)

11. (Applying Level) Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field. (CSLO 3)

Simple Requisites

General Education Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Quantitative Reasoning

Complete ALL of the following Courses:
- MAT221 - Analytical Geometry and Calculus I

Complete with a grade of C or higher

Natural Sciences

Complete ALL of the following Courses:

- CHM151 - General Chemistry I
- CHM152 - General Chemistry II

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher

Subject Options

Earn at least 6 credits
Complete 6-8 credits of additional Natural Sciences/ math courses (MAT231 or higher) with a grade of C or higher - CHM235 & CHM236 recommended

Electives

Earn at least 19 credits from the following:

- Electives
- Transfer Electives

Complete 19-21 transferable elective credits with a grade of C or higher to fulfill the 60-credit minimum degree requirement

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AS Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

AS06_26-27 - Associate of Science, Geology Pathway

Program Information

Program Title
Associate of Science, Geology Pathway

Description
Associate of Science, Geology Pathway is the study of the Earth and geology majors learn about Earth's formation and properties including chemical, physical, and biological traits. Topics include oceans, atmosphere, climate, tectonics, seismology, paleobiology, and more. Geology Major Guide.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
AS - Associate of Science

Total Credits Required
60

Program Learning Outcomes
1. (Applying Level) Identify and interpret different rock and mineral groups, and associate the rocks with specific rock-forming processes. (CSLOs 2, 4)

2. (Evaluating Level) Explain the role of plate tectonics in geology. (CSLOs 2, 4)

3. (Remembering Level) Relate geologic time to Earth processes. (CSLO 2)

4. (Evaluating Level) Critically evaluate fundamental earth science literature and spatial data. (CSLOs 2, 3, 4)

5. (Evaluating Level) Observe, interpret, and communicate data as it relates to Earth processes. (CSLOs 2, 4)

6. (Applying Level) Use evidence to outline the broad history of the planet and explain how the past can be used to anticipate future changes. (CSLOs 2, 4)

7. (Evaluating Level) Determine causes and impacts of natural hazards. (CSLOs 1, 2, 4)

8. (Understanding Level) Interpret the origin, distribution, and uses of geological resources. (CSLOs 1, 2)

9. (Creating Level) Synthesize field information and spatial relationships to create geologic maps and cross-sections. (CSLOs 2, 4)

10. (Applying Level) Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field. (CSLO 3)

Simple Requisites

Pathway Requirements
Type
Completion Requirement

Written Communication

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:
- AGEC Arts & Humanities Courses

Complete with a grade of C or higher

Social & Behavioral Science

Earn at least 6 credits from the following:
- AGEC Social & Behavioral Sciences Courses

Complete with a grade of C or higher

Natural Sciences

Complete ALL of the following Courses:
- GLG101 - Physical Geology
- GLG102 - Historical Geology

Complete with a grade of C or higher

Quantitative Reasoning

Complete ALL of the following Courses:

- MAT221 - Analytical Geometry and Calculus I

Complete with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete with a grade of C or higher

Subject Options

Earn at least 6 credits
Complete 6-8 additional AGEC Natural Sciences/Math credit hours (if math selected must be MAT231 or higher) with a grade of C or higher

Electives

Earn at least 19 credits from the following:

- Electives
- Transfer Electives

Complete 19-21 transferable elective credits with a grade of C or higher to fulfill the 60-credit minimum degree requirement - CHM151; CHM152; MAT231; MAT241; PHY121; PHY122 recommended

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 60 semester credits.
- Based on your major, review the specific AS Degree requirements in the CAC catalog, consult an academic advisor, and review Transfer Guides at http://aztransfer.com/college/

BS02_26-27 - Bachelor of Science in Elementary Education

Program Information

Program Title
Bachelor of Science in Elementary Education

Description
The Bachelor of Science in Elementary Education degree program provides candidates with the necessary foundation to teach in a K-8th grade classroom. This program emphasizes sound pedagogical systems while stressing the skills, knowledge, and dispositions necessary to confidently enter the field of education. Candidates engage in a purposeful program of study, which is grounded in theory and infused with practical experiences in schools. Candidates engage in the foundational models of educational practice, interdisciplinary course methodology and pedagogy, constructs of an effective learning environment to include behavior management and positive behavior models in the classroom, structured English immersion pedagogy and the Arizona Department of Education English Language Proficiency Standards, structures of culturally responsive teaching to meet the needs of diverse learners, educational psychology for educators, ethical best practice and decision making, and fostering digital literacy through curiosity, innovation, global awareness, and reflection for the use of technology in the classroom. Candidates engage in 90 hours of field experience/practicum prior to the capstone project of 12 weeks student teaching.

Outcomes for pre-service teachers include coursework in constructing learning opportunities that support students' development, acquisition of knowledge, and motivation; knowing, understanding, and using major concepts in subject matter fields to enhance student achievement and development; creating instructional opportunities that are adapted to diverse student needs; knowing, understanding, and using various assessment strategies to plan, evaluate, and improve instructional pedagogy and student learning; and reflecting on continuous improvement of educational practice.

Content is aligned to the standards of the Interstate Teacher Assessment and Support Consortium (InTASC), the Council for Exceptional Children (CEC), Central Arizona College Student Learning Outcomes (CSLOs) and the International Society for Technology in Education (ISTE).

The Bachelor of Science in Elementary Education (BSEE) coursework provides an experiential four-year curriculum building on an associate degree in Elementary Education (K-8). This program prepares pre-service teachers to educate diverse learners. Upon completion of the BSEE, a student will be eligible to seek a Standard Arizona Teacher Certificate in Elementary Education for grades K-8 with the Structured English Immersion Endorsement and the K-5 Literacy Endorsement.

Candidates who complete this program will be prepared to contribute to the education of future generations through public, charter, and private schools, or other sites where such coursework and certification may serve the job.

Recommended Proficiencies: All students must pass courses with 70% or higher or a grade of "C". A cumulative GPA of 3.0 or higher must be earned. Courses with a final grade of D or F is not acceptable for earning a Bachelor of Science in Elementary Education.

Area of Interest
Education

Total Credits Required
120

Program Learning Outcomes
1. (Evaluate) Evaluate relevant theories and educational practices to create, implement, and evaluate developmentally appropriate lesson plans and instruction that meet the needs of individual learners including students with exceptionalities, in language math, science, social studies and the arts. (InTASC 1,2,3) (CEC 1.0, 1.1, 1.2, 2.0, 2.1, 2.3) (CSLOs 1,2) (ISTE 2.2b, 2.4d)

2. (Create) Collaborate with others to develop a safe, equitable, collaborative, diverse, and inclusive classroom learning environment supporting positive social interaction, active engagement in learning, and self-motivation for enabling each learner to meet high expectations and achievement. (InTASC 1,2,3) (CEC 1.0, 1.1, 1.2, 2.0, 2.1, 2.3) (ISTE 2.2b, 2.4d) (CSLOs 1,2)

3. (Analyze) Interpret multiple methods of assessment and analyze data to monitor learner progress, report formative and summative assessment outcomes, and guide instruction of general education students and students with exceptionalities applying appropriate modifications and accommodations. (InTASC 6,7,8) (CEC 4, 4.1, 4.2 4.3, 4.4) (CSLOs 1,2,3) (Apply) (InTASC 6) (CEC 4) (ISTE 2.7) (CSLOs 2,3)

4. (Evaluate) Evaluate the role of the teacher in collaborating with learners, families, colleagues, and community members for demonstrating professional and ethical standards of behavior, mindfulness, self-reflection and decision-making through critique and interpretation of the Model Code of Ethics for Educators (MCEE) and Interstate Teacher Assessment Support Consortium (InTASC). (InTASC 9,10) (CEC 6.0,6.1,6.2,6.3,6.4,6.5.6.6) (ISTE 2.3a, 2.3b, 2.3c, 2.3d) (CSLO 1)

5. (Analyze) Explain how learners grow and develop recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical domains including the development and growth of culturally and linguistically diverse students. (InTASC 1,2,3,4,7,8 (CEC 1,2,2) (CSLOs 2,3) (ISTE 2.2, 2.2b) (CSLOs 1,3)

6. (Create) Connect central concepts, tools of inquiry, and structures of core subjects through development of lesson and unit plans aligned with learning proficiencies and interdisciplinary subjects. (InTASC 4) (CEC 3) (ISTE 2.1, 2.1a, 2.1b, 2.1c) (CSLOs 2,3)

7. (Apply) Demonstrate how to connect concepts using differing perspectives to engage learners in communication, collaboration, critical thinking, and creativity (4C's of 21st Century Learning). (InTASC 5) (CEC 5) (ISTE 2.1, 2.6) (CSLOs 1,2,3)

8. (Apply) Identify leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues and other school professionals for ensuring learner growth. (InTASC 9,10) (CEC 6.0, 7.0, 7.1, 7.2, 7.3) (ISTE 2.2,2.2a, 2.2b, 2.2c) (CSLOs 3,4)

9. (Analyze) Engage in ongoing professional learning and use evidence to continually evaluate individual practice, particularly the effects of choices and actions on others. (InTASC 9) (CEC 6) (ISTE 2.3, 2.3a, 2.3b, 2.3c, 2.3d) (CSLOs 1,2,3,4) (MCEE 1.c)

10. (Evaluate) Design and evaluate learning experiences incorporating digital tools and resources to maximize content learning. (InTASC 8,10) (CEC 5) (ISTE 2.5) (CSLOs 1,2,4)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts and Humanities

Complete ALL of the following Courses:
- HIS101 - United States History I
- LIT291 - Children's Literature for Educators

Complete with a grade of C or higher

Social and Behavioral Sciences

Complete ALL of the following Courses:
- POS220 - U.S. and Arizona Constitutions
- PSY101 - Introduction to Psychology

Complete with a grade of C or higher

Natural Sciences

Earn at least 8 credits from the following:
- AGEC Natural Sciences

Complete 2 science courses with labs with a grade of C or higher

Quantitative Reasoning

Earn at least 3 credits from the following:
- AAEE/BSEE Quantitative Reasoning

Complete a 3-4 credit Mathematics course with a grade of C or higher

Institutions in the Americas

Complete ALL of the following Courses:
- EDU230 - Cultural Values in Education

Complete with a grade of C or higher

Lower Division Courses

Complete ALL of the following Courses:
- EDU221 - Introduction to Education
- EDU222 - Introduction to Special Education
- EDU228 - Creating an Effective Learning Environment
- EDU240 - Structured English Immersion
- EDU275 - Writing Across Content Areas
- MAT201 - Math for Elementary Teachers I - Number, Operations and Numerical Systems
- MAT202 - Math for Elementary Teachers II - Geometry, Measurement and Visualization

Complete with a grade of C or higher

Upper Division Courses

Complete ALL of the following Courses:

- EDU301 - Integrating Fine Arts in Classroom Instruction
- EDU302 - Educational Psychology
- EDU311 - Instructional Methods for Teaching Elementary Science
- EDU312 - Instructional Methods for Teaching Elementary Social Studies
- EDU320A - Structured Literacy A: The Science of Reading and Phonics
- EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia
- EDU330 - Math Methods: Numbers, Operations, Proportions, Measurement, and Reasoning
- EDU331 - Math Methods: Geometry, Algebra, Statistics, Ratio, and Probability K-8
- EDU332 - Mathematics Strategies, Assessment, and Intervention
- ESE344 - Introduction to IEPs: Behavior, Transition Planning, and Field Experience
- ESE345 - Introduction to Speech and Language Disorders in the Classroom
- ESE346 - Legal Aspects and Ethical Practice in Special Education
- ESE349 - Diagnosis and Assessment of Mild to Moderate Disabilities
- EDU360 - Master Teacher Seminar
- EDU370B - Field Experience Traditional Semester 1
- EDU370D - Field Experience Traditional Semester 2
- EDU470B - Student Teaching Traditional Emphasis

Complete with a grade of C or higher

Electives

Earn at least 13 credits from the following:

- Electives
- Transfer Electives

Complete 12-13 electives with a grade of C or higher to fulfill 120-credit minimum degree requirement. Recommended: ECE271; ECE276; ECE283 or Quantative Reasoning, Natural Science or Literature courses.

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a C or higher;
- a minimum of 30 earned CAC credits numbered 100 or above;
- a minimum of 120 semester credits.

CT01_20-21 - Agriculture General Certificate

Program Information

Program Title
Agriculture General Certificate

Description
This certificate introduces students to agricultural science and technology by focusing on general academic experiences in agriculture. This certificate prepares students for entry-level careers in agriscience and agribusiness.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
Certificate

Total Credits Required
32

Program Learning Outcomes
In addition to the outcomes of the required agriculture courses, the degree has general education outcomes(e.g. math and English) and elective outcomes.

1. (Comprehension Level) Identify and describe the various taxonomic systems for plants and animals. (CSLO 2)
2. (Comprehension Level) Describe the anatomy and tissues of the root, stem, leaf and flower. (CSLO 2)
3. (Evaluation Level) Identify and justify the importance of photosynthesis and respiration in plants. (CSLO 2,4)
4. (Evaluation Level) Describe and evaluate the impact of genetics and biotechnology research in plants and animals. (CSLO 1,2,4)
5. (Knowledge Level) Identify the five key functions of soil in our ecosystem. (CSLO 2)
6. (Analysis Level) Analyze and relate the influence of the seven soil physical properties to the functions of soil. (CSLO 2,4)
7. (Comprehension Level) Define and discuss the concept of natural resources as it relates to agricultural production. (CSLO 1,4)
8. (Evaluation Level) Identify, analyze, evaluate and discuss the various methods for insect pest management. (CSLO 2)
9. (Synthesis Level) Create a computerized agricultural accounting system. (CSLO 2)
10. (Analysis Level) Demonstrate knowledge of microcomputer components, their uses, and examine applications in agriculture and associated businesses. (CSLO 2,3)
11. (Analysis Level) Identify and compare the fundamental marketing and distribution principles of animal, dairy, and poultry science. (CSLO 2,4)
12. (Analysis Level) Examine the principles of animal genetics in domestic animal production. (CSLO 2,4)
13. (Comprehension Level) Describe the functional anatomy and physiology of domestic animals. (CSLO 2)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Written Communications

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Core Requirements

Complete ALL of the following Courses:

- AGB100 - Intro to Agriculture Business
- AGB124 - Microcomputers in Agriculture
- AGS240 - Plant Biology

Agriculture Electives

Earn at least 19 credits from the following:

- Agriculture Electives

Select from AGB, AGS, or ANS courses OR Select courses from Agriculture, Technology, Business, Math, or Science with Agriculture Department approval

Additional Comments:
Other Requirements
Students must earn:
-a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
-a minimum of 3 earned CAC credits numbered 100 or above;
-a total of 32 credits.

CT01_22-23 - Clinical Laboratory Assistant Certificate

Program Information

Program Title
Clinical Laboratory Assistant Certificate

Description
Prepares competent entry-level clinical laboratory assistants who perform various laboratory procedures including phlebotomy, specimen processing, and quality control procedures under the supervision of physicians, laboratory scientists, or technologists in a clinical laboratory setting. Prerequisite: GED or high school diploma or high school senior.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
28

Program Learning Outcomes
All Program Measurable Student Learning Outcomes and Standards are based on the National Accrediting Agency for Clinical Laboratory Science (NAACLS) Standards for Clinical Assistant Competencies Core Module.

1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment.
2.0 (Application Level) Use common medical terminology.
3.0 (Application Level) Demonstrate knowledge of infection control and safety practices.
3.1 (Application Level) Demonstrate accepted practices for infection control, isolation techniques, aseptic techniques and methods for disease prevention.
3.2 (Synthesis Level) Incorporate the mandated regulations with federal, state and local guidelines regarding all the safety practices required by NAACLS.
3.2.1 (Application Level) Observe the OSHA Blood borne Pathogens Standard and Needle Safety Precaution Act.
3.2.2 (Application Level) Use prescribed procedures to handle electrical, radiation, biological and fire hazards.
3.2.3 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standards, including the correct use of the Material Safety Data Sheet, as directed.
4.0 (Application Level) Follow standard operating procedures to collect specimens.
4.1 (Synthesis Level) Perform assigned specimen collection tasks incorporating knowledge of the circulatory, urinary, and other body systems.
4.2 (Comprehension Level) Describe the difference between whole blood, serum, and plasma.
4.3 (Application Level) Identify and use blood collection equipment.
4.31 (Evaluation Level) Evaluate and identify the additive by the evacuated tube color.
4.32 (Application Level) Identify and properly use equipment needed to collect blood by venipuncture and capillary (dermal) puncture.
4.4 (Application Level) Collect blood specimens by venipuncture.
4.5 (Application Level) Collect blood specimens by capillary (dermal) puncture.
4.6 (Knowledge Level) Identify special precautions necessary during blood collections by venipuncture and capillary (dermal) puncture.
4.7 (Application Level) List and apply the criteria that would lead to rejection or recollection of a patient sample.
4.8 (Synthesis Level) Instruct patients in the proper collection and preservation for non-blood samples.
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures.
5.1 (Application Level) Follow standard operating procedures for labeling, transporting and processing of specimens, including transport to reference laboratories.
5.2 (Synthesis Level) Follow the criteria for reporting specimens and test results that will be used as legal evidence.
6.0 (Application Level) Prepare/reconstitute reagents, standards and controls according to standard operating procedure.
6.1 (Analysis Level) Follow laboratory protocol for storage and suitability of reagents, standards, and controls.
6.2 (Synthesis Level) Recognize and report contamination and/or deterioration in reagents, standards and controls.
7.0 (Synthesis Level) Perform appropriate tests at the clinical assistant level, according to standard operating procedures.
7.1 (Synthesis Level) Identify and report potential pre-analytical errors that may occur during specimen collection, labeling, transporting and processing.
7.2 (Evaluation Level) Compare and evaluate test results to reference intervals.
7.3 (Synthesis Level) Record results by manual method or computer according to laboratory protocol.
7.4 (Synthesis Level) Report STAT results of completed tests according to laboratory protocol.
7.5 (Synthesis Level) Recognize critical values and follow established protocol regarding reporting.
7.6 (Application Level) Use and handle measurement equipment appropriately.
7.7 (Knowledge level) teach knowledge of common medical terminology, knowledge of infection control and safety, knowledge to Communicate (verbally and non-verbally) effectively and appropriately in the workplace.
9.0 (Comprehension Level) Follow established quality control protocols to include maintenance and calibration of equipment.
9.1 (Synthesis Level) Perform quality control procedures.
9.2 (Synthesis Level) Record quality control results.
9.3 (Synthesis Level) Identify and report control results that do not meet pre-determined criteria.
10.0 (Application Level) Communicate (verbally and nonverbally) effectively and appropriately in the workplace.
10.1 (Application Level) Demonstrate confidentiality expectations of privileged information for individuals.
10.2 (Evaluation Level) Evaluate and defend the value of diversity in the workplace.
10.3 (Application Level) Demonstrate appropriate and professional interaction when working with other individuals.
10.4 (Analysis Level) Examine and discuss the major points of the American Hospital Association Patients Bill of Rights and the Patients Bill of Rights from the institution.

10.5 (Application Level) Demonstrate professional appearance and appropriate work behaviors.
10.6 (Application Level) Apply written and verbal instructions in carrying out testing procedures.
11.0 (Application Level) Use information systems necessary to accomplish job functions.
12.0 (Synthesis Level) Record data using the appropriate form when documenting potential pre-analytical errors that may occur during specimen collection, labeling, transporting and/or processing.

Simple Requisites

Prerequisites
Type
Prerequisite

Additional Comments:
HS Diploma or GED or High School Senior

Step 1- Students must apply for admissions to the Clinical Laboratory Assistant Certificate program.
Step 2- Set up a meeting with the Program Director before the first course.
Step 3-Register for the first Semester

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BIO181 - General Biology I
- BIO205 - Microbiology
- CLA169 - Clinical Laboratory Assistant Basics I
- CLA170 - Clinical Laboratory Assistant Basics II
- CLA175 - Clinical Laboratory Assistant Practicum
- PHL155 - Intro to Phlebotomy
- PHL255 - Phlebotomy Practicum

Complete with a grade of C or higher

Core Requirements

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

Complete COM100 or higher with a grade of C or higher - COM100 recommended

Additional Comments:
All certificate courses must be successfully completed with a grade of C or better before enrolling in CLA175.

Current First Aid card and Healthcare Provider level CPR (AHA or ASHI) card are required during practicums and must be taken prior to the first term practicum. All CLA students will be required to complete a criminal history background, provide proof of immunization, and take a drug test.

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a grade of C or better in each required course;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 28 semester credits.

CT01_23-24 - Career and Technical Education Welding Certificate

Program Information

Program Title
Career and Technical Education Welding Certificate

Description
The Career and Technical Education Welding Certificate prepares students for additional Welding Program certificates and degrees during their high school junior and senior years, while also preparing students for employment as an entry level welder with an array of career opportunities within the industry. Topics include: survey of welding processes, Welding NCCER Core, Gas Metal Arc Welding, Thermal Cutting Processes, and use of engine driven welding machines used in the construction industry. A typical graduate seeks employment in mining, steel fabrication, and steel erection industries. After completion of this certificate, students may continue on to the Structural or Pipe Welding Technology AAS. Prerequisite: Closed to Pinal County high school students only.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
12

Program Learning Outcomes
1. (Synthesis Level) Incorporate skills into projects related to applied science, basic computers, applied mathematics and measurements, reading for information, business writing, listening and following directions, locating and using information, and public speaking and presenting. (CSLO 2,3)
2. (Application Level) Demonstrate and explain the safe use and storage of welding equipment and tools. (CSLO 2,3)
3. (Application Level) Demonstrate quality control and the following processes: Flux Cored Arc Welding (FCAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
4. (Synthesis Level) Complete projects using proficient techniques in Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2)
5. (Evaluation Level) Demonstrate, evaluate, and explain weld imperfections and their causes including the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society.
6. (Application Level) Demonstrate consistent, high-quality welds to ensure public safety and to protect the environment. (CSLO 1)
7. (Synthesis Level) Given a set of structural blueprints, rig structural members into position, make initial connections, plumb and align members, and finalize connections by bolting or welding structural members into place. (CSLO 2,3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- WLD110A - Survey of Welding Processes High School Part A
- WLD110B - Survey of Welding Processes High School Part B
- WLD115A - Welding NCCER Core High School Part A
- WLD115B - Welding NCCER Core High School Part B

Additional Comments:
Other Requirements

This is a closed enrollment program for Pinal County high school students only.

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 12 semester credits.

CT01_24-25 - Software Development Certificate

Program Information

Program Title
Software Development Certificate

Description
Software Development Certificate provides an in-depth exploration of different computer language and technical skills. Learn to design and write software programs and applications while developing problem-solving skills. Prerequisite: Computer Programming Certificate.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
Certificate

Total Credits Required
17

Program Learning Outcomes
1. (Synthesis Level) Code elementary programs in the C++, Python, C#, and Java programming languages, utilizing input and output options, data types, decision-making techniques, structures, classes, and disk file operations. (CSLO 3)
2. (Analysis Level) Analyze programs for errors. (CSLO 4)
3. (Application Level) Use current object-oriented design and programming techniques to build complex programs working as a team. (CSLO 3)
4. (Comprehension level) Discuss ethical and social issues of the computing world. (CSLO 1)
5. (Knowledge Level) Identify common uses of Linux in deployed business computer solutions CSLO 3)
6. (Synthesis Level) Develop well designed and well documented programs that are easily maintainable. (CSLO 3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Recommended Proficiencies

MAT151 College Algebra

Core Requirements

Complete ALL of the following Courses:

- CIS162 - Comparative Programming Languages
- CIS176 - Python Programming
- CIS213 - Linux Server
- CIS218 - C++ Programming
- CIS231 - Object Oriented Programming and Data Structures

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 17 semester credits.

CT01_25-26 - Coolidge High School Diesel Technician Prep Certificate

Program Information

Program Title
Coolidge High School Diesel Technician Prep Certificate

Description
The Coolidge High School Diesel Technician Preprogram prepares students for additional Diesel Technology Program certificates and degrees during their high school junior and senior years, while also preparing students for employment as an entry level technician with an array of career opportunities within the industry. Prerequisite: Closed enrollment for Coolidge high school students only.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
12

Program Learning Outcomes
1. (Application Level) Demonstrate and practice industry standard procedures in the areas of personal safety, fire safety, environmental safety and tools/equipment safety. CSLO 2,3,4
2. (Application Level) Identify and use hand and power tools correctly. CSLO 2,3,4
3. (Application Level) Demonstrate correct practices for preventive maintenance inspections. CSLO 2,3
4. (Application Level) Identify common fastener types, sizes, thread pitch, characteristics, and use. CSLO 2,3,4
5. (Application Level) Demonstrate proficiency interpreting precision measurements using the metric and English systems. CSLO 2,3,4
6. (Applying Level) Demonstrate the ability to work professionally, ethically, and safely with computer systems. CSLO 1 2,3,4
7. (Evaluating Level) Evaluate technical information available to the public by using Internet search engines. CSLO 1,2,3
8. (Applying level) Use vehicle manufacturers intranet pages and software to look up daily product updates and recently updated technical information. CSLO 2,3,4

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Complete the following courses

Complete ALL of the following Courses:

- DIE116A - Introduction to Diesel Technology Part A
- DIE116B - Introduction to Diesel Technology Part B
- DIE118A - Computer Systems Equipment Techs Part A
- DIE118B - Computer Systems Equipment Techs Part B

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 12 semester credits.

CT01_26-27 - HVAC Level I Certificate

Program Information

Program Title
HVAC Level I Certificate

Description
The HVAC Certificate Level I program at Central Arizona College provides foundational training in Heating, Ventilation, and Air Conditioning using the nationally recognized NCCER (National Center for Construction Education and Research) curriculum. This program emphasizes hands-on learning combined with essential technical knowledge to prepare students for entry-level employment in the HVAC industry. Topics include safety, basic electricity, refrigeration principles, and HVAC systems operation. Students who complete the program earn a Certificate of Completion (CCL) in HVAC Level I and receive NCCER credentials, which are widely respected by employers across the construction and building maintenance industries. This certificate can also serve as a stepping stone toward an Associate of Applied Science (AAS) in HVAC Technology or further specialized certifications.
This program is designed for: Recent high school graduates seeking skilled trade careers. Adult learners and career changers entering the HVAC field. Construction or maintenance professionals looking to expand their credentials. Employers seeking to train their workforce with industry-standard curriculum. It is ideal for individuals interested in hands-on technical work and offers a clear pathway into a high-demand industry.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Application Level) Demonstrate proper safety procedures and compliance with OSHA standards in HVAC workplace settings. (CSLO #3)
2. (Remembering Level) Identify and describe the function and operation of basic HVAC components, including compressors, condensers, evaporators, and thermostats. (CSLO #2)
3. (Analyzing Level) Calculate temperature and pressure relationships using the refrigeration cycle and interpret readings from HVAC gauges and instruments. (CSLO #4)
4. (Application Level) Install basic HVAC systems and components in accordance with technical specifications, building codes, and environmental standards. (CSLO #3)
5. (Evaluating Level) Examine and discuss environmental and cultural considerations in HVAC practices, including sustainability and refrigerant management. (CSLO #1)
6. (Analyzing Level) Troubleshoot basic HVAC electrical circuits using appropriate tools and diagnostic methods. (CSLO #4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BCT100 - NCCER Core
- BCT150 - Industrial Safety and OSHA 30
- HVA121 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level I
- HVA122 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level II

Additional Comments:
Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT02_20-21 - Agriculture Business Certificate

Program Information

Program Title
Agriculture Business Certificate

Description
This certificate provides students with specialized agricultural workplace skills for entry-level agribusiness positions.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
Certificate

Total Credits Required
27

Program Learning Outcomes
1. (Comprehension Level) Describe the commodity marketing system including raw materials and undifferentiated food products. (CSLO 2)
2. (Comprehension Level) Describe the food marketing system beginning with raw materials and ending with the consumer. (CSLO 2)
3. (Knowledge Level) Identify the purpose and need for agricultural financial records. (CSLO 2)
4. (Synthesis Level) Develop an enterprise analysis system. (CSLO 2,4)
5. (Comprehension Level) Explain accounting principles and rules. (CSLO 2)
6. (Application Level) Demonstrate knowledge of the role of agriculture in economic development. (CSLO 2,4)
7. (Application Level) Demonstrate the ability to use various applications of computer technology for agricultural management and problem solving. (CSLO 2)
8. (Analysis Level) Calculate appropriate financial ratios from an income statement and a balance sheet. (CSLO 2)
9. (Comprehension Level) Understand the basic functions of operating a business. (CSLO 1,2,3,4)
10. (Application Level) Maintain a complete set of accounting records for a sole proprietorship, including the financial statements and completion of the accounting cycle. (CSLO 2)
11. (Synthesis Level) Utilize accounting information to make business decisions. (CSLO 2,3,4)
12. (Application Level) Identify and apply leadership critical thinking skills. (CSLO 1,2,3,4)
13. (Application Level) Use writing and reading for inquiry, thinking, learning and communicating. (CSLO 1,2,3,4)

Simple Requisites

Oral Communications
Type
Completion Requirement

Oral Communications

Earn at least 3 credits from the following:

- AGEC Oral Communications Courses

COM100 or higher

Core Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- AGB100 - Intro to Agriculture Business
- AGB124 - Microcomputers in Agriculture
- AGB225 - Agriculture Business Analysis

Select two:

Complete at least 2 of the following courses:

- AGB121 - Fundamentals of Agriculture and Environmental Economics
- AGB213 - Intro to Agricultural Commodity and Food Marketing
- ANS110 - Horse Event Production

Select one:

Complete ANY of the following Courses:

- ACC100 - Fundamentals of Accounting
- AGB123 - Agriculture Accounting

AGB123 Agriculture Accounting recommended.

Select one:

Earn at least 3 credits from the following:

- BUS101 or MAT118 or higher

BUS101 Business Mathematics recommended. Student may take a higher level MAT course to satisfy requirement.

Select one:

Complete ANY of the following Courses:

- ENG101 - College Composition I
- ENG121 - Applied Technical Writing

Additional Comments:
Other Requirements
Students must earn:
-a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
-a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 27 semester credits.

CT02_22-23 - Communication Studies Certificate

Program Information

Program Title
Communication Studies Certificate

Description
The Communication Studies Certificate prepares students with effective communication skills applicable in a wide variety of interpersonal, intercultural, small group, public communication and employment situations. The communication skills-building courses required for this certificate also prepares students for continued education and advanced degrees in communication studies. This certificate may also be used to enhance areas of interest in other fields of study.
Recommended: ENG100

Area of Interest
Communication & English

Degree Type
Certificate

Total Credits Required
15

Program Learning Outcomes
1. (Comprehension Level) Explain variables within and complexity of the human communication process. (CSLO 2,4)
2. (Application Level) Demonstrate oral communication competence in multiple situations and contexts. (CSLO 1,2,3,4)
3. (Application Level) Produce effective written communication for a variety of situations and contexts. (CSLO 2,3,4)
4. (Application Level) Demonstrate effective decoding and listening skills in a variety of situations and contexts. (CSLO 2,3,4)
5. (Synthesis Level) Explain psychological and/or sociological impacts on human communication. (CSLO 1,2,4)

Simple Requisites

Recommended
Type
Prerequisite

Recommended

Completion of ENG100 is recommended

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- COM100 - Fundamentals of Human Communication
- COM275 - Communication Studies Capstone

Select 3 of the following:

Earn at least 9 credits from the following:
- COM101 - Interpersonal Communication
- COM202 - Small Group Communication
- COM206 - Public Speaking
- COM207 - Introduction to Communication Inquiry
- COM259 - Professional Communication
- COM263 - Intercultural Communication

For a relational approach to communication, please consider these suggested courses: COM101 , COM202 , COM263.

For a public communication approach, please consider these suggested courses: COM202 , COM206, COM259.

For a cultural diversity approach to communication, please consider these suggested courses: COM101 , COM259, COM263.

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2. 0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 15 semester credits.

CT02_24-25 - Cybersecurity Technician Certificate

Program Information

Program Title

Cybersecurity Technician Certificate

Description

The Cybersecurity Technician Certificate covers the necessary skills required to secure, protect and identify vulnerabilities in a network, including various operating systems and network devices. Emphasis is placed on developing the theoretical, legal, ethical and practical skills needed to maintain security on mission-critical networking and server systems. Recommended: Verbal and written communication skills. Prerequisite: Computer Technician certificate.

Area of Interest

Computer Technology, Engineeering & Math

Degree Type

Certificate

Total Credits Required

18

Program Learning Outcomes

1. (Synthesis Level) Manage users, groups, login security, and system resources in Linux. (CSLO 2)
2. (Analysis Level) Analyze advanced persistent threats and deploy countermeasures, and conduct risk and vulnerability assessments of planned and installed information systems. (CSLO 4)
3. (Evaluation Level) Interpret Networking laws and regulations in which businesses operate, including local, regional, and global markets. (CSLO 1)
4. (Analysis Level) Determine which hardware, software, and data to gather and secure as evidence in a criminal case (CSLO 3)
5. (Synthesis Level) Create and implement a network forensic plan. (CSLO 4)
6. (Application Level) Demonstrate appropriate responses to various attack vectors and methodologies.(CSLO 3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Recommended Proficiencies

Verbal and written communication skills

Core Requirements

Complete ALL of the following Courses:

- CIS153 - Network Security
- CIS176 - Python Programming
- CIS213 - Linux Server
- CIS225 - Practical Applications in CyberSecurity
- CIS273 - Network Defense
- CIS275 - Computer Forensics & Investigation

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT02_25-26 - Human Services Certificate

Program Information

Program Title
Human Services Certificate

Description
Human Services is a field committed to recognizing and meeting human needs through an interdisciplinary knowledge base. Students will be equipped with skills to understand human behavior through the social sciences and apply knowledge related to prevention, problem-solving, and the overall quality of life of the populations served. Engage in real-world experiences that prepare you for a career in advocacy, case management, and evaluation of services needed.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
Certificate

Total Credits Required
21

Program Learning Outcomes
1. (Comprehension) Learn skills to understand human behavior through the social sciences and apply knowledge related to prevention and problem-solving. CSLO #2, 4)
2. (Application Level) Apply basic sociological concepts, theories, terms, and principles to various experiences and situations. (CSLO #2, 4)
3. (Evaluation Level) Assess and understand ethical issues affecting social problems and service resources. (CSLO #1, 3)
4. (Comprehension) Understand the ethics involved in dealing with confidentiality. (CSLO #2)
5. (Applications Level) Demonstrate and apply theories of human behavior, knowledge, and skills to careers in social work and the human services field. (CSLO #2, 3, 4)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ENG101 - College Composition I
- PHI105 - Introduction to Ethics
- PSY101 - Introduction to Psychology
- SOC101 - Introduction to Sociology
- SOC202 - Contemporary Social Problems
- SOC220 - Human Services Capstone
- SWU171 - Introduction to Social Work

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a grade of C or better is required in all courses;
- a minimum of 21 semester credits.

CT02_26-27 - HVAC Level II Certificate

Program Information

Program Title
HVAC Level II Certificate

Description
This certificate builds on foundational HVAC/R knowledge with advanced NCCER curriculum. Students deepen competencies in commercial airside systems, heat pumps, hydronics, controls, diagnostics, and refrigerant handling— preparing them for higher apprenticeship levels or technical roles. The NCCER Level III and level IV includes written assessment and hands-on performance evaluations toward NCCER credentials. Graduates are prepared for roles such as HVAC service technician, commercial HVAC installer, refrigeration technician, or advancement toward journeyperson licensing. Certificates align with industry-recognized credentials and partner with apprenticeship and union advancement.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
System Diagnosis and Troubleshooting Outcome:
1. (Analyzing Level) Diagnose complex HVAC system issues using pressure-temperature relationships and electrical circuit analysis to restore system functionality. (CSLO #4)

Installation and Commissioning Outcome:
2. (Application Level) Construct and commission residential and light commercial HVAC systems in accordance with manufacturer specifications, local codes, and energy efficiency standards. (CSLO #2)

Safety and Environmental Practices Outcome:
3. (Application Level) Demonstrate proper use of PPE, EPA Section 608 regulations, and environmentally responsible refrigerant handling and recovery techniques. (CSLO #3)

Electrical Component Function and Wiring Outcome:
4. (Understanding Level) Explain the function and wiring of HVAC electrical components such as relays, contactors, capacitors, and motors, referencing schematic diagrams. (CSLO #2)

Communication and Collaboration in the Trade Outcome:
5. (Creating Level) Collaborate with team members and clients from diverse backgrounds to complete HVAC projects professionally and respectfully, adhering to industry ethics and standards. (CSLO #1)

Professional Conduct and Work Readiness Outcome:
6. (Application Level) Exhibit punctuality, accountability, and a commitment to continuous learning as required in a professional HVAC workplace. (CSLO #3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

General Education Requirements

Earn at least 6 credits from the following:

- Written Communication ENG101 or ENG121
- MAT106 or higher

ENG121 and MAT106 recommended

Core Requirements

Complete ALL of the following Courses:

- HVA221 - Heating, Ventilation, Air-Conditioning & Refrigeration Level III
- HVA222 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level IV

Additional Comments:
Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;

- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT03_20-21 - Equine Management and Training Certificate

Program Information

Program Title
Equine Management and Training Certificate

Description
The Equine Management and Training Certificate provides basic skills and information for equine handling. Courses for the certificate apply toward completion of the Equine Management and Training AAS Degree. Recommended: RDG100.

Area of Interest
Biological/Physical Sciences & Agriculture

Degree Type
Certificate

Total Credits Required
36

Program Learning Outcomes
1. (Knowledge Level) Define and list the most common tack, and describe its uses. (CSLO 2)
2. (Evaluation Level) Explain the diversity of the equine industry, and the problems and opportunities this diversity creates. (CSLOs 1, 2)
3. (Evaluation Level) Assess the capacity for the horse to perform as an athlete. (CSLOs 2, 4)
4. (Comprehension Level) List and explain the natural motivations and behaviors of the horse. (CSLO 2)
5. (Synthesis Level) Collect information and create a business plan in the equine industry. (CSLOs 2, 4)
6. (Synthesis Level) Develop proper safety concerning horsemanship and handling of horses. (CSLOs 3, 4)
7. (Synthesis Level) Develop creative solutions to problems and demonstrate independent critical and analytical thought. (CSLOs 3, 4)
8. (Knowledge Level) Discuss proper safety techniques concerning horsemanship. (CSLO 3)
9. (Synthesis Level)Produce equine events, including developing a budget, marketing plan, personnel management plan, and strategies for adhering to regulations and reporting functions. (CSLOs 2, 3, 4)
10. (Application Level) Demonstrate safe handling of animals. (CSLO 3)
11. (Evaluation Level) Demonstrate skills to properly care for and prevent equine ailments. (CSLOs 2, 3)
12. (Application Level) Demonstrate handling skills for a variety of different equine activities, per given project plan/instructions. (CSLO 3)

Simple Requisites

Recommended
Type
Prerequisite

Reading Recommendation

RDG100 recommended.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ANS102 - Horsemanship I
- ANS110 - Horse Event Production
- ANS121 - Equine Facility Management I
- ANS122 - Equine Facilities Management II
- ANS131 - Equine Behavior and Training I
- ANS200 - Introduction to Equine Science
- ANS202 - Horsemanship II
- ANS216 - Equine Anatomy & Physiology
- ANS223 - Advanced Equine Training
- ANS231 - Equine Behavior & Training II

Electives

Complete at least 2 of the following courses:

- ANS101 - Animal Industry
- ANS111 - Horseshoeing I
- ANS211 - Advanced Horseshoeing
- ANS226 - Feeds and Feeding

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (GPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 36 semester credits.

CT03_22-23 - Communication Skills for the Professional Certificate

Program Information

Program Title
Communication Skills for the Professional Certificate

Description
This Certificate emphasizes the use of communication technologies in the workplace and is complemented by a breadth of course offerings in the area of communication, along with two specified electives in an area of interest. Through the completion of these courses, this certificate equips students with competencies including critical thinking and problem solving, teamwork and collaboration, oral and written communication, professionalism and work ethic, global and multicultural fluency, and leadership and digital technology. Prerequisite: ENG100 or ENG121.

Area of Interest
Communication & English

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Comprehension Level) Explain the variables within and complexity of the human communication process. (CSLO 2,3)
2. (Application Level) Demonstrate oral communication competence in a variety of professional contexts. (CSLO 1,2,3)
3. (Application Level) Produce effective written communication for basic professional contexts. (CSLO 1,2,3)
4. (Application Level) Demonstrate effective decoding and listening skills in a variety of professional contexts. (CSLO 1,2,3,4)
5. (Synthesis Level) Use multiple technologies to produce effective messages for a variety of professional situations. (CSLO 1,2,3)
6. (Comprehension Level) Explain the dynamics of human communication within social relationships. (CSLO 2,3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Prerequisites

Complete ANY of the following Courses:
- ENG100 - Introduction to Composition II
- ENG121 - Applied Technical Writing

Core Requirements

Complete ALL of the following Courses:
- COM259 - Professional Communication
- COM275 - Communication Studies Capstone

Select 3 courses

Earn at least 9 credits from the following:
- COM100 - Fundamentals of Human Communication
- COM101 - Interpersonal Communication
- COM202 - Small Group Communication
- COM206 - Public Speaking
- COM263 - Intercultural Communication

Electives

Earn at least 3 credits from the following:
- Transfer Electives
- Electives

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits

CT03_24-25 - Amazon Web Services Certificate

Program Information

Program Title

Amazon Web Services Certificate

Description

The Amazon Web Services Certificate builds the requisite knowledge and skills to perform core Amazon Web Services (AWS) functions. Focusing on developing, deploying, and debugging cloud-based applications, and managing & operating scalable, highly available, and fault tolerant systems on AWS. It prepares students for careers in Cloud computing. Recommended proficiencies: Basic Computer skills.

Area of Interest

Computer Technology, Engineeering & Math

Degree Type

Certificate

Total Credits Required

18

Program Learning Outcomes

1. (Analyze Level) Manage, secure, and scale compute instances, configurations, and databases. (CSLO 4)
2. (Apply Level) Build virtual private networks. (CSLO 4)
3. (Create Level) Create and configure automated and repeatable deployments. (CSLO 2)
4. (Evaluation Level) Analyze the marketing of cloud computing solutions and make recommendations. (CSLO 4)
5. (Evaluation Level) Explore emerging Cloud Computing technologies and evaluate their possible impact on the industry. (CSLO 4)
6. (Application Level) Use system utilities to effectively control the system. (CSLO 2,4)
7. (Synthesis Level) Configure a network interface to use TCP/IP and TCP/IP routing. (CSLO 3)
8. (Synthesis Level) Plan and create network file systems in Linux. (CSLO 4)
9. (Create Level) Build and deploy secure applications in the AWS Cloud (CSLO 2)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Recommended Proficiencies

Basic Computer skills

Core Requirements

Complete ALL of the following Courses:

- CIS121 - Windows Operating System Fundamentals
- CIS123 - Introduction to Programming
- CIS130 - Networking Essentials
- CIS210 - Cloud Foundations & Architecture
- CIS211 - Cloud Development
- CIS263 - Cloud Operations

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT03_25-26 - Stage Lighting and Live Audio Certificate

Program Information

Program Title
Stage Lighting and Live Audio Certificate

Description
The Stage Lighting and Live Audio Certificate prepares individuals for entry-level positions in the entertainment industry by providing the knowledge and skills necessary to work with touring entertainers and live sound and stage lighting companies in the set-up operation of live concert productions.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
Certificate

Total Credits Required
35

Program Learning Outcomes
1. (Analysis Level) Differentiate between the prominent rock styles from 1950 to present. *(CSLO 1,2)*
2. (Evaluation Level) Compare careers in the music industry including specialization tracks and job titles. *(CSLO 1,2,3)*
3. (Comprehension Level) Explain contract law pertaining to the entertainment industry. *(CSLO 1,2)*
4. (Synthesis Level) Conduct basic sound reinforcement tasks for a variety of events. *(CSLO 2,3)*
5. (Application Level) Operate a standard computerized lighting control console. *(CSLO 2,3)*
6. (Synthesis Level) Create a recording project using Pro-Tools. *(CSLO 2,3)*
7. (Evaluation Level) Assess an internship experience in relation to previous course work, completed contract(s), and future employment opportunities. *(CSLO 1,2,3,4)*
8. (Synthesis Level) Prepare a completed project for the faculty advisor, committee, and/or public forum for evaluation as appropriate, in accordance with established methodology, rubric(s) and guidelines. *(CSLO 2,3,4)*
9. (Synthesis Level) Develop a self-promotion package. *(CSLO 2,3)*
10. (Synthesis Level) Create and maintain a quality house sound mix and multi-channel monitor mix for a variety of reinforcement situations. *(CSLO 2,3)*
11. (Evaluation Level) Determine problems and solutions in professional live audio and stage lighting systems, as well as anticipate possible problems and create processes to minimize problems occurring. *(CSLO 2,3,4)*
12. (Synthesis Level) Devise color into a carefully documented light plot for a CAC Performing Arts concert or EIT event that reflects the physiological, time of day, dramatic, historical, landscape/cityscape, and/or mixing effects of color and the directors notes. *(CSLO 2,3)*

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- EIT100 - History of Rock n' Roll
- EIT101 - Introduction to Entertainment
- EIT120 - Entertainment Law
- EIT130 - Live Audio Production I
- EIT140 - Introduction to Lighting
- EIT151 - Digital Audio Workstation
- EIT203 - Entertainment Capstone Project
- EIT231 - Live Audio Production II
- EIT232 - Equipment Maintenance
- EIT241 - Concert Lighting
- EIT242 - Rigging
- EIT296 - Entertainment Internship

Other Requirements

Students must earn:

- all coursework must be completed with a “C” or higher;
- a cummulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 35 semester credits.

CT03_26-27 - Plumbing Level I Certificate

Program Information

Program Title
Plumbing Level I Certificate

Description
The Plumbing Level I certificate program at Central Arizona College provides students with foundational knowledge and hands-on skills required for entry-level positions in the plumbing trade. Aligned with the nationally recognized NCCER curriculum, this program emphasizes safety, basic plumbing tools, pipe systems, plumbing math, drawings, and code requirements. Students will learn how to install, maintain, and repair piping systems in residential, commercial, and industrial environments. Upon successful completion of this certificate, students will earn NCCER credentials, making them more competitive in the workforce and providing a clear pathway for advancement into higher-level certifications and apprenticeship programs. Introduction to the Plumbing Profession, Plumbing Safety and Tools, Plumbing Math and Drawings, Plastic, Copper, and Cast-Iron Pipe Systems, Fixtures and Drain, Waste, and Vent (DWV) Systems, Introduction to Water Distribution Systems. Graduates will be prepared for entry-level employment in the plumbing industry or for continued training in Central Arizona College Plumbing Level II certificate using the NCCER plumbing curriculum.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Application Level) Demonstrate appropriate safety practices and procedures in accordance with OSHA standards and NCCER guidelines to maintain a safe plumbing job site. (CSLO #3)
2. (Understanding Level) Explain the function and installation process of basic plumbing systems, including supply, waste, and vent systems in residential and commercial settings. (CSLO #2)
3. (Creating Level) Construct basic piping systems using various materials (e.g., copper, PVC, PEX, cast iron), demonstrating correct joining methods and code-compliant installation. (CSLO #4)
4. (Analyzing Level) Analyze plumbing drawings, blueprints, and isometric sketches to determine proper layout, material requirements, and installation sequence. (CSLO #4)
5. (Application Level) Demonstrate cultural awareness and respect for diversity when working on job sites with individuals from various backgrounds and communities. (CSLO #1)
6. (Remembering Level) Identify and interpret relevant plumbing codes and standards that apply to the installation, repair, and maintenance of plumbing systems. (CSLO #2)
7. (Application Level) Exhibit professional behavior, including reliability, communication, teamwork, and accountability, while participating in classroom and job-site learning. (CSLO #3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Program Requirements

Complete ALL of the following Courses:
- BCT100 - NCCER Core
- BCT150 - Industrial Safety and OSHA 30
- PLU121 - Plumbing Level I

Complete with a grade of C or higher

Mathematics Requirement

Earn at least 3 credits from the following:
- MAT106 or higher

Complete with a C or higher - MAT106 recommended

Additional Comments:
Students must earn:

- a grade of C or better in all required courses;

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT04_21-22 - Phlebotomy Certificate

Program Information

Program Title
Phlebotomy Certificate

Description
This program is not eligible for federal financial aid (Pell Grant and/or direct loans).

Preparation of competent entry-level clinical laboratory assistants who perform various laboratory procedures including phlebotomy, specimen processing, and quality control procedures under the supervision of physicians, laboratory scientists, or technologists in a clinical laboratory setting. Prerequisite: GED or high school diploma.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
6

Program Learning Outcomes
All Program Measurable Student Learning Outcomes are based on the National Accrediting Agency for Clinical Laboratory Science (NAACLS) Standards for Clinical Assistant Competencies Core Module.

1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
3.1 (Comprehension Level) Describe accepted practices for infection control, isolation techniques, aseptic techniques and methods for disease prevention. (CSLO 2)
3.2 (Knowledge Level) Identify and comply with federal, state and locally mandated regulations regarding safety practices. (CSLO 2)
3.21 (Application Level) Use the OSHA Universal Precaution Standards. (CSLO 2)
3.22 (Application Level) Use prescribed procedures to handle electrical, radiation, biological and fire hazards. (CSLO 2)
3.23 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standard, including the correct use of the Material Safety Data Sheet as directed. (CSLO 3)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
4.1 (Comprehension Level) Describe the circulatory, urinary, and other body systems that relate to specimen collection tasks. (CSLO 2)
4.2 (Comprehension Level) Describe the difference between whole blood, serum and plasma. (CSLO 2)
4.3 (Application Level) Describe and use blood collection equipment. (CSLO 3)
4.31 (Comprehension Level) Describe the additive by the evacuated tube color. (CSLO 2)
4.32 (Application Level) Use equipment properly to collect blood by venipuncture and capillary (skin) puncture. (CSLO 3)
4.4 (Application Level) Demonstrate collection of blood specimens by venipuncture and capillary (skin) puncture. (CSLO 3)
4.5 (Comprehension Level) Describe special precautions necessary during blood collections by venipuncture and capillary (skin) puncture. (CSLO 2)
4.6 (Application Level) Apply the criteria that lead to rejection or recollection of a patient sample. (CSLO 3)
4.7 (Comprehension Level) Describe how to explain to patients the proper collection and preservation for various samples, including: blood sputum stools. (CSLO 2)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
5.1 (Application Level) Apply standard operating procedures for labeling, transport, and processing of specimens, including transport to reference laboratories. (CSLO 3)
5.2 (Comprehension Level) Describe and follow the criteria for specimens and test results that will be used as legal evidence. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
6.1 (Comprehension Level) Describe laboratory protocol for storage and suitability of reagents, standards, and controls. (CSLO 3)
6.2 (Analysis Level) Recognize and report contamination and/or deterioration in reagents, standards, and controls. (CSLO 4)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)
7.1 (Analysis Level) Compare test results to reference intervals. (CSLO 4)
7.2 (Application Level) Report results by manual method or computer according to laboratory protocol. (CSLO 3)
7.3 (Application Level) Report STAT results of completed tests according to laboratory protocol. (CSLO 3)
7.4 (Analysis Level) Recognize critical values and follow established protocol regarding reporting. (CSLO 4)
7.5 (Knowledge Level) Describe how to clean glass and plastic labware. (CSLO 2)
7.6 (Application Level) Use pipetting equipment. (CSLO 2)
7.7 (Application Level) Use measurement equipment such as beakers and flasks. (CSLO 2)
8.0 (Comprehension Level) Describe established quality control protocols to include maintenance and calibration of equipment. (CSLO 2)
8.1 (Application Level) Demonstrate quality control procedures. (CSLO 3)
8.2 (Application Level) Report quality control results. (CSLO 3)
8.3 (Application Level) Report control results that do not meet pre-determined criteria. (CSLO 3)
9.0 (Application Level) Demonstrate effective and appropriate communication (verbal and non-verbal)in workplace settings. (CSLO 1)
9.1 (Synthesis Level) Reinforce confidentiality of privileged information on individuals. (CSLO 2)
9.2 (Comprehension Level) Discuss the value of diversity in the workplace. (CSLO 1)
9.3 (Application Level) Demonstrate appropriate and professional interaction with other individuals. (CSLO 1)

9.4 (Application Level) Demonstrate professional appearance and appropriate work behaviors. (CSLO 1)
9.5 (Application Level) Apply written and verbal instructions in carrying out testing procedures. (CSLO 1)
10.0 (Application Level) Use information systems necessary to accomplish job functions. (CSLO 3)
11.0 (Application Level) Report potential pre-analytical errors that may occur during specimen collection, labeling, transporting and/or processing. (CSLO 4)

Simple Requisites

Prerequisites
Type
Prerequisite

Prerequisites

High School Diploma or GED;

Pre-Program Requirements

Students must apply for admission to the Phlebotomy Certificate portion of the CLA program with the Professor of Clinical Lab.
Current First Aid card and Healthcare Provider level CPR (AHA or ASHI) card are required during practicums and must be taken prior to the first term practicum.
All Phlebotomy students will be required to complete a criminal history background, provide proof of immunization, and take a drug test.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- PHL155 - Intro to Phlebotomy
- PHL255 - Phlebotomy Practicum

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a grade of C or better in each required course;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 6 semester credits.

CT04_22-23 - Dietary Manager Training Certificate

Program Information

Program Title
Dietary Manager Training Certificate

Description
Previously known as Certified Dietary Manager, Certified Food Protection Professional Certificate

This program is not eligible for federal financial aid (Pell Grant and/or direct loans).

The Dietary Manager Training Certificate is an Association of Nutrition & Foodservice Professionals (ANFP) approved training program and Pathway III(b) Verified. The certificate provides a fast track for experienced food service workers and/or supervisors with roles in health care facilities and various other food service establishments. Upon completion of the certificate, students are eligible to sit for the national Certified Dietary Manager, Certified Food Protection Professional certification exam through the Certifying Board for Dietary Managers. CAC requires no prerequisites; however, a minimum of two years of institutional food service management experience that meets the eligibility requirements of Certifying Board for Dietary Managers Pathway III(b) to take the CDM Credentialing Exam. Recommended Proficiencies: High School diploma or GED.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
7

Program Learning Outcomes
Note: End of Program Student Learning Outcomes are based on the five domains of the CDM, CFPP credentialing exam.

(Application Level) Section 1: NUTRITION - 18% (CSLO 1)
A. Gather Nutrition Data
B. Apply Nutrition Data
C. Provide Nutrition Education

Section 2: Foodservice - 20% (CSLO 2)
A. Manage Standardized Recipes (Analysis Level)
B. Specify Standards and Procedures for Preparing Food (Synthesis Level)
C. Supervise the Production and Distribution of Food (Evaluation Level)
D. Monitor Meal Service (Analysis Level)

2. Assure compliance of meals served as posted
E. Implement Continuous Quality Improvement Procedures for Foodservice Department (Evaluation Level)
G. Modify Standard Menus (Application Level)

Section 3. PERSONNEL AND COMMUNICATIONS - 21% (CSLO 3)
A. Define Personnel Needs and Job Functions (Analysis Level)
B. Interview, Select, and Orient Employees (Evaluation Level)
C. Provide Ongoing Education (Application Level)
D. Develop and Maintain Employee Time Schedules and Assignments (Synthesis Level)
E. Manage Goals and Priorities for Department (Evaluation Level)
F. Manage Department Personnel (Analysis Level)
G. Manage Professional Communications (Analysis Level)
H. Implement Changes in Foodservice Department (Application Level)

(Analysis Level)Section 4. SANITATION AND SAFETY - 24% (CSLO 2)
A. Manage Personnel to Ensure Compliance with Safety and Sanitation Regulations
B. Manage Purchasing, Receiving, Storage, and Distribution of Food and Supplies Following Established Sanitation and Quality Standard
C. Protect Food in all Phases of Preparation Using HACCP Guidelines
D. Manage Physical Facilities to Ensure Compliance with Safety and Sanitation Guidelines

(Analysis Level) Section 5. BUSINESS OPERATIONS - 17% (CSLO 2)
A. Manage a Budget
B. Prepare Specifications for Capital Purchases
C. Plan and Budget for Improvements in the Department Design and Layout
D. Assist in the Purchasing Process
E. Manage Revenue Generating Services
F. Implement Cost Effective Procedures

Simple Requisites

Prerequisite
Type
Prerequisite

Additional Comments:
CAC requires no prerequisites; however, a minimum of two years of institutional food service management experience that meets the eligibility requirements of Certifying Board for Dietary Managers Pathway III(b) is required to take the CDM Credentialing Exam. Recommended Proficiencies: High School diploma or GED.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- NTR105 - ServSafe Preparation
- NTR223 - Food Service Management
- NTR240 - Clinical Nutrition

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 7 semester credits.

CT04_24-25 - Computer Technician Certificate

Program Information

Program Title
Computer Technician Certificate

Description
The computer technician certificate prepares learners for entry-level computer maintenance, help desk, and network technician positions. The classes focus on knowledge and skills in computer, network, and security technologies, as well as the interpersonal skills in customer service/technical support needed to be successful within the industry. Recommended proficiencies: Basic computer skills.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Application Level) Install and configure Windows operating systems and maintain computer hardware components. (CSLO 2)
2. (Application Level) Manage users, groups, login security, and system resources. (CSLO 2)
3. (Analysis Level) Identify, Configure, and troubleshoot devices. (CSLO 4)
4.(Application Level)Configure, troubleshoot, and secure network devices. (CSLO 2, 4)
5.(Creation Level) Develop, test, and troubleshoot basic interfaces. (CSLO 4)
6.(Application Level) Apply the basics of customer and team communications needed to solve problems. (CSLO 3)
7.(Understanding Level) Understand individual and team dynamics and workflows to efficiently complete tasks.(CSLO 3)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Recommended Proficiencies

Basic computer skills

Core Requirements

Complete ALL of the following Courses:

- CIS115 - Customer Service and Workplace Success
- CIS119 - Set-up and Maintenance of Personal Computers
- CIS120 - Survey of Computer Information Systems
- CIS121 - Windows Operating System Fundamentals
- CIS123 - Introduction to Programming
- CIS130 - Networking Essentials

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT04_25-26 - Music Recording and Production Certificate

Program Information

Program Title
Music Recording and Production Certificate

Description
The Music Recording and Production Certificate prepares individuals for entry-level positions in the entertainment industry by providing the knowledge and skills necessary to operate a recording studio, including recording, editing, arranging, mixing, mastering, and producing commercial quality audio recordings.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
Certificate

Total Credits Required
35

Program Learning Outcomes
1. (Analysis Level) Differentiate between the prominent rock styles from 1950 to present. *(CSLO 1,2)*
2. (Evaluation Level) Compare careers in the music industry including specialization tracks and job titles. *(CSLO 1,2,3)*
3. (Comprehension Level) Explain contract law pertaining to the entertainment industry. *(CSLO 1,2)*
4. (Synthesis Level) Conduct basic sound reinforcement tasks for a variety of events. *(CSLO 2,3)*
5. (Synthesis Level) Create a recording project using Pro-Tools. *(CSLO 2,3)*
6. (Application Level) Produce a recording by applying recording console signal flow within the three aspects of multi-track recording: tracking, overdubbing, and mix-down. (*CSLO 2,3)*
7. (Evaluation Level) Assess an internship experience in relation to previous course work, completed contract(s), and future employment opportunities. *(CSLO 1,2,3,4)*
8. (Synthesis Level) Prepare and present a completed project to the faculty advisor, committee, and/or public forum for evaluation as appropriate, in accordance with established methodology, rubric(s), and guidelines. (*CSLO* 2,3,4)
9. (Synthesis Level) Develop a self-promotion package. (*CSLO* 2,3)
10. (Application Level) Operate a variety of live audio source equipment including: sound mixers, equalization, amplifiers, speakers, monitors and various processing equipment. *(CSLO 2,3,4)*
11. (Evaluation Level) Determine problems and solutions in professional live audio systems. (*CSLO* 2,3,4)
12. (Application Level) Demonstrate multi-track recording for a variety of situations using appropriate procedures. *(2,3)*
13. (Synthesis Level) Engineer a recording session from recording through post production to include: a) laying down basic tracks b) overdubbing further instrumentation c) mixing with appropriate effects d) digital editing techniques e) mastering *(CSLO 2,3)*
14. (Application Level) Apply classroom instruction in the Entertainment Industry Technology program to a practical work experience situation. *(CSLO 1,2,3,4)*

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- EIT100 - History of Rock n' Roll
- EIT101 - Introduction to Entertainment
- EIT120 - Entertainment Law
- EIT130 - Live Audio Production I
- EIT151 - Digital Audio Workstation
- EIT153 - Recording Engineering I
- EIT203 - Entertainment Capstone Project
- EIT231 - Live Audio Production II
- EIT232 - Equipment Maintenance
- EIT254 - Recording Engineering II
- EIT255 - Recording Engineering III

- EIT296 - Entertainment Internship

Other Requirments

Students must earn:

- all coursework must be completed with a “C” or higher;
- a cummulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 35 semester credits.

CT04_26-27 - Plumbing Level II Certificate

Program Information

Program Title
Plumbing Level II Certificate

Description
The Plumbing Level II Certificate program at Central Arizona College is designed for individuals who have completed introductory plumbing training and are ready to advance their skills in residential, commercial, and industrial plumbing systems. This program follows the nationally recognized NCCER Plumbing Level II, level III, and level IV curriculum, ensuring students gain industry-aligned competencies and hands-on experience. Students will expand their knowledge in areas such as: Plumbing code requirements, Pipefitting techniques for various materials, Plumbing system installation and testing, Blueprint reading, Advanced fixtures and appliances, Water distribution and drain-waste-vent (DWV) systems. Instruction combines classroom learning with lab-based, hands-on training. Students will also continue logging hours toward NCCER certification and may qualify for advanced placement in registered apprenticeship programs or direct workforce entry in plumbing and pipefitting roles.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Understanding Level) Code Interpretation and Compliance Outcome: *Interpret* plumbing codes and regulations to ensure compliance with local, state, and national standards during residential and commercial installations. (CSLO #2)
2. (Application Level) Piping Systems Installation Outcome: *Demonstrate* proper installation techniques of advanced piping systems including copper, CPVC, and cast-iron using NCCER standards and safety protocols. (CSLO #3)
3. (Analyzing Level) System Troubleshooting and Maintenance Outcome: *Analyze* plumbing systems to diagnose and troubleshoot malfunctions using standard tools, equipment, and procedures. (CSLO #4)
4. (Evaluating Level) Blueprint Reading and Technical Drawings Outcome: *Evaluate* technical drawings and blueprints to plan and lay out complex plumbing installations according to project specifications. (CSLO #2)
5. (Creating Level) Communication and Collaboration in the Workplace Outcome: *Collaborate* effectively with team members and stakeholders in diverse environments to support project goals and resolve workplace challenges. (CSLO #1)
6. (Application Level) Professional Ethics and Job Readiness Outcome: *Exhibit* ethical behavior, punctuality, and accountability in alignment with industry standards and expectations. (CSLO #3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Program Requirements

Complete ALL of the following Courses:

- PLU122 - Plumbing Level II
- PLU221 - Plumbing Level III
- PLU222 - Plumbing Level IV

Written Requirement

Complete ALL of the following Course Sets:

- Written Communication ENG101 or ENG121

ENG121 recommended

Additional Comments:
Student must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT05_22-23 - Nutrition and Foodservice Professional Training Program Certificate

Program Information

Program Title
Nutrition and Foodservice Professional Training Program Certificate

Description
Previously known as Dietary Manager Training Program Certificate

The Nutrition and Foodservice Professional Training Program Certificate prepares food service workers and/or supervisors for management roles in health care facilities and various other food service establishments. This training program has been approved by the Association of Nutrition and Foodservice Professionals (ANFP). Upon successful completion, graduates are eligible to take the National Certification Exam for the Certified Dietary Manager and the Certified Food Protection Professional credentials (CDM, CFPP).

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
11

Program Learning Outcomes
(Knowledge Level) Prerequisite Nutrition Information: Fundamentals of Nutrition and Medical Nutrition Therapy (9 Classroom Hours, 0 Field Experience Hours)

1. PrN.1 Translate Nutrition Science into Food Intake
2. PrN.2 Use the Building Blocks of Nutrition
3. PrN.3 Describe the Process of Digestion, Absorption, and the Utilization of Nutrients
4. PrN.4 Manage Food Allergies, Complimentary Medicine, and Alternative Therapies in Nutrition
5. PrN.5 Review Body Systems and Medical Nutrition Therapy Interventions
6. PrN.6 Review Disease Processes and Medical Nutrition Therapy Interventions

(Application Level) Section 1: NUTRITION - 18% (CSLO 1)

1. Gather Nutrition Data
    1. Document nutrition information in medical records
    2. Interview for nutrition related information
    3. Obtain routine nutrition screening data
    4. Identify nutrition problems and client rights
2. Apply Nutrition Data
    1. Modify diet plans
    2. Implement physician's dietary orders
    3. Apply standard nutrition care
    4. Review effectiveness of nutrition care
    5. Manage special nourishments and supplemental feedings
3. Provide Nutrition Education
    1. Assist clients with food selection
    2. Use nutrition education materials
    3. Adapt teaching to clients educational needs: evaluate client readiness and ability to learn

Section 2: Foodservice - 20% (CSLO 2)

1. Manage Standardized Recipes (Analysis Level)
    1. Identify elements of a standardized recipe
    2. Compute proper portions using appropriate food charts/references
    3. Develop proper cooking procedures, including HACCP guidelines
    4. Calculate cost and nutrition content of standardized recipes

5. Evaluate client acceptance of new recipes

2. Specify Standards and Procedures for Preparing Food (Synthesis Level)
    1. Develop food quality control standards, (e.g., appearance, temperature, acceptance)
    2. Implement procedures to monitor food production
    3. Develop procedures for monitoring food waste control
3. Supervise the Production and Distribution of Food (Evaluation Level)
    1. Define procedures for type of food service
    2. Monitor adherence to delivery schedules and procedures
    3. Keep records for monitoring and accountability
    4. Calculate efficiency (time, cost) of foodservice system
    5. Define schedules for foodservice production
    6. Define production needs for special event food preparation
    7. Calculate menus, recipes, diet census, tally sheets, and cafeteria needs to develop requisitions
4. Monitor Meal Service (Analysis Level)
    1. Verify:
        1. Diet accuracy
        2. Portion size (quantity)
        3. Temperature
        4. Texture
        5. Presentation (color, shape)
        6. Quality
    2. Assure compliance of meals served as posted
5. Implement Continuous Quality Improvement Procedures for Foodservice Department (Evaluation Level)
    1. Define objectives and standards for foodservice
    2. Monitor quality indicators
    3. Implement necessary procedural changes
    4. Interpret data for reports
    5. Implement auditing tool to determine the effectiveness of quality indicators (e.g., food acceptance survey)
    6. Analyze data to make recommendations
6. Modify Standard Menus (Application Level)
    1. Use nutrition resources (e.g., tables, charts, diet manuals)
    2. Use standard food weights, measures, and recipes correctly
    3. Honor legal responsibilities and regional factors regarding diet needs

Section 3. PERSONNEL AND COMMUNICATIONS - 21% (CSLO 3)

1. Define Personnel Needs and Job Functions (Analysis Level)
    1. Conduct personnel needs analysis
    2. Conduct task analysis
    3. Write job descriptions
    4. Write detailed job specifications
    5. Assist with development of advertising for positions
    6. Update departmental organizational chart
2. Interview, Select, and Orient Employees (Evaluation Level)
    1. Comply with fair employment laws and practices

2. Develop interview procedures for department
3. Describe department procedures and policies to applicants
4. Decide on applicants and record data in file
5. Document selection procedures and policies
6. Orient new employees to facility procedures

3. Provide Ongoing Education (Application Level)
    1. Provide initial training and orientation for new employees
    2. Provide follow up after orientation
    3. Provide in-service training for:
        1. HIPAA guidelines
        2. Personal hygiene
        3. Infection control
        4. Hospitality and customer service
        5. Physical safety
        6. Professional and ethical expectations
        7. Nutrition issues
        8. Crisis management
        9. Other contemporary issues
    4. Document completion of training and orientation
4. Develop and Maintain Employee Time Schedules and Assignments (Synthesis Level)
    1. Identify overall staffing needs (e.g., calculate full time equivalents)
    2. Identify daily tasks
    3. Determine capabilities and preferences of employees available
    4. Prepare a time schedule
    5. Maintain time schedule chart/records
    6. Track absence/tardy records in personnel files
    7. Develop a work assignment chart
    8. Coordinate work assignments
5. Manage Goals and Priorities for Department (Evaluation Level)
    1. Develop short term and long term goals for the department
    2. Participate in developing policies and procedures (e.g., hygiene standards for personnel according to the FDA Food Code)
    3. Identify expectations to establish priorities
    4. Compare department goals against resources available
6. Manage Department Personnel (Analysis Level)
    1. Maintain personnel records
    2. Identify personnel management laws and practices (including union contracts)
    3. Identify promotion criteria
    4. Identify termination criteria
    5. Compile documentation for promotion and termination
    6. Conduct performance evaluations
    7. Recommend salary and wage adjustments
    8. Follow disciplinary procedures to correct a problem (e.g., coaching, performance improvement plan)
    9. Ensure employees' compliance with procedures (e.g., safe food preparation practices)

7. Manage Professional Communications (Analysis Level)
    1. Participate in regulatory agency surveys
        1. Identify regulatory standards
        2. Develop an appropriate plan of correction
        3. Demonstrate professional interaction with surveyors
        4. Use regulatory agencies as professional resources
    2. Participate in meetings outside the department
        1. Communicate department goals and policies
        2. Identify methods of communicating with other departments
        3. Suggest cooperative ways to solve problems
        4. Participate in state/national professional meetings
    3. Communicate client information to other health professionals
        1. Identify what client information needs to be communicated I
        2. Identify the need for client referrals
        3. Implement consultant recommendations as appropriate
        4. Honor client rights and confidentiality
    4. Participate in client care conferences
        1. Prepare for a client care conference
        2. Participate in a conference to identify client care concerns
        3. Work with the interdisciplinary team to develop solutions
        4. Implement goals and approaches with appropriate follow up
    5. Manage department meetings
        1. Post meeting notices and agendas
        2. Plan meeting facilities
        3. Meet with key personnel to develop meeting plans
        4. Conduct meetings (e.g., resolving conflicts, keeping time)
        5. Plan follow up actions resulting from meeting (e.g., minutes)
        6. Conduct a staff complaint/grievance session
8. Implement Changes in Foodservice Department (Application Level)
    1. Identify existing problems and needs
    2. Prepare justification for changes
    3. Implement the plan of action

(Analysis Level) Section 4. SANITATION AND SAFETY - 24% (CSLO 2)

1. Manage Personnel to Ensure Compliance with Safety and Sanitation Regulations
    1. Identify federal safety laws/regulations
    2. Write cleaning procedures for utensils, equipment, and work areas
    3. Evaluate equipment in terms of maintenance needs and costs
    4. Inspect all areas of department for sanitary conditions
    5. Instruct employees in safety and sanitation
    6. Interpret material safety data sheets
    7. Enforce employees' compliance with safety and sanitation regulations
2. Manage Purchasing, Receiving, Storage, and Distribution of Food and Supplies Following Established Sanitation and Quality Standard
    1. Identify appropriate grades and inspections for food

2. Procure food and water from approved sources
3. Verify the quality and quantity of food supplies and equipment received
4. Check supplier invoices against facility purchase order
5. Recognize the hazards associated with types of food packaging
6. Recognize the signs of contamination upon receipt and in storage
7. Process rejections for unacceptable products
8. Label, date, and monitor food to ensure rotation (FIFO)
9. Prevent environmental contamination of food
10. Maintain security procedures

3. Protect Food in all Phases of Preparation Using HACCP Guidelines
    1. Identify potentially hazardous foods and foodborne pathogens and their control
    2. Recognize the causes, symptoms, and types of foodborne illnesses including biological, chemical, and physical types
    3. Monitor time and temperature to limit growth of or destroy microorganisms
    4. Prevent cross contamination of food
    5. Identify appropriate techniques for temperature retention
    6. Ensure the safe cooling of food
    7. Establish critical limits
    8. Establish the corrective action to be taken when critical limits are exceeded
    9. Establish procedures to identify and monitor critical control points (CCP)
    10. Establish effective recordkeeping systems that document HACCP
    11. Anticipate emergency preparedness procedures necessary to assure a safe food supply
    12. Develop a crisis management plan to address an outbreak of foodborne illness
4. Manage Physical Facilities to Ensure Compliance with Safety and Sanitation Guidelines
    1. Identify federal safety laws/regulations
    2. Conduct routine maintenance inspection of equipment
        1. Identify equipment maintenance requirements from manufacturer's manuals
        2. Correct equipment malfunctions and potential problems
        3. Monitor preventive maintenance schedule and contracts
    3. Organize work flow and use of equipment
        1. Analyze tasks to determine overlapping effort or equipment use
        2. Plan proper placement and use of equipment
        3. Simplify work procedures and steps
        4. Monitor work flow; identify and correct problems
        5. Assure adequate hand washing sinks, lavatory facilities, and supplies
    4. Identify appropriate environmental controls for water supply, waste disposal, and ventilation
    5. Follow an integrated pest management (IPM) system
    6. Prepare a safety inspection checklist
    7. Write an inspection report on hazards
    8. Assure cleaning and sanitation of equipment, utensils, chemicals, and space

(Analysis Level) Section 5. BUSINESS OPERATIONS - 17% (CSLO 2)

1. Manage a Budget
    1. Determine facility needs
    2. Compute cost of menus (including supplements)

3. Conduct a product price comparison study
4. Calculate daily cost (e.g., food, labor, supplies, i.e., PPD)
5. Calculate minutes per meal
6. Calculate meals per labor hour
7. Compare actual costs to budget costs
8. Monitor expenses
9. Prepare an estimate of personnel costs for a foodservice department (e.g., salary scales and merit raises)

2. Prepare Specifications for Capital Purchases
    1. Review capital equipment needs and requirements
    2. Evaluate existing capital equipment condition and life expectancy
    3. Evaluate options for replacement of capital equipment
    4. Write budget justification for new capital equipment
    5. Recommend specifications for new capital equipment
3. Plan and Budget for Improvements in the Department Design and Layout
    1. Maintain records of suggestions and complaints received
    2. Conduct department improvement discussion session with staff
    3. Communicate improvement recommendations
    4. Evaluate work flow, essential equipment relative to new department designs or construction
    5. Research concepts/products related to department facility design
    6. Prepare proposals, specifications for new construction or renovation in layout/design changes
4. Assist in the Purchasing Process
    1. Identify purchasing policies and procedures of department
    2. Review vendor product/selection (including group purchasing organizations)
    3. Establish purchasing specifications
    4. Use the ordering and bidding process
    5. Evaluate facility needs, budget restrictions, and products available
    6. Evaluate product information
    7. Be familiar with computer applications
    8. Check inventory to identify purchase needs
    9. Complete purchase order requisition forms
    10. Maintain inventory records
    11. Recognize inventory management practices (FIFO, par stock, physical, perpetual)
5. Manage Revenue Generating Services
    1. Supervise cash activities and reports
    2. Calculate cost to set prices for catered events
    3. Plan foodservice and menus for catered events
    4. Estimate price per unit serving for catered events
    5. Use cost control techniques to balance revenue budget
    6. Research revenue generating opportunities
    7. Analyze revenue generating opportunities
    8. Prepare business plan and justification for new revenue generating programs
    9. Promote existing and new revenue generating programs
6. Implement cost Effective Procedures
    1. Recommend cost saving purchasing practices

2. Recommend cost saving department practices
3. Implement cost effective inventory control practices
4. Implement variance report of actual costs vs. budget

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- NTR105 - ServSafe Preparation
- NTR196 - Dietary Manager Internship
- NTR223 - Food Service Management
- NTR240 - Clinical Nutrition

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 11 semester credits.

CT05_24-25 - Unmanned Aircraft Systems Pilot Certificate

Program Information

Program Title
Unmanned Aircraft Systems Pilot Certificate

Description
This is a practical application of safety concepts and introduction to site specific safety considerations for small UAS operations. Students will be able to apply concepts of unmanned aviation safety to unmanned operations; conduct pre-flight risk assessments; perform checklist procedures; record and track remote pilot and maintenance requirements; create safety analysis for new locations; understand remote sensing concepts for different industry clusters; distinguish between and identify appropriate datalink configurations; manipulate unmanned aircraft safety features and utilization of features for operations. This certificate provides knowledge and experience-based application of safety concepts and introduction to site specific safety considerations for small UAS operations. Students will be able to demonstrate concepts of unmanned aviation safety to unmanned operations; conduct pre-flight risk assessments; perform initial qualification maneuvers to practical testing standards; demonstrate psycho-motor skills necessary for safe flight; demonstrate safe attitudes toward professional operations; demonstrate aeronautical decision making skills; operate in GPS denied environment; demonstrate response to simulated emergency situations and use of safety systems. Prerequisite: Unmanned Aircraft Systems Fundamentals Certificate. Corequisite: UAS173, UAS174, MAT151.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Evaluating Level) Examine visual line of sight, safety ecosystem, basics of safety management systems. (CSLO 2,4)
2. (Evaluating Level) Examine FAA Part 107, National Airspace System (NAS), Battery Safety. (CSLO 2,4)
3. (Evaluating Level) Examine Basic Application of Aeronautical Decision Making, Crew Resource Management, Human Factors. (CSLO 2,4)
4. (Evaluating Level) Examine Basic Application of Site Analysis/Survey, Mission Planning, Mission Deployment, Post Flight Processing, Post Mission. (CSLO 2,4)
5. (Analyzing Level) Explore safety and risk management practices associated with small UAS. (CSLO 2)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Certificate Requirements

Complete ALL of the following Courses:

- UAS173 - UAS Ground School
- UAS174 - UAS Flight School
- MAT151 - College Algebra, Standard

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT05_25-26 - Pediatric Sonography Certificate

Program Information

Program Title
Pediatric Sonography Certificate

Description
The Pediatric Sonography Certificate Program is designed for practicing sonographers and recent sonography graduates who wish to enhance their expertise in pediatric and neurological sonography. This specialized certificate program provides comprehensive knowledge and hands-on training in the application of ultrasound technology for pediatric patients, including the evaluation of anatomy, pathology, and common conditions in infants and children. The curriculum covers pediatric abdominal and cranial sonography, spinal cord imaging, and the assessment of neurological conditions such as hydrocephalus, brain hemorrhages, and congenital anomalies.

Students will participate in clinical practicums and case studies to develop proficiency in pediatric sonographic techniques and patient care practices. Upon completion, graduates will have the skills and knowledge to pursue certification in pediatric sonography and gain proficiency in imaging pediatric patients, making them highly competitive for positions in hospitals, pediatric clinics, and medical imaging centers.

Admission Requirements:
• The applicant must be a practicing sonographer or a recent sonography graduate.
• Proof of sonography employment (past or present) must be provided.
• If a recent graduate, official transcripts showing degree or program certificate granted must be submitted.

- Students currently in the Diagnostic Medical Sonography cohort are also eligible for this certificate.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
14

Program Learning Outcomes
1. (Application Level) Demonstrate proficiency in pediatric sonographic techniques and imaging protocols for abdominal, cranial, and neurological assessments. Students will be able to apply appropriate sonographic techniques for imaging pediatric anatomy and pathology, utilizing specialized imaging protocols tailored to the pediatric patient. (*CSLO #2)*
2. (Analysis Level) Analyze and interpret sonographic images of pediatric patients to detect and diagnose common pediatric conditions such as hydrocephalus, brain hemorrhages, and congenital abnormalities. Students will develop the ability to analyze sonographic images and use clinical knowledge to identify normal and abnormal findings, demonstrating diagnostic reasoning in pediatric cases. (*CSLO #4)*
3. (Synthesis Level) Synthesize clinical findings and sonographic results to create comprehensive reports for pediatric patients. Students will integrate clinical knowledge with sonographic findings to create detailed and accurate reports that inform clinical decision-making and patient care. (*CSLO #2)*
4. (Application Level) Demonstrate effective communication skills with pediatric patients, families, and healthcare providers during sonographic procedures. Students will exhibit strong communication skills to ensure comfort and understanding during pediatric sonographic exams, while interacting professionally with patients and their families. (*CSLO #3)*
5. (Application Level) Apply safety protocols and maintain a patient-centered approach in pediatric sonography, ensuring patient comfort and minimizing risk. Students will practice safety procedures, demonstrate empathy, and ensure comfort for pediatric patients while performing sonographic exams in accordance with safety standards. (*CSLO #3)*
6. (Evaluation Level) Evaluate and adapt sonographic imaging techniques for pediatric patients, considering the unique anatomical and physiological characteristics of neonates, infants, and children. Students will critically evaluate sonographic techniques to accommodate the varying needs of pediatric patients and adapt to the challenges associated with different age groups and conditions. (*CSLO #4)*
7. (Application Level) Demonstrate professional conduct, ethical behavior, and adherence to patient confidentiality and privacy regulations in pediatric sonography. Students will exemplify ethical behavior and adhere to legal and professional guidelines, ensuring confidentiality and respect for pediatric patients and their families. (*CSLO #3)*
8. (Creating Level) Develop critical thinking skills to solve complex problems and enhance diagnostic decision-making in pediatric sonography. Students will demonstrate creativity and innovation in solving diagnostic challenges, applying advanced reasoning skills to complex pediatric sonography cases. (*CSLO #4)*
9. (Application Level) Prepare for Pediatric Sonography Certification: Demonstrate preparedness for the ARDMS Pediatric Sonography Specialty Examination through review and study of relevant exam content. (*CSLO #3)*

These Measurable Student Learning Outcomes (MSLOs) are designed to ensure that graduates of the Pediatric Sonography Certificate Program possess the essential skills, knowledge, and values to succeed in the specialized field of pediatric sonography, making them competent and confident professionals in their practice.

Simple Requisites
Admission Requirements and Recommended Profeciencies

Type
Prerequisite

Admission Requirements and Recommended Profeciencies
ADMISSION REQUIREMENTS:

• The applicant must be a practicing sonographer or a recent sonography graduate.
• Proof of sonography employment (past or present) must be provided.
• If a recent graduate, official transcripts showing degree or program certificate granted must be submitted.

- Students currently in the Diagnostic Medical Sonography cohort are also eligible for this certificate.

RECOMMENDED PROFICIENCIES:

To ensure success in the Pediatric Sonography Certificate Program, students are recommended to possess the following proficiencies:

Fundamental Sonography Knowledge

Proficiency in general sonography principles and techniques, including the use of ultrasound equipment, image acquisition, and image optimization.

Familiarity with the human anatomy and pathology, particularly as it applies to sonographic imaging.

Clinical Patient Interaction

Effective communication skills for interacting with pediatric patients and their families, ensuring comfort and cooperation during exams.

Ability to adapt scanning techniques for pediatric patients, understanding the unique challenges when working with infants and children.

Critical Thinking and Problem Solving

Ability to analyze sonographic images critically to assess the presence of normal and abnormal conditions.

Skills to correlate clinical symptoms with sonographic findings and to make informed decisions regarding image quality and diagnostic conclusions.

Technical Proficiency in Pediatric and Neurological Imaging

Experience or familiarity with pediatric-specific ultrasound procedures, including cranial sonography, abdominal sonography, and spinal imaging.

Knowledge of the unique physiological considerations when performing sonography on neonates, infants, and children.

Knowledge of Pediatric Pathology

Understanding of common pediatric conditions relevant to sonographic imaging, such as hydrocephalus, brain hemorrhages, congenital anomalies, and abdominal pathologies.

Familiarity with the role of sonography in diagnosing and monitoring these conditions.

Patient Safety and Comfort

Proficiency in maintaining a safe and supportive environment for pediatric patients during sonographic exams.

Ability to apply proper infection control protocols and ensure the child's safety throughout the imaging process.

Time Management and Organizational Skills

Ability to prioritize tasks effectively in a clinical setting, balancing the demands of patient care with the timely execution of sonographic exams.

Strong organizational skills to manage and track cases during clinical rotations and practical experiences.

Ethical and Professional Conduct

Demonstrating ethical behavior and professional conduct when dealing with pediatric patients, families, and healthcare providers.

Adherence to confidentiality guidelines and patient privacy standards, especially in a pediatric healthcare setting.

These recommended proficiencies will help ensure that students are well-prepared for the clinical and technical demands of the Pediatric Sonography Certificate Program, as well as for the professional expectations they will encounter in their careers as pediatric sonographers.

Certificate Requirements

Complete ALL of the following Courses:

- DMS255 - Clinical Sonography Practicum V
- DMS256 - Clinical Sonography Practicum VI
- DMS259 - Sonography Case Studies III
- DMS274 - Pediatric/Neurological Sonography
- DMS274L - Pediatric/Neurological Sonography Laboratory
- DMS283 - Pediatric Sonography Review

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of 2.0 out of 3.0.
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 14 semester credits.

Additional Comments:

CT05_26-27 - SUNDT Construction Heavy Equipment Technician Apprenticeship Certificate

Program Information

Program Title
SUNDT Construction Heavy Equipment Technician Apprenticeship Certificate

Description
The SUNDT Construction Heavy Equipment Technician Apprenticeship Certificate is a department of labor approved apprenticeship training program sponsored by SUNDT Construction. Students enter the program as working apprentices that can earn journeyman level status upon successful completion. The student must be sponsored by SUNDT Construction to enroll in this program.

The SUNDT Construction Heavy Equipment Technician Apprenticeship Certificate will fall under the CAC Diesel Tech's accreditation by the Associated Equipment Distributors Foundation (AEDF) located at 600 22nd Street Suite 220 Oak Brook, IL 60523; 630-574-0650; aedfoundation.org/

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
32

Program Learning Outcomes
1. (Synthesis Level) Model safe procedures in the workplace, per OSHA. (CSLO 2)
2. (Comprehension Level) Explain the fundamentals of diesel engine and fuel system design and operation used in heavy equipment. (CSLO 2)
3. (Analysis Level) Diagnose and repair malfunctions related to diesel engines and fuel systems used in heavy equipment.(CSLO 4)
4. (Comprehension Level) Explain the fundamentals of power train and chassis system design and operation used in heavy equipment.(CSLO 2)
5. (Analysis Level) Diagnose and repair malfunctions related to power train and chassis systems used in heavy equipment.(CSLO 4)
6. (Comprehension Level) Explain the fundamentals of hydraulic, electrical, and electronic systems used in heavy equipment. (CSLO 2,4)
7. (Analysis Level) Diagnose and repair malfunctions related to hydraulic, electrical, and electronic systems used in heavy equipment.(CSLO 4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Certificate Requirements

Complete ALL of the following Courses:

- DIE132A - Diesel Engines and Fuel Systems Part A
- DIE132B - Diesel Engines and Fuel Systems Part B
- DIE133A - Diesel Power Trains Part A
- DIE133B - Diesel Power Trains Part B
- DIE215A - Diesel Electrical Systems Part A
- DIE215B - Diesel Electrical Systems Part B
- DIE216A - Diesel Hydraulic Systems Part A
- DIE216B - Diesel Hydraulic Systems Part B

Students must be employed by SUNDT construction company to enroll.

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 32 semester credits.

CT06_20-21 - Business Certificate

Program Information

Program Title
Business Certificate

Description
The Business Certificate prepares individuals for entry level positions in businesses, provides skills to help them organize their own business, and leads to the Business AAS. Recommended proficiencies: Students may be required to complete prerequisites before enrolling in some of the required courses.

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Application Level) Apply math concepts to solve business problems. (CSLO 2)
2. (Analysis Level) Demonstrate and explain the process of maintaining accounting records for a business. (CSLO 3,4)
3. (Analysis Level) Appraise the environments in which businesses operate in local and global markets, including technology influences. (CSLO 1,4)
4. (Analysis Level) Examine the importance of ethical behavior and social responsibility from a business perspective. (CSLO 1,3)
5. (Application Level) Use word processing, spreadsheet, database and presentation software to complete business reports. (CSLO 2,3)
6. (Analysis Level) Analyze the concept of entrepreneurship as it applies to various business career sectors. (CSLO 3,4)
7. (Comprehension Level) Recognize business terminology necessary for clear communication. (CSLO 3)
8. (Evaluation Level) Evaluate skills needed for organizing and operating a business, including financial, marketing and management aspects. (CSLO 3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BUS100 - Introduction to Business
- BUS101 - Business Mathematics
- CIS120 - Survey of Computer Information Systems
- ACC100 - Fundamentals of Accounting
  OR ACC201 - Financial Accounting
- ECN200 - Contemporary Economic Issues
  OR ECN201 - Principles of Macroeconomics
  OR ECN202 - Principles of Microeconomics

Electives

Complete 3 credits from the following prefixes to total 18 credits (Refer to Business AAS Degree):

- ACC Accounting
- BUS Business
- CBA Computer Business Applications
- CIS Computer Information Systems
- ECN Economics
- HRM Hospitality Management

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT06_22-23 - Management Certificate

Program Information

Program Title
Management Certificate

Description
The Management Certificate focuses on communication, computer skills, finances, and human resources and includes basic marketing and management principles that develop leadership and supervision skills used in general or retail management. This certificate qualifies for sponsorship by the Retail Management Certificate Program with the Western Association of Food Chains (WAFC.com) or WAFC national partnership. See centralaz.edu/business. Recommended proficiency: RDG100.

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
24

Program Learning Outcomes
1. (Application Level) Apply communication strategies and customer service solutions to improve supervision and leadership. (CSLO 2,3,4)
2. (Application Level) Apply fundamental computer concepts, programming techniques, networking and emerging technologies. (CSLO 2,4)
3. (Analysis Level) Recognize, describe and analyze common business organizational practices and environments. (CSLO 2,4)
4. (Application Level) Apply management principles to organizational situations. (CSLO 2,4)
5. (Analysis Level) Identify and analyze management and marketing concepts and practices. (CSLO 2,4)
6. (Analysis Level) Outline supervisory practices beneficial to employee development. (CSLO 1,2,3,4)
7. (Analysis Level) Examine legal practices and ethical issues within the business environment. (CSLO 1,2,3,4)
8. (Analysis Level) Investigate various models of managing a diverse work force. (CSLO 1,2,3,4)
9. (Application Level) Demonstrate mathematical computations in various business transactions. (CSLO 2)
10.(Analysis Level) Examine the fundamental accounting principles for management systems and procedures utilizing standard applications in financial accounting. (CSLO 2,4)
11. (Evaluation Level) Evaluate the sales processes of goods and services from individuals or businesses to the end-user. (CSLO 2,4)
12. (Synthesis Level) Develop professional work skills. (CSLO 1,2,3,4)

Simple Requisites

Degree Requirements
Type
Completion Requirement

Recommended Proficiencies

RDG100.

Core Requirements

Complete ALL of the following Courses:

- BUS123 - Business Relations
- BUS180 - Introduction to Marketing
- BUS190 - Principles of Management and Leadership
- BUS207 - Business Communications
- BUS220 - Retail Management
- HRM252 - Managing Hospitality Human Resources
- ACC100 - Fundamentals of Accounting
  OR ACC201 - Financial Accounting
- CIS110 - Fundamentals of Computer Literacy
  OR CIS120 - Survey of Computer Information Systems

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 24 semester credits.

CT06_24-25 - Unmanned Aircraft Systems Fundamentals Certificate

Program Information

Program Title
Unmanned Aircraft Systems Fundamentals Certificate

Description
The Unmanned Aircraft Systems Fundamentals Certificate sets a sturdy foundation of required aeronautical knowledge for remote pilots of UAS less than 10 pounds and introduces learner to Unmanned Safety Institute's industry leading safety principles. This Certificate addresses all pertinent aeronautical knowledge factors outlined by the FAA for the Unmanned Aircraft General (UAG) examination for the Remote Pilot Certification and augments those with safety concepts and practices to develop well informed and responsible remote pilots. Corequisites: UAS101, UAS102, UAS107, ENG121 or ENG101.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Evaluate) Examine terms of reference, major issues associated with Small Unmanned Aircraft Systems (sUAS) and the core components of an unmanned system. (CSLO 2,4)
2. (Assess) Examine the sub-components of Unmanned Aircraft (UA) and the factors affecting UAS aerodynamics and performance. (CSLO 2,4)
3. (Evaluate) Examine the environment in which sUAS and remote pilots operate. (CSLO 2,4)
4. (Interpret) Explore the limitations and authorities vested in remote pilots by 14 CFR 107. (CSLO 2)
5. (Explain) Explain the FAA established rules and policies for operating in the National Airspace System. (CSLO 2,3)
6. (Assess) Define human limitations as they contribute to errors and violations that can be the casual factors in UAS accidents. Crew Resource Management (CRM) introduces non-technical skills used to combat human errors. (CSLO 2,3)
7. (Identify) Explore the process of assessing risks and examines the decision-making process once the operator has a clear picture of the risk. (CSLO 2,3)
8. (Evaluate) Examine the ethical and legal requirements of the Remote Pilot in Command (RPIC). Establish standards of practice as well as explores careers in unmanned aviation. (CSLO 2,4)
9. (Assess) Examine the history of UAS injecting change and solving problems facing the traditional aviation sector, from providing militaries with long-range standoff weapons to reducing the risk of reconnaissance flight. (CSLO 2,4)
10. (Illustrate) Examine the details of robotic aircraft, looking at the aerodynamics of sUAS and the forces acting on these aircraft, including how to utilize control surfaces and changes in rotor speeds to induce moments and forces on aircraft, allowing them to maneuver through the air. Describe Examine advancements in ground station development and the advantages and disadvantages of this modified and simulated cockpit. (CSLO 2,4)
11. (Describe) Examine the datalinks required to communicate back and forth from the air vehicle to the ground control station and vice versa. (CSLO 2,4)
12. (Describe) Examine advancements in ground station development and the advantages and disadvantages of this modified and simulated cockpit. (CSLO 2,4)
13. (Describe) Examine the sensors and science behind the acquisition of environmental information from a sUAS flying overhead. (CSLO 2,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- UAS101 - Unmanned Aircraft Systems I
- UAS102 - Unmanned Aircraft Systems II
- UAS107 - Unmanned Aircraft Systems FAA Readiness

Written Communication

Earn at least 3 credits from the following:

- Written Communication ENG101 or ENG121

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT06_25-26 - OB/GYN Sonography Certificate

Program Information

Program Title
OB/GYN Sonography Certificate

Description
The OB/GYN Sonography Certificate Program at Central Arizona College is designed to provide specialized training for healthcare professionals, including OB nurses and practitioners, seeking to enhance their expertise in obstetric and gynecologic sonography. This comprehensive program covers the essential aspects of OB/GYN imaging, focusing on topics such as fetal development, prenatal screening, gynecologic conditions, and the use of sonography in both routine and high-risk pregnancies. Students will gain hands-on experience with the latest imaging technology, enabling them to perform diagnostic sonographic procedures with precision and confidence. Upon completion, graduates will be equipped with the skills and knowledge necessary to pursue certification and contribute to the growing demand for skilled professionals in OB/GYN sonography.

Admission Requirements:
• The applicant must be a practicing OB provider, practitioner, registered nurse (RN).
• Proof of employment in an OB department must be submitted with application.
• If not currently employed in OB, proof of one-year minimum OB employment can be accepted.

- Students currently in the Diagnostic Medical Sonography cohort are also eligible for this certificate.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
29

Program Learning Outcomes
1. (Application Level) Demonstrate proficiency in OB/GYN sonographic imaging techniques, including routine and specialized ultrasound exams. (CSLO #2)
2. (Analysis Level) Analyze and interpret normal and abnormal findings in obstetric and gynecologic ultrasound exams, applying appropriate protocols and guidelines for patient care. (CSLO #4)
3. (Synthesis Level) Synthesize theoretical knowledge of female reproductive anatomy and pathophysiology with practical ultrasound techniques to conduct accurate and efficient OB/GYN sonographic exams. (CSLO #2)
4. (Application Level) Demonstrate effective communication and patient care skills by explaining procedures, addressing patient concerns, and ensuring a supportive, safe environment during OB/GYN sonography exams. (CSLO #3)
5. (Evaluation Level) Evaluate and critique ultrasound images to determine diagnostic quality, utilizing critical thinking and problem-solving skills to optimize imaging for improved clinical outcomes. (CSLO #4)
6. (Application Level) Exhibit cultural competence and professionalism in the diverse clinical environment, adhering to ethical and legal standards of practice in OB/GYN sonography. (CSLO #1)
7. (Application Level) Demonstrate the ability to assess and manage gynecological and obstetric pathologies through sonographic evaluation, ensuring accurate documentation and appropriate follow-up recommendations. (CSLO #2)
8. (Application Level) Integrate ICD-10 coding and billing knowledge into clinical practice, accurately documenting and coding OB/GYN ultrasound procedures according to healthcare standards. (CSLO #3)

These outcomes aim to ensure that graduates of the OB/GYN Sonography Certificate Program possess the knowledge, skills, and values necessary to work effectively and professionally in the field of obstetrics and gynecology sonography.

Simple Requisites
Admissions and Proficiencies Requirements
Type
Prerequisite

Additional Comments:
Admission Requirements:
• The applicant must be a practicing OB provider, practitioner, registered nurse (RN).
• Proof of employment in an OB department must be submitted with application.
• If not currently employed in OB, proof of one-year minimum OB employment can be accepted.

- Students currently in the Diagnostic Medical Sonography cohort are also eligible for this certificate.

Recommended Proficiencies:

The recommended proficiencies for the OB/GYN Sonography Certificate Program are designed to ensure that students are adequately prepared for both the practical and theoretical demands of the field. These proficiencies include:

Basic Knowledge of Obstetrics and Gynecology:

Understanding of female reproductive anatomy, physiology, and common gynecological conditions.

Familiarity with the stages of pregnancy, prenatal care, and common pregnancy complications.

Fundamentals of Diagnostic Imaging:

Proficiency in ultrasound physics, instrumentation, and image optimization techniques.

Knowledge of the principles of sonographic equipment and the ability to adjust settings for optimal image quality.

Obstetric Sonography:

Ability to perform routine obstetric exams to assess fetal health, growth, and development.

Skills in conducting specialized exams such as first-trimester screening, nuchal translucency measurements, and biophysical profiles.

Gynecologic Sonography:

Expertise in imaging the female reproductive system, including the uterus, ovaries, and adnexa.

Proficiency in assessing gynecologic pathologies such as fibroids, cysts, and other abnormal findings.

Patient Care and Communication:

Competence in communicating effectively with patients, including explaining procedures, addressing concerns, and providing comfort during exams.

Knowledge of patient positioning techniques and ensuring patient safety and privacy.

Clinical Competence:

Hands-on experience in performing OB/GYN ultrasound exams under supervision.

Ability to identify and differentiate normal from abnormal findings, utilizing appropriate protocols.

Ethical and Professional Practices:

Awareness of ethical and legal standards in sonography practice, including patient confidentiality and informed consent.

Adherence to the scope of practice, professional conduct, and commitment to continuous learning and improvement.

Critical Thinking and Problem-Solving:

Ability to analyze and interpret sonographic images, identifying potential abnormalities and communicating findings to the healthcare team.

Skill in problem-solving during challenging cases or when encountering unexpected findings.

By mastering these proficiencies, students will be well-prepared to work in OB/GYN sonography and contribute to high-quality patient care.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- DMS101 - Introduction to Diagnostic Medical Sonography
- DMS101L - Introduction to Sonography Laboratory
- DMS120 - Cross Sectional Anatomy for Medical Imaging
- DMS120L - Cross Sectional Anatomy for Medical Imaging Laboratory
- DMS130 - Sonographic Principles and Instrumentation I
- DMS130L - Sonographic Principles and Instrumentation I Laboratory
- DMS140 - Sonographic OB/GYN Imaging
- DMS140L - OB/GYN Sonography Lab
- DMS150 - Clinical Sonography Practicum I
- DMS151 - Clinical Sonography Practicum II
- DMS159 - Practical Case Studies in Sonography II
- DMS234 - Sonographic Principles and Instrumentation II
- DMS234L - Sonographic Principles and Instrumentation II Laboratory
- DMS242 - Sonographic OB/GYN Imaging II - High Risk OB
- DMS242L - OB/GYN Imaging Laboratory II - High Risk OB
- DMS280 - Physics and Instrumentation Registry Review
- DMS282 - OB/GYN Sonography Registry Review

Additional Comments:
Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of 2.0 out of 3.0.
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 29 semester credits.

CT06_26-27 - AGEC - Arizona General Education Curriculum Certificate

Program Information

Program Title
AGEC - Arizona General Education Curriculum Certificate

Description
The Arizona General Education Curriculum (AGEC) is an integral part of a state-wide system designed to ensure that students graduating from any Arizona community college with the intention of transferring to an Arizona public university will have experience in and familiarity with the ideas, values, and practices of the different disciplines which make up a liberal arts education.

All public universities and community colleges in Arizona have agreed to the AGEC, a general education core that requires students to complete a certain number of credits in the following categories: Written and Oral Communication, Quantitative Reasoning, Arts and Humanities, Social and Behavioral Sciences, Institutions in the Americas, and Natural Sciences.

Courses applied to the Arizona General Education Curriculum (AGEC) may not be taken for Satisfactory/Unsatisfactory (S/U) grading.

See individual degree and certificate programs for specific completion requirements. If the student does not complete the AGEC at Central Arizona College, the same transfer status may not be granted by an Arizona public university as those who have completed the AGEC. *Failing to complete the AGEC will result in having courses evaluated on a course-by-course basis by the transfer university.*

In some cases, a specific degree program may require the student to select particular courses, rather than to select freely from the list of approved General Education courses. The student should follow requirements of their specific degree program to ensure graduation and transfer of credits. *Students are encouraged to meet regularly with an academic advisor to build an educational plan.*

Degree Type
Certificate

Total Credits Required
32

Program Learning Outcomes
AGEC Program Learning Outcomes:

1. Demonstrate effective written, oral, or visual communication for specific audiences in the context of the field of study. (CSLO #3)
2. Use field of study frameworks to investigate issues and/or solve problems. (CSLO #2, #4)
3. Apply scientific concepts and methodologies within the field of study. (CSLO #2, #4)
4. Interpret quantitative information and/or utilize mathematical concepts and techniques. (CSLO #2, #4)
5. Examine how diverse perspectives impact the human experience within a field of study. (CSLO #1, #2)

AGEC Categories & Category Criteria:

WRITTEN AND ORAL COMMUNICATION

Composition courses in this category will meet at least four of the following criteria:
Instruction on

- the rhetorical situation of written and oral communication, including audience, purpose, and context
- the recursive writing process (strategies for generating ideas, drafting, revising, editing, and reflecting)
- the research process (collecting, evaluation, analyzing, and synthesizing primary and secondary research), the responsible use of sources (including digital/multimodal), and ethical citation of source material
- the importance of contextual/situational awareness in communication, including organizational schemas/strategies, development of ideas, and presentation, and may include instruction for academic and/or technical/professional purposes.

Oral Communication or Language courses in this category will meet at least four of the following criteria:
Instruction on

- the syntax and mechanics of written and/or oral communication, including exploration of academic and rhetorically diverse contexts
- how to communicate orally and visually
- the structure and delivery of oral presentations
- the use of visual aids to effectively communicate
- the use of language(s) to explore and express ideas in a diverse society

ARTS AND HUMANITIES

Courses in this category will meet at least three of the following criteria:
Instruction on

- the analysis, interpretation, and/or creation of cultural, artistic, and/or intellectual artifacts
- the importance of global awareness, intercultural knowledge, and intellectual humility, objectivity, and/or curiosity, by situating cultural, artistic, and/or intellectual artifacts in a diverse range of cultural, historical, and intellectual contexts
- the exploration of ideological, philosophical, existential, and/or moral questions with the possibility of developing informed civic and ethical identities through study and/or creative self-expression
- the creation and/or re-creation or artistic works culminating in individual or group exhibition, publication, production, or performance
- the understanding or current global challenges (environmental, social justice, etc.), including exploration of strategies for positive change

QUANTITATIVE REASONING

Courses in this category will meet all the following criteria:
Instruction on

- mathematical, statistical, and/or logical techniques and methods, and then how to use those methods to understand and solve meaningful problems
- how to express quantitative information symbolically, graphically, and/or in written or oral language
- how to interpret, analyze, and critique information or a line of reasoning
- how to ask critical thinking questions, develop critical thinking skills and mathematical reasoning, and follow logical procedures step by step

NATURAL SCIENCES

Courses in this category will meet at least four of the following criteria:
Instruction on

- how to describe, explain, and predict natural phenomena using scientific, logical, and quantitative reasoning and empirical evidence from observation and experimentation
- the use of experimentation and/or observation to study natural phenomena, using the scientific method
- how to communicate information about the natural world using written, numeric, and/or visual formats; and when possible, how to use computational/simulation programming environments as a method for solving systems and simulating theoretical or experimental data
- the history of scientific development
- how to critically evaluate scientific information, including visual displays and quantitative data
- how the tools and techniques of the natural sciences are applied to global and local issues such as sustainability, climate change, etc.
- the importance of investigating and understanding how natural phenomena varies by culture and location, including perspectives of indigenous peoples
- the importance of examining assumptions about the natural world and implications those assumptions have for individual and societal decisions

SOCIAL AND BEHAVIORAL SCIENCES

Courses in this category will meet at least four of the following criteria:
Instruction on

- the importance of understanding and respecting cultures through social, family, historical, political events and/or processes using social scientific theories, methods, principles, and/or perspectives
- how to apply social scientific methods of inquiry to generate knowledge about human behavior within individuals, societies, and across cultural groups
- the diversity of human development for individuals and/or social groups, including behaviors across time, culture, and historic/social/political/economic contexts
- the interactions among human thought, behavior, relationships, and actions through the lens of social scientific analytic frameworks
- the challenges of understanding the diverse natures of individuals and cultural groups who live together in a complex and evolving world
- how to think critically to better understand the range of human experience through time and to navigate stressful challenges inherent in the human condition
- how to investigate social consequences or large-scale and group economic, technological, scientific, political, ecological, and cultural change
- the importance of global awareness, intercultural knowledge, and intellectual humility, objectivity, and/or curiosity, by situating cultural, social, and/or intellectual artifacts in a diverse range of cultural, historical, and intellectual contexts

INSTITUTIONS IN THE AMERICAS

Courses in this category will meet at least four of the following criteria:
Instruction on

- the importance of developing civic and global engagement and participation as evidenced by: respectful dialogue, intercultural competence, self-awareness, civic identity, consideration of multiple perspectives
- the importance of exploring and/or examining how the histories and cultures of different people, including historically marginalized groups, inhabiting the geographic area now considered the United States have shaped current experiences and institutions of government
- governmental structures and/or philosophies important within United States and/or Tribal contexts by comparing them to non-U.S. structures and/or philosophies
- the basic principles of American constitutional democracy and republicanism and/or indigenous political theories and how they are applied through the analysis of the U.S. Constitution, Tribal governance systems, and/or other founding documents, significant treaties, and landmark court cases.
- how to critically assessing public policy options for personal and professional decision-making using basic economic, environmental, political, and intercultural knowledge
- the major religious or spiritual doctrines, philosophies, and communities that helped shape culture and policies
- how to analyze documentary evidence, and compare and contrast scholarly interpretations
- the multifaceted history European colonialism and imperialism and their effects, including diasporas, enslavement, war, and genocide, within North America and globally
- the importance of exploring ethics and how it applies to public policy and professional decision making

Simple Requisites

Recommended Proficiencies:

College Level Reading and Mathematics Skills.

Certificate Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Complete with a grade of C or higher

Arts & Humanities

Earn at least 6 credits from the following:

- AGEC Arts & Humanities Courses

Complete 6 credits of AGEC Arts & Humanities courses with a grade of C or higher

Social & Behavioral Sciences

Earn at least 6 credits from the following:

- AGEC Social & Behavioral Sciences Courses

Complete 6 credits of AGEC Social & Behavioral Sciences courses with a grade of C or higher

Institutions of the Americas

Earn at least 3 credits from the following:

- AGEC Institutions of the Americas

Complete 3 credits from the Institution of the Americas with a grade of C or higher

AGEC Natural Sciences

Earn at least 4 credits from the following:

- AGEC Natural Sciences

Complete 4 credits from AGEC Natural Sciences with a grade of C or higher

AGEC Quantitative Reasoning

Earn at least 3 credits from the following:

- AGEC Quantitative Reasoning

Complete 3-4 credits from AGEC Quantitative Reasoning with a grade of C or higher

Additional AGEC Requirement

Earn at least 3 credits from the following:

- Additional AGEC Requirement

Complete 3-4 credits of Additional AGEC Requirement with a grade of C or higher to fulfill the minimum 32-credit certificate rfequirement.

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- all courses completed with a grade of C or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 32 semester credits.

CT07_22-23 - Pharmacy Technician Certificate

Program Information

Program Title
Pharmacy Technician Certificate

Description
The Pharmacy Technician Certificate prepares entry-level Pharmacy Technicians by emphasizing medical and pharmaceutical terminology, calculations, record keeping, pharmaceutical techniques, law, and ethics. Most core requirements are offered as an online option. Prerequisites: High School Diploma or GED; for admission to the Pharmacy Tech program, Cumulative GPA must be at least 2.5; apply for admission to the program with the Program Director before enrollment in the program; pay for and pass a background check and urinalysis, following acceptance into the program.

The CAC Pharmacy Technician Certificate is approved by a collaboration between the American Society of HealthSystem Pharmacists and the Accreditation Council for Pharmacy Education (ASHP/ACPE),
4500 East-West Highway, Suite 900,
Bethesda, MD 20814
866-279-0681
ashp.org

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
25

Program Learning Outcomes
1. (Comprehension Level) Summarize the roles and responsibilities of the professional pharmacy technician. *(CSLO 3)*
2. (Application Level) Apply medical and pharmaceutical terminology to understanding and classifying patients' conditions. *(CSLOs 2,3)*
3. (Comprehension Level) Identify the most frequently used drugs and describe the purpose, correct dosages, and possible side effects, as well as precautions for all drug classifications. *(CSLOs 1,2,3)*
4. (Application Level) Solve pharmaceutical calculations to determine accurate medication dosages. *(CSLOs 2,4)*
5. (Synthesis Level) Perform cashier functions to correctly complete customer transactions. *(CSLOs 2,3)*
6. (Application Level) Demonstrate thorough pharmaceutical recordkeeping practices in the preparation of prescriptions. *(CSLOs 1,2,3)*
7. (Evaluation Level) Interpret and apply pharmaceutical standards in compiling and preparing prescriptions. *(CSLOs 2,3,4)*
8. (Evaluation Level) Interpret, evaluate, and apply professional law and ethics as it relates to the pharmacy technician's responsibilities and scope in Arizona. *(CSLOs 1,2,3,4)*
9. (Evaluation Level) Prepare students to successfully pass a pharmacy technician national certification exam by completing practice exams that mimic the proctored national certification exam. *(CSLOs 1,2,3,4)*

Simple Requisites

Prerequisites & Pre-Program Requirements
Type
Prerequisite

Prerequisites

High School Diploma or GED

Pre-Program Requirements

1. Complete application for admission to the program between June 1st and June 30th, each calendar year. 2. Achieve a minimum score of 80% in math, 80% reading comprehension, 70% anatomy and physiology, and 80% vocabulary on the HESI entrance exam. Any sections that score below the required minimum score can be retaken after a 30-day wait period, but can only be retaken twice. The HESI must be taken prior to the interview with the program director. 3. Schedule an interview with the program director prior to program acceptance between July 1st and August 1st, each calendar year (or if August 1st lands on a weekend, the next available business day). 4. Pay for and pass a background check and urinalysis following acceptance into the program.

Level 1 Fingerprint Clearance

1. Apply for a Level 1 Fingerprint Clearance Card by the start of the program's second semester through the Arizona Departments of Public Safety (DPS) to allow adequate time to get cleared prior to applying for a Pharmacy Technician Trainee license through the AZ Board of Pharmacy.
2. Students must possess BOTH a Level 1 Fingerprint clearance card, AND an AZ Pharmacy Technician Trainee license prior to beginning PHT175 (practicum). If these requirements are not completed prior to starting PHT175, the student will not be permitted to complete their practicum at a clinical site, and thus, cannot complete the program.
3. The full number of clinical hours required during practicum MUST be completed prior to the end of the Spring semester.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- PHT101 - Introduction to Pharmacology
- PHT102 - Advanced Pharmacy Technician Concepts
- PHT150 - Pharmacy Calculations
- PHT164 - Pharmacy Certification Review
- PHT175 - Practicum - Pharmacy Technician
- BIO160 - Intro to Human Anatomy and Physiology

Other Requirements

Students must earn:

1. A grade of C or better in all required courses;
2. A minimum of 3 earned CAC credits numbered 100 or above;
3. A minimum of 25 credits.

CT07_24-25 - Database Technician Certificate

Program Information

Program Title
Database Technician Certificate

Description
Database Technician Certificate prepares students to design and implement the infrastructure for business solutions using database and programming tools. The program focuses on administrative tasks and building database applications using programming skills. Prerequisite: Computer Programming Certificate or Programming experience.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Synthesis Level) Create programs that use the fundamental program constructs including standard conditional and iterative control structures. (CSLO 3)
2. (Application Level) Apply documentation techniques throughout the program development cycle. (CSLO 3)
3. (Comprehension level) Locate and correct syntax and logic errors in short programs. (CSLO 4)
4. (Comprehension Level) Discuss ethical and social issues of the computing world. (CSLO 1)
5. (Application Level) Use modern techniques of database organization and access in a database environment. (CSLO 3)
6. (Synthesis Level) Create Java solutions for given business problems that apply the structural features of Java programming which include objects, classes, methods, inheritance, and input/output functions. (CSLO 3)
7. (Synthesis Level) Develop programs that insert, update, and query data in a relational database. (CSLO 3)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CIS120 - Survey of Computer Information Systems
- CIS121 - Windows Operating System Fundamentals
- CIS123 - Introduction to Programming
- CIS178 - Database Fundamentals and Programming
- CIS216 - Java Programming

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT07_25-26 - Aesthetician Certificate

Program Information

Program Title
Aesthetician Certificate

Description
The Aesthetician certificate at Central Arizona College (CAC) offers comprehensive training for aspiring Licensed Aestheticians, covering essential skills for a successful career in the beauty industry. This program blends theoretical knowledge with 600 hours of hands-on clinical experience in a state-of-the-art facility. Students will learn a wide range of skincare treatments, including basic facials, body treatments, makeup application, skin resurfacing, hair removal, and advanced procedures like chemical peels, microdermabrasion, microneedling, and dermaplaning. The curriculum also emphasizes safety, infection control, and business planning, ensuring graduates are well-prepared to meet the demands of today's aesthetics market while mastering both technical and professional aspects of the field. Recommended proficiencies: Basic proficiency in communication skills, including reading, writing, and verbal interaction, to effectively engage with clients and instructors.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Applying) Apply proper safety and sanitation protocols, including infection control and first aid, in compliance with Arizona Barbering & Cosmetology Board (BCB) standards. (CSLO: 2, 4)
2. (Understanding) Communicate in a culturally responsive manner to build trust and rapport with clients, colleagues, work teams, and various industry professionals. (CSLO: 1, 3)
3. (Understanding) Demonstrate personal wellness strategies in professional settings. (CSLO: 3)
4. (Analyzing) Identify the basic needs in human relations to enhance client interactions. (CSLO: 1, 3)
5. (Applying) Utilize knowledge of fundamental science concepts, including anatomy, chemistry, microbiology, and physiology, when performing services. (CSLO: 2, 4)
6. (Evaluating) Evaluate client needs through consultation within the scope of practice to educate clients, define design considerations, and determine appropriate tools and products needed to achieve desired results. (CSLO: 2, 3, 4)
7. (Creating) Document services performed accurately, including service releases, client treatment records, and service incidents, in accordance with industry and BCB standards. (CSLO: 2, 4)
8. (Applying) Perform skills learned on live and mock models in a salon setting. (CSLO: 2, 3)
9. (Creating) Create proper skin care services using the fundamental concepts of skin care theory and application, including hair removal and makeup application in basic and advanced skin care services. (CSLO: 2, 4)
10. (Understanding) Explain the business operating principles of the beauty industry, including business plans, salon business methodology, resources, tools, and self-promotion to gain employment in the beauty industry. (CSLO: 2, 3, 4)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- EST130 - Foundations of Aesthetics I
- EST140 - Practical Skin Care Lab I
- EST160 - Foundations of Aesthetics II
- EST230 - Advanced Aesthetics I
- EST240 - Advanced Practical Skin Care Lab I
- EST260 - Advanced Aesthetics II

Additional Comments:
Students must earn:

- a grade of C or better in each required course;

- a cumulative grade point average (CGPA) of 2.0 out of 3.0.
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

Requisites

The requirements and corequisites for an Aesthetician Program in Arizona are regulated by the Arizona Barbering & Cosmetology Board.

Program Requirements:

- Must have a high school diploma or GED.
- Must pass a drug screen
- Background Check
- 600 Hours

Corequisites:

- Infection Control and Sanitation:
    - Often required as a foundational course to ensure students are knowledgeable about health and safety protocols.
- Basic Anatomy and Skin Physiology:
    - Understanding the structure of the skin and its functions is essential before moving into advanced topics like facial treatments and skincare analysis.
- State Law and Ethics:
    - A course covering Arizona laws related to esthetic practices, client rights, and professional conduct. It's often required early in the program.
- Client Consultation and Professionalism:
    - Learning how to interact professionally with clients and assess their skincare needs is a core part of the training process.

Recommended Proficiencies:

For students entering an Aesthetician Program help ensure they are well-prepared for the demands of both the coursework and the professional practice of esthetics. These proficiencies encompass both technical and interpersonal skills that will benefit aspiring aestheticians throughout their training and career.

1. Basic Understanding of Skin Care and Anatomy:

- Familiarity with Skin Types: A basic knowledge of different skin types (oily, dry, combination) and common skin issues is beneficial.
- Interest in Anatomy: Understanding the structure and functions of the skin and body systems will support your learning of advanced esthetic techniques.

2. Strong Communication Skills:

- Client Interaction: Estheticians must effectively communicate with clients to assess their skincare needs and explain treatments.
- Active Listening: The ability to listen carefully to client concerns and tailor treatments accordingly is essential for customer satisfaction.

3. Manual Dexterity:

- Precision and Control: Esthetics involves detailed work, from performing facial treatments to applying makeup and waxing. Good hand-eye coordination and manual precision are important.

4. Attention to Detail:

- Focus on Hygiene and Sanitation: Following strict sanitation guidelines and ensuring that all tools and equipment are properly sanitized is crucial.
- Treatment Customization: Estheticians must pay attention to the nuances of each client's skin to recommend the most suitable treatments and products.

5. Time Management:

- Efficient Scheduling: Being able to manage time effectively is important in maintaining a steady client flow and ensuring that appointments are punctual.
- Multitasking: You may need to juggle multiple clients, treatments, or administrative duties, so strong organizational skills are helpful.

6. Physical Stamina:

- Long Periods of Standing: A career in esthetics often requires standing for long periods while performing treatments.
- Hand and Arm Strength: Some treatments, such as massages or deep exfoliation, require strength and stamina in the hands and arms.

7. Basic Math Skills:

- Product Measurements: Understanding how to measure and mix products, such as in chemical peels or other advanced treatments, is important for both safety and efficacy.
- Sales and Inventory Management: Estheticians often sell products, so basic math skills are useful when handling sales, managing product inventory, and calculating commissions.

8. Interpersonal Skills:

- Empathy and Patience: Building rapport with clients and understanding their needs are key to long-term success in the field.
- Professionalism: Maintaining a professional demeanor, even in difficult situations, is important for client retention and workplace success.

9. Technological Proficiency:

- Familiarity with Facial Machines: A basic understanding of modern facial machines (e.g., microdermabrasion, LED therapy) and a willingness to learn about new technology is essential for advanced esthetics.
- Appointment Scheduling Software: Many estheticians use software to book appointments, track client history, and manage payments, so comfort with basic computer systems is helpful.

10. Sales and Marketing Skills:

- Product Knowledge: Many estheticians sell skincare products, so understanding how to explain the benefits of products and make recommendations can enhance client outcomes and boost income.
- Marketing Techniques: Knowledge of basic marketing or social media skills can help build a clientele, especially if you plan to work independently.

Developing these proficiencies will help ensure success in Aesthetics training and build a strong foundation for a successful career in the beauty and skincare industry.

CT07_26-27 - Post Baccalaureate Elementary Education Traditional Certificate

Program Information

Program Title
Post Baccalaureate Elementary Education Traditional Certificate

Description
The Post-Baccalaureate Elementary Education Traditional program provides students holding a baccalaureate degree in any content area to complete coursework in earning full and official state teacher certification. The post baccalaureate Traditional emphasis is approved by the Arizona Department of Education.

Students in the traditional program must provide a copy of a current IVP fingerprint card and are evidence passing scores on the three Arizona Proficiency Exams required by the Arizona Department of Education for teacher certification prior to the capstone student teaching phase.

If teaching in an English Language Development (ELD) classroom, students must complete and show proof of an ADE approved Structured English Immersion (SEI) workshop or course. For students needing to provide proof of completion of an SEI course to the employer, CAC offers an EDU240 Structured English Immersion during the first semester of coursework. CAC's EDU240 Structured English Immersion course is on the ADE list of approved SEI coursework for teacher certification endorsement.

The Traditional emphasis requires a traditional 12-weeks of capstone student teaching experience and includes coursework with intentional field experience/ practicum of 90 hours over two semesters in general education kindergarten-grade eight classrooms.

Upon completion of the post baccalaureate program the CAC program supervisor will provide the candidate's name to the Arizona Department of Education (ADE) with an institutional recommendation for obtaining Arizona state teacher certification. Institutional recommendation does not automatically grant the candidate state teacher certification. The student must personally apply for teacher certification with ADE. An overall program/enrollment GPA of 3.0 or higher must be earned for institutional recommendation/graduation.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
47

Program Learning Outcomes
1. (Understanding Level) Understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical domains. (Interstate Teacher Assessment and Support Consortium, (InTASC 1)) (Council for Exceptional Children) (CEC 1) *(CSLOs 2,3)*

2. (Application Level) Apply understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards. (InTASC 2) (CEC 1) (International Society for Technology in Education, (ISTE 2.2)) *(CSLOs 1,2,3)*

3. (Application Level) Recognize and create learning environments that support individual and collaborative learning, encouraging positive social interaction, active engagement in learning, and self-motivation. (InTASC 3) (CEC 2) (ISTE 2.6) *(CSLOs 1,2,3)*

4. (Creating Level) Understand the central concepts, tools of inquiry, and structures of core disciplines and create learning experiences that make the disciplines accessible and meaningful for learners to assure mastery of the content. (InTASC 4) (CEC 3) *(CSLOs 2,3)*

5. (Application Level) Understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving. (InTASC 5) (CEC 5) (ISTE 2.1, 2.6) *(CSLOs 1,2,3)*

6. (Application Level) Understand and utilize multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher and learner decision making. (InTASC 6) (CEC 4) (ISTE 2.7) *(CSLOs 2,3)*

7. (Creating Level) Plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, to include knowledge of learners. (InTASC 7) (CEC 5) *(CSLOs 2,3,4)*

8. (Application Level) Utilize a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections to cross disciplinary subjects, real world applications, and to build skills to apply knowledge in meaningful ways. (InTASC 8) (CEC 5) *(CSLOs 2,3,4)*

9. (Analysis Level) Engage in ongoing professional learning and use evidence to continually evaluate personal practice, particularly the effects of choices and actions on others. (InTASC 9) (CEC 6) *(CSLOs 1,2,3,4)*

10. (Application Level) Select leadership roles and opportunities to take responsibility for student learning, and collaboration with learners, families, colleagues and other school professionals to ensure learner growth and achievement. (InTASC 10) (CEC 7) *(CSLOs 1,2,3,4)*

11. (Evaluation Level) Design and evaluate learning experiences incorporating digital tools and resources to maximize content learning, and mentor students in safe, legal, and ethical practices with digital tools and content. (InTASC 8,10) (ISTE 2.3) (CEC 5) *(CSLOs 1,2,4)*

Simple Requisites

Pre-Program Requirements
Type

Completion Requirement

Additional Comments:

1. Students must apply for admission to the Post-Baccalaureate Elementary Education Program, which includes an interview with the Elementary Education Teacher Preparation Program staff.
2. Applicants must hold a Baccalaureate degree from a regionally accredited institution.
3. Baccalaureate degree official transcripts are required for Formal Admission.
4. Teacher in Residence applicants are required to hold an Arizona Department of Education Alternative Teaching Certificate. The employing district can guide the applicant through this procedure.
5. Completion of two letters of recommendation is submitted with the application.
6. All program participants must obtain an IVP Fingerprint clearance card through the Arizona Department of Public Safety per Arizona Revised Statue 15-106. Information can be obtained on the DPS website
7. EDU courses must meet an overall GPA of 3.0 to move from semester to semester. Courses transferred into the post-baccalaureate elementary education program are included in this calculation.
8. Courses earning a grade of "D" or "F" must be retaken regardless of GPA.
9. Proof of employment verification from an approved school district, public, charter, or private school must accompany application materials.
10. Students will be required to pass the Arizona Educator Proficiency Exams (Elementary Education Subtest I, Elementary Education Subtest II, and Assessment of Professional Knowledge, Elementary) prior to engaging in the capstone student teaching experience and the granting of Institutional Recommendation.
11. All application information must be complete and accurate at the time of application to the program.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- EDU221PB - Introduction to Education PB
- EDU222 - Introduction to Special Education
- EDU228 - Creating an Effective Learning Environment
- EDU240 - Structured English Immersion
- POS220 - U.S. and Arizona Constitutions
- EDU302 - Educational Psychology
- EDU311 - Instructional Methods for Teaching Elementary Science
- EDU312 - Instructional Methods for Teaching Elementary Social Studies
- EDU320A - Structured Literacy A: The Science of Reading and Phonics
- EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia
- EDU330 - Math Methods: Numbers, Operations, Proportions, Measurement, and Reasoning
- EDU360 - Master Teacher Seminar
- EDU370B - Field Experience Traditional Semester 1
- EDU370D - Field Experience Traditional Semester 2
- EDU470B - Student Teaching Traditional Emphasis

Students may test out of POS220 through NES Testing Service and must show proof of passing score.

Additional Comments:

Other Requirements

This is a closed enrollment program.

Students must earn:

- a grade of a C or better in each required class;
- a cumulative program/enrollment GPA (EGPA) of at least a 3.0 on a 4.0 scale for institutional recommendation/graduation;
- an overall cumulative GPA of 2.0 or higher
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 47 semester credits

CT08_20-21 - Culinary Arts I Certificate

Program Information

Program Title
Culinary Arts I Certificate

Description
The Culinary Arts I Certificate prepares students to become entry-level culinary professionals within a commercial food service operation. Credits earned may be applied toward the Culinary Arts II Certificate and the Hotel & Restaurant Management AAS Degree. Recommended proficiency: High school diploma or GED recommended.

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Application Level) Demonstrate skills and knowledge required to successfully plan, execute, and manage catering operation. (CSLO # 2)
2. (Comprehension Level) Demonstrate a deep understanding of food sustainability principles and practices, enabling them to make informed decisions and contribute to a more sustainable food system. (CSLO # 2)
3. (Comprehension Level) Identify key aspects of the food service industry and describe their management needs/roles. (CSLO # 2,4)
4. (Application Level) Apply techniques and relate effective staffing and scheduling patterns and marketing strategies, as well as facility layout and design, with effective financial management.(CSLO # 2,3)
5. (Application Level) Demonstrate a working knowledge of effective food procurement and production methods. (CSLO # 2)
6. (Application Level) Demonstrate basic cooking skills: knife skills, hand tool and equipment operation, proper scaling and measurement techniques. (CSLO # 2)
7. (Application Level) Apply basic methods of food preparation for all meal courses. (CSLO # 2)
8. (Knowledge Level) Identify equipment and ingredients used in cooking and baking. (CSLO # 2)
9. (Application Level) Demonstrate baking a variety of items prepared in a commercial kitchen. (CSLO # 2)
10. (Synthesis Level) Prepare menus that reflect knowledge of pricing, cost control, and management operations. (CSLO # 2,3,4)
11. (Comprehension Level) Describe management principles as they apply to dining facilities. (CSLO # 2,3)
12. (Application Level) Identify principles of food safety and sanitation; demonstrate safe food handling and safe work practices. (CSLO # 2,3)

Simple Requisites

Recommended Proficiencies
High school diploma or GED recommended.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CUL105 - Food Safety Foundations
- CUL125 - Sustainable Food Practices
- CUL130 - Culinary Principles Application I
- CUL160 - Baking and Pastry I
- CUL170 - Dining and Beverage Operations
- CUL185 - Catering Operations
- HRM100 - Introduction to Hospitality

Select one of the following

Earn at least 3 credits from the following:

- HRM102 - Management of Guest Services
- HRM145 - Convention and Meeting Management
- HRM101 - Facilities Management
- HRM252 - Managing Hospitality Human Resources
- REC101 - Recreation, Leisure and the Quality of Life

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT08_24-25 - Culinary Arts II: Entrepreneurship Certificate

Program Information

Program Title
Culinary Arts II: Entrepreneurship Certificate

Description
The Culinary Arts II Certificate emphasizes entrepreneurship while providing comprehensive training in basic and advanced culinary skills. Students will develop expertise in culinary techniques, food sustainability concepts, and logistical skills for event planning. This certificate prepares students for entry-level positions as cooks, chefs, or food service managers and serves as a launching pad for entrepreneurial ventures in the culinary arts industry. Recommended Proficiencies: High school diploma or GED recommended.

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
29

Program Learning Outcomes
1. (Synthesis Level) Demonstrate the knowledge, skills, and entrepreneurial mindset necessary to develop a comprehensive business plan, and effectively manage a food-related enterprise. (CSLO # 2)
2. (Evaluation Level) Explain key aspects of the food service industry and its management needs/roles; appraise management principles as they apply to dining facilities. (CSLO # 2)
3. (Analysis Level) Calculate recipe conversions, analyze inventory management, purchasing, yield analysis, and menu pricing. (CSLO # 2,4)
4. (Evaluation Level) Determine effective staffing and scheduling patterns and marketing strategies, as well as facility layout and design, with effective financial management. (CSLO # 2,3)
5. (Synthesis Level) Demonstrate professional cooking and baking skills: knife skills, hand tool and equipment operation, proper scaling and measurement techniques; identification of ingredients. (CSLO # 2)
6. (Application Level) Utilize basic and advanced methods of food preparation for all meal courses. (CSLO # 2,3,4)
7. (Synthesis Level) Design menus that reflect knowledge of pricing, cost control, and management operations. (CSLO # 2,3,4)
8. (Synthesis Level) Integrate principles of food safety and sanitation; perform tasks utilizing safe food handling and safe work practices. (CSLO # 2,3)
9. (Evaluation Level) Formulate ideas and opinions relevant to sustainable food practices based on identification of key terms and concepts in this field. (CSLO # 2)
10. (Synthesis Level) Implement menu design, purchasing strategies, and production time-line for catering events. (CSLO # 2,3)

Simple Requisites

Recommended Proficiencies:
High school diploma or GED recommended.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CUL105 - Food Safety Foundations
- CUL125 - Sustainable Food Practices
- CUL130 - Culinary Principles Application I
- CUL160 - Baking and Pastry I
- CUL170 - Dining and Beverage Operations
- CUL185 - Catering Operations
- CUL230 - Culinary Principles & Apps II
- CUL260 - Baking and Pastry II
- CUL289 - Culinary Capstone
- CUL290 - Culinary Hospitality Internship
- HRM100 - Introduction to Hospitality
- HRM103 - Managing Foodservice Operation

Additional Comments:

Other Requirements
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;

- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 29 semester credits.

CT08_25-26 - Animation & Motion Graphics Certificate

Program Information

Program Title
Animation & Motion Graphics Certificate

Description
The Animation and Motion Graphics Certificate provides individuals seeking to advance design skills for the development of personal interests, and for those already employed in this field to upgrade skills as well as providing the creative and technical skills required for employment in entry-level positions. Topics include: animation, drawing, motion graphics, 3D animation, and visual storytelling and storyboarding. . Recommended Proficiencies: Experience with Adobe Software; DMA115.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
Certificate

Total Credits Required
30

Program Learning Outcomes
1. *(Understanding)* Explain the specific hardware and software requirements for effective animation production using animation and video software.(CSLO 2,3,4)
2. *(Analyzing)* Analyze, compare and differentiate the aesthetic qualities of traditional hand-drawn animation and computer-generated animation. (CSLO 2,3,4)
3. *(Applying)* Utilize effective file management using various graphic and video file formats within animation and video software. (CSLO 2,3)
4. *(Analyzing)* Analyze and differentiate the aesthetic qualities of traditional motion design techniques versus digital motion graphics created in Adobe After Effects. (CSLO 2,3)
5. *(Understanding)* Explain the hardware and software requirements critical for creating and rendering high-quality motion graphics in Adobe After Effects. (CSLO 2,3)
6. *(Applying)* Utilize effective file organization and management, integrating various media assets such as video, audio, and vector graphics in Adobe After Effects projects. (CSLO 2,3)
7. *(Creating)* Create and animate graphic elements, including typography, shapes, and icons, using keyframing, effects, and expressions in Adobe After Effects. (CSLO 2,3)
8. *(Creating)* Design and animate visually compelling motion graphics compositions, incorporating external assets and considering principles like balance, rhythm, and movement.
9. *(Creating)* Develop a solid foundation in 3D modeling techniques and best practices. (CSLO 2,3)
10. *(Understanding)* Demonstrate an in-depth understanding of 3D animation principles and their application. (CSLO 2,3)
11. *(Applying, Creating)* Develop proficiency in texturing and surfacing to enhance 3D models. (CSLO 2,3)
12. *(Creating, Applying)* Create and experiment with special effects into 3D animations effectively. (CSLO 2,3)
13. *(Analyzing)* analyze story structures and mechanics used in 2D, 3D, and animated visual media to identify key elements of effective storytelling. (CSLO 2,3,4)
14. *(Evaluating)* Evaluate various visual storytelling techniques in animation and film, emphasizing the use of shot composition, camera movement, and pacing.(CSLO 2,3,4)
15. *(Applying)* Demonstrate the ability to develop narrative concepts into storyboards, integrating principles of visual storytelling such as framing, transitions, and timing. (CSLO 2,3)
16. *(Creating)* Create and refine storyboards that effectively communicate character development, plot progression, and emotional tone for visual media projects.(CSLO 2,3)
17. *(Creating)* Utilize industry-standard tools to create professional-quality storyboards that include clear camera directions, shot lists, and annotations. (CSLO 2,3,4)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ART107 - Drawing I
- DMA115 - Digital Imaging
- DMA118 - Animation I
- DMA121 - Motion Graphics I
- DMA125 - Introduction to Illustrator
- DMA202 - Digital Animation II
- DMA205 - Portfolio Development
- DMA209 - 3D Computer Animation
- DMA215 - Motion Graphics II
- DMA217 - Visual Storyboarding and Storytelling

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 30 semester credits.

CT08_26-27 - Post Baccalaureate Elementary Education Teacher in Residence Certificate

Program Information

Program Title
Post Baccalaureate Elementary Education Teacher in Residence Certificate

Description
The Teacher in Residence (TIR) program provides students holding a baccalaureate degree in any content area to obtain an employment contract with a school district and of being the teacher of record in a kindergarten- grade eight general education classroom. The student will work under the auspice of the CAC program supervisor and site based school mentor teacher. The CAC student concurrently completes coursework for earning a standard teaching certificate with the Arizona Department of Education in a general education position kindergarten to grade eight. The post baccalaureate Teacher in Residence Program Elementary Education is approved by the Arizona Department of Education and utilizes the Alternative Teaching Certificate obtained through the Arizona Department of Education which provides approval for employment and teacher placement in a general education K-8 classroom.

Students in the TIR program must provide proof of district employment as a contracted teacher, provide a current Identity Verified Print (IVP) fingerprint card and will work toward the appropriate AEPA/NES elementary education Subtests 1 & 2 and the AEPA/NES Professional Knowledge Exam for attaining a passing score. A passing score on these assessments must be obtained prior to entering the last phase of the program with the capstone of student teaching.

Students in the TIR program will earn credentials for the Structured English Immersion endorsement on their teaching certificate and be able to teach in an English Language Development (ELD) classroom.

Upon completion of the post baccalaureate program the CAC program supervisor will provide the candidate's name to the Arizona Department of Education (ADE) with an Institutional Recommendation for obtaining Arizona state teacher certification. Institutional Recommendation does not automatically grant the candidate state teacher certification. The student must personally apply for teacher certification with ADE.

Prerequisites: Conferred bachelor's degree with official transcripts required to apply for this program. Program candidates must complete a program application and be approved for acceptance into the Post Baccalaureate Elementary Education Teacher in Residence Program by the elementary education department.

Recommended proficiencies: Completion of AEPA/NES exams prior to entering the program. All students must pass courses with 70% or higher or a grade of "C". An overall program/enrollment GPA of 3.0 or higher must be earned for institutional recommendation/graduation.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
47

Program Learning Outcomes
1. (Understanding Level) Understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical domains. (Interstate Teacher Assessment and Support Consortium, (InTASC 1)) (Council for Exceptional Children) (CEC 1) *(CSLOs 2,3)*

2. (Application Level) Apply understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards. (InTASC 2) (CEC 1) (International Society for Technology in Education, (ISTE 2.2)) *(CSLOs 1,2,3)*

3. (Application Level) Recognize and create learning environments that support individual and collaborative learning, encouraging positive social interaction, active engagement in learning, and self-motivation. (InTASC 3) (CEC 2) (ISTE 2.6) *(CSLOs 1,2,3)*

4. (Creating Level) Understand the central concepts, tools of inquiry, and structures of core disciplines and create learning experiences that make the disciplines accessible and meaningful for learners to assure mastery of the content. (InTASC 4) (CEC 3) *(CSLOs 2,3)*

5. (Application Level) Understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving. (InTASC 5) (CEC 5) (ISTE 2.1, 2.6) *(CSLOs 1,2,3)*

6. (Application Level) Understand and utilize multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making. (InTASC 6) (CEC 4) (ISTE 2.7) *(CSLOs 2,3)*

7. (Creating Level) Plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, to include knowledge of learners. (InTASC 7) (CEC 5) *(CSLOs 2,3,4)*

8. (Application Level) Utilize a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections to cross disciplinary subjects, real world applications, and to build skills to apply knowledge in meaningful ways. (InTASC 8) (CEC 5) *(CSLOs 2,3,4)*

9. (Analysis Level) Engage in ongoing professional learning and use evidence to continually evaluate personal practice, particularly the effects of choices and actions on others. (InTASC 9) (CEC 6) *(CSLOs 1,2,3,4)*

10. (Application Level) Select leadership roles and opportunities to take responsibility for student learning, and collaboration with learners, families, colleagues and other school professionals to ensure learner growth and achievement. (InTASC 10) (CEC 7) *(CSLOs 1,2,3,4)*

11. (Evaluation Level) Design and evaluate learning experiences incorporating digital tools and resources to maximize content learning, and mentor students in safe, legal, and ethical practices with digital tools and content. (InTASC 8,10) (ISTE 2.3) (CEC 5) *(CSLOs 1,2,4)*

Simple Requisites

Pre-Program Requirements
Type
Prerequisite

Additional Comments:

1. Applicants must hold a bachelor's degree from an accredited institution of higher education. Official transcripts are required for formal admission.
2. Students must complete an application for entrance to the post-baccalaureate elementary education, teacher in residence (TIR) emphasis program.
3. Complete the Conviction Information form.
4. Schedule and complete a personal interview with one of the program staff.
5. Provide two letters of recommendation with application entrance to the TIR emphasis program.
6. All program participants must provide a copy of an Identity Verified (IVP) Fingerprint clearance card obtained through the Arizona Department of Public Safety per Arizona Revised Statute 15-106. Information can be obtained on the DPS website.
7. EDU courses must meet an overall GPA of 3.0 to move from semester to semester. (This includes courses taken at CAC or transferred in from an accredited institution).
8. Courses earning a grade of "D" or "F" must be retaken regardless of GPA within three years of the start of the program. CAC's agreement with the Arizona Department of Education requires a three year program completion timeline.
9. Students are required to pass the Arizona Educator Proficiency Exams (Elementary Education Subtest I, Elementary Education Subtest II, and Assessment of Professional Knowledge, Elementary) prior to entering the final phase of the capstone student teaching experience and the granting of Institutional Recommendation for applying to the Arizona Department of Education for a standard teacher certificate in grades k-8.
10. All application information must be complete and accurate at the time of application to the program.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- EDU221PB - Introduction to Education PB
- EDU222 - Introduction to Special Education
- EDU228 - Creating an Effective Learning Environment
- EDU240 - Structured English Immersion
- POS220 - U.S. and Arizona Constitutions
- EDU302 - Educational Psychology
- EDU311 - Instructional Methods for Teaching Elementary Science
- EDU312 - Instructional Methods for Teaching Elementary Social Studies
- EDU320A - Structured Literacy A: The Science of Reading and Phonics
- EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia
- EDU330 - Math Methods: Numbers, Operations, Proportions, Measurement, and Reasoning
- EDU360 - Master Teacher Seminar
- EDU370A - Field Experience Teacher in Residence (TIR) Semester 1
- EDU370C - Field Experience Teacher in Residence (TIR) Semester 2
- EDU470A - Student Teaching Teacher in Residence (TIR) Emphasis

Students may test out of POS220 through NES Testing Service and must show proof of passing score.

Additional Comments:

Other Requirements

This is a closed enrollment program.

Students must earn:

- a grade of a C or better in each required class;
- a cumulative program/enrollment GPA (EGPA) of at least a 3.0 on a 4.0 scale for institutional recommendation/graduation;
- a cumulative overall GPA of 2.0 or higher
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 47 semester credits

CT09_24-25 - Computer Programming Certificate

Program Information

Program Title
Computer Programming Certificate

Description
The Computer Programming Certificate emphasizes knowledge and skills required to design, develop, test, and document structured and object-oriented programs utilizing a variety of programming languages. It prepares students for entry-level positions in computer programming. Recommended proficiencies: RDG100.

Area of Interest
Computer Technology, Engineeering & Math

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Synthesis Level) Plan and implement technology solutions. (CSLO 4)
2. (Synthesis Level) Code elementary programs utilizing input and output options, data types, decision-making techniques, structures, classes, and disk file operations. (CSLO 3)
3. (Analysis Level) Analyze programs for errors. (CSLO 4)
4. (Application Level) Produce web interfaces. (CSLO 3)
5. (Comprehension Level) Describe the relational database model. (CSLO 2)
6. (Application Level) Implement simple and complex queries with Structured Query Language (SQL). (CSLO 3)
7. (Comprehension level) Discuss ethical and social issues of the computing world. (CSLO 1)

Simple Requisites

Core Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CIS112 - Web Design Fundamentals with HTML
- CIS120 - Survey of Computer Information Systems
- CIS123 - Introduction to Programming
- CIS178 - Database Fundamentals and Programming
- CIS216 - Java Programming

Additional Comments:
Other Requirements
Students must earn:
-a cumulative grade point average of at least a 2.0 on a 4.0 scale;
-a minimum of 3 earned CAC credits numbered 100 or above;
-a minimum of 16 semester credits.

CT09_26-27 - Advanced Firefighter Operations Certificate

Program Information

Program Title
Advanced Firefighter Operations Certificate

Description
(This program is Closed Enrollment for sworn firefighters)
The Advanced Firefighter Operations Certificate is designed to prepare active firefighters for internal career advancement within their organization. The program curriculum and course of instruction will provide the student with the knowledge and skills to effectively perform the essential functions of an advanced level firefighter. Prerequisites: EMS125, FSC129, FSC140, and Program Director consent.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Remembering Level) Define ethical behavior and identify its importance in fire service decision-making. (CSLO 1&3)
2. (Analyzing Level) Analyze case scenarios to determine the impact of relevant fire service codes and standards. (CSLO 2&4)
3. (Remembering Level) Describe and diagram the organizational structure and line of authority in a fire department. (CSLO 2)
4. (Understanding Level) Compare and contrast major barriers to effective communication within fire service teams. (CSLO 2&4)
5. (Creating Level) Create a wellness improvement plan using self-assessment data and available resources. (CSLO 3&4)
6. (Evaluating Level) Evaluate incident response scenarios to recommend actions in alignment with National Safety Standards. (CSLO 2&4)
7. (Evaluating Level) Defend the need for medical evaluations and fitness standards for fire service personnel. (CSLO 1,2,4)
8. (Understanding Level) Explain the differences among fire prevention laws, regulations, and standards using real-world examples. (CSLO 2&4)
9. (Understanding Level) Pump a fire apparatus following standard procedures to demonstrate operational competence. (CSLO 3&4)
10. (Evaluating Level) Evaluate how unsafe acts during emergency response can be prevented by personnel empowerment. (CSLO 1&4)
11. (Applying Level) Describe the cultural and behavioral changes needed in emergency services to improve safety outcomes. (CSLO 1&3)
12. (Analysis Level) Analyze and explain how leadership theories and motivation models inform supervisory strategies. (CSLO 1&3)
13. (Creating Level) Develop a response strategy that incorporates safety standards and technological innovations. (CSLO 2&4)
14. (Evaluating Level) Evaluate tactical assignments to assess risk and impact on firefighter safety. (CSLO 3&4)
15. (Understanding Level) Summarize the key functions of fire prevention organizations and their role in reducing fire risk. (CSLO 1&2)

Simple Requisites

Recommendations & Prerequisites
Type
Prerequisite

Complete ALL of the following Courses:
- EMS125 - Emergency Medical Technician
- FSC140 - Firefighter I and II
- FSC129 - Haz-Mat Awareness/Operations

Complete the above AND seek Program Director consent. This certificate is established for sworn firefighters only.

Additional Comments:
1. Consult your department advisor.
2. Some courses require:

a. State of Arizona/Arizona Center for Fire Service Excellence IFSAC-Accreditation Certificate.

b. State of Arizona Department of Health Services Certification(s)

c. American Heart, Red Cross, or other approved certifying agency course completion in CPR

d. Nationally Recognized or equivalent certifying agency course completion.
FEMA ICS 100-200

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- FSC108 - Fundamentals of Fire Prevention
- FSC110 - Fire and Emergency Services Safety and Survival
- FSC117 - Fire Apparatus and Equipment
- FSC119 - Fire Service Ethics
- FSC202 - Supervisory Training for Firefighters
- FSC208 - Building Construction for the Fire Service

Additional Comments:
Students must earn:

- - a grade of C or better in each required course;
- - a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- - a minimum of 3 earned CAC credits numbered 100 or above;
- - a minimum of 18 semester credits.

CT10_20-21 - Hotel and Restaurant Management Certificate

Program Information

Program Title
Hotel and Restaurant Management Certificate

Description
The Hotel and Restaurant Management Certificate provides specialized workplace skills which enhance options for progressive or lateral career movement in hotel and lodging or restaurant management. Topics include foundational concepts and skills in the hospitality industry, human resources and employment law, supervision, guest services, facilities and event management.

Completion of these basic skills within one year increases employability of graduates. Certificate courses stack toward the Hotel and Restaurant Management AAS Degree and most courses are eligible for transfer to universities offering bachelor degree programs in Hotel and Restaurant Management. HRM courses are accepted to fulfill the Business AAS Degree's fourteen (14) elective credits.

Each HRM course utilizes curriculum from the American Hotel and Lodging Association. Students may receive a nationally-recognized and industry-standardized AHLA Course Certificate upon achieving 70% competency on each course final exam: http://www.ahla.com/ Recommended: RDG100

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Evaluation Level) Evaluate management policies and procedures in the hotel/hospitality industry. (CSLO-2)
2. (Analysis Level) Analyze leadership and supervisory concepts within the hospitality industry. (CSLO-2, 3)
4. (Evaluation Level) Appraise standards in guest services that promote the spirit of hospitality.(CSLO-2, 3)
5. (Evaluation Level) Evaluate management issues related to food service or lodging at interior and exterior facility sites. (CSLO-2, 3)
6. (Synthesis Level) Demonstrate a working knowledge of the law relating to general hotel operations and the employment workplace. (CSLO-2, 3)
7. (Analysis Level) Analyze roles played by hospitality managers in controlling operating costs. (CSLO-2, 3)
8. (Synthesis Level) Identify and use the procedure to forecast revenues by market segmentations, then analyze the results. (CSLO-2, 3)
9. (Evaluation Level) Predict and explain the implications of global, U.S. and regional events on the enterprise of the establishment. (CSLO-2, 3, 4)
10. (Synthesis Level) Create a professional career path. (CSLO-2, 3, 4)

Simple Requisites

Recommended
Type
Prerequisite

Recommended: RDG100

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- HRM100 - Introduction to Hospitality
- HRM101 - Facilities Management
- HRM102 - Management of Guest Services
- HRM145 - Convention and Meeting Management
  OR HRM252 - Managing Hospitality Human Resources

Electives

HRM prefix highly recommended for HRM majors and CUL prefix highly recommended for Restaurant Management or Culinary Arts majors.

Earn at least 6 credits from the following:

- CUL105 - Food Safety Foundations
  OR NTR105 - ServSafe Preparation
- CUL130 - Culinary Principles Application I
  OR CUL160 - Baking and Pastry I

- CUL170 - Dining and Beverage Operations
- HRM103 - Managing Foodservice Operation
- HRM145 - Convention and Meeting Management
- HRM252 - Managing Hospitality Human Resources

HRM145 and HRM252 may be taken as electives if not taken in Core Requirements.

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT10_22-23 - Logistics and Supply Chain Management Certificate

Program Information

Program Title
Logistics and Supply Chain Management Certificate

Description
The Logistics and Supply Chain Management Certificate emphasizes the fundamental principles of logistics and transportation, including skills in inventory control and warehouse management. Recommended proficiencies: General computer skills, especially with spreadsheets.

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Application Level) Participate in receiving, storing, testing, and shipping products or materials. (CSLO 3)
2. (Synthesis Level) Plan, develop, or implement warehouse safety and security programs and activities. (CSLO 4)
3. (Synthesis Level) Prepare correspondence, reports, and operations, maintenance, and safety manuals. (CSLO 2)
4. (Application Level) Issue shipping instructions and provide routing information to coordinate delivery times and locations. (CSLO 3)
5. (Evaluation Level) Review invoices, work orders, consumption reports, or demand forecasts to estimate peak delivery periods and to issue work assignments. (CSLO 4)
6. (Synthesis Level) Organize or monitor pickup, delivery, or distribution of products or materials. (CSLO 4)
7. (Evaluation Level) Evaluate customers' questions and complaints and determine appropriate responses. (CSLO 4)
8. (Synthesis Level) Develop and document standard and emergency operating procedures for receiving, handling, storing, shipping, or salvaging products or materials. (CSLO 3)
9. (Application Level) Demonstrate how to track and trace goods while they are enroute to their destinations, expediting orders when necessary. (CSLO 4)
10. (Analysis Level) Examine invoices and shipping manifests for accuracy. (CSLO 3)
11. (Synthesis Level) Develop or implement plans for storage and distribution activities that emphasize technological solutions. (CSLO 4)
12. (Synthesis Level) Facilitate inbound or outbound logistics operations, such as transportation or warehouse activities, safety performance, or logistics quality management. (CSLO 1, 2, 3, 4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Required Courses

Complete ALL of the following Courses:

- BUS111 - Principles of Logistics and Supply Chain Management
- BUS124 - Inventory Control
- BUS216 - Transportation and Traffic Management
- BUS227 - Introduction to Purchasing and Supply Management
- BUS292 - Fundamentals of Logistics - Organizational Managment
- CIS120 - Survey of Computer Information Systems

Additional Comments:

Other Requirements

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits

CT10_26-27 - Basic Firefighter Operations Certificate

Program Information

Program Title
Basic Firefighter Operations Certificate

Description
The Basic Firefighter Operations Certificate is designed to prepare future firefighters for a career in the fire service. The program curriculum and course of instruction will provide the student with the knowledge and skills to effectively perform the essential functions of an entry level firefighter. Upon successful completion of the fire academy (FSC140), students sit for the State proctored written and practical skills examinations. Successful students will be awarded State of Arizona certification through the Arizona Center for Fire Service Excellence Fire Service Accreditation.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
36

Program Learning Outcomes
1. 1. (Evaluation Level) Evaluate the characteristics of fire behavior and extinguishing agents. (FSC140)
2. 2. (Analysis Level) Examine the theory of fire behavior, phases of fire and compare methods of fire control. (FSC140)
3. 3. (Application Level) Demonstrate the methods of attacking, controlling and extinguishing various types of fires. (FSC140)
4. 4. (Application Level) Predict the impacts of public relations that will influence the strategies of fire suppression and property conservation. (FSC140)
5. 5. (Analysis Level) Analyze the policies and procedures that govern the practical application of modern firefighting and common terminology at the local and National levels. (FSC106)
6. 6. (Evaluation Level) Critique the resource deployment practices of fire suppression organizations, basic fire fighting tactics and strategies. (FSC106)
7. 7. (Synthesis Level) Categorize fire service resources, equipment and apparatus to determine their functions on an emergency incident. (FSC140)
8. 8. (Evaluation Level) Explain and critique the components of fire prevention including code enforcement, public information, and public and private fire protection systems. (FSC106)
9. 9. (Analysis Level) Analyze the environmental factors of Wildland Fire that affect the start and spread of wildfire. (FSC180)
10. 10. (Application Level) Explain and demonstrate the maintenance, safety and efficient use of wildland fire suppression personal protective equipment. (FSC180)
11. 11. (Analysis Level) Analyze the application of common wildland fire terms. (FSC180)
12. 12. (Application Level) Demonstrate the ability to extricate and immobilize a patient from an automobile using extrication tools. (FSC140)

Simple Requisites

Recommendations & Prerequisites
Type
Prerequisite

Additional Comments:
Consult your department advisor. Some courses require:

a. State of Arizona/Arizona Center for Fire Service Excellence IFSAC-Accreditation Certificate.

b. State of Arizona Department of Health Services Certification(s)

c. American Heart, Red Cross, or other approved certifying agency course completion in CPR

d. Nationally Recognized or equivalent certifying agency course completion.

- Certificate must be complete prior to declaring in the AAS program.

- Successful completion of AZ-State Testing is required for FSC140-FSC129 prior to issuance of AZ-State Certifications.

- Successful completion of NWCG Testing is required for FSC180 Prior to issuance of NWCG Certifications.

Certificate Requirements
Type
Completion Requirement

Certificate Requirements

Complete ALL of the following Courses:

- EMS110 - Introduction to Emergency Medical Services
- EMS125A - Basic EMT Psychomotor Evaluation
- EMS125 - Emergency Medical Technician
- FSC106 - Introduction to Emergency Services
- FSC119 - Fire Service Ethics
- FSC129 - Haz-Mat Awareness/Operations
- FSC134 - Fitness and Conditioning for Firefighters
- FSC140 - Firefighter I and II
- FSC180 - Wildland Fire, Module 1

Additional Comments:
Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 36 semester credits.

CT11_22-23 - Practical Nursing Certificate

Program Information

Program Title
Practical Nursing Certificate

Description
The Practical Nursing (PN) Certificate program in practical nursing provides an option for wishing to gain licensure as a practical nurse or for the AAS Nursing student who wishes to exit the RN program and gain employment as a Practical Nurse. Upon successful completion of the PN program requirements, the graduate receives a certificate of proficiency and is eligible to take the National Council Licensure Examination for Practical Nursing (NCLEXPN). When the graduate passes the NCLEX-PN, they will be eligible to practice as a Licensed Practical Nurse (LPN) in the state of Arizona.

Program prerequisites:

1. BIO 201 Anatomy & Physiology I and BIO 202 Anatomy & Physiology II within 5 years of application
2. LNA (Licensed Nursing Assistant) and Current American Heart Association BLS for Healthcare Provider Card.
3. Application to the PN Program (Must attend an informational session within one year of application and take the HESI Nursing entrance exam at CAC prior to submitting application. The HESI must be completed within three attempts with the following scores: 80% minimum with 90-95% preferred on Reading Comprehension, Grammar, Vocabulary, and Mathematics and 70% minimum on Anatomy/Physiology. (A 30 day wait is required before retesting.)
4. To apply to the PN program, students must have a GPA of 2.75 or higher based on the nursing pre/co-requisites

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
32

Program Learning Outcomes
Upon completion of the program, the graduate will be able to:
1) (Evaluation Level) Support healthy physiological, psychosocial, cultural and spiritual functioning for patients, families, communities and themselves (CSLO 1).
2) (Application Level) Employ sound critical thinking/clinical judgment skills in practice, using evidenced-based nursing competencies to promote safe, quality nursing care (CSLO 2 & CSLO 4).
3. (Synthesis Level) Continue in developing a professional identity by integrating the nursing role using integrity, ethical and legal practices, and advocating for patients, families and communities.
4. (Analysis Level) Practice and maintain a spirit of inquiry by examining evidence that underlies nursing practice and offering insights to improve the quality of care to patients, families and communities (CSLO 3).
5. (Evaluation Level) Provide patient-centered care using effective communication and collaboration with patients, families and other members of the healthcare team).
6. (Application Level) Apply informatics to all areas of nursing.

Simple Requisites

Admission Requirements
Type
Prerequisite

Additional Comments:
In addition to the CAC admission requirements, applicants must meet the current requirements established by the Nursing Division faculty. These requirements include, but are not limited to:

1. Competence in math, English, and reading.
2. Completion of BIO201 , BIO202 within 5 years of application. (For students who need a prerequisite for BIO201 ; the recommendation for nursing is BIO181 .)
3. LNA from the Arizona State Board of Nursing must be included in the application to the CAC Practical Nurse program (Request LNA License early to allow shipping and processing time.) and Current American Heart Association BLS for Healthcare Provider Card.
4. Attendance at a nursing information session within the past year.
5. Eligibility to register for MAT141 or higher MAT course.
6. Eligibility to register for ENG101 .
7. Successful completion of the HESI Entrance Test at CAC (within 3 attempts 30 days apart).
8. Cumulative GPA of 2.75 or higher.

9. Completed CAC Nursing program application.

Students must be able to meet the essential functions of the nursing program as listed in the Practical Nurse Application and Information Packet. Admission to the Nursing program is selective and based on a point system (specific established criteria). Acceptance to CAC does not guarantee acceptance into the practical nursing program. Further information may be obtained at URL: https://centralaz.edu/divisions-programs/nursing-health-emergency-careers/nursing-aas/

Certificate General Education Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:

- ENG101 - College Composition I
- ENG102 - College Composition II

Social & Behavioral Sciences

Complete ALL of the following Courses:

- PSY101 - Introduction to Psychology

Mathematics

Earn at least 3 credits from the following:

- AGEC Mathematics Courses

MAT141 or higher, excluding MAT201 and MAT202.

Certificate Core Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- NUR121AX - Transitions Across the Lifespan
- NUR121BX - Fundamentals of Health/Illness Transitions
- NUR125X - Nursing Psychiatric Care and Developmental Transitions
- NUR126AX - Introduction to Principles and Application of Drug Dosage Calculations
- NUR135X - Nursing in Obstetric and Pediatric Transitions
- NUR145A - Introduction to Pathopharmacology
- NUR200 - Advanced Medical Terminology for Nursing and Healthcare Professionals

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a grade of C is at least 78% didactic or higher in the NUR courses prior to other assignment points being added;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 32-33 semester credits.

CT11_26-27 - Post-Baccalaureate Alternative Special Education Mild to Moderate 9-12, Teacher in Residence Certificate

Program Information

Program Title
Post-Baccalaureate Alternative Special Education Mild to Moderate 9-12, Teacher in Residence Certificate

Description
The Post-Baccalaureate Alternative Special Education Mild to Moderate, Teacher in Residence (TIR) program provides students holding a baccalaureate degree in any content area to complete coursework and field experiences to earn teaching certification in a mild to moderate special education setting. The program leads to Arizona teacher certification and provides candidates with the necessary foundation to teach in a special education K-12 classroom. This program emphasizes sound pedagogical practices while stressing the skills, knowledge, and dispositions necessary to confidently enter the field of education to support students with exceptionalities. Candidates engage in a purposeful program of study, which is grounded in theory and infused with practical experiences in schools. Candidates engage in the foundational models of educational practice, interdisciplinary course methodology and pedagogy, constructs of an effective learning environment to include behavior management, conflict resolution, and positive behavior models in the classroom, systems of culturally responsive teaching to meet the needs of diverse students, educational psychology, ethical and legal best practice and decision making, data-based approaches for developing individualized instruction, and fostering digital literacy through curiosity, innovation, global awareness, and reflection for the use of technology in the classroom.

Candidates complete field experiences in special education settings in grades K-8 and 9-12. The Alternative 9-12 program includes 45 hours of field experiences in grades K-8. In the final semester of the program, the candidate completes 12 weeks of student teaching in the grades 9-12 special education classroom aligned to the contracted teaching position.

For candidates who plan to teach in an English Language Development (ELD) classroom, students must complete and show proof of an ADE approved Structured English Immersion workshop or course. For students in need of this requirement, CAC offers EDU240 Structured English Immersion. This course is on the ADE list of approved SEI coursework for the teacher certification endorsement.

For candidates who have a deficiency in the U.S. and Arizona Constitutions requirement for teaching certification, CAC offers POS220 U.S. and Arizona Constitutions.

Students in the Post-Baccalaureate Traditional Special Education Mild to Moderate program are required to pass the AEPA Professional Knowledge exam for Special Education prior to the capstone student teaching phase.

Upon completion of the Post-Baccalaureate Program, the CAC program supervisor will provide the candidate's name to the Arizona Department of Education (ADE) with an institutional recommendation for obtaining Arizona state teacher certification in Mild to Moderate Special Education, grades K-12. Institutional recommendation does not automatically grant the candidate state teacher certification. The student must personally apply for teacher certification with ADE. An enrollment/program GPA of 3.0 or higher must be earned for institutional recommendation/graduation.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
51

Program Learning Outcomes
1. (Understanding Level) Understand how exceptionalities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for students with exceptionalities. (InTASC 2) (CEC 1) (ISTE 2.2) (CSLO 1, 2, 3)
2. (Creating Level) Create safe, inclusive, culturally responsive learning environments so that individuals with exceptionalities become active and effective learners and develop emotional well-being, positive social interactions, and self-determination. (InTASC 3) (CEC 2) (ISTE 2.6) (CSLO 1, 2, 3)
3. (Application Level) Use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities. (InTASC 2, 4) (CEC 1, 3) (CSLO 2, 3)
4. (Application Level) Use multiple methods of assessment and data sources in making educational decisions. (InTASC 6) (CEC 4) (ISTE 2.7) (CSLO 2, 3)
5. (Evaluation Level) Select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of individuals with exceptionalities. (InTASC 5) (CEC 5) (ISTE 2.1, 2.6) (CSLO 1, 2, 3)
6. (Application Level) Use foundational knowledge of the field and the professional Ethical Principles and Practice Standards to inform special education practice, to engage in lifelong learning, and to advance the profession. (InTASC 9) (CEC 6) (CSLO 1, 2, 3, 4)
7. (Analysis Level) Collaborate with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways to address the needs of individuals with exceptionalities across a range of learning experiences. (InTASC 10) (CEC 7) (CSLO 1, 2, 3, 4)
8. (Evaluation Level) Design and evaluate learning experiences incorporating digital tools and resources to maximize content learning, and mentor students in safe, legal, and ethical practices with digital tools and content. (InTASC 8, 10) (ISTE 2.3) (CEC 5) (CSLO 1, 2, 4)

Simple Requisites
Certificate Requirements

Type
Completion Requirement

Certificate Requirements

Complete ALL of the following Courses:

- EDU221PB - Introduction to Education PB
- EDU222 - Introduction to Special Education
- EDU275 - Writing Across Content Areas
- EDU302 - Educational Psychology
- EDU320A - Structured Literacy A: The Science of Reading and Phonics
- EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia
- EDU331 - Math Methods: Geometry, Algebra, Statistics, Ratio, and Probability K-8
- EDU332 - Mathematics Strategies, Assessment, and Intervention
- ESE344 - Introduction to IEPs: Behavior, Transition Planning, and Field Experience
- ESE345 - Introduction to Speech and Language Disorders in the Classroom
- ESE346 - Legal Aspects and Ethical Practice in Special Education
- ESE347 - Foundations of Instruction - Mild to Moderate Disabilities
- ESE348 - Methods of Instruction - Mild to Moderate Disabilities
- ESE349 - Diagnosis and Assessment of Mild to Moderate Disabilities
- ESE390A - Field Experience in Special Education (Grades K-8), Teacher in Residence
- ESE490A - Student Teaching Alternative: Mild to Moderate Special Education 9-12, TIR

Complete the above with a grade of C or higher

Additional Comments:
Students must earn:

- a grade of a C or better in each required class;
- a cumulative program/enrollment GPA (EGPA) of at least a 3.0 on a 4.0 scale for institutional recommendation/graduation;
- an overall cumulative GPA of 2.0 or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 51 semester credits

CT12_20-21 - Recreation Management Certificate

Program Information

Program Title
Recreation Management Certificate

Description
The Recreation Management Certificate prepares students for employment in recreation and tourism management and program delivery positions in diverse public, nonprofit, and private organizations such as municipal and county parks and recreation departments, state and national resource agencies, YMCAs, Boys and Girls Clubs of America, and other nonprofit agencies, clinical rehabilitation centers, hospitals, visitor and convention bureaus, senior centers, resorts and spas, destination management companies and other components of the tourism/commercial recreation industry. Recommended proficiencies: College-level reading, writing and oral communication skills recommended.

Area of Interest
Business & Professional Industries

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Analysis Level) Identify and compare the conceptual foundations of play, recreation, and leisure. (CSLO 2)
2. (Analysis Level) Explain and compare the significance of play, recreation, and leisure in contemporary society and the relationship these concepts have with historical, multicultural, technological, economic, political, social/psychological, international, physical, philosophical, and environmental perspectives. (CSLO 2)
3. (Comprehension Level) Explain and discuss the significance of play, recreation, and leisure throughout the lifespan to include the developmental, preventive, and therapeutic role of these concepts. (CSLO 1,2,4)
4. (Analysis Level) Analyze and compare the interrelationship between leisure behavior and the natural environment, as well as how the natural environment facilitates the achievement of a state of leisure. (CSLO 1,2,4)
5. (Evaluation Level) Determine and assess the relationship of environmental ethics to leisure behavior, including environmental protection and preservation in park or recreation facility development and program provision. (CSLO 1,2,4)
6. (Comprehension Level) Explain and discuss the following as they relate to recreation, park resources, and leisure services: history and development of the profession, professional organizations, as well as current issues and trends in the profession. (CSLO 2)
7. (Analysis Level) Relate ethical principles and professionalism to professional codes of ethics and standards of conduct and examine how these areas are critical in defining leisure services as a profession. (CSLO 1,2,4)
8. (Analysis Level) Distinguish between the roles, interrelationships, and use of diverse delivery systems addressing recreation, park resources, and leisure to include an understanding of the public, private, profit, and not-for-profit delivery systems that address the leisure needs of the public, examining how they work together and their importance. (CSLO 1,2)
9. (Synthesis Level) Model and explain the ability to use various leadership techniques to enhance individual, group, and community experiences. (CSLO 1,2)
10. (Comprehension Level) Explain and discuss the fundamental principles and procedures of financial and human management. (CSLO 2,4)
11. (Analysis Level) Examine, explain and discuss the principles and practices of safety, emergency, and risk management and relate them to recreation, park resources, and leisure services. (CSLO 1,2)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Recommended Proficiencies

College-level reading, writing and oral communication skills recommended.

Core Requirement

Complete ALL of the following Courses:

- HRM100 - Introduction to Hospitality
- HRM145 - Convention and Meeting Management
- REC101 - Recreation, Leisure and the Quality of Life
- REC108 - Recreation Practicum

- REC203 - Leisure Delivery Systems
- REC250 - Leadership in Recreation

Additional Comments:

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 18 semester credits.

CT12_26-27 - Post-Baccalaureate Alternative Special Education Mild to Moderate K-8, Teacher in Residence Certificate

Program Information

Program Title
Post-Baccalaureate Alternative Special Education Mild to Moderate K-8, Teacher in Residence Certificate

Description
The Post-Baccalaureate Alternative Special Education Mild to Moderate, Teacher in Residence (TIR) program provides students holding a baccalaureate degree in any content area to complete coursework and field experiences to earn teaching certification in a mild to moderate special education setting. The program leads to Arizona teacher certification and provides candidates with the necessary foundation to teach in a special education K-12 classroom. This program emphasizes sound pedagogical practices while stressing the skills, knowledge, and dispositions necessary to confidently enter the field of education to support students with exceptionalities. Candidates engage in a purposeful program of study, which is grounded in theory and infused with practical experiences in schools. Candidates engage in the foundational models of educational practice, interdisciplinary course methodology and pedagogy, constructs of an effective learning environment to include behavior management, conflict resolution, and positive behavior models in the classroom, systems of culturally responsive teaching to meet the needs of diverse students, educational psychology, ethical and legal best practice and decision making, data-based approaches for developing individualized instruction, and fostering digital literacy through curiosity, innovation, global awareness, and reflection for the use of technology in the classroom.

Candidates complete field experiences in special education settings in grades K-8 and 9-12. The Alternative K-8 program includes 45 hours of field experiences in grades 9-12. In the final semester of the program, the candidate completes 12 weeks of student teaching in the K-8 special education classroom aligned to the contracted teaching position.

For candidates who plan to teach in an English Language Development (ELD) classroom, students must complete and show proof of an ADE approved Structured English Immersion workshop or course. For students in need of this requirement, CAC offers EDU240 Structured English Immersion. This course is on the ADE list of approved SEI coursework for the teacher certification endorsement.

For candidates who have a deficiency in the U.S. and Arizona Constitutions requirement for teaching certification, CAC offers POS220 U.S. and Arizona Constitutions.

Students in the Post-Baccalaureate Traditional Special Education Mild to Moderate program are required to pass the AEPA Professional Knowledge exam for Special Education prior to the capstone student teaching phase.

Upon completion of the Post-Baccalaureate Program, the CAC program supervisor will provide the candidate's name to the Arizona Department of Education (ADE) with an institutional recommendation for obtaining Arizona state teacher certification in Mild to Moderate Special Education, grades K-12. Institutional recommendation does not automatically grant the candidate state teacher certification. The student must personally apply for teacher certification with ADE. A program/enrollment GPA of 3.0 or higher must be earned for institutional recommendation/graduation.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
51

Program Learning Outcomes
1. (Understanding Level) Understand how exceptionalities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for students with exceptionalities. (InTASC 2) (CEC 1) (ISTE 2.2) (CSLO 1, 2, 3)
2. (Creating Level) Create safe, inclusive, culturally responsive learning environments so that individuals with exceptionalities become active and effective learners and develop emotional well-being, positive social interactions, and self-determination. (InTASC 3) (CEC 2) (ISTE 2.6) (CSLO 1, 2, 3)
3. (Application Level) Use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities. (InTASC 2, 4) (CEC 1, 3) (CSLO 2, 3)
4. (Application Level) Use multiple methods of assessment and data sources in making educational decisions. (InTASC 6) (CEC 4) (ISTE 2.7) (CSLO 2, 3)
5. (Evaluation Level) Select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of individuals with exceptionalities. (InTASC 5) (CEC 5) (ISTE 2.1, 2.6) (CSLO 1, 2, 3)
6. (Application Level) Use foundational knowledge of the field and the professional Ethical Principles and Practice Standards to inform special education practice, to engage in lifelong learning, and to advance the profession. (InTASC 9) (CEC 6) (CSLO 1, 2, 3, 4)
7. (Analysis Level) Collaborate with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways to address the needs of individuals with exceptionalities across a range of learning experiences. (InTASC 10) (CEC 7) (CSLO 1, 2, 3, 4)
8. (Evaluation Level) Design and evaluate learning experiences incorporating digital tools and resources to maximize content learning, and mentor students in safe, legal, and ethical practices with digital tools and content. (InTASC 8, 10) (ISTE 2.3) (CEC 5) (CSLO 1, 2, 4)

Simple Requisites
Certificate Requirements

Type
Completion Requirement

Certificate Requirements

Complete ALL of the following Courses:

- EDU221PB - Introduction to Education PB
- EDU222 - Introduction to Special Education
- EDU275 - Writing Across Content Areas
- EDU302 - Educational Psychology
- EDU320A - Structured Literacy A: The Science of Reading and Phonics
- EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia
- EDU330 - Math Methods: Numbers, Operations, Proportions, Measurement, and Reasoning
  OR EDU331 - Math Methods: Geometry, Algebra, Statistics, Ratio, and Probability K-8
- EDU332 - Mathematics Strategies, Assessment, and Intervention
- ESE344 - Introduction to IEPs: Behavior, Transition Planning, and Field Experience
- ESE345 - Introduction to Speech and Language Disorders in the Classroom
- ESE346 - Legal Aspects and Ethical Practice in Special Education
- ESE347 - Foundations of Instruction - Mild to Moderate Disabilities
- ESE348 - Methods of Instruction - Mild to Moderate Disabilities
- ESE349 - Diagnosis and Assessment of Mild to Moderate Disabilities
- ESE390B - Field Experience in Special Education (Grades 9-12), Teacher in Residence
- ESE480A - Student Teaching Alternative: Mild to Moderate Special Education K-8, TIR

Complete the above with a grade of C or higher

Additional Comments:
Students must earn:

- a grade of a C or better in each required class;
- a cumulative program/enrollment GPA (EGPA) of at least a 3.0 on a 4.0 scale for institutional recommendation/graduation;
- a cumulative overall GPA of 2.0 or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 51 semester credits

CT13_26-27 - Post-Baccalaureate Traditional Special Education Mild to Moderate K-12 Certificate

Program Information

Program Title
Post-Baccalaureate Traditional Special Education Mild to Moderate K-12 Certificate

Description
The Post-Baccalaureate Traditional Special Education Mild to Moderate program provides students holding a baccalaureate degree in any content area to complete coursework and field experiences to earn teaching certification in a mild to moderate special education setting. The program leads to Arizona teacher certification and provides candidates with the necessary foundation to teach in a special education K-12 classroom. This program emphasizes sound pedagogical practices while stressing the skills, knowledge, and dispositions necessary to confidently enter the field of education to support students with exceptionalities. Candidates engage in a purposeful program of study, which is grounded in theory and infused with practical experiences in schools. Candidates engage in the foundational models of educational practice, interdisciplinary course methodology and pedagogy, constructs of an effective learning environment to include behavior management, conflict resolution, and positive behavior models in the classroom, systems of culturally responsive teaching to meet the needs of diverse students, educational psychology, ethical and legal best practice and decision making, data-based approaches for developing individualized instruction, and fostering digital literacy through curiosity, innovation, global awareness, and reflection for the use of technology in the classroom.

Candidates complete field experiences in special education settings in grades K-8 and 9-12. The Traditional program includes 12 weeks of student teaching under the auspice of a mentor teacher, 6 weeks in a K-8 grade level and 6 weeks in grades 9-12 in the last semester of the program.

For candidates who plan to teach in an English Language Development (ELD) classroom, students must complete and show proof of an ADE approved Structured English Immersion workshop or course. For students in need of this requirement, CAC offers EDU240 Structured English Immersion. This course is on the ADE list of approved SEI coursework for the teacher certification endorsement.

For candidates who have a deficiency in the U.S. and Arizona Constitutions requirement for teaching certification, CAC offers POS220 U.S. and Arizona Constitutions.

Students in the Post-Baccalaureate Traditional Special Education Mild to Moderate program are required to pass the AEPA Professional Knowledge exam for Special Education prior to the capstone student teaching phase.

Upon completion of the Post-Baccalaureate Program, the CAC program supervisor will provide the candidate's name to the Arizona Department of Education (ADE) with an institutional recommendation for obtaining Arizona state teacher certification in Mild to Moderate Special Education, grades K-12. Institutional recommendation does not automatically grant the candidate state teacher certification. The student must personally apply for teacher certification with ADE. An overall program/enrollment GPA of 3.0 or higher must be earned for institutional recommendation/graduation.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
49

Program Learning Outcomes
1. (Understanding Level) Understand how exceptionalities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for students with exceptionalities. (InTASC 2) (CEC 1) (ISTE 2.2) (CSLO 1, 2, 3)
2. (Creating Level) Create safe, inclusive, culturally responsive learning environments so that individuals with exceptionalities become active and effective learners and develop emotional well-being, positive social interactions, and self-determination. (InTASC 3) (CEC 2) (ISTE 2.6) (CSLO 1, 2, 3)
3. (Application Level) Use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities. (InTASC 2, 4) (CEC 1, 3) (CSLO 2, 3)
4. (Application Level) Use multiple methods of assessment and data sources in making educational decisions. (InTASC 6) (CEC 4) (ISTE 2.7) (CSLO 2, 3)
5. (Evaluation Level) Select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of individuals with exceptionalities. (InTASC 5) (CEC 5) (ISTE 2.1, 2.6) (CSLO 1, 2, 3)
6. (Application Level) Use foundational knowledge of the field and the professional Ethical Principles and Practice Standards to inform special education practice, to engage in lifelong learning, and to advance the profession. (InTASC 9) (CEC 6) (CSLO 1, 2, 3, 4)
7. (Analysis Level) Collaborate with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways to address the needs of individuals with exceptionalities across a range of learning experiences. (InTASC 10) (CEC 7) (CSLO 1, 2, 3, 4)
8. (Evaluation Level) Design and evaluate learning experiences incorporating digital tools and resources to maximize content learning, and mentor students in safe, legal, and ethical practices with digital tools and content. (InTASC 8, 10) (ISTE 2.3) (CEC 5) (CSLO 1, 2, 4)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Certificate Requirements

Complete ALL of the following Courses:

- EDU221PB - Introduction to Education PB
- EDU222 - Introduction to Special Education
- EDU275 - Writing Across Content Areas
- EDU302 - Educational Psychology
- EDU320A - Structured Literacy A: The Science of Reading and Phonics
- EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia
- EDU330 - Math Methods: Numbers, Operations, Proportions, Measurement, and Reasoning
  OR EDU331 - Math Methods: Geometry, Algebra, Statistics, Ratio, and Probability K-8
- EDU332 - Mathematics Strategies, Assessment, and Intervention
- ESE344 - Introduction to IEPs: Behavior, Transition Planning, and Field Experience
- ESE345 - Introduction to Speech and Language Disorders in the Classroom
- ESE346 - Legal Aspects and Ethical Practice in Special Education
- ESE347 - Foundations of Instruction - Mild to Moderate Disabilities
- ESE348 - Methods of Instruction - Mild to Moderate Disabilities
- ESE349 - Diagnosis and Assessment of Mild to Moderate Disabilities
- ESE480B - Student Teaching Traditional: Mild to Moderate Special Education K-8
- ESE490B - Student Teaching Traditional: Mild to Moderate Special Education 9-12

Complete the above with a grade of C or higher

Additional Comments:
Students must earn:

- a grade of a C or better in each required class;
- a cumulative program/enrollment GPA (EGPA) of at least a 3.0 on a 4.0 scale for institutional recommendation/graduation;
- a cumulative GPA of 2.0 or higher;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 49 semester credits

CT25_20-21 - Early Childhood Education Certificate

Program Information

Program Title
Early Childhood Education Certificate

Description
The Early Childhood Education Certificate prepares competent early childhood professionals for working with young children and families in early childhood settings. The certificate prepares students for entry level positions by providing opportunities to gain broad knowledge and practice application of skills. Recommended proficiencies: Individuals preparing to observe in an early childhood setting in Arizona obtain verification of a negative Mantoux TB test and maintain a valid IVP fingerprint clearance card.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
21

Program Learning Outcomes
1. (Analysis Level) Analyze major theoretical perspectives and research on child development (birth–age 8), including brain development, executive function, and protective/risk factors. Evaluate how cultural, familial, and societal contexts shape development and apply this analysis to inform equitable practices. (CSLO 4; NAEYC 1)

2. (Evaluation Level) Evaluate diverse family structures and stages of development to cultivate responsive, respectful, and reciprocal partnerships. Analyze potential conflicts between family preferences and program practices. Propose solutions that foster trust, shared decision-making, and culturally responsive approaches. Develop and implement strategies that leverage community resources to strengthen family engagement and child transitions. (CSLO 1; NAEYC 2)

3. (Analysis Level) Critically evaluate and practice using a range of observation and assessment tools for developmental, cultural, and linguistic appropriateness. Analyze assessment data to set individualized learning goals. Create assessment plans in partnership with families and colleagues to ensure equity and positive outcomes. (CSLO 4; NAEYC 3)

4. (Evaluation Level) Demonstrate and defend differentiated practices that incorporate play, inquiry, and executive function skills. Evaluate the effectiveness of culturally and linguistically responsive, anti-bias strategies, and design inclusive learning environments that foster resilience, curiosity, and critical thinking. (CSLO 2, NAEYC 4)

5. (Synthesis Level) Synthesize knowledge of core academic areas to implement pedagogical methods that are inclusive of young children with diverse abilities. Evaluate curriculum for developmental appropriateness and cultural responsiveness, and design learning experiences that extend children's thinking across disciplines. (CSLO 2; NAEYC 5)

6. (Analysis Level) Analyze and resolve professional dilemmas using the NAEYC Code of Ethical Conduct. Evaluate emerging issues in the field, and create advocacy strategies that support children, families, and educators within early learning settings and broader policy contexts. (CSLO 3, NAEYC 6)

7. (Evaluate) Critically reflect on professional practice and biases using stakeholder feedback and evidence. Create individualized professional development goals and resiliency practices to maintain ethical, effective engagement and intentional approaches with children and families. (CSLO 3, NAEYC 6)

Simple Requisites
Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ECE105 - Foundations Early Child Education
- ECE110 - Health, Safety, and Nutrition
- ECE11617 - Effective Interactions and Guidance
- ECE216 - Early Childhood Observation and Assessment
- ECE271 - Creating Early Childhood Environments
- ECE276 - Child Development
- ECE283 - Building Family and Community Partnerships

Additional Comments:
Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;

- a minimum of 3 earned CAC credits numbered 100 or above; ◈ a minimum of 21 semester credits.

CT27_20-21 - Early Childhood Education Professional Development Certificate

Program Information

Program Title
Early Childhood Education Professional Development Certificate

Description
The Early Childhood Education Professional Development Certificate prepares entry-level early childhood professionals for working with young children and families in early childhood settings. The certificate provides opportunities for students to gain introductory knowledge and skills aligned to the National Association for the Education of Young Children (NAEYC) Early Childhood Education Level I competencies and Arizona Workforce Knowledge and Competency Level I standards. The certificate also provides a pathway for transition into the college's Early Childhood Education program for degree completion.

This is an open-enrollment program and is available to all entry-level students, including but not limited to those completing Career and Technical Education (CTE) programs. Recommended proficiencies: It is recommended that individuals preparing to observe in an early childhood setting in Arizona obtain verification of a negative Mantoux TB test and maintain a valid IVP fingerprint clearance card.

Area of Interest
Education

Degree Type
Certificate

Total Credits Required
12

Program Learning Outcomes
1. (Analysis Level) Recognize typical and atypical child development of children birth to age eight. (CSLO 2; NAEYC 1 & 3)
2. (Analysis Level) Identify the components of developmentally appropriate learning environments for children birth to age eight. (CSLO 3; NAEYC 1, 2, 4 & 5)
3. (Application Level) Support children's social-emotional development through effective interactions with children, families, and peers. (CSLO 1: NAEYC 1, 2, 3 & 4)
4. (Comprehension Level) Describe the requirements of early childhood regulatory bodies and related professional organizations. (CSLO 3; NAEYC 6)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ECE105 - Foundations Early Child Education
- ECE110 - Health, Safety, and Nutrition
- ECE11617 - Effective Interactions and Guidance
- ECE271 - Creating Early Childhood Environments

Additional Comments:

Other Requirements
Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 12 semester credits.

CT28_20-21 - Automated Industrial Technology I Certificate

Program Information

Program Title
Automated Industrial Technology I Certificate

Description
The Certificate of Completion (CCL) in Automated Industrial Technology I prepares students to troubleshoot, maintain, and repair a variety of automated electromechanical, product assembly, and product distribution systems that use other methodologies to accomplish system management. These systems include mechanical, hydraulic, pneumatic, electrical, and electronic devices. Through this certificate, graduates will gain the skills to define, install, and maintain complex production systems. Additionally, students will gain the communication, problem solving, and professional skills needed to be successful in this field. The Automated Industrial Technology courses are designed to prepare students for industry recognized certifications.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Applying Level) Collaborate with diverse individuals and entities to achieve common goals. (CSLO 2,3,4)
2. (Analyzing Level) Analyze AC/DC circuits, and analog and digital systems. (CSLO 2,3,4)
3. (Applying Level) Perform, monitor and interpret machine operation. (CSLO 2,3)
4. (Applying Level) Interpret electrical and electronic control and power schematics and measure current, voltage and resistance. (CSLO 2,3)
5. (Analyzing Level) Analyze and perform preventive and predictive maintenance on robotic and other automated industrial equipment. (CSLO 2,3,4)
6. (Applying Level) Utilize computer information systems, microcomputer applications, and programming techniques. (CSLO 2,3,4)
7. (Applying Level) Apply electronic and mechanical fabrication techniques. (CSLO 2,3,4)
8. (Understanding Level) Describe and adhere to safety, health and environmental rules and regulations. (CSLO 2,3)
9. (Applying Level) Practice professional standards of the industry and ethical behavior. (CSLO 2,3,4)
10. (Remembering Level) Communicate effectively, both orally and in writing, in varied settings in a culturally responsive manner. (CSLO 2,3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- AIT100 - Industrial Safety
- AIT105 - Maintenance Operations
- AIT110 - Mechanical Power Transmission Systems
- AIT115 - Hydraulic Systems
- AIT120 - Pneumatic Systems
- AIT125 - DC and AC Components and Circuits

Other Requirements

Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT29_20-21 - Automated Industrial Technology II Certificate

Program Information

Program Title
Automated Industrial Technology II Certificate

Description
The Certificate of Completion (CCL) in Automated Industrial Technology II prepares students to troubleshoot, maintain, and repair a variety of automated electro-mechanical, product assembly, process control, and product distribution systems that use programmable controls and other methodologies to accomplish system management. These systems include robotic, mechanical, hydraulic, pneumatic, electrical, and electronic devices. Through this degree, graduates will gain the skills to define, integrate, install, program, and maintain complex control systems. Additionally, students will gain the communication, problem solving and professional skills needed to be successful in this field. The Automated Industrial Technology courses are designed to prepare students for industry recognized certifications.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Applying Level) Collaborate with diverse individuals and entities to achieve common goals. (CSLO 2,3)
2. (Applying Level) Install, test and troubleshoot Programmable Logic Controllers (PLCs). (CSLO 2,3,4)
3. (Analyzing Level) Analyze AC/DC circuits, and analog and digital systems. (CSLO 2,3)
4. (Applying Level) Install, test, operate and troubleshoot motor drives in an electrical control system. (CSLO 2,3,4)
5. (Understanding Level) Interpret electrical and electronic control and power schematics and measure current, voltage and resistance. (CSLO 2,3,4)
6. (Applying Level) Analyze and perform preventive and predictive maintenance on robotic and other automated industrial equipment. (CSLO 2,3,4)
7. (Applying Level) Utilize computer information systems, microcomputer applications, and programming techniques. (CSLO 2,3,4)
8. (Applying Level) Apply electronic and mechanical fabrication techniques. (CSLO 2,3)
9. (Analyzing Level) Describe and adhere to safety, health and environmental rules and regulations. (CSLO 2,3)
10. (Applying Level) Practice professional standards of the industry and ethical behavior. (CSLO 2,3,4)
11. (Understanding Level) Communicate effectively, both orally and in writing, in varied settings in a culturally responsive manner. (CSLO 2,3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- AIT205 - Power Electronics and Variable Frequency Drives
- AIT210 - Programmable Logic Controller Programming and Troubleshooting
- AIT215 - Process Control Systems
- AIT225 - Industrial Motors and Motor Control
- AIT270 - Robotics I

Other Requirements

Students must earn:

- a grade of C or better in all required courses;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT30_20-21 - Commercial Electrician Installer Certificate

Program Information

Program Title
Commercial Electrician Installer Certificate

Description
The Commercial Electrician-Installer Certificate prepares individuals for an entry-level position in the commercial electrician field. The program focuses on fundamental knowledge attained in accordance with National Center for Construction Education and Research (NCCER) standards. Options within the certificate allow individuals to tailor their career pathway with additional skill sets. This certificate also offers the opportunity to obtain national certification from the NCCER.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
18

Program Learning Outcomes
1. (Application Level) Apply OSHA regulations and safe practices to electrical work sites. (CSLO 1,3)
2. (Synthesis Level) Develop professional skills relevant to the construction industry including communication, critical thinking, and teamwork. (CSLO 3,4)
3. (Application Level) Use power and hand tools in a proper and safe manner. (CSLO 1,2,3)
4. (Application Level) Identify electrical hazards and their effects. Understand the effects of electrical shock on the human body. Verify that circuits are de-energized. (CSLO 2,3)
5. (Application Level) Read schematic diagrams. Identify the symbol for a resistor and determine its value based on color codes. Distinguish between series and parallel circuits. Identify the instruments used to measure circuit values. Calculate electrical power. (CSLO 2,3,4)
6. (Application Level) Cut conduit using a hacksaw. Cut conduit using a pipe cutter. Ream conduit. Thread conduit. Cut and join PVC conduit. (CSLO 3)
7. (Application Level) Bond service equipment. Size the main bonding jumper. Bond multiple service disconnects. Bond enclosures and equipment. (CSLO 3)
8. (Analysis Level) Outline and explain the installation of electrical system components in residential construction. (CSLO 2)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- BCT100 - NCCER Core
- BCT150 - Industrial Safety and OSHA 30
- ELC121 - Electrical Level 1
- ELC212 - Electrical Level 2

Other Requirements

Students must earn:
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above,
- a minimum of 18 semester credits.

CT33_20-21 - Diesel Technology II Certificate

Program Information

Program Title
Diesel Technology II Certificate

Description
The Diesel Technology II Certificate prepares students for employment as diesel technicians with an array of career opportunities within the industry. A typical graduate will seek employment with an equipment dealer, equipment rental company, or a highway heavy construction company. Students receive training applicable for servicing and repairing all types of diesel equipment. Prerequisites: DIE TECH Cohort, current/valid driver's license or instructor consent.

The Diesel Technology II Certificate is accredited by the Associated Equipment Distributors Foundation (AEDF) located at 600 22nd Street Suite 220 Oak Brook, IL 60523; 630-574-0650; aedfoundation.org/

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
46

Program Learning Outcomes
1. (Synthesis Level) Model safe procedures in the workplace, per OSHA. (CSLO 2)
2. (Comprehension Level) Explain the fundamentals of diesel engine and fuel system design and operation used in heavy equipment. (CSLO 2)
3. (Analysis Level) Diagnose and repair malfunctions related to diesel engines and fuel systems used in heavy equipment.(CSLO 4)
4. (Comprehension Level) Explain the fundamentals of power train and chassis system design and operation used in heavy equipment.(CSLO 2)
5. (Analysis Level) Diagnose and repair malfunctions related to power train and chassis systems used in heavy equipment.(CSLO 4)
6. (Comprehension Level) Explain the fundamentals of hydraulic, electrical, and electronic systems used in heavy equipment. (CSLO 2,4)
7. (Analysis Level) Diagnose and repair malfunctions related to hydraulic, electrical, and electronic systems used in heavy equipment.(CSLO 4)
8. (Application Level) Operate heavy equipment in accordance with the operator's handbook.(CSLO 2,4)
9. (Application Level) Recondition heavy equipment in accordance with the manufacturer's service and repair manual. (CSLO 2,4)

Simple Requisites

Prerequisites
Type
Prerequisite

Additional Comments:
Students must be admitted to DIE TECH Cohort; current and valid driver license; or instructor consent.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- DIE116 - Intro to Diesel Technology
- DIE118 - Computer Systems Equip Techs
- DIE132 - Diesel Engines and Fuel Systems
- DIE133 - Diesel Power Trains
- DIE215 - Diesel Electrical Systems
- DIE216 - Diesel Hydraulic Systems
- DIE222 - Mobile Refrigeration
- HEO100 - Intro to Heavy Equip Operation
  OR HEO121 - Heavy Equipment Operations Core

Other Requirements

Students must earn:
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;

- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 46 semester credits.

CT34_20-21 - Heavy Equipment Operator Level I Certificate

Program Information

Program Title
Heavy Equipment Operator Level I Certificate

Description
The Heavy Equipment Operator Level I Certificate focuses on the operation, maintenance, and service of heavy equipment. This certificate covers NCCER core curriculum and general maintenance of heavy equipment.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Synthesis Level) Model safe procedures in the workplace, per OSHA. (CSLO #2)
2. (Comprehension Level) Explain the fundamentals of diesel engine and fuel system design and operation used in Heavy Equipment. (CSLO #2)
3. (Comprehension Level) Explain the fundamentals of hydraulic, electrical, and electronic systems used in Heavy Equipment. (CSLO #2 & #4)
4. (Application Level) Operate Heavy Equipment in accordance with the operator's handbook. (CSLO #2 & #4)
5. (Comprehension Level) Explain the importance of work safety, punctuality, and a team approach to develop and present class projects. (CSLO #2)
6. (Application Level) Safely operate various types of heavy equipment to exacting specifications. (CSLO #2 & #4)
7. (Comprehension Level) List, locate, and explain safety rules to follow during the maintenance of heavy equipment. (CSLO 2&3)
8. (Application Level) Apply tool safety rules and safe operating practices using safety equipment important to mechanics in the repair and reconditioning of heavy equipment. (CSLO 2 &3)
9. (Synthesis Level) Employ safe lifting and blocking techniques during repair of heavy equipment, including cross-blocking a piece of heavy equipment, and list ten safety rules for repairing tires and demonstrate the removal, repair and replacement of one tire on a piece of heavy equipment. (CSLO 2,3,4)
10. (Synthesis Level) List pre-start inspection steps for heavy equipment and perform pre-start inspections on five machines, including the correct jump start procedures for 12V and 24V electrical systems; identify the correct voltage of different pieces of heavy equipment; and perform correct jump starting of a 12V and a 24V piece of equipment. (CSLO 2,3,4)
11. (Comprehension level) Explain the power flow through a crawler-type tractor.
12. (Application level) Demonstrate the procedures for servicing various pieces of equipment, including replacing a drive shaft, wiring, and a clutch.
13. (Application/Mechanism level) Properly adjust a twin disc truck clutch.
14. (Analysis/Evaluation level) Diagnose lighting, cranking, and charging electrical circuits faults.

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CET125 - Intro to Earthmoving Methods & Operations
  OR CET221 - Basic Surveying & Grade Stakng
- HEO121 - Heavy Equipment Operations Core
  OR HEO122 - Heavy Equipment Operations I
- HEO127 - Heavy Equipment Reconditioning
  OR HEO128 - Diesel Equipment Service and Repair

Mathematics

Earn at least 3 credits from the following:

- BUS101 or MAT106 or higher

BUS101 or MAT106 or higher

Additional Comments:
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT35_20-21 - Heavy Equipment Operator Level II Certificate

Program Information

Program Title
Heavy Equipment Operator Level II Certificate

Description
The Heavy Equipment Operator Level II Certificate focuses on the operation, maintenance, and service of heavy equipment, layout of construction projects, and supervisory duties in the field of Heavy Equipment Operators.

The Heavy Equipment Operator Level II Certificate is accredited by the National Center for Construction Education and Research (NCCER), 13614 Progress Boulevard, Alachua, FL 32615; 888-622-3720; https://www.nccer.org/

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
30

Program Learning Outcomes
1. (Synthesis Level) Model safe procedures in the workplace, per OSHA. (CSLO 2)
2. (Comprehension Level) Explain the fundamentals of diesel engine and fuel system design and operation used in heavy equipment. (CSLO 2)
3. (Analysis Level) Diagnose and repair malfunctions related to diesel engines and fuel systems used in heavy equipment. (CSLO 4)
4. (Comprehension Level) Explain the fundamentals of power train and chassis system design and operation used in heavy equipment. (CSLO 2)
5. (Analysis Level) Diagnose and repair malfunctions related to power train and chassis systems used in heavy equipment. (CSLO 4)
6. (Comprehension Level) Explain the fundamentals of hydraulic, electrical, and electronic systems used in heavy equipment. (CSLO 2,4)
7. (Analysis Level) Diagnose and repair malfunctions related to hydraulic, electrical, and electronic systems used in heavy equipment. (CSLO 4)
8. (Application Level) Operate heavy equipment in accordance with the operator's handbook. (CSLO 2,4)
9. (Application Level) Recondition heavy equipment in accordance with the manufacturer's service and repair manual. (CSLO 2,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- CET125 - Intro to Earthmoving Methods & Operations
- CET221 - Basic Surveying & Grade Stakng
- HEO121 - Heavy Equipment Operations Core
- HEO122 - Heavy Equipment Operations I
- HEO127 - Heavy Equipment Reconditioning
- HEO128 - Diesel Equipment Service and Repair

Elective Requirement

Earn at least 3 credits from the following:

- AGEC Written Communications Courses
  OR AGEC Oral Communications Courses
  OR AGEC Arts & Humanities Courses
  OR AGEC Social & Behavioral Sciences Courses
  OR AGEC Physical & Biological Sciences Courses
  OR AGEC Mathematics Courses
  OR AGEC Intensive Writing/Critical Inquiry Courses
  OR AGEC Cultural Awareness Courses
  OR AGEC Global/International Awareness Courses
  OR AGEC Historical Awareness Courses

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;

- a minimum of 30 semester credits.

CT36_20-21 - Industrial Carpentry Certificate

Program Information

Program Title
Industrial Carpentry Certificate

Description
The Industrial Carpentry Certificate prepares individuals for an entry-level position in the construction carpentry field. The program focuses on fundamental knowledge attained in accordance to NCCER standards. Options within the certificate allow individuals to tailor his or her career pathway with additional skill sets. This certificate is upward compatible with a stackable certificate in advanced industrial construction or advanced concrete carpentry.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Application Level) Apply OSHA regulations and safe practices to construction work sites. (CSLO 1,3)
2. (Application Level) Perform layout for concrete forming to industry specifications. (CSLO 3)
3. (Synthesis Level) Develop professional skills relevant to the construction industry including communication, critical thinking, and teamwork. (CSLO 3,4)
4. (Application Level) Use power and hand tools in a proper and safe manner. (CSLO 1,2,3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- BCT100 - NCCER Core
- BCT121 - Industrial Carpentry
- BCT180 - Communication for the Trades
- HEO130 - Rigging, Trenching, and Foundations

Other Requirements

Students must earn:
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT37_20-21 - Advanced Industrial Carpentry Certificate

Program Information

Program Title
Advanced Industrial Carpentry Certificate

Description
The Advanced Industrial Carpentry Certificate prepares individuals for an advanced entry position in the construction carpentry field. The program focuses on advancing knowledge attained in accordance to NCCER standards. Options within the certificate allow individuals to tailor his or her career pathway with additional skill sets. This certificate is the second stackable certificate in industrial construction carpentry.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
32

Program Learning Outcomes
1. (Application Level) Demonstrate OSHA regulations and safe practices at construction work sites. (CSLO 1,3)
2. (Application Level) Solve measurement and math related problems relevant to construction. (CSLO 1)
3. (Synthesis Level) Perform layout for construction site aligning to industry specifications. (CSLO 3)
4. (Synthesis Level) Practice professional skills relevant to the construction industry, including communication critical thinking and teamwork. (CSLO 3,4)
5. (Application Level) Determine the best use of power and hand tools in the proper and safe manner. (CSLO 1,2,3)
6. (Evaluation Level) Demonstrate and assess proper rigging practices in an industrial setting. (CSLO 1,3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BCT100 - NCCER Core
- BCT121 - Industrial Carpentry
- BCT141 - Industrial Concrete
- BCT150 - Industrial Safety and OSHA 30
- BCT180 - Communication for the Trades
- BCT221 - Advanced Industrial Carpentry
- HEO130 - Rigging, Trenching, and Foundations
- MAT106 - Technical Math I

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 32 semester credits.

CT38_20-21 - Fundamentals of Pipe Welding Certificate

Program Information

Program Title
Fundamentals of Pipe Welding Certificate

Description
The Fundamentals of Pipe Welding Certificate prepares students for employment as an entry level welder and welder/pipefitter helper. After completion of this certificate, students may continue on to pursue the Pipe Welding/Pipefitting Certificate or the Pipefitting/Pipe Welding Technology AAS Degree. Recommended proficiencies: Prior experience in Welding or knowledge from High School Agriculture program.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Synthesis Level) Incorporate skills into projects related to applied science, basic computers, applied mathematics and measurements, reading for information, business writing, listening and following directions, locating and using information, and public speaking and presenting skills. (CSLO 2,3)
2. (Application Level) Demonstrate proficiency using the most common welding and cutting processes. (CSLO 2,3)
3. (Application Level) Demonstrate the safe use and storage of welding equipment and tools. (CSLO 2,3)
4. (Synthesis Level) Perform competencies in safety and health, drawing and symbols, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
5. (Synthesis Level) Create completed projects by demonstrating proficient techniques in Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2)
6. (Evaluation Level) Demonstrate, evaluate, and explain weld imperfections and their causes. Explain the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society. Demonstrate consistent, high-quality workmanship to ensure public safety and to protect the environment. (CSLO 1)
7. (Comprehension Level) A focus on the understanding and interpretation of pipe fabrication, construction projects, and mechanical contract drawings. (CSLO 2,3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Arts & Humanities

Earn at least 3 credits from the following:

- AGEC Arts & Humanities Courses

ART103 recommended - Or select a course numbered 100 or above from the following: ART, HLC, LIT, MHL, PHI, and THE. Students may also select any course from the Arts and Humanities AGEC list.

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

Core Requirements

Complete ALL of the following Courses:

- WLD115 - Welding NCCER Core
- WLD125 - Pipe Welding I

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits

CT39_20-21 - Pipefitting/Pipe Welding Certificate

Program Information

Program Title
Pipefitting/Pipe Welding Certificate

Description
The Pipefitting/Pipe Welding Certificate prepares students for employment as an entry level pipe welder/fitter with an array of career opportunities within the industry. Topics include pipefitting techniques and tools as well as welding processes for shielded metal arc welding, gas metal arc welding, gas tungsten arc welding, pipe fabrication, and trade math. A typical graduate seeks employment in power generation, cross-country pipeline, pressure vessel fabrication, process piping, and related maintenance and construction industries. After completion of this certificate, students may continue on towards an AAS in Pipefitting/Pipe Welding Technology. Prerequisite: Fundamentals of Pipe Welding Certificate. Recommended proficiencies: Prior experience in Welding or knowledge of welding from high school Agriculture program.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
17

Program Learning Outcomes
1. (Synthesis Level) Model motivation, dependability, reliability, willingness to learn, willingness to work as a team member, and the ability to work safely. (CSLO 3)
2. (Synthesis Level) Incorporate skills into projects related to applied science, basic computers, applied mathematics/measurements, reading for information, business writing, listening to and following directions, locating and using information, and speaking and presentation skills.
3. (Evaluation Level) Demonstrate, explain, and critique teamwork, adaptability and flexibility, business fundamentals, marketing and customer focus, planning and organizing, problem solving, decision-making, and applied technology.
4. (Synthesis Level) Combine welding fundamentals and processes to the correct and safe use of pipe welding and fitting equipment and tools. (CSLO 2,3)
5. (Synthesis Level) Perform competencies in safety and health, drawing and symbols, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
6. (Synthesis Level) Create completed projects by demonstrating proficient techniques in SMAW, GMAW, GTAW, thermal cutting, OFC, PAC, CAC, and inspection. (CSLO 2)
7. (Evaluation Level) Demonstrate, evaluate, and explain weld imperfections and their causes.
8. (Comprehension Level) Explain the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society.
9. (Synthesis Level) Demonstrate consistent, high quality workmanship to ensure public safety and to protect the environment. (CSLO 1)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Social & Behavioral Sciences

Earn at least 3 credits from the following:

- AGEC Social & Behavioral Sciences Courses

PEH101 recommended - Or select a course numbered 100 or above from the following: ASB, ECN, GEO, HIS, POS, PSY, and SOC. Students may also select any course from the Social and Behavioral Sciences AGEC list.

Core Requirements

Complete ALL of the following Courses:

- WLD128 - Intro to Structural Drawings & CAD
- WLD143 - Pipefitting I
- WLD243 - Pipefitting II

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- at minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 17 semester credits

CT40_20-21 - Fundamentals of Structural Welding Certificate

Program Information

Program Title
Fundamentals of Structural Welding Certificate

Description
The Fundamentals of Structural Welding Certificate prepares students for employment as an entry level welder and welder helper. Topics include such welding skills as Flux Cored Arc Welding, Shielded Metal Arc Welding, Gas Metal Arc Welding, industrial safety, thermal cutting processes, interpretation of structural drawings, and introduction to fabrication. A typical graduate seeks employment in mining, steel fabrication, steel erection, and manufacturing industries. After completion of this certificate, students may continue on to an Advanced Structural Welding and Fabrication Certificate, or an AAS in Structural Welding Technology. Recommended proficiencies: High school welding or agriculture program.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Synthesis Level) Incorporate skills into projects related to applied science, basic computers, applied mathematics and measurements, reading for information, business writing, listening and following directions, locating and using information, and public speaking and presenting skills. (CSLO 2,3)
2. (Application Level) Demonstrate proficiency using the most common welding and cutting processes. (CSLO 2,3)
3. (Application Level) Demonstrate the safe use and storage of welding equipment and tools. (CSLO 2,3)
4. (Synthesis Level) Perform competencies in safety and health, drawing and symbols, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
5. (Synthesis Level) Create completed projects by demonstrating proficient techniques in Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2)
6. (Evaluation Level) Demonstrate, evaluate, and explain weld imperfections and their causes. Explain the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society. Demonstrate consistent, high-quality workmanship to ensure public safety and to protect the environment. (CSLO 1)
7. (Comprehension Level) A focus on the understanding and interpretation of structural fabrication, steel erection, and structural contract drawings. (CSLO 2,3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- WLD118 - Physical Characteristics & Mechanical Properties of Metals
- WLD130 - Intro to Flux Cored Arc Welding & Fabrication
- WLD230 - Advanced Flux Cored Arc Welding

Mathematics

Earn at least 3 credits from the following:

- MAT106 or higher

MAT106 recommended

Additional Comments:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT41_20-21 - Advanced Structural Welding and Fabrication Certificate

Program Information

Program Title
Advanced Structural Welding and Fabrication Certificate

Description
The Advanced Structural Welding and Fabrication Certificate prepares students for employment as an entry level welder/fabricator with an array of career opportunities within the industry. Topics include: quality control; reading detail drawings and CAD; thermal cutting processes; Flux Cored Arc Welding with gas (FCAW-G); Flux Cored Arc Welding without gas (FCAW-S); using engine driven welding machines with portable semiautomatic wire feeders. Students will learn structural fabrication, thermal cutting processes, and Shielded Metal Arc Welding. A typical graduate seeks employment in mining, steel fabrication, and steel erection industries. After completion of this certificate, students may continue on to the Structural Welding Technology AAS. Prerequisite: Fundamentals of Structural Welding Certificate or prior learning equivalent credit or documented industry experience.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
16

Program Learning Outcomes
1. (Synthesis Level) Incorporate skills into projects related to applied science, basic computers, applied mathematics and measurements, reading for information, business writing, listening and following directions, locating and using information, and public speaking and presenting. (CSLO 2,3)
2. (Application Level) Demonstrate and explain the safe use and storage of welding equipment and tools. (CSLO 2,3)
3. (Application Level) Demonstrate proficiency in quality control and the following processes: Flux Cored Arc Welding (FCAW), Shielded Metal Arc Welding (SMAW) Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2,4)
4. (Synthesis Level) Create completed projects using proficient techniques in Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Thermal Cutting, Oxygen Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting (CAC), and Inspection. (CSLO 2)
5. (Evaluation Level) Demonstrate, evaluate, and explain weld imperfections and their causes. Explain the importance of quality workmanship and how imperfections or incorrect welding techniques may impact society. Demonstrate consistent, high-quality workmanship to ensure public safety and to protect the environment. (CSLO 1)
6. (Synthesis Level) Given a set of structural blueprints, rig structural members into position, make initial connections, plumb and align members, and finalize connections by bolting or welding structural members into place. (CSLO 2,3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- WLD128 - Intro to Structural Drawings & CAD
- WLD129 - Intro to Shielded Metal Arc Welding & Thermal Cutting Processes
- WLD229 - Advanced Shielded Metal Arc Welding

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 16 semester credits.

CT44_20-21 - SUNDT Construction Operator's Apprenticeship Certificate

Program Information

Program Title
SUNDT Construction Operator's Apprenticeship Certificate

Description
CLOSED ENROLLMENT: The SUNDT Construction Operator's Apprenticeship Certificate is a heavy equipment operator's apprenticeship training sponsored by SUNDT Construction for operation of heavy equipment to journeyman standards and certified plus training. The student must be sponsored by SUNDT Construction to enroll in this program.

Area of Interest
Industrial Technology & Skilled Trades

Degree Type
Certificate

Total Credits Required
29

Program Learning Outcomes
1. (Application Level) Safely operate a variety of heavy equipment to industry standards. (CSLO 2 & 3)
2. (Evaluation Level) Perform preventive maintenance on heavy equipment. (CSLO 2, 3 & 4)
3. (Evaluation Level) Perform grade work and move material to specifications identified by the National Center for Construction and Research. (CSLO 2, 3 & 4)

Simple Requisites

Prerequisites
Type
Prerequisite

Additional Comments:
Students must be sponsored by SUNDT Construction.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:
- HEO121 - Heavy Equipment Operations Core
- HEO122 - Heavy Equipment Operations I
- HEO221 - Heavy Equipment Operations II
- HEO222 - Heavy Equipment Operations III
- HEO225 - Preventive Maintenance
- CET125 - Intro to Earthmoving Methods & Operations
- CET221 - Basic Surveying & Grade Stakng

Other Requirements

This is a closed enrollment program. Students must be sponsored by SUNDT Construction.
Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 29 semester credits.

CT47_20-21 - Driver Operator Certificate

Program Information

Program Title
Driver Operator Certificate

Description
(This Certificate is Closed Enrollment for active firefighters).
The Fire Service Driver Operations Certificate is designed to provide advanced levels of training and experience as an emergency vehicle operator and to provide current fire service professionals with promotional opportunities. Prerequisites: EMS125; FSC129; FSC140 OR Program Director consent.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
17

Program Learning Outcomes
1. (Analysis Level) Analyze the duties and responsibilities of the fire apparatus driver operator. (CSLO 3)
2. (Evaluation Level) Explain the importance of apparatus maintenance procedures, inspection procedures and documentation and critique case studies. (CSLO 2, 3)
3. (Application Level) Safely maneuver and position fire apparatus. (CSLO 3)
4. (Analysis Level) Analyze the types and uses of pumps, nozzles, valves and appliances to prepare for operations. (CSLO 2)
5. (Analysis Level) Calculate the flow pressure involving fire pumps, nozzles, valves, appliances and foam distribution for a variety of fire conditions. (CSLO 2, 4)
6. (Application Level) Safely conduct fire pump operations during emergency and non emergency incidents. (CSLO 3)
7. (Evaluation Level) Explain the evolution of fire apparatus and evaluate the pumper classifications currently in use in the fire service. (CSLO 2)
8. (Evaluation Level) Analyze and critique driving procedures for safely driving fire apparatus and identify common causes of accidents and strategize how to avoid hazards and prevent driver error. (CSLO 3, 4)
9. (Analysis Level) Analyze the roles and responsibilities of an emergency vehicle operator. (CSLO 3)
10. (Evaluation Level) Examine types of serial apparatus, including their functions and methods of operation and determine which ones to use in various firefighting situations. (CSLO 2, 4)

Simple Requisites

Recommended Proficiencies & Prerequisites
Type
Prerequisite

Recommended Proficiencies

1. If pursuing the bachelors degree program, contact the department advisor.
2. Some courses require:
a. State of Arizona Fire Marshal Certification(s)
b. State of Arizona Department of Health Services Certification(s)
c. American Heart, Red Cross, or other certifying agency course completion in CPR
d. International Fire Service Accreditation testing for certification.

Prerequisites

Complete ALL of the following Courses:

- EMS125 - Emergency Medical Technician
- FSC129 - Haz-Mat Awareness/Operations
- FSC140 - Firefighter I and II

Complete the above OR receive Program Director consent.

Established for currently employed Firefighter Driver Operators or Candidate - Director Approval Required.

Certificate Requirements

Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- FSC111 - Emergency Driver Operator
- FSC117 - Fire Apparatus and Equipment
- FSC118 - Fire Hydraulics
- FSC208 - Building Construction for the Fire Service
- FSC109 - Fire Protection Systems
- FSC202 - Supervisory Training for Firefighters

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 17 semester credits.

CT48_20-21 - Fire Officer I Certificate

Program Information

Program Title
Fire Officer I Certificate

Description
(This Certificate is Closed Enrollment for active firefighters).
The Fire Officer I Certificate provides advanced levels of training and education to current fire service officers or experienced firefighters. This Certificate will provide the course of instruction required for National and International certifications. Prerequisites: EMS125, FSC129, FSC140, and Program Director Consent.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
21

Program Learning Outcomes
1. (Analysis Level) Identify, explain and analyze the roles and responsibilities of the Fire Officer I. (CSLOs 2, 3)
2. (Evaluation Level) Evaluate the transition from firefighter to Fire Officer, including skills, knowledge and experience. (CSLOs 2, 3)
3. (Comprehension Level) Explain the process for executing routine officer level tasks and identify evaluation processes. (CSLOs 2, 4)
4. (Analysis Level) Analyze the components of resource management and task related assignments. (CSLOs 2, 4)
5. (Analysis Level) Examine case studies and assess integrity and ethical behavior in the fire service. (CSLOs 1, 3)
6. (Evaluation Level) Evaluate labor-management relationships within fire departments and the role of the fire officer. (CSLOs 1, 3)
7. (Analysis Level) Analyze training and coaching responsibilities of fire officers that promote safe and effective experiences and demonstrate effective techniques. (CSLOs 3, 4)
8. (Synthesis Level) Develop and demonstrate effective discipline techniques for unacceptable behavior based on fire service policy and employee assistance programs. (CSLOs 3, 4)
9. (Synthesis Level) Develop methods of resolving community needs and abilities to initiate actions to address citizen's concerns. (CSLOs 1, 4)
10. (Synthesis Level) Prepare a fire service program budget. (CSLOs 2, 4)
11. (Evaluation Level) Evaluate the Fire Officer I role within the incident management system. (CSLOs 2, 4)
12. (Evaluation Level) Evaluate the role of the Fire Officer I during fire prevention inspections and fire investigations. (CSLOs 1, 2)

Simple Requisites

Recommended Proficiencies & Prerequisites
Type
Prerequisite

Recommended Proficiencies

1. If pursuing the bachelors degree program, contact the department advisor.
2. Some courses require:
a. State of Arizona/ Arizona Center for Fire Service Excellence IFSAC-Accredited Certificate.
b. State of Arizona Department of Health Services Certification(s)
c. American Heart, Red Cross, or other certifying agency course completion in CPR
d. Nationally Recognized or equivalent certifying agency course completion.

Prerequisites

Complete ALL of the following Courses:

- EMS125 - Emergency Medical Technician
- FSC129 - Haz-Mat Awareness/Operations
- FSC140 - Firefighter I and II

Complete the above OR seek Program Director consent.

Certificate Requirements
Type

Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- FSC119 - Fire Service Ethics
- FSC204 - Firefight Tactics & Strategy
- FSC206 - Fire Department Health & Safety Officer
- FSC208 - Building Construction for the Fire Service
- FSC209 - Fire Origin, Cause & Determination
- FSC220 - Fire Officer Leadership
- FSC255 - Fire Instructor I

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 21 semester credits.

Established for currently employed Fire Officer or Candidate - Director Approval Required.

CT52_20-21 - Massage Therapy Certificate

Program Information

Program Title
Massage Therapy Certificate

Description
Massage Therapy includes 735 hours of basic curriculum which prepares individuals for entry-level positions performing massage therapy in a variety of settings. This program includes relaxation massage, therapeutic massage, massage therapy for special populations, and spa treatments and hydrotherapy. Included in the program is a Chiropractic Assistant Certification program. Additional topics include physiotherapy, body mechanics, acupuncture, anatomy, pathophysiology, business skills, and complementary and alternative medicine.

Central Arizona College requires all students on an international visa to complete the TOEFL (Test of English as a Foreign Language) with a score of 450 paper test or 133 computer test (see Admission of International Students in College Catalog). The Arizona Board of Massage Therapy additionally requires all students whose first language is not English to also pass a TOEFL test as a part of the licensure process. Please consult with the Massage Therapy Program Director for questions and assistance with this process prior to enrolling in the program. Recommended: RDG100.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
40

Program Learning Outcomes
1. (Synthesis Level) Correlate the knowledge acquired in the general education courses with massage therapy concepts and practice. (CSLO 3,4)
2. (Evaluation Level) Demonstrate, explain, and critique various methods of massage therapy. (CSLO 3)
3. (Evaluation Level) Apply knowledge of massage history, benefits and contraindications, body mechanics, draping, hygiene, sanitation, and safety to critique client care. (CSLO 3,4)
4. (Synthesis Level) Apply medical law and ethics, including legal guidelines/requirements for health care, medical ethics, and related issues, and risk management in case studies.(CSLO 3)
5. (Synthesis Level) Demonstrate knowledge of anatomy and physiology, medical terminology, pathophysiology, and psychology in application of various massages to clients with specific needs.(CSLO 3)
6. (Synthesis Level) Incorporate appropriate and effective communications, including verbal and nonverbal interactions with others.
7. (Synthesis Level) Adapt for individualized needs in massage therapy.(CSLO 3,4)
8. (Application Level) Demonstrate application of electronic technology in massage therapy.(CSLO 2)
9. (Synthesis Level) Combine professional components, including operating a business, personal attributes, job readiness, and workplace dynamics as they relate to massage therapy. (CSLO 3,4)
10. (Evaluation Level) Critique and problem solve issues related to the field of massage therapy.(CSLO 3)
11. (Analysis Level) Summarize the roles of the chiropractic assistant in the chiropractic office atmosphere, including professional standards of conduct.(CSLO 1,2,3)
12. (Evaluation Level) Demonstrate and critique entry-level competencies in administrative procedures in office management including history taking, record keeping, scheduling, and phone etiquette.
13. (Synthesis Level) Apply the concepts of acupuncture and physiotherapy for chiropractic therapy to clients and create a care plan. (CSLO 3,4)
14. (Evaluation Level) Evaluate massage therapy's role in complementary and alternative medicine.(CSLO 1,2,3)

Simple Requisites

Prerequisites & Pre-Program Requirements
Type
Prerequisite

Recommended

RDG100 is recommended.

Pre-Program Requirements

Apply for admission to the certificate program with the Massage Therapy Program Director before enrolling in the specialty requirements. Central Arizona College's (CAC's) Massage Therapy program follows the Arizona Board of Massage Therapy guidelines. CAC requires all students on a Visa or students whose

first language is not English to submit a passing score on the TOEFL (Test of English as a Foreign Language) Test prior to receiving Program Director approval to pursue the Massage Therapy AAS degree. TOEFL examination results must be submitted prior to receiving Program Director approval.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- LMT100 - Introduction to Massage Therapy/Relaxation
- LMT101 - Practicum for Relaxation
- LMT102 - Introduction to Deep Tissue and Kinesiology Concepts
- LMT103 - Practicum: Introduction to Deep Tissue and Kinesiology Concepts
- LMT136 - Business Skills for Massage Therapy
- LMT154 - Complementary and Alternative Medicine
- LMT160 - Applied Anatomy for Massage
- LMT173 - Pathophysiology
- LMT200 - Special Populations Massage
- LMT201 - Practicum: Special Populatons Massage
- LMT202 - Spa Massage
- LMT203 - Practicum: Spa Massage
- LMT204 - Advanced Deep Tissue and Kinesiology Concepts
- LMT250 - Chiropractic Assistant Training

Other Requirements

Prior to enrollment in any practicum courses, mandatory requirements must be met.
CPR certification must be current for at least six months at the start of the practicum.

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 40 semester credits.

CT53_20-21 - Medical Assistant Certificate

Program Information

Program Title
Medical Assistant Certificate

Description
This certificate prepares competent entry-level Medical Assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains as established by the Commission on Accreditation of Allied Health Education Programs upon the recommendation of the Medical Assisting Education Review Board (MAERB). The certificate prepares individuals to perform administrative and clinical procedures in ambulatory settings, including physicians' offices, clinics, and group practices.

Prior to enrollment, consult the program director for specific mandatory requirements. Prior to enrollment in MDA174, core requirements must be successfully completed. Healthcare Provider CPR and First Aid certification is required before enrolling in MDA174 and must be current for at least 6 months after the start of MDA174.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
37

Program Learning Outcomes
Upon completion of this program the students will incorporate critical thinking based on cognitive knowledge in performance of psychomotor (skills) and affective (behavior) domains in their practice as medical assistants in the following areas:

1. Foundation for Clinical Practice: Provide patient care applied to the following:
    1. (Application Level) Using knowledge of anatomy and physiology, perform the following tests: vital signs, venipuncture, capillary puncture, pulmonary function testing, ECG, patient screening, administration of oral and parenteral medications, quality control measures, CLIA waived hematology, chemistry, urinalysis and immunology testing while demonstrating respect for patient diversity. (CSLO#2)
    2. (Evaluation Level) Using knowledge of applied mathematics, prepare and verify proper doses of medication for administration, maintain laboratory test results using flow sheets, distinguish normal and abnormal test results, and maintain growth charts. (CSLO#4)
    3. (Synthesis Level) Using knowledge of microbiology/infection control, practice standard precautions using appropriate barrier/personal protective equipment, hand washing, sterilization technique and specimen collection and testing while showing awareness of patient rights, feelings and concerns. (CSLO#2)
2. Applied Communications competencies applied to the following:
    1. (Analysis Level) Using concepts of effective verbal, nonverbal and written communications, analyze appropriate means of effective communication with patients verbally, nonverbally and in documentation of patient care. (CSLO#4)
3. Medical Business Practices competencies applied to the following:
    1. (Synthesis Level) Using knowledge of administrative functions, manage scheduling and organization of patient medical records using electronic health care records and hardware and software to maintain office system while incorporating time management principles to maintain effective office functions. (CSLO#2)
    2. (Analysis Level) Using knowledge of basic practice finances, apply basic bookkeeping procedures to manual and computerized systems used in ambulatory health care with implementation of time management principles to maintain effective office functions. (CSLO#4)
    3. (Application Level) Using knowledge of managed care and insurance and procedural and diagnostic coding, apply these policies and procedures to implementing both managed care and insurance plans using third party guidelines and using effective communication with patients and managed care and insurance providers. (CSLO#2)
4. Medical Law and Ethics competencies applied to the following:
    1. (Synthesis Level) Integrate knowledge of appropriate local, state and federal health care legal and ethical regulations and laws in providing patient care, practice within the standard of care and scope of practice for a medical assistant, apply HIPAA rules in regard to confidentiality, privacy and release of information, accurately document information and demonstrating sensitivity to patient rights. (CSLO#2)
5. Safety and Emergency Practices competencies applied to the following:
    1. (Analysis Level) Using knowledge of safety and emergency practices, apply quality control measures in following health and safety policies and procedures to prevent illness and injury including recognition of the effects of stress on all persons involved in emergency situations. (CSLO#4)

(*All of the Learning Outcomes listed are based on the Medical Assisting Education Review Board (MAERB) of the American Association of Medical Assistants (AAMA) Appendix B Core Curriculum for Medical Assistants 2015 Curriculum Plan.)

Simple Requisites

Prerequisites & Pre-Program Requirements
Type
Prerequisite

Prerequisite

High School Diploma or GED

Pre-Program Requirements

Apply for admission to the program with the Medical Assisting Program Director before enrollment in the degree program.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology
- MDA116 - Medical Terminology
- MDA139 - Fundamentals of Medical Assisting
- MDA150 - Medical Assisting Skills I

Specialty Requirments

Complete ALL of the following Courses:

- MDA117 - Pathopharmacology for Health Occupations
- MDA151 - Medical Assisting Skills II
- MDA171 - Administrative Medical Procedures
- MDA174 - Medical Assistant Cert Practicum

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of 2.0 out of 3.0.
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 37 semester credits.

CT58_20-21 - Basic EMT Certificate

Program Information

Program Title
Basic EMT Certificate

Description
This program is not eligible for federal financial aid (Pell Grant and/or direct loans).

Emergency Medical Technician Certificate of Completion will be issued to those who complete EMS110, EMS125 (Emergency Medical Technician), and EMS125A.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
12

Program Learning Outcomes
1. (Creating Level) Students will be able to demonstrate appropriate solutions to ethical situations in the prehospital setting. (CSLO 1, 2, 4)
2. (Evaluating Level) Students will be able to demonstrate their ability to perform an appropriate primary/initial assessment of the ill or injured patient in the prehospital setting. (CSLO 2, 4)

Objectives below are as defined by EMT-Basic: National Standard Curriculum Instructor's Course Guide

3. (Evaluating Level) Recognize the nature and seriousness of the patient's condition or extent of injuries to assess requirements for emergency medical care. (CSL0 3, 4)
4. (Evaluating Level) Administer appropriate emergency medical care based on assessment findings of the patient's condition. (CSL0 3, 4)
5. (Applying Level) Lift, move, position, and otherwise handle the patient to minimize discomfort and prevent further injury. (CLSO 2, 3)
6. (Applying Level) Perform safely and effectively the expectations of the job description. (CSLO 3)

Simple Requisites

Prerequisites
Type
Prerequisite

Additional Comments:
Students must show proof of a 10th-grade reading level as required by ADHS. Proof of reading proficiency can be verified by completion of ENG101, SAT Evidence-Based Reading and Writing score of 480 or greater, ACT score of 22 or greater in reading, or a score of 80% or more on the Reading Comprehension section of the HESI exam.
Students are required to complete a criminal background check, health and drug screening, and show proof of health insurance.
The student must have vaccinations required by our clinical partners to include TB Skin test within the last 6 months, MMR, Tetanus, and Diphtheria within the last 5 years.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- EMS125 - Emergency Medical Technician
- EMS125A - Basic EMT Psychomotor Evaluation
- EMS110 - Introduction to Emergency Medical Services

Other Requirements

Students must receive a course completion card and be scheduled to take the National Registry of EMT exam.
Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 12 semester credits.

CT60_20-21 - Paramedicine Certificate

Program Information

Program Title
Paramedicine Certificate

Description
The Paramedicine Certificate prepares students to work as paramedics with the knowledge and skills required for emergency care, stabilization, and immobilization of victims of illness and injury. Recommended proficiencies: Students must meet eligibility requirements established by the Arizona Department of Health Services, Bureau of EMS. Prerequisites: All of the following must be earned with a grade of C or better: Current American Heart Association CPR/BLS certification; EMS125 (Arizona Department of Health Services EMT Certified for 1 year); FSC129 or equivalent OR seek Program Director consent.

Area of Interest
Nursing, Health & Emergency Careers

Degree Type
Certificate

Total Credits Required
49.5

Program Learning Outcomes
1. (Analyzing Level) Describe and analyze the roles and responsibilities of the advanced emergency medical technician (paramedic). (CSLO 1,3,4)
2. (Evaluating Level) Describe and evaluate the actions, indications, contraindications, precautions, side effects, and dosages of the drugs included in the current Arizona Department of Health Services approved paramedic drug box. (CSLO 1,3,4)
3. (Analyzing Level) Administer parenteral medications based on an analysis of patient needs and patient's current prescribed and OTC medications. (CSLO 1,3,4)
4. (Applying Level) Identify, treat and record infiltration and discontinuing intravenous (IV) lines. Demonstrate competency of discontinuing intravenous (IV) lines. (CSLO 1,2,3)
5. (Applying Level) Obtain and record blood samples on any patient requiring the procedure. Demonstrate competency of this procedure. (CSLO 1,2,3)
6. (Evaluating Level) Describe the paramedic's role in a patient care situation as defined by the US Department of Transportation and conduct self- and peer-critiques. (CSLO 1,3,4)
7. (Analyzing Level) Describe, analyze, and discuss the components of the Well-Being of a Paramedic as defined by the US Department of Transportation. (CSLO 1,3,4)
8. (Evaluating Level) Describe, evaluate, and discuss the objectives listed under injury prevention for the patient and the caregiver. (CSLO 1,3,4)
9. (Analyzing Level) Describe and analyze the components of medico-legal issues involving the paramedic and the Standard of Care. (CSLO 1,3,4)
10. (Evaluating Level) Define, evaluate, and describe ethics related to patient care. (CSLO 1,3,4)
11. (Evaluating Level) Describe, evaluate, and discuss the importance of human systems to include anatomy and physiology as it relates to paramedicine. (CSLO 1,3,4)
12. (Evaluating Level) Describe, evaluate, and discuss the general principles of pathophysiology. (CSLO 1,3,4)
13. (Evaluating Level) Outline, evaluate, and discuss the objectives in therapeutic communications with patients. (CSLO 1,3,4)
14. (Creating Level) Based on the mechanics of respiration and the elements of airway management and ventilation, successfully intubate and demonstrate competency on all classes of humans, and perform successful ventilation, both advanced and basic forms. (CSLO 1,2,3)
15. (Evaluating Level) Define, analyze, treat, and evaluate treatment of all types of respiratory compromise based on effective treatment modalities authorized by DHS and National Registry of EMTs-Basic and Paramedic. (CSLO 1,3,4)

Simple Requisites

Prerequisites & Recommended Proficiencies
Type
Prerequisite

Prerequisites

Earn a minimum letter grade of C in the following:

- EMS125 - Emergency Medical Technician
- FSC129 - Haz-Mat Awareness/Operations

Current American Heart Association CPR/BLS certification required.

Students can complete the above OR seek Program Director consent.

Recommended Proficiencies

Students must meet eligibility requirements established by the Arizona Department of Health Services, Bureau of EMS.

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- BIO160 - Intro to Human Anatomy and Physiology
- EMS190 - Pediatric Advanced Life Support
- EMS240 - Advanced Cardiac Life Support
- EMS245 - Prehospital Trauma Mgt/PHTLS
- EMS272A - Advanced Emergency Medical Technology/Paramedic, Module I
- EMS272B - Advanced Emergency Medical Technology/Paramedic, Module II
- EMS272C - Advanced Emergency Medical Technology/Paramedic, Module III
- EMS272D - Advanced Emergency Medical Technology/Paramedic, Practicum I
- EMS272E - Advanced Emergency Medical Technology/Paramedic, Practicum II

May take BIO201 & BIO202 in lieu of BIO160.

Other Requirements

Students must earn:

- a grade of C or better in each required course;
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 49.5 semester credit

CT62_20-21 - Administration of Justice Studies Certificate

Program Information

Program Title
Administration of Justice Studies Certificate

Description
This certificate introduces students to Administration of Justice Studies (AJS) focusing on some AJS courses and at the same time ensuring that students acquire some general academic experiences. This certificate prepares students for continued study in Administration of Justice, or some students may find the certificate useful for promotion or a limited number of entry-level occupations.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
Certificate

Total Credits Required
25

Program Learning Outcomes
1. (Understanding Level) Discuss the structure of the criminal justice system and key issues within it. (CSLOs 2,3,4)
2. (Evaluating Level) Assess current ethical issues within the criminal justice system. (CSLOs 1,2,3,4)
3. (Evaluating Level) Critique current issues in criminal justice systems along with associated laws and policy decisions. (CSLOs 1,2,3,4)
4. (Understanding Level) Describe the history, role, purpose and variety of law enforcement in the United States. (CSLOs 1,2,4)
5. (Understanding Level) Describe the history, role, purpose, and variety of corrections in the United States. (CSLOs 1,3,4)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Written Communications

Complete ALL of the following Courses:
- ENG101 - College Composition I

Oral Communications

Earn at least 3 credits from the following:
- AGEC Oral Communications Courses

Arts & Humanities and Social and Behavioral Sciences

Complete ALL of the following Courses:
- AJS123 - Ethics and the Administration of Justice
  AND AJS101 - Introduction to Administration of Justice

Physical & Biological Sciences

Earn at least 4 credits from the following:
- AGEC Physical & Biological Sciences Courses

Core Requirements

Complete ALL of the following Courses:
- AJS200 - Current Issues in Administration of Justice
- AJS230 - The Police Function
- AJS240 - The Corrections Function

Other Requirements

Students must earn:
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 25 semester credits.

CT63_20-21 - Graphic Design Certificate

Program Information

Program Title
Graphic Design Certificate

Description
The Graphic Design Certificate provides individuals seeking to advance design skills for the development of personal interests, and for those already employed in this field to upgrade skills as well as providing the creative and technical skills required for employment in entry-level positions.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
Certificate

Total Credits Required
30

Program Learning Outcomes
1. (Comprehension Level) Identify the fundamentals of design history and theory. (CSLO 1 & 2)
2. (Application Level) Apply the fundamental rules of design and typography using industry standard software effectively. (CSLO 3 & 4)
3. (Application Level) Apply the principles of color and 2D and 3D design, including; repetition, contrast, variety, rhythm, balance, emphasis and economy to original designs. (CSLO 2 & 4)
4. (Evaluation Level) Evaluate the technology and design components required to implement a website using industry standard software and applications. (CSLO 1, 2 & 4)
5. (Synthesis Level) Demonstrate the ability to make design choices and communicate ideas and concepts clearly. (CSLO 4)
6. (Synthesis Level) Create a professional design portfolio, electronic and printed, demonstrating a knowledge of typography, photography, design aesthetics and the ability to construct meaningful design solutions. (CSLO 3)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- ART101 - Two-Dimensional Design
- ART107 - Drawing I
- DMA115 - Digital Imaging
- DMA120 - Graphic Design and Adobe in Design
- DMA122 - Introduction to Web Design
- DMA125 - Introduction to Illustrator
- DMA205 - Portfolio Development
- DMA210 - Publications and Packaging Design
- DMA220 - Advanced Graphic Design
- DMA223 - Designing with Type

Other Requirements

Students must earn:

- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 30 semester credits.

CT65_20-21 - Popular Music Performance Certificate

Program Information

Program Title
Popular Music Performance Certificate

Description
The Popular Music Performance Certificate prepares individuals for entry-level positions in the entertainment industry by providing the knowledge and skills necessary for becoming a confident and charismatic live music performer for the concert stage environment, including skills for professional songwriting and modern live popular music performance and production.

Area of Interest
Visual, Fine, and Performing Arts

Degree Type
Certificate

Total Credits Required
31

Program Learning Outcomes
1. (Evaluation Level) Develop, defend and exhibit a well-rounded and comprehensive perspective of the changing landscape of entertainment industry and how to become a marketable and viable contributor within the music business. (*CSLO 1, 2, 3, 4*)
2. (Evaluation Level) Assess the different genres, styles and characteristics of modern western-culture music and explain how this influences trends in music production, songwriting performance, and the entertainment job market. *(CSLO 1, 2)*
3. (Analysis Level) Examine the various occupations, careers, and job opportunities within the entertainment industry, the functions of each and the paths to job placement. *(CSLO 1, 2)*
4. (Analysis Level) Differentiate between the various stages of music production, the tools, processes and techniques to create commercially competitive recordings, productions and all aspects of a live musical performance, including presentation, instrumentation and techniques to improve the public performance of live music. *(CSLO 2, 3)*
5. (Comprehension Level) Identify and explain the diverse legal aspects of the music business, including how the industry has been shaped by entertainment law, the business of managing artists and performers and the challenges facing a rapidly evolving industry. *(CSLO 1, 2)*
6. (Evaluation Level) Evaluate the optimal conditions for live audio reinforcement and stage illumination for public events, including a design of the equipment, theory, best practices, processes, and scenarios, including the technical, maintenance and procedural measures of successfully executing live public performances. *(CSLO 2, 3)*
7. (Synthesis Level) Integrate the skills of successful marketing campaigns, advertising, branding, and promotion of artists, venues, entertainment-related products and services and propose how to maximize effectiveness and fiscal resources. *(CSLO 2, 3)*
8. (Analysis Level) Analyze the characteristics of a well-written song, and differentiate the subtleties between songs/musical compositions that are effective or ineffective at being appealing and eliciting an emotional response, and improve the process and effectiveness of creating musical compositions, lyrics or arrangements. *(CSLO 2, 3, 4)*
9. (Synthesis Level) Summarize the practical application of various entertainment-related disciplines in order to showcase and exhibit a working knowledge of applying comprehensive inter-disciplinary skills to achieve a milestone accomplishment in the music business. *(CSLO 1, 2, 3, 4)*
10. (Evaluation Level) Assess the fundamentals of music theory and acoustic characteristics and how they can influence and affect musical aesthetics, their applications, implementations and interpretations as they relate to modern music composition. *(CSLO 2, 3, 4)*

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Core Requirements

Complete ALL of the following Courses:

- EIT100 - History of Rock n' Roll
- EIT101 - Introduction to Entertainment
- EIT120 - Entertainment Law
- EIT130 - Live Audio Production I
- EIT140 - Introduction to Lighting
- EIT151 - Digital Audio Workstation
- EIT171 - Songwriting I
- EIT203 - Entertainment Capstone Project
- EIT221 - Entertainment Marketing and Promotion

- EIT272 - Songwriting II
- EIT170 - Performance Skills
- EIT170 - Performance Skills

Must complete EIT170 two (2) times for a total of 2 credits

MUP Course Requirements

Must complete two credits by selecting any combination of the following (the following courses may be repeated up to four (4) times for credit):

Earn at least 2 credits from the following:

- MUP105 - Voice Class
- MUP109V - Private Instruction: Voice
- MUP109D - Private Instruction: Percussion
- MUP109G - Private Instruction: Guitar/Bass
- MUP109P - Private Instruction: Piano/Keyboard
- MUP110 - Piano Class

Other Requirements

Students must earn:

- all coursework must be completed with a “C” or higher;
- a cummulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or above;
- a minimum of 31 semester credits.

CT71_20-21 - Corrections Certificate

Program Information

Program Title
Corrections Certificate

Description
Students earning this certificate will have acquired the knowledge, skills and abilities necessary to perform the duties of the Correctional Officer in the State of Arizona. Prerequisite: Present copy of COTA certificate to Registrar's office.

Area of Interest
Social/Behavioral Sciences & Public Service

Degree Type
Certificate

Total Credits Required
21

Program Learning Outcomes
1. (Analyze Level) Distinguish ethical issues in the correctional setting and model professional conduct. (CSLOs 1,2,3,4)
2. (Evaluate Level) Assess the various techniques of inmate management. (CSLOs 1,2,3,4)
3. (Understand Level) Summarize inmates' rights and other legal issues that are applicable in the correctional setting. (CSLOs 1,2,3)
4. (Apply Level) Apply effective communication techniques in a variety of settings. (CSLOs 1,2,3,4)
5. (Evaluate Level) Evaluate officer safety methods and techniques. (CSLOs 2,3,4)
6. (Understand Level) Identify the applied skills necessary to perform the daily duties of a correctional officer.(CSLOs 2,3,4)
7. (Understand Level) Explain manners of security, custody and control. (CSLOs 2,3,4)
8. (Analyze Level) Differentiate conflict and crisis management.(CSLOs 1,2,3,4)
9. (Understand Level) Describe medical and mental health issues in corrections. (CSLOs 2,3,4)
10. (Understand Level) Identify the roles and duties of the components of the Criminal Justice System. (CSLOs 1,2)

Simple Requisites

Certificate Requirements
Type
Completion Requirement

Social & Behavioral Sciences

Complete ALL of the following Courses:
- AJS101 - Introduction to Administration of Justice

Core Requirements

Correctional Officer Training Academy - COTA applied credits (18)
For the award of COTA applied credit, the student must present copy of his or her COTA certificate to the Registrar’s office. The certificate must indicate that at least 280-hours of training was completed.

Other Requirements

Students must earn:
- a cumulative grade point average (CGPA) of at least a 2.0 on a 4.0 scale;
- a minimum of 3 earned CAC credits numbered 100 or higher;
- a minimum of 21 semester credits.

NONDEGREE - Non Degree Seeking

Program Information

Program Title
Non Degree Seeking

Degree Type
Non Degree

NONESL - English Second Language

Program Information

Program Title
English Second Language

Description
We provide a flexible program that meets the diverse needs of students and advances their goals in enriching English language skills, transitioning to college classes, and improving employment opportunities.: centralaz.edu/ESL

Degree Type
Non Degree

NONHSEGED - High School Equivalent/GED

Program Information

Program Title
High School Equivalent/GED

Description
We provide a flexible program that meets the diverse needs of students and advances their goals in passing GED tests, transitioning to college classes, and improving employment opportunities.: centralaz.edu/GED

Degree Type
Non Degree

All Courses

ACC100 - Fundamentals of Accounting

General

Division
Business & Computer Technology Division

Course Description
The basics of accounting for a small business with emphasis on recording transactions, posting to the general ledger, preparing financial statements, recording the payroll, accounting for inventory, and accrual accounting. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Accurately maintain accounting records and prepare financial statements for a sole-proprietorship in accordance with Generally Accepted Accounting Principles.(CSLO 2)
2. (Analysis Level) Analyze and record inventory transactions when a periodic inventory system is employed. (CSLO 2)
3. (Analysis Level) Analyze and record inventory transactions when a perpetual inventory system is employed. (CSLO 2)
4. (Application Level) Accurately compute ending inventory utilizing common valuation methods (weighted-average, FIFO, LIFO). (CSLO 2)
5. (Synthesis Level) Account for cash funds and prepare a bank reconciliation in good form. (CSLO 2)
6. (Evaluation Level) Determine effective internal controls for cash. (CSLO 4)
7. (Application Level) Account for bad debts using the allowance method and the direct write-off method. (CSLO 2)
8. (Synthesis Level) Compile the payroll information and correctly prepare the payroll entry and the employer's payroll tax entry. (CSLO 2)
9. (Application Level) Correctly compute depreciation for a plant asset using the straight-line method. (CSLO 2)
10. (Evaluation Level) Determine the cost of property, plant, and equipment. (CSLO 2)

Course Requisites

ACC121 - Income Tax Fundamentals

General

Division
Business & Computer Technology Division

Course Description
Theory, rules, and procedures used in preparing federal income tax returns for individuals. Recommended: RDG100, ACC100 or ACC201 or previous accounting experience.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain and describe the role of taxes in our society and explain the differences between federal, state, and local government revenues. (CSLO 1)
2. (Analysis Level) Delineate the rights and responsibilities of taxpayers and accurately compute results of non-compliance and IRS procedures as well as penalties and appeals. (CSLO 1)
3. (Evaluation Level) Determine if, when, and how to file appropriate returns, including the applicable authority, when addressing tax issues. (CSLO 2)
4. (Evaluation Level) Correctly apply basic principles governing income and deductions then determine which items to include or exclude on the income tax return. (CSLO 4)
5. (Application Level) Apply the rules of substantiation and record keeping and then list penalties for failure to properly apply these rules. (CSLO 4)
6. (Application Level) Advise about use of forms W-4 and 1099. (CSLO 4)
7. (Comprehension Level) Explain the value and use of tax planning. (CSLO 2)
8. (Synthesis Level) Accurately prepare tax returns from hypothetical data that requires application of the fundamentals studied in this course. (CSLO 4)

Course Requisites

ACC201 - Financial Accounting

General

Division
Business & Computer Technology Division

Course Description
Theory and practice of accounting applicable to the accumulation, reporting, and uses of financial information for corporations. Recommended: Students who struggle with numerical data may best be advised to first complete ACC100 which places heavy concentration on the mechanics of accounting. Recommended: RDG100. ACC100 is not a required prerequisite for ACC201, however students who struggle with numerical data may best be advised to first complete ACC100 which places heavy concentration on the mechanics of accounting.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Analyze transactions, record the appropriate journal entries, and complete the accounting cycle in accordance with Generally Accepted Accounting Principles (GAAP). (CSLO 4)
2. (Synthesis Level) Prepare financial statements (income statement, retained earnings statement, balance sheet, statement of cash flows) for a corporation in accordance with Generally Accepted Accounting Principles. (CSLO 2)
3. (Synthesis Level) Record and explain inventory transactions when a perpetual inventory system is employed. (CSLO 2)
4. (Synthesis Level) Record and explain inventory transactions when a periodic inventory system is employed. (CSLO 2)
5. (Analysis Level) Account for cash funds and prepare a bank reconciliation. (CSLO 3)
6. (Synthesis Level) Account for uncollectible accounts and notes receivable; explain their effect on the financial statements. (CSLO 4)
7. (Synthesis Level) Account for fixed assets, intangible assets, and natural resources; explain and demonstrate how they are presented on a company's financial statements. (CSLO 4)
8. (Application Level) Compute depreciation, depletion, and amortization using several methods. (CSLO 2)
9. (Application Level) Explain and demonstrate the basics of payroll accounting; record payroll entries and payroll tax entries. (CSLO 2)
10. (Application Level) Compute ending inventory using the following methods: FIFO, LIFO, and weighted-average. (CSLO 2)
11. (Synthesis Level) Analyze and record transactions for notes receivables and notes payable. (CSLO 4)
12. (Synthesis Level) Analyze and record transactions to determine how they affect stockholders' equity and change a company's financial position. (CSLO 2)
13. (Analysis Level) Determine which types of internal controls are effective when given a specific business situation and give a clear explanation of the Sarbanes-Oxley Act. (CSLO 2)

Course Requisites

ACC202 - Managerial Accounting

General

Division
Business & Computer Technology Division

Course Description
Selection and analysis of accounting information for internal organization use by management. Prerequisite: ACC201.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Prepare a statement of cash flows and explain how it is used to make business decisions. (CSLO 2 & 3)
2. (Synthesis Level) Account for bonds from an issuing corporation's perspective. (CSLO 4)
3. (Application Level) Utilize and explain how various financial measures help the stakeholder make sound decisions with regards to profitability and solvency. (CSLO 2)
4. (Synthesis Level) Record and explain transactions for a service company and a manufacturing company which utilizes a job-order cost system. (CSLO 4)
5. (Synthesis Level) Prepare a cost of production report and explain and illustrate how it is used by managers. (CSLO 4)
6. (Application Level) Record transactions for a company which employs a process cost system. (CSLO 4)
7. (Evaluation Level) Utilize several managerial tools (i.e., break-even, variable costing, horizontal analysis) to make decisions. (CSLO 2)
8. (Evaluation Level) Compute and explain direct materials, direct labor, and manufacturing overhead variances for a manufacturing firm that employs a standard-costing system. (CSLO 2)
9. (Application Level) Explain and calculate return on investment (ROI) and residual income and make a decision based on the results. (CSLO 4)
10. (Synthesis Level) Utilize the single-, multiple-, and ABC costing methods to allocate overhead costs and explain which method provides the most refined allocation method for various companies. (CSLO 2)

Course Requisites

AGB100 - Intro to Agriculture Business

General

Division
Skilled Trades & Technology Division

Course Description
Entrepreneurship in agribusiness, including marketing, budgeting, financial statements, purchasing, business structure, customer relations and inventory control. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain agriculture's contribution to the economy and the many agribusiness career opportunities available. (CSLO 1,2,4)
2. (Analysis Level) Analyze the food system, from production to marketing. (CSLO 2)
3. (Evaluation Level) Analyze and evaluate the changes in retail food prices. (CSLO 2)
4. (Synthesis Level) Complete a report on a current Agriculture Commodity. (CSLO 2)
5. (Analysis Level) Identify, analyze, and explain the underlying economics of the food system using basic agribusiness terminology. (CSLO 2)
6. (Analysis Level) Identify, analyze, and explain management practices and terminology. (CSLO 2)

Course Requisites

AGB121 - Fundamentals of Agriculture and Environmental Economics

General

Division
Skilled Trades & Technology Division

Course Description
An introductory analysis of the agriculture economy addressing economic principles, farm management and marketing of agriculture products. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize the history of U.S. agriculture.
2. (Analysis Level) Analyze the role of agriculture in U.S. economic development.
3. (Analysis Level) Compare the types of economic systems and business organizations in a capitalistic society.
4. (Synthesis Level) Describe the relationship between consumer behavior and choice, and how they affect consumption of agricultural products.
5. (Analysis Level) Analyze cost and return, and optimum levels of output as they relate to agricultural economics.
6. (Analysis Level) Examine the relationship between supply and demand and explain how they result in price determination.
7. (Evaluation Level) Interpret how global agricultural policies influence price and availability of agriculture products.
8. (Analysis Level) Examine and explain the steps and costs of marketing an agricultural product.
9. (Synthesis Level) Describe how the development of a country impacts changes in the consumption of agricultural products and how the trade of those products, both inside and outside the country, changes as that country develops.
10. (Knowledge Level) Describe the three general business organizations of farms, including how farms are classified by economic size.
11. (Comprehension Level) Describe the consumer decision-making process and its economic implications.
12. (Comprehension Level) Identify four classes of resources used in product production and how to use those resources to determine optimal production.
13. (Comprehension Level) Describe types of market classifications and explain how supply, demand, and price of products are determined in each.
14. (Comprehension Level) Describe the food chain from the farm to the consumer including the importance of storage and transportation when developing marketing strategies for those products.
15. (Analysis Level) Analyze and explain the complex factors which contribute to American agricultural growth and development, including environmental conditions as well as the governmental role in agriculture.

Course Requisites

AGB123 - Agriculture Accounting

General

Division
Skilled Trades & Technology Division

Course Description
Agriculture accounting principles and practices.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the purpose and need for agricultural financial records. (CSLO 2, 7)
2. (Analysis Level) Classify agricultural business accounts. (CSLO 3)
3. (Comprehension Level) Explain accounting principles and rules. (CSLO 2, 3)
4. (Application Level) Calculate inventory values, cost of feed, and cost of livestock sold. (CSLO 3, 7)
5. (Synthesis Level) Set up a computerized agricultural accounting system. (CSLO 3, 7)
6. (Application Level) Enter financial activity into a computerized accounting system. (CSLO 3, 7)
7. (Application Level) Calculate financial ratios. (CSLO 3, 4)
8. (Synthesis Level) Develop an enterprise analysis system. (CSLO 3, 4, 7)

AGB124 - Microcomputers in Agriculture

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the operation and capabilities of microcomputers in agriculture applications. Simple programming, data analysis, graphical display, spreadsheets and word processing are included. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the brief history of computers and their role in society. (CSLO 2, 3)
2. (Application Level) Demonstrate knowledge of microcomputer components. (CSLO 3, 7)
3. (Application Level) Demonstrate the ability to use various software applications and computer technology for agricultural management and problem solving. (CSLO 3, 4, 7)
4. (Comprehension Level) Discuss the impact of the internet and its role in communication, collaboration and research. (CSLO 5, 6)
5. (Evaluation Level) Assess the impact of computers and technology on agriculture and society. (CSLO 3, 4)
6. (Application Level) Demonstrate the ability to use computer software such as a word processor, spreadsheets, presentations, graphics and databases in agricultural applications. (CSLO 3, 7)
7. (Synthesis Level) Create formulas and use correct input to evaluate and sort data. (CSLO 3, 4)
8. (Comprehension Level) Identify and explain positive social and ethical behaviors when using technology and the consequences of misuse. (CSLO 6, 7)

Course Requisites

AGB213 - Intro to Agricultural Commodity and Food Marketing

General

Division
Skilled Trades & Technology Division

Course Description
An investigation of the organizational, institutional, and economic principles that form the agricultural and food marketing systems in the United States. Applications of microeconomics, market performance, and international trade analysis are included. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify current trends in demand and the opportunities and challenges these present to entrepreneurs in the agricultural sector.
2. (Comprehension Level) Explain how marketing contributes to economic activities in the food and fiber systems of the U.S. and the world.
3. (Comprehension Level) Describe the function of the different participants in the supply chain that connects producers to customers.
4. (Analysis Level) Identify target market segments, positioning of food products and selection of marketing mix in the management of branded products.
5. (Analysis Level) Explain risk management through the use of market analysis and institutions such as futures and options markets.
6. (Synthesis Level) Prepare a strategic plan to enhance the demand agricultural products by changing the product form or adding value.

Course Requisites

AGB225 - Agriculture Business Analysis

General

Division
Skilled Trades & Technology Division

Course Description
Covers the development of a modern agribusiness plan in detail including: Executive Summary, Mission Statement/Business Description, Business Environment, Marketing Plan, Operations Plan, Management Team, Financial Plan, Legal/Insurance Section, Critical Risks, Assumptions/Conclusions, and Harvest Strategy. Prerequisite: AGB100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Create a business plan for an agribusiness. (CSLO 3, 4, 7)
2. (Analysis Level) Compare and contrast three important types of business entities. (CSLO 2, 3)
3. (Application Level) Calculate the feasibility of owning vs. leasing equipment. (CSLO 3, 4)
4. (Synthesis Level) Formulate an agribusiness startup budget. (CSLO 3, 4, 7)
5. (Comprehension Level) Identify sources of capital for an agribusinesses. (CSLO 3, 7)
6. (Analysis Level) Contrast and compare agribusinesses as they relate to marketing agricultural products. (CSLO 3, 4)

Course Requisites

AGB234 - AG Leadership Development

General

Division
Skilled Trades & Technology Division

Course Description
Characteristics of effective leaders, including leadership styles and strategies for the management and organization of youth groups in agriculture. Practice in leadership development techniques. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze various definitions of leadership.
2. (Evaluation Level) Identify and evaluate the contributions of agricultural education to leadership development.
3. (Evaluation Level) Compare and contrast the relationship between personality types and leadership styles.
4. (Analysis Level) Analyze the importance of personal leadership development.
5. (Comprehension Level) Explain the various types of leadership traits, abilities, and skills.
6. (Comprehension Level) Explain the relationship between communication and leadership.
7. (Knowledge Level) Describe communication characteristics of common communication styles.
8. (Evaluation Level) Critique and demonstrate the characteristics and duties of a successful presiding officer.
9. (Evaluation Level) Identify common parliamentary errors and misconceptions and recommend the proper protocol in a role play setting.
10. (Knowledge Level) Describe the proper order of business for a meeting.
11. (Synthesis Level) Explain organizing groups to maximize productivity based on personnel traits, abilities, preferences, and skills.
12. (Knowledge Level) Describe various types and forms of group discussion.
13. (Knowledge Level) Describe the responsibilities of club officers.
14. (Synthesis Level) Role play and practice skills used in problem solving and decision making within a simulated meeting.
15. (Knowledge Level) Identify the principles of setting goals.
16. (Synthesis Level) Plan and create a typical organizational financial budget within set parameters.

Course Requisites

AGS101 - World of Plants

General

Division
Skilled Trades & Technology Division

Course Description
The structure, function and use of plants in the living world. Scientific experiences relating to the plant kingdom and the plant environment. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Recall and describe the various taxonomic systems for plants. 2. (Comprehension Level) Explain the internal and external factors controlling plant growth and development. 3. (Comprehension Level) Describe the anatomy and tissues of the root and their role in plant nutrition. 4. (Analysis Level) Recognize the importance of photosynthesis and carbohydrate production to the environment and plant production. 5. (Application Level) Sketch the anatomy and tissues of the leaf and their role in plant transpiration. 6. (Analysis Level) Diagram the anatomy and tissues of the stem and their role in secondary growth. 7. (Synthesis Level) Categorize characteristics of gymnosperms and angiosperms. 8. (Synthesis Level) Design the highly structured organelles that have evolved inside plant cells. 9. (Evaluation Level) Appraise the anatomy of the flower and fruit and their role in plant reproduction. 10. (Evaluation Level) Argue the impacts of biotechnology on agriculture.

1. Discuss the importance of taxonomic systems. Outcome #1
2. List the differences between monocots and dicots and give examples of each. Outcome #1
3. Build 3D model of a cell and label all the parts of a plant cell. Outcome #8
4. List the two generalized tissues in plants. Outcome #6
5. Explain the factors affecting plant growth. Outcome #2
6. Discuss how genes and the environment influence flowering. Outcomes #2 and 9
7. Compare fibrous and tap root systems. Outcome #3
8. Describe the relationship between soil and plant growth. Outcome #2
9. Identify the various characteristics of cut wood. Outcome #6
10. Draw various leaf forms and explain their functions. Outcomes #5
11. Discuss various environmental factors that affect photosynthesis. Outcome #4
12. Define biotechnology, genetic engineering, and related terms. Outcome #10
13. Discuss the ethics of in genetic engineering. Outcome #10
14. Compare and contrast genetic engineering with traditional selective breeding. Outcome #10
15. Describe the general reactions of photosynthesis. Outcome #4

Course Requisites

AGS104 - Agricultural Environmental Science

General

Division
Skilled Trades & Technology Division

Course Description
Science-based approaches to understanding the environmental concepts of ecosystems, population dynamics and agricultural sustainability. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the Scientific Method as it applies to Environmental Science. 2. (Analysis Level) Contrast renewable energy types and availability. 3. (Knowledge Level) Identify early forms of agriculture and the changes that occurred in human population distribution, employment, and relationships between societies as the Agricultural Revolution unfolded. 4. (Evaluation Level) Interpret the difference between weather and climate and compare climate adaptations of plants and animals in desert, grasslands, and forests. 5. (Application Level) Illustrate different ecosystems. 6. (Analysis Level) Analyze trends in world food production since 1950 and describe the possibilities of increasing the world food production by increasing crop yields, increased cultivation, and increased urban food production. 7. (Analysis Level) Diagram the transfer of energy in food chains and food webs. 8. (Analysis Level) Compare approaches to slowing human population growth and describe the controversies which surround controlling population. 9. (Synthesis Level) Formulate a sustainable agricultural system. 10. (Evaluation Level) Appraise the use of pesticides in production agriculture including the developments in pesticide chemistry and production and Integrated Pest Management in agriculture. 11. (Evaluation Level) Evaluate soil types and describe what is fertile soil. 12. (Evaluation Level) Evaluate air quality both indoor and outdoor. 13. (Evaluation Level) Test and evaluate water quality.

Course Requisites

AGS106 - Entomology

General

Division
Skilled Trades & Technology Division

Course Description
Identification, classification, control and management of insects and other land arthropods affecting humans and their environment. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify insects according to their scientific classification. 2. (Knowledge Level) Identify arthropods according to their physical characteristics. 3. (Analysis Level) Distinguish between different classes and orders of arthropods according to their characteristics. 4. (Comprehension Level) Describe the anatomy of insects, including skeletal, muscle, nervous, digestive, circulatory and reproductive systems. 5. (Evaluation Level) Compare and contrast the different insect life cycles. 6. (Comprehension Level) Explain the relationship between insect growth, metamorphoses and the environment. 7. (Comprehension Level) Explain the role of insects as vectors for diseases in humans and animals. 8. (Evaluation Level) Describe and evaluate how an integrated pest management system may be combined with chemical applications to control insects. 9. (Application Level) Collect, identify and display insects correctly by order, common name and family. 10. (Evaluation Level) Collect data on current climate and weather conditions to evaluate growth and development of insects.

Course Requisites

AGS122 - Natural Resources & Conservation

General

Division
Skilled Trades & Technology Division

Course Description
The conservation and multiple use of natural resources including recreation, water, forestry, range, soils, wildlife, fossil and alternative fuels. Prerequisite: ENG101. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine and explain the concept of natural resources. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 2, 3)
2. (Analysis Level) Contrast conservation and preservation as they relate to natural resources management. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 2, 3)
3. (Comprehension Level) Explain the differences between non-exhaustible, renewable, and exhaustible natural resources. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 2)
4. (Comprehension Level) List and describe the major types of soil erosion and describe sources of and management methods for controlling soil erosion. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 3)
5. (Analysis Level) Outline the history of rangelands in the United States and explain the importance of rangeland management. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 2, 3)
6. (Comprehension Level) Explain the components of the hydrologic cycle, including agricultural and industrial uses of water. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 2, 3)
7. (Comprehension Level) Describe the various methods of forestry management including forest fire strategies. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 3)
8. (Comprehension Level) Identify and describe the habitat and game management requirements for wildlife. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 3)
9. (Comprehension Level) Discuss the history of the National Park System and recreational possibilities on public lands. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 1, 2)
10.(Comprehension Level) Explain the use and value of alternative energy sources. Topic supported by instructor and peer feedback during class time discussion groups. (CSLO 2, 4)
11. (Synthesis Level) A minimum of 5,000 words by completing the writing assignments. (CSLO 4, 5)

Course Requisites

AGS195A - Careers in Environmental Sci

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to the various careers and industries associated with the environmental science field. Students build industry network relationships. Recommended: RDG100.

Total Number Of Credits:
1

Lecture Credits
0.5

Lab Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Recognize various career opportunities in the field of environmental science. (CSLO 3) 2. (Analysis Level) Compare various resume styles. (CSLO 3) 3. (Application Level) Prepare for a job interview. (CSLO 3) 4. (Synthesis Level) Assemble environmental industry contacts. (CSLO 3)

Course Requisites

AGS196 - Agriculture Internship

General

Division
Skilled Trades & Technology Division

Course Description
Students work in agriculture internship placements tailored to the students' academic program, interests and skills. May be taken more than five times for credit. Prerequisites: Instructor consent. Recommended: RDG100.

Total Number Of Credits:
1

Internship Credits
1

Other Credit Information
Internship is 45 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply agriculture science theory to practice. (CSLO 2,3) 2. (Evaluation Level) Appraise career goals by having applied experiences in agriculture.(CSLO 3) 3. (Evaluation Level) Assess personal understanding and knowledge of agriculture. (CSLO 2,3) 4. (Evaluation Level) Assess personal ability to apply discipline-related knowledge to the field. (CSLO 2,3) 5. (Synthesis Level) Complete a report on the organization which includes: a) a description of the organization, its mission, function and ongoing projects; b) historical background of the organization and reference to internal documents describing its purposes and long-range goals; c) an analysis of the agriculture internship; d) description of internship activities and the learning from which resulted; e) identify classes or areas of knowledge that were useful when performing duties during the internship and explain how those courses could be enhanced to better prepare students.(CSLO 1,2,4)

Course Requisites

AGS204 - Environmental Sustainability

General

Division
Skilled Trades & Technology Division

Course Description
Understanding the Earth's environment and the important challenges facing humanity, including climate change, pollution, loss of biodiversity and water shortages. Students must attend at least one local governmental environmental science forum. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Recognize sustainability science and policy as an aid to natural resource problem solving. CSLO #4
2. (Analysis Level) Recognize the science that underpins environmental issues at a local, state, national and global level.
3. (Evaluation Level) Evaluate both qualitatively and quantitatively complex social-ecological issues.
4. (Comprehension Level) Describe the structure and function of ecosystem components.
5. (Analysis Level) Recognize contributions you can make as a citizen of the planet. CSLO #1
6. (Analysis Level) Analyze population growth and distribution as inherent features of populations and link the relationship between human population growth and other environmental issues.
7. (Analysis Level) Analyze selected case studies illustrating the evolution of sustainability-thinking and development policy decision-making. 8. (Analysis Level) Compare the human footprint among various countries.
9. (Evaluation Level) Appraise the basic policy issues and problems of implementing sustainable development in both urban and rural regions of the developing and developed world.
10. (Evaluation Level) Evaluate articles, media coverage and scientific research findings on environmental topics. CLSO #2

Course Requisites

AGS221 - Soil Science

General

Division
Skilled Trades & Technology Division

Course Description
Fundamental principles of soil science, including the origin, nature, and classification of soils; emphasizing the chemical, physical, and biological properties in relation to plant growth and nutrition of plants. Also emphasized are non-plant uses of soils and soils in the environment. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain the principles of the scientific method in soil science for obtaining results from laboratory experiments.
2. (Comprehension Level) Identify the five key functions of soil in our ecosystem by describing the five soil functions: medium for plant growth, regulator of water supplies, recycler of raw materials, habitat for soil organisms, and engineering medium.
3. (Analysis Level) Identify the five soil forming factors and use them to report on Hans Jenny and the equation describing soil formation to list and describe the seven types of parent material.
4. (Comprehension Level) Discuss the development of the soil classification system, the USDA Soil Taxonomy Key, and soil nomenclature. Identify the twelve soil orders in North America and draw and label examples.
5. (Analysis Level) Relate the influence of the seven physical properties of soil to the functions of soil in the environment by correctly estimating soil color using the Munsell Color Chart, listing the size of mineral particles in a soil sample, determining the soil textural class by the feel method, recognizing the various types of soil structure, calculating bulk densities for various soil samples, describing conventional and conservation tillage methods as they relate to sustainable agricultural systems and listing the engineering uses of soil properties.
6. (Application Level) Apply soil water functions to soil management by defining the properties of water including polarity, hydrogen bonding, cohesion, adhesion and surface tension, phenomenon of capillarity and capillary action, draw and label the Hydrologic cycle and identify the role of soil in the cycle.
7. (Analysis Level) Recognize the nature and properties of soil colloids by defining the four soil colloidal properties including size, surface area, surface charge and absorption of cations and water, describe humus colloids, describe the process of cation exchange in agricultural soils and relate cation exchange capacity to nutrient availability in soils.
8. (Analysis Level) Determine the influence of soil pH on soil management by testing various soil samples for pH values and analyzing those values for crop production.
9. (Evaluation Level) Identify the properties of alkaline and salt affected soils of arid regions by calculating electroconductivity for various soil samples, use this data to list plants with relative tolerance to salt-affected soils and their economic impact on the regions in which they are grown, compare and contrast between the various methods for managing saline, sodic, and saline-sodic soils.
10. (Analysis Level) Recognize the importance to ecology of soil organisms as they relate to the natural environment by drawing and labeling the Carbon Cycle, drawing and labeling a typical soil ecosystem including primary producer, primary consumers and secondary consumers and identifying soil micro, meso, and macro animals and their function in the soil ecosystem. Include the significance of soil mycorrhizae and the beneficial effects of soil organisms as a recycler of raw material in the biosphere.
11. (Comprehension Level) Explain the role of nutrients in crop production by drawing and labeling the Nitrogen Cycle and describe various Nitrogen, Phosphorous and Potassium deficiencies in plants.
12. (Analysis Level) Recognize the goals of responsible and practical nutrient management in the biosphere by relating methods and timing of fertilizer applications to crops and landscaping.
13. (Evaluation Level) Associate soil erosion with land degradation by reporting on Hugh Hammond Bennett and the founding of the Natural Resource Conservation Service, identify the mechanics of water erosion and wind erosion, calculate and apply the Universal Soil Loss Equation to various soil erosion models and explain the benefits of conservation tillage practices in sustainable agricultural systems.
14. (Application Level) Apply County Soil Survey Data to the practical use of soil science principals by utilizing a County Soil Survey to determine various properties of soils in Pinal County.

Course Requisites

AGS235 - Principles of Sonoran Horticulture

General

Division
Skilled Trades & Technology Division

Course Description
A comprehensive study of southwestern horticulture including the five Indian nations and their traditional native plants. Principles and skills in the science, operations and management of field, orchard, and ornamental horticultural plant propagation using seed, cutting, budding, and grafting in propagating plants for greenhouses and outdoor nurseries. Also covered are design techniques for native landscape planning, gardening and construction. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the important role of green plants in the earth's ecosystem and the role of Sonoran plant species as related to Tribal history.
2. (Analysis Level) Analyze soil nutrients and their chemical properties.
3. (Analysis Level) Categorize plants through horticultural taxonomy and physical characteristics. Include evolution and dispersement of native species.
4. (Comprehension Level) Discuss organic compounds that control plant growth.
5. (Evaluation Level) Compare and contrast the various effective methods of plant propagation.
6. (Analysis Level) Categorize plant pests and identify pest control methods.
7. (Synthesis Level) Develop and construct an effective landscape design utilizing Sonoran traditions and native plant species.
8. (Application Level) Demonstrate effective techniques of plant propagation.
9. (Evaluation Level) Compare and contrast various types of greenhouses and other growing structures and recommend the best system for a specific species.
10. (Application Level) Describe and apply agricultural greenhouse production techniques including traditional and Sonoran native plant species.
11. (Synthesis Level) Apply nursery production techniques at the campus greenhouse and surrounding laboratory property to construct landscape design projects with an emphasis on Tribal culture.

Course Requisites

AGS240 - Plant Biology

General

Division
Skilled Trades & Technology Division

Course Description
A study of the origin, evolution, anatomy, function and ecology of land plants. Genetics, cellular structure, reproduction and the anatomy of stems, roots, leaves, flowers, and fruits are described. Includes aspects of plant physiology, photosynthesis, respiration, transpiration, integrated pest management, and plant soil-water relationships. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the fundamental importance of plants in terrestrial ecosystems. (CSLO 2)
2. (Comprehension Level) Discuss the many ways plants are needed and used by humans. (CSLO 2, 3)
3. (Analysis Level) Analyze the naming and classification of plants. (CSLO 2, 3)
4. (Comprehension Level) Identify and illustrate plant cells and plant cell organelles. (CSLO 3)
5. (Comprehension Level) Identify and illustrate the process of plant mitosis. (CSLO 3)
6. (Comprehension Level) Identify and illustrate monocot & dicot roots, stems, leaves, flowers and fruits. (CSLO 3)
7. (Comprehension Level) Explain the origin and domestication of basic food crops. (CSLO 2, 3)
8. (Comprehension Level) Explain the basic concepts of plant genetics, genetic engineering and biotechnology. (CSLO 3, 4)
9. (Comprehension Level) Describe the process of meiosis and sexual reproduction in plants. (CSLO 3)
10. (Application Level) Demonstrate the common methods of sexual and asexual plant propagation. (CSLO 3, 7)
11. (Comprehension Level) Explain the process of photosynthesis and how radiant energy is converted to chemical energy. (CSLO 3)
12. (Comprehension Level) Explain the process of respiration and how it releases the chemical energy from photosynthesis. (CSLO 3)
13. (Analysis Level) Analyze and identify the physical and chemical properties of soil and soil water. (CSLO 3)
14. (Comprehension Level) Discuss the basic principles of soil fertility and plant nutrition. (CSLO 2, 3)
15. (Analysis Level) Analyze the climatic factors involved in plant growth and development. (CSLO 3, 4)
16. (Analysis Level) Analyze and discuss integrated pest management (IPM) strategies for managing weeds, insects and diseases. (CSLO 3, 4)

Course Requisites

AGS296 - Agriculture Internship

General

Division
Skilled Trades & Technology Division

Course Description
Students work in agriculture internship placements tailored to the students' academic program, interests, and skills. May be taken two times for credit. Prerequisites: Instructor consent. Recommended: RDG100.

Total Number Of Credits:
3

Internship Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply agriculture science theory to practice in a work setting. 2. (Synthesis Level) Describe the internship organization, its mission, function, and projects by referencing documents, company purposes, and long-range goals. 3. (Application Level) Complete experiential learning recordkeeping. 4. (Comprehension Level) Identify and explain areas of knowledge important to the performance of internship duties. 5.(Analysis Level) Analyze how the areas were of benefit. 6. (Synthesis Level) Complete a written analysis of the internship. 7. (Evaluation Level) Assess the ability to apply discipline-related knowledge to the profession. 8. (Evaluation Level) Appraise career goals through applied experiences in agriculture.

Course Requisites

AIT100 - Industrial Safety

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in workplace safety training, including an overview of critical safety policies, procedures, and practices that help prevent injuries and keep the workplace safe and productive.

Total Number Of Credits:
1

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Demonstrate knowledge of safety, health, and environmental rules and regulations to avoid workplace injury and maximize machine productivity. (CSLO 1,3)
2. (Applying Level) Demonstrate knowledge of electrical safety standards and electrical procedures to safely maintain industrial equipment. (CSLO 1,2,3,4)
3. (Applying Level) Demonstrate knowledge of safety practices of mechanical and fluid-controlled systems to safely maintain industrial equipment. (CSLO 1,2,3,4)
4. (Applying Level) Demonstrate knowledge of proper fall protection. (CSLO 1,2,3,4)
5. (Applying Level) Select appropriate Personal Protective Equipment (PPE) for various industrial safety situations. (CSLO 1,2,3,4)
6. (Applying Level) Describe how to appropriately use Personal Protective Equipment (PPE) for various industrial safety situations. (CSLO 1,2,3,4)

AIT105 - Maintenance Operations

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course into the practice of modern maintenance operations. Includes: safely and correctly using maintenance tools (e.g., hand tools, power tools), measuring instrumentations (e.g., tape, caliper, micrometer) and reading various engineering documents (e.g., blueprints, flowcharts, parts diagrams). Use and convert units in SI and imperial. Basic discussion of industrial safety procedures, machine operations, troubleshooting, failure analysis, modern maintenance principles, rigging, workplace organization, and records keeping.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Apply knowledge of machine maintenance and operation procedures and effects on factory outputs including machine operation, safety systems, e-stops, lock-out test-out tag-out, startup, shutdown, manual functions, maintenance practices and procedures, troubleshooting methodologies, Overall Equipment Efficiency (OEE) calculations and measurements. (CSLO 2,4)
2. (Applying Level) Describe the different documents related to maintenance operations and their responsible parties including operators manuals, exploded parts diagrams, service manuals, flowcharts, maintenance procedure, Standard Operating Procedures (SOPs), Safety Data Sheets (SDS), blueprint part and assemblies drawings with tolerances and basic Geometric Dimensioning and Tolerancing (GD&T). (CSLO 2)
3. (Applying Level) Demonstrate the proper use of legacy and modern tools to perform maintenance operations including rigging tools, hand tools, power tools, and measuring tools. (CSLO 2)

AIT105A - Maintenance Operations HS - Part A

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course into the practice of modern maintenance operations. Includes: safely and correctly using maintenance tools (e.g., hand tools, power tools), measuring instrumentations (e.g., tape, caliper, micrometer) and reading various engineering documents (e.g., blueprints, flowcharts, parts diagrams). Use and convert units in SI and imperial. Basic discussion of industrial safety procedures, machine operations, troubleshooting, failure analysis, modern maintenance principles, rigging, workplace organization, and record keeping. Part 1 of 2. Corequisite: AIT100.

Total Number Of Credits:
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Apply knowledge of machine maintenance and operation procedures and effects on factory outputs including machine operation, safety systems, e-stops, lock-out test-out tag-out, startup, shutdown, manual functions, maintenance practices and procedures, troubleshooting methodologies, Overall Equipment Efficiency (OEE) calculations and measurements. (CSLO 2,4)
2. (Applying Level) Describe the different documents related to maintenance operations and their responsible parties including operators manuals, exploded parts diagrams, service manuals, flowcharts, maintenance procedure, Standard Operating Procedures (SOPs), Safety Data Sheets (SDS), blueprint part and assemblies drawings with tolerances and basic Geometric Dimensioning and Tolerancing (GD&T). (CSLO 2)
3. (Applying Level) Demonstrate the proper use of legacy and modern tools to perform maintenance operations including rigging tools, hand tools, power tools, and measuring tools. (CSLO 2)

AIT105B - Maintenance Operations HS - Part B

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course into the practice of modern maintenance operations. Includes: safely and correctly using maintenance tools (e.g., hand tools, power tools), measuring instrumentations (e.g., tape, caliper, micrometer) and reading various engineering documents (e.g., blueprints, flowcharts, parts diagrams). Use and convert units in SI and imperial. Basic discussion of industrial safety procedures, machine operations, troubleshooting, failure analysis, modern maintenance principles, rigging, workplace organization, and record keeping. Part 2 of 2. Corequisite: AIT100.

Total Number Of Credits:
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Apply knowledge of machine maintenance and operation procedures and effects on factory outputs including machine operation, safety systems, e-stops, lock-out test-out tag-out, startup, shutdown, manual functions, maintenance practices and procedures, troubleshooting methodologies, Overall Equipment Efficiency (OEE) calculations and measurements. (CSLO 2,4)
2. (Applying Level) Describe the different documents related to maintenance operations and their responsible parties including operators manuals, exploded parts diagrams, service manuals, flowcharts, maintenance procedure, Standard Operating Procedures (SOPs), Safety Data Sheets (SDS), blueprint part and assemblies drawings with tolerances and basic Geometric Dimensioning and Tolerancing (GD&T). (CSLO 2)
3. (Applying Level) Demonstrate the proper use of legacy and modern tools to perform maintenance operations including rigging tools, hand tools, power tools, and measuring tools. (CSLO 2)

AIT110 - Mechanical Power Transmission Systems

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in how to transmit, measure, calculate, and work safely with rotational mechanical equipment. Hands-on assembly, alignment, maintenance, and troubleshooting of mechanical power transmission systems and components e.g., belts, bearings, chains, dynamometers, gears, pulleys, couplings, bushings, and sprockets. Introduction to lubricant and grease types, their standards, safety, and application.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Perform installation, alignment, tension check, and adjustment on mechanical power transmission components. (CSLO 2)
2. (Applying Level) Apply troubleshooting techniques to mechanical power transmission systems, including shaft couplings, chain drives, gear drives, and belt drives. (CSLO 2)
3. (Applying Level) Perform performance measurements and calculations for horsepower, torque and power (CSLO 2)
4. (Applying Level) Apply the correct lubricant to identified lubrication points on a machine according to its maintenance schedule. (CSLO 2)

AIT110A - Mechanical Power Transmission Systems HS - Part A

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in how to transmit, measure, calculate, and work safely with rotational mechanical equipment. Hands-on assembly, alignment, maintenance, and troubleshooting of mechanical power transmission systems and components e.g., belts, bearings, chains, dynamometers, gears, pulleys, couplings, bushings, and sprockets. Introduction to lubricant and grease types, their standards, safety, and application. Part 1 of 2. Corequisite: AIT100.

Total Number Of Credits:
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Perform installation, alignment, tension check, and adjustment on mechanical power transmission components. (CSLO 2)
2. (Applying Level) Apply troubleshooting techniques to mechanical power transmission systems, including shaft couplings, chain drives, gear drives, and belt drives. (CSLO 2)
3. (Applying Level) Perform performance measurements and calculations for horsepower, torque and power (CSLO 2)
4. (Applying Level) Apply the correct lubricant to identified lubrication points on a machine according to its maintenance schedule. (CSLO 2)

AIT110B - Mechanical Power Transmission Systems HS - Part B

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in how to transmit, measure, calculate, and work safely with rotational mechanical equipment. Hands-on assembly, alignment, maintenance, and troubleshooting of mechanical power transmission systems and components e.g., belts, bearings, chains, dynamometers, gears, pulleys, couplings, bushings, and sprockets. Introduction to lubricant and grease types, their standards, safety, and application. Part 2 of 2. Corequisite: AIT100.

Total Number Of Credits:
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Perform installation, alignment, tension check, and adjustment on mechanical power transmission components. (CSLO 2)
2. (Applying Level) Apply troubleshooting techniques to mechanical power transmission systems, including shaft couplings, chain drives, gear drives, and belt drives. (CSLO 2)
3. (Applying Level) Perform performance measurements and calculations for horsepower, torque and power (CSLO 2)
4. (Applying Level) Apply the correct lubricant to identified lubrication points on a machine according to its maintenance schedule. (CSLO 2)

AIT115 - Hydraulic Systems

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in the principles of hydraulic system operation, components construction, maintenance, troubleshooting, and operation, as well as the role of the individual components in an operating hydraulic system. Includes hydraulic fitting and seals, accumulators, cylinders, directional control valves (DVC), relief valves, check valves, pumps, filters, hoses, and a variety of hydraulic control circuits.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Interpret hydraulic schematics, including identifying schematic symbols, process flow, and operation of the components and systems. (CSLO 2,4)
2, (Applying Level) Install components of hydraulic systems. (CSLO 2,4)
3. (Analyzing Level) Operate hydraulic systems, including the adjustment of hydraulic pressure control valves in the given hydraulic systems. (CSLO 2,4)
4. (Evaluating Level) Perform maintenance on hydraulic components, including inspection, removal, and replacement. (CSLO 2,4)
5. (Analyzing Level) Test components of hydraulic systems. (CSLO 2,4)
6. (Evaluating Level) Troubleshoot malfunctioning components of hydraulic systems. (CSLO 2,4)

AIT120 - Pneumatic Systems

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in the principles of pneumatic system operation, components construction, maintenance, troubleshooting, and operation, as well as the role of the individual components of an operating pneumatic system. Includes pneumatic fitting, seals, accumulators, actuator/cylinders, directional control valves (DVC), manifolds, relief valves, check valves, pumps, filters, regulators, dryers, and common pneumatic control circuits.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Interpret pneumatic schematics, including identification of schematic symbols, process flow, and operation of the components and systems. (CSLO 2,4)
2. (Applying Level) Operate a pneumatic system, including adjustment of pneumatic pressure control valves in the given hydraulic systems. (CSLO 2,4)
3.(Applying Level) Perform maintenance of pneumatic components, including inspection, removal, and replacement. (CSLO 2,4)
4. (Applying Level) Install components of pneumatic systems. (CSLO 2,4)
5. (Evaluating Level) Test components of pneumatic systems. (CSLO 2,4)
6. (Analyzing Level) Troubleshoot malfunctioning components of pneumatic systems. (CSLO 2,4)

AIT125 - DC and AC Components and Circuits

General

Division
Skilled Trades & Technology Division

Course Description
An introductory course in Alternating Current (AC) and Direct Current (DC) electric theory. Includes electric circuits using resistors, capacitors and inductors. Also includes solenoids, relays, transformers, basic DC and AC motors, circuit protection devices and a variety of switches.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Analyze electrical circuit diagrams by identifying circuit components, voltages, currents and power. (CSLO 2,4)
2. (Understanding Level) Describe the operation of control and sensing components such as limit switches, pressure switches, float switches and proximity sensors when used as interrupters in a circuit. (CSLO 2,4)
3. (Applying Level) Demonstrate the use of a multimeter to measure voltage, current and resistance in a circuit and to troubleshoot basic electrical problems. (CSLO 2,4)
4. (Understanding Level) Select circuit protection devices such as fuses, ground fault circuit interrupters (GFCI) and circuit breakers. (CSLO 2,4)
5. (Evaluating Level) Test circuit protection devices such as fuses, GFCI and circuit breakers. (CSLO 2,4)
6. (Understanding Level) Identify the basic use of a multimeter to find basic electrical faults in components such as resistors, capacitors, inductors/solenoids, relays, transformers and electric motors. (CSLO 2,4)

AIT130 - Maintenance Piping

General

Division
Skilled Trades & Technology Division

Course Description
Overview of the area of maintenance of piping systems for manufacturing or industrial facilities. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 9: Maintenance Piping Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Read and interpret piping schematics. (CSLO 2,3,4)

2. (Comprehension Level) Identify and select proper materials for installation and replacement. (CSLO 2,3,4)

3. (Application Level) Prepare material for installation or repair of piping systems. (CSLO 2,3,4)

4. (Application Level) Assemble and disassemble piping systems. (CSLO 2,3,4)

Course Requisites

AIT205 - Power Electronics and Variable Frequency Drives

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in AC and DC power electronic theory. Includes power supplies, power conditioning, solid-state power devices, and power control circuits. Also includes proximity sensors, analog thermal sensors, control feedback loops, and the setup and operation of Variable Frequency Drives (VFDs). Prerequisite: AIT125.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Evaluate discrete electronic components such as diodes, bipolar transistors, field effect transistors (FETs), silicon controlled rectifiers (SCRs), and insulated-gate bipolar transistors (IGBTs). (CSLO 2,4)
2. (Applying Level) Install discrete electronic components such as diodes, bipolar transistors, field effect transistors (FETs), silicon controlled rectifiers (SCRs), and insulated-gate bipolar transistors (IGBTs). (CSLO 2,4)
3. (Evaluating Level) Test the operation of discrete electronic components such as diodes, bipolar transistors, field effect transistors (FETs), silicon controlled rectifiers (SCRs), and insulated-gate bipolar transistors (IGBTs). (CSLO 2,4)
4. (Applying Level) Install solid-state alternating current (AC) and direct current (DC) relays. (CSLO 2,4)
5. (Evaluating Level) Test solid-state AC and DC relays. (CSLO 2,4)
6. (Applying Level) Install discrete and analog sensors. (CSLO 2,4)
7. (Analyzing Level) Adjust discrete and analog sensors. (CSLO 2,4)
8. (Evaluating Level) Test discrete and analog sensors. (CSLO 2,4)
9. (Applying Level) Install a VFD motor drive system. (CSLO 2,4)
10. (Applying Level) Operate a VFD motor drive system. (CSLO 2,4)

AIT210 - Programmable Logic Controller Programming and Troubleshooting

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in Programmable Logic Controller (PLC) Ladder Logic programming and troubleshooting PLC connected components and systems. Also includes basic Human Machine Interface (HMI) navigation, connecting to a PLC, and program downloading. Prerequisite: AIT125 with a C or better.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Identify the components of a PLC, the principles of PLC operation, and the main PLC applications. (CSLO 2,4)
2. (Applying Level) Demonstrate the ability to transfer programs to and from a PLC. (CSLO 2,4)
3. (Analyzing Level) Develop simple PLC ladder logic programs to demonstrate the use of instructions, such as relay, branch, counters, timers, and logic instructions. (CSLO 2,4)
4. (Applying Level) Install and test a PLC. (CSLO 2,4)
5. (Applying Level) Connect an HMI to a PLC. (CSLO 2,4)
6. (Evaluating Level) Troubleshoot PLC field device components and system issues by interpreting PLC programs and hardware failures. (CSLO 2,4)

AIT215 - Process Control Systems

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in Process Control Systems design, operation, and tuning of Proportional, Integral, Derivative (PID) controllers for regulating flow, temperature, pressure, and level of industrial process variables. Includes manual control, feedback control, automated controls, analysis process setup, operate, and troubleshooting processes of control systems. Also includes typical Pipe and Instrument Diagram (P&IDs) symbols and tags along with the development of a basic P&ID drawing. Prerequisite: AIT125.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Interpret process control system documentation, including identifying components on a Piping and Instrumentation Diagram (P&ID), instrument tag, and instrument index. (CSLO 2,4)
2. (Applying Level) Complete setup of analog sensors and signal conditioning equipment. (CSLO 2,4)
3. (Evaluating Level) Adjust analog sensors and signal conditioning equipment. (CSLO 2,4)
4. (Evaluating Level) Test analog sensors and signal conditioning equipment. (CSLO 2,4)
5. (Applying Level) Complete setup of pneumatic proportional valves and I/P transmitters. (CSLO 2,4)
6. (Analyzing Level) Adjust pneumatic proportional valves and I/P transmitters. (CSLO 2,4)
7. (Evaluating Level) Test pneumatic proportional valves and I/P transmitters. (CSLO 2,4)
8. (Applying Level) Build a process signal loop system. (CSLO 2,4)

AIT220 - Fanuc Operations and Programming

General

Division
Skilled Trades & Technology Division

Course Description
This course is for a technician, engineer, or programmer who must setup and troubleshoot programs on a HandlingTool software package. The course covers the Robot Operations outline intermixed with the tasks required to set up the HandlingTool application; test, run, and refine the program; and production setup.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Power up and jog the robot. (CSLO 2,3) 2. (Application Level) Execute Teach Pendant Operations. (CSLO 2,3,4) 3. (Analysis Level) Set Robot Payload. (CSLO 2,4) 4. (Synthesis Level) Perform file and image backups. (CSLO 2) 5. (Application Level) Save individual files. (CSLO 2) 6. (Comprehension Level) Recover from common program and robot faults. (CSLO 2,4) 7. (Synthesis Level) Create TOOL, USER, and JOG Frames. (CSLO 2,4) 8. (Synthesis Level) Execute production operations. (CSLO 2,4) 9. (Synthesis Level) Create, modify, and execute a material handling program. (CSLO 2,3,4) 10. (Evaluation Level) Edit programs. (CSLO 2,3,4) 11. (Analysis Level) Monitor, force, and simulate input and output signals. (CSLO 2,3,4) 12. (Application Level) Program branching instructions. (CSLO 2,3,4) 13.(Application Level) Program position register instructions. (CSLO 2,3,4) 14. (Synthesis Level) Create and execute macros. (CSLO 2,3,4)

AIT225 - Industrial Motors and Motor Control

General

Division
Skilled Trades & Technology Division

Course Description
An introductory course in DC, single-phase AC, and 3-phase AC electric motors and motor control circuits. Includes electric motor control circuit components, motor control circuit applications, sequence circuits, and timer circuits. Prerequisite: AIT 125.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Install DC, single-phase AC, and 3-phase AC electric motors. (CSLO 2,4)
2. (Applying Level) Operate DC, single-phase AC, and 3-phase AC electric motors. (CSLO 2,4)
3. (Evaluating Level) Test DC, single-phase AC, and 3-phase AC electric motors. (CSLO 2,4)
4. (Analyzing Level) Troubleshoot DC, single-phase AC, and 3-phase AC electric motors. (CSLO 2,4)
5. (Analyzing Level) Interpret electric motor control component symbols and motor control circuit diagrams/schematics. (CSLO 2,4)
6. (Understanding Level) Describe the operation of motor control circuit components, such as contactors, manual starters, control relays, auxiliary contacts, and overloads. (CSLO 2,4)
7. (Applying Level) Install motor control circuit components, such as contactors, manual starters, control relays, auxiliary contacts, and overloads. (CSLO 2,4)
8. (Analyzing Level) Troubleshoot electrical motor control circuit faults. (CSLO 2,4)

AIT230 - Robot Vision

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the basic tasks and procedures required for an operator, technician, engineer, or programmer to setup, teach, test, and modify iRVision applications on an R-30iB Robot Controller. Prerequisite: AIT220.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe vision equipment and software. (CSLO 2,4) 2. (Application Level) Set up communication between robot and teaching computer. (CSLO 2,3,4) 3. (Knowledge Level) Explain vision concepts. (CSLO 2,3,4) 4. (Comprehension Level) Set up vision including camera setup, calibration, and vision process setup. (CSLO 2,3,4) 5. (Application Level) Explain TPP programming for vision. (CSLO 2,3,4) 6. (Application Level) Troubleshoot issues within vision. (CSLO 2,3,4)

Course Requisites

AIT270 - Robotics I

General

Division
Skilled Trades & Technology Division

Course Description
Fundamental principles of working safely with robots, and applications of and trends in industrial robotics. Includes types of robots, axes and coordinate systems, programming and operating robots. Also includes end effectors and collaborative robots. Prerequisite: AIT105.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe and demonstrate safe work procedures when working with robots. (CSLO 2,4)
2. (Knowledge Level) Explain applications and trends in industrial robotics. (CSLO 2,4)
3. (Comprehension Level) Identify various robot, axes and coordinate types, and systems. (CSLO 2,3,4)
4. (Application Level) Program and operate an industrial robot to perform specified tasks. (CSLO 2,34)
5. (Comprehension Level) Identify various end effectors. (CSLO (2,3)

Course Requisites

AIT275 - Robotics II

General

Division
Skilled Trades & Technology Division

Course Description
Continuation of AIT 270. Fundamental principles of working safely with robots; robot auxiliary, subsystems, and components. Also includes robot maintenance, troubleshooting, repair, and a basic robot design project. Prerequisite: AIT270.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe and implement various robot vision systems. (CSLO 2,4)
2. (Knowledge Level) Identify various robotic subsystems and components. (CSLO 2,3,4)
3. (Synthesis Level) Perform maintenance, troubleshooting, and repair on a robot. (CSLO 2)
4. (Application Level) Demonstrate and disassembly and reassembly of a robot. (CSLO 2,3,4)
5. (Synthesis Level) Design a rudimentary, functional robot. (CSLO 2,3,4)

Course Requisites

AIT100SU22 - NIMS Industrial Safety

General

Division
Skilled Trades & Technology Division

Course Description
Application of all safety, health, and environmental requirements associated with all of the NIMS, (National Institute for Metalworking Skills), duty areas.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Adhere to all of the safety, health, and environmental rules and regulations. (CSLO 2,3) 2. (Application Level) Demonstrate ethical behavior and industry professional standards. (CSLO 2,3) 3. (Application Level) Practice effective oral and written communication. (CSLO 2,3) 4. (Application Level) Achieve common goals through effective collaboration. (CSLO 2,3)

AIT105SU22 - Maintenance Operations

General

Division
Skilled Trades & Technology Division

Course Description
Overview of the area of maintenance operations of a manufacturing facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 1: Maintenance Operations Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Perform machine operation including startup, emergency, and normal shutdown and manual functions to effectively and safely meet production and maintenance requirements. (CSLO 2,3) 2. (Evaluation Level) Monitor machine operation and verify that performance meets production requirements. (CSLO 2,3) 3. (Evaluation Level) Locate, interpret, and store machine operation and maintenance documentation. (CSLO 2,3) 4. (Application Level) Perform planned and unscheduled machine maintenance procedures in accordance with a company-approved maintenance plan. (CSLO 2,3) 5. (Application Level) Perform preventative maintenance procedure for a given machine to extend machine life and minimize downtime. (CSLO 2,3) 6. (Application Level) Perform predictive maintenance on a given machine to extend machine life and minimize downtime. (CSLO 2,3) 7. (Evaluation Level) Read and interpret technical drawings of parts and assemblies with tolerances and basic GD&T. (CSLO 2,3,4) 8. (Application Level) Use hand tools to inspect, adjust/tighten, and assemble/disassemble equipment to support preventive maintenance, inspection, and troubleshooting activities. (CSLO 2,3) 9. (Application Level) Use hoists and other tools to safely handle and move parts and equipment. (CSLO 2,3) 10. (Analysis Level) Select and use troubleshooting methodologies to find malfunctions in machine systems to return the system to reliable, productive use in the shortest time possible. (CSLO 2,3,4)

Course Requisites

AIT110SU22 - Mechanical Systems

General

Division
Skilled Trades & Technology Division

Course Description
Overview of the area of basic mechanical systems of a manufacturing facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 2: Basic Mechanical Systems Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use measurement hand tools to inspect dimensions of shafts and other components. (CSLO 2,3) 2. (Application Level) Install and align a shaft coupling using rim and face, feeler gauge, and laser methods. Install, align, and tension a belt drive, including single and multiple belt systems and using V-belts, timing and HTP types. Install, align, and tension a chain drive including single and multiple chain systems. (CSLO 2,3) 3. (Application Level) Install, align, and adjust a spur gear drive and a right angle gear drive. (CSLO 2,3) 4. (Application Level) Install, align, and adjust a pillow block and flange block bearing. (CSLO 2,3) 5. (Analysis Level) Identify all lubrication points on a machine, select lubricant, and apply lubricant to machine according to maintenance schedule. (CSLO 2,3,4) 6. (Application Level) Apply troubleshooting techniques for shaft couplings, chain drives and belt drives. (CSLO 2,3)

Course Requisites

AIT115SU22 - Hydraulic Systems

General

Division
Skilled Trades & Technology Division

Course Description
Overview of the NIMS areas of hydraulic systems of a manufacturing facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 3: Basic Hydraulic Systems Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Read and interpret basic fluid power schematics including identifying schematic symbols, process flow, and operation of the components and systems. (CSLO 2,3,4) 2. (Application Level) Start up and shut down a hydraulic system and adjust hydraulic pressure control valves in a system that uses a fixed displacement pump. (CSLO 2,3,4) 3. (Analysis Level) Select and adjust hydraulic actuator speed using a flow control valve. (CSLO 2) 4. (Analysis Level) Inspect and change a hydraulic filter to maximize hydraulic fluid cleanliness. (CSLO 2,3,4) 5. (Analysis Level) Inspect, add, and change a hydraulic fluid (CSLO 2,3,4) 6. (Application Level) Connect, adjust, and disconnect flexible and rigid hydraulic conductors. (CSLO 2,3) 7. (Application Level) Install and test the operation of components in a basic hydraulic linear or rotary actuator given a schematic. (CSLO 2,3,4) 8. (Analysis Level) Troubleshoot a basic hydraulic linear or rotary circuit. (CSLO 2,3,4)

Course Requisites

AIT120SU22 - Pneumatic Systems

General

Division
Skilled Trades & Technology Division

Course Description
Overview of the NIMS areas of pneumatic systems of a manufacturing facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 4: Pneumatic Systems Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Determine and adjust pneumatic system operating pressure using a regulator. (CSLO 2,3) 2. (Application Level) Select and adjust pneumatic actuator speed using a flow control valve. (CSLO 2,3) 3. (Application Level) Inspect, drain, and change a pneumatic filter. (CSLO 2,3) 4. (Application Level) Inspect, fill and adjust, a pneumatic lubricator. (CSLO 2,3) 5. (Application Level) Connect, adjust, and disconnect flexible and rigid pneumatic conductors. (CSLO 2,3) 6. (Application Level) Startup and shutdown a reciprocating air compressor and adjust operating pressure using a pressure switch. (CSLO 2,3) 7. (Application Level) Install and test the operation of components in a basic pneumatic linear or rotary circuit given a schematic. (CSLO 2,3) 8. (Application Level) Install and test the operation of components in a basic pneumatic circuit that uses Vacuum generators given a schematic. (CSLO 2,3) 9. (Application Level) Troubleshoot a basic pneumatic linear or rotary actuator circuit. (CSLO 2,3)

Course Requisites

AIT125SU22 - Electrical Systems I

General

Division
No Department

Course Description
Overview of the area of electrical systems of a manufacturing facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 5: Electrical Systems Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Adjust and test limit switches, pressure switches, float switches, and electronic proximity sensors. (CSLO 2,3) 2. (Application Level) Use a multimeter to measure voltage, current, and resistance in an electrical circuit to verify system operation and power levels. (CSLO 2,3) 3. (Analysis Level) Select, install, and test fuses and circuit breakers. (CSLO 2,3,4)

AIT205SU22 - Electronic Control Systems I

General

Division
Skilled Trades & Technology Division

Course Description
Overview of the area of Electronic Control Systems I of a manufacturing or industrial facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 6: Electronic Control Systems Certification Exam. Prerequisite: AIT125.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Connect and test linear and switching DC power supplies. (CSLO 2,3) 2. (Application Level) Install and test solid-state AC and DC discrete and analog relays. (CSLO 2,3) 3. (Application Level) Install, adjust, and test analog sensors and signal conditioning equipment. (CSLO 2,3,4) 4. (Application Level) Connect and transfer programs to a programmable controller (PLC) using a PC. (CSLO 2,3,4)

Course Requisites

AIT210SU22 - Electronic Control Systems II

General

Division
Skilled Trades & Technology Division

Course Description
Continuation of AIT205. Overview of the area of Electronic Control Systems II of a manufacturing and industrial facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills), Duty Area 6: Electronic Control Systems Certification Exam. Prerequisite: AIT205.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Create a basic PLC ladder-style program. (CSLO 2,3,4) 2. (Application Level) Install and test basic PLC components. (CSLO 2,3,4) 3. (Application Level) Troubleshoot PLC and controlled Components. (CSLO 2,3,4)

Course Requisites

AIT225SU22 - Electrical Systems II

General

Division
Skilled Trades & Technology Division

Course Description
Continuation of AIT125. Overview of the area of electrical systems of a manufacturing facility. Preparation to sit for the NIMS, (National Institute for Metalworking Skills, Duty Area 5: Electrical Systems Certification Exam. Prerequisite or corequisite: AIT 100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Read and interpret electrical motor control and programmable controller system schematics, including identifying schematic symbols, signal flow, and operation of the components and system. (CSLO 2,3,4) 2. (Application Level) Install and test electrical relay control components in a control system. (CSLO 2,3) 3. (Application Level) Install and test electro-fluid power components and circuits. (CSLO 2,3) 4. (Analysis Level) Troubleshoot a solenoid-operated fluid power relay control circuit. (CSLO 2,3,4) 5. (Application Level) Test and replace transformers. (CSLO 2,3,4)

Course Requisites

AJS101 - Introduction to Administration of Justice

General

Division
Social & Behavioral Sciences Division

Course Description
History, philosophy and structure of criminal justice systems. Topics covered include organization and jurisdiction of law enforcement, the courts, and corrections. Also covered are career opportunities and qualifying requirements, justice-related terminology and an introduction to law.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Identify world roots, historical development, organization, functions and jurisdiction of each component of the American criminal justice system. (CLSO 1,2,4)
2. (Understanding Level) Discuss national and global crime in the context of social, political, geographic and legal environments. (CLSO 1,2,3,4)
3. (Applying Level) Examine current global and national events to appreciate current criminal justice practices. (CLSO 1,2,3,4)
4. (Remembering Level) List keys terms associated with the criminal justice system, including Latin terms and phrases. (CLSO 1,3)
5. (Analyzing Level) Diagram the American criminal justice process, including state and federal court system. (CLSO 1,2,3,4)
6. (Analyzing Level) Categorize the goals of the American criminal justice system. (CLSO 1,2,3,4)
7. (Evaluating Level) Assess critical issues in the American criminal justice system. (CLSO 1,2,3,4)
8. (Understanding Level) Identify and discuss future trends, both nationally and globally, in criminal justice. (CLSO 1,2,3,4)
9. (Evaluating Level) Critique the efficiency and effectiveness of the three components of the American criminal justice system. (CLSO 1,2,3,4)

Course Requisites

AJS123 - Ethics and the Administration of Justice

General

Division
Social & Behavioral Sciences Division

Course Description
Explore ethical issues in the justice system. Focus on ethics and the law, the police, the courts and corrections. Review ethical theory related to the administration of justice. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and explain differences in individual values, moral behaviors and institutional values. (CSLO 1, 2, 3)
2. (Analysis Level) Analyze the relationship of law, standards of morality, ethics and society. (CSLO 1, 2, 3, 4)
3. (Comprehension Level) Describe the core elements of justice and law. (CSLO 1, 2)
4. (Analysis Level) Explain the differences between distributive and retributive justice systems. (CSLO 1, 2, 4)
5. (Comprehension Level) Identify and explain the historical origins of ethical and justice theories. (CSLO 1, 2, 4)
6. (Application Level) Articulate the elements of the police officer and correctional officer subcultures. (CSLO 1, 2, 4)
7. (Comprehension Level) Identify and explain key ethical issues confronting law enforcement, corrections and the court system, including use of physical force, decisions to employ deadly force, undercover activities, punishment, etc. (CSLO 1, 2, 3, 4)
8. (Comprehension Level) Identify and explain the factors involved in the use of discretion. (CSLO 1, 2, 3, 4)
9. (Synthesis Level) Categorize the different ethical considerations confronting the various members of the criminal justice system. (CSLO 1, 2, 4)
10. (Analysis Level) Outline major ethical issues associated with the administration of justice in modern times. (CSLO 1, 2, 4)

Course Requisites

AJS200 - Current Issues in Administration of Justice

General

Division
Social & Behavioral Sciences Division

Course Description
An in-depth study of current justice issues with all areas of the criminal justice system open to investigation. Topics may include capital punishment, mass shootings, immigration, hate crimes, terrorism, use of force by police, gun control, cyber-crime and human trafficking. Global, transnational, and national issues will be examined. Prerequisites: AJS101 or SOC101; and ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and discuss multiple issues related to criminal justice as currently being discussed and debated within the academic community, policy-makers and practitioners. (CLSO 1,2)
2. (Application Level) Develop a critical awareness of contemporary issues in criminal justice, the emphasis of which may change in response to current developments. (CLSO 1,2,3)
3. (Application Level) Develop written communication skills. (CLSO 3)
4. (Analysis Level) Analyze the sources of influence over justice policy and changes in law. (CLSO 1,2,3,4)
5. (Analysis Level) Analyze the rationale behind numerous positions on current issues in the criminal justice system. (CLSO 1,2,3,4)
6. (Evaluation Level) Critique these positions from an objective point of view. (CLSO 1,2,3,4)
7. (Evaluation Level) Evaluate current issues in American justice in the wider context of international justice policy. (CLSO 1,2,3,4)
8. (Evaluation Level) Compile pragmatic, data-driven responses to issues and problems in criminal justice. (CLSO 1,2,3,4)

Course Requisites

AJS209 - Substantive Criminal Law

General

Division
Social & Behavioral Sciences Division

Course Description
Philosophy of legal sanctions and historical development from common law to modern American criminal law, classifications of crimes, elements of and parties to crimes, general definitions of crimes, and common defense. Prerequisite: AJS101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the development of common and statutory law. (CSLO 2)
2. (Analysis Level) Examine the relationship of law as a coercive form of social control. (CSLO 1, 4)
3. (Analysis Level) Analyze the relationship of the legislature and judiciary to the enactment and interpretation of law. (CSLO 2, 4)
4. (Comprehension Level) Identify and explain the basic elements of and parties to a crime. (CSLO 1, 2)
5. (Synthesis Level) Categorize the classifications of crimes. (CSLO 2, 4)
6. (Knowledge Level) Define the defenses against criminal responsibility. (CSLO 2)
7. (Analysis Level) Examine the principles of jurisdiction. (CSLO 2, 4)

Course Requisites

AJS212 - Juvenile Justice Procedures

General

Division
Social & Behavioral Sciences Division

Course Description
History and development of juvenile justice theories, procedures and institutions. Prerequisite: ENG101; and AJS101 or SOC101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define words and phrases that are unique to the juvenile justice system. (CLSO 3)
2. (Comprehension Level) Summarize the development of the juvenile justice system. (CLSO 1,2)
3. (Comprehension Level) Describe the nature and extent of juvenile delinquency in the United States. (CLSO 1,2,3,4)
4. (Analysis Level) Compare how society treats adolescents today to how society handled them in the past. (CLSO 1,2,3,4)
5. (Analysis Level) Compare theories of juvenile delinquency. (CLSO 1,2,4)
6. (Analysis Level) Analyze the influence of gender on delinquency. (CLSO 1,2,4)
7. (Analysis Level) Outline the Constitutional rights of juveniles. (CLSO 1,2,3,4)
8. (Synthesis Level) Theorize how family and societal problems can contribute to delinquency. (CLSO 1,2,4)
9. (Synthesis Level) Compare the structure and purpose of the juvenile justice system to the adult justice system. (CLSO 1,2)
10. (Synthesis Level) Explain the purpose of pretrial, trial, and sentencing procedures involved in juvenile court proceedings and explain the sequence of these events. (CLSO 1,2,3,4)
11. (Synthesis Level) Prepare a 500 (minimum) word reflection paper that summarizes what the student has learned about the juvenile justice system. The paper shall be placed in an e-portfolio that the student will maintain as a part of his/her academic experience as an Administration of Justice student. (CLSO 1,2,3,4)

Course Requisites

AJS224 - Criminal Justice Administration

General

Division
Social & Behavioral Sciences Division

Course Description
Principles of administration, organization and management; responsibilities and interrelationships of administrative and line-and-staff services; and analysis of functional divisions of modern police and correctional operations. Prerequisites: AJS101 and ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Classify criminal justice organizational structures for small, medium, and large agencies. (CSLO 1)
2. (Evaluation Level) Assess major theories of supervision, organization, and management. (CSLO 2, 3, 4)
3. (Comprehension Level) Summarize personal skills and traits necessary for an effective manager or supervisor in a criminal justice organization. (CSLO 1, 2, 3, 4)
4. (Analysis Level) Classify methods of developing and motivating employees. (CSLO 1, 2, 3, 4)
5. (Application Level) Report common management, organizational, and supervisory problems and determine methods of resolution. (CSLO 1, 2, 3, 4)
6. (Evaluation Level) Evaluate labor laws as applicable to criminal justice agencies. (CSLO 1, 2, 3, 4)

AJS225 - Criminology

General

Division
Social & Behavioral Sciences Division

Course Description
Theories of criminality and the economic, social and psychological impact of crime, victimization, and relationships between statistics and crime trends. Prerequisites: AJS101 or SOC101. Corequisite or Prerequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine crime and the economic, social and psychological impact on society, including victimization. (CSLO 1 , 4)
2. (Analysis Level) Analyze juvenile delinquency and discuss contributing factors to juvenile crime. (CSLO 1 , 2, 4)
3. (Evaluation Level) Examine and evaluate theories of Criminology from various perspectives in order to analyze crime trends. (CSLO 2 , 4)
4. (Analysis Level) Differentiate between the types of crimes. (CSLO 2, 4)
5. (Evaluation Level) Critique current research regarding crime statistics and evaluate the relationships between psychological and sociological contributing factors. (CSLO 1, 2, 4)
6. (Evaluation Level) in a 7- 10 page (minimum 5000 words) research paper, assess current crime trends, explain contributing factors to criminal behavior and, utilizing appropriate criminological theories, evaluate possible solutions to criminal activity. (CSLO 1, 2, 3, 4)

Course Requisites

AJS230 - The Police Function

General

Division
Social & Behavioral Sciences Division

Course Description
Theories of procedures and methods of operation of public police emphasizing discretionary powers, with a survey of career opportunities and current trends in law enforcement. Prerequisite: AJS101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Assess the objectives, activities, and structure of police organizations. (CLSO 1,2)
2. (Comprehension Level) Identify and explain police procedures and responsibilities. (CLSO 1, 2, 4)
3. (Analysis Level) Examine the guidelines and procedures for intra- and interdepartmental communications. (CLSO 3)
4. (Evaluation Level) Assess the principles of reporting and records utilized in procedures. (CLSO 3)
5. (Evaluation Level) Evaluate and explain the various uses of police reports. (CLSO 1, 2, 3)
6. (Evaluation Level) Critique and describe the principles of field interviews. (CLSO 2, 3, 4)
7. (Evaluation Level) Critique and discuss methods, procedures, and techniques which are appropriate for various investigations. (CLSO 2, 3, 4)
8. (Evaluation Level) Interpret guidelines and techniques applicable to various special police problems, such as active shooter incidents. (CLSO 1, 2, 3, 4)

Course Requisites

AJS240 - The Corrections Function

General

Division
Social & Behavioral Sciences Division

Course Description
History and development of correctional theories and institutions. Prerequisite: AJS101

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Outline the components of the correctional system. (CSLO 2)
2. Describe the historical evolution of the correctional system. (CSLO 2)
3. Discuss alternatives to incarceration. (CSLO 1, 2, 4)
4. Define the development and administration of probation and parole. (CSLO 2, 3, 4)
5. Describe prison operations, including classification of prisoners, discipline and security. (CSLO 2, 3)
6. Compare various prison services and programs. (CSLO 2, 3, 4)

Course Requisites

AJS260 - Procedural Criminal Law

General

Division
Social & Behavioral Sciences Division

Course Description
Introduction to procedural criminal law, focusing on court holdings, procedural requirements, and effect on the daily operations of law enforcement. Prerequisites: AJS101 and ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline the goals and objectives of the criminal justice system. (CLSO 1, 2, 4)
2. (Knowledge Level) Define the concept of judicial review. (CLSO 1, 2, 4)
3. (Evaluation Level) Evaluate case law and the importance of precedent. (CLSO 1, 2, 4)
4. (Evaluation Level) Compare and contrast the functions of federal and state courts, including the responsibilities and jurisdictions of each level. (CLSO 1, 2, 3, 4)
5. (Analysis Level) Examine the exclusionary rule and the exceptions to it, and the fruit of the poisonous tree doctrine and the exceptions to it. (CLSO 1, 2, 3, 4)
6. (Evaluation Level) Assess the history, purpose, and essential elements of the first, fourth, fifth, sixth, eighth, and fourteenth amendments of the U.S. Constitution. (CLSO 1, 2, 3, 4)
7. (Comprehension Level) Cite major cases relating to first, fourth, fifth, sixth, eighth, and fourteenth amendments of the Constitution. (CLSO 1, 2, 3, 4)
8. (Analysis Level) Differentiate procedural processes in the juvenile justice system from those in the adult criminal justice system. (CLSO 1, 2, 3, 4)
9. (Evaluation Level) Compare and contrast the purpose and process of the: initial appearance, preliminary hearing, the probable cause hearing, and the grand jury. (CLSO 1, 2, 3, 4)
10. (Analysis Level) Examine plea bargaining and summarize the arguments for and against its use. (CLSO 1, 2, 3, 4)

Course Requisites

AJS270 - Community Relations

General

Division
Social & Behavioral Sciences Division

Course Description
Recognition and understanding of community problems, police role in the community, methods of resolving crisis situations, victimology, ethnic and minority cultures, gender issues, and cooperating with personnel in community action programs and local police operations. Prerequisites: AJS101 and ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the factors which influence the nature of an American community: including race, culture, gender, socioeconomic status, along with issues regarding ethnic and minority cultures. (CLSO 1, 2, 3, 4)
2. (Comprehension Level) Explain the historical development of the police role in the community. (CLSO 1, 2, 4)
3. (Evaluation Level) Assess the role of the police and the concept of the police as a symbol of authority. (CLSO 1, 2, 3, 4)
4. (Evaluation Level) Interpret the psychological and sociological variables which influence human behavior. (CLSO 1, 2, 3, 4)
5. (Comprehension Level) Describe the nature of human conflict in the community and various adaptations to address conflict. (CLSO 1, 2, 3, 4)
6. (Evaluation Level) Critique the importance of communication, impartiality and fairness as related to police-community relations. (CLSO 1, 2, 3, 4)
7. (Application Level) Apply community relations knowledge to programs and identify how police departments effectively respond to community needs. (CLSO 1, 2, 3, 4)
8. (Evaluation Level) Assess the issues influencing the future of police-community relations. (CLSO 1, 2, 3, 4)

Course Requisites

AJS275 - Criminal Investigations

General

Division
Social & Behavioral Sciences Division

Course Description
Theory of criminal investigation, crime scene procedures, case preparation, interviewing, and basic investigative techniques. Prerequisites: AJS101 and ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the purpose, nature and methods of criminal investigation (CSLOs 2,3,4).
2. (Evaluation Level) Compare and contrast the methods for recording interviews and interrogations (CSLOs 2,3,4).
3. (Analysis Level) Examine key terms relative to criminal investigations (CSLO 3).
4. (Evaluation Level) Interpret the purpose, importance, characteristics and content of various investigative reports (CSLOs 2,3,4).
5. (Evaluation Level) Assess the legal considerations relative to interrogations, admissions, confessions and written statements (CSLOs 1,2,3,4).
6. (Evaluation Level) Evaluate the role of the informant in obtaining information and the methods for tracing sources of information (CSLOs 1,2,3,4).
7. (Application Level) Demonstrate the procedures for identifying, protecting and preserving evidence (CSLOs 2,3,4).
8. (Analysis Level) Illustrate the correct procedures to conduct and record crime scene searches (CSLOs 2,3,4).
9. (Analysis Level) Examine the procedures in conducting interviews and interrogations (CSLOs 1,2,3,4).
10. (Evaluation Level) Assess the function and methods of surveillance in investigations (CSLOs 2,3,4).

Course Requisites

ANS101 - Animal Industry

General

Division
Skilled Trades & Technology Division

Course Description
Fundamental principles of animal, dairy, equine and poultry science focusing on production, marketing and distribution. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Recognize the trends in animal and poultry science as they relate to today's livestock production. 2. (Analysis Level) Examine important import and export product in the livestock industry and how this effects the U.S. Gross National Product. 3. (Comprehension Level) Identify and describe US and world regions of poultry and livestock production. 4. (Analysis Level) Recognize the importance of reproduction and relate its place in the management of the livestock herd. 5. (Application Level) Classify essential feed nutrients needed by livestock for proper growth and development. 6. (Comprehension Level) Describe proper selection procedures to select breeding stock including judging, pedigrees and production records. 7. (Comprehension Level) Identify and explain grades and grading systems used for live animal and carcass evaluation. 8. (Comprehension Level) Identify and describe some of the diseases associated with livestock production in Pinal County and Arizona. 9. (Knowledge Level) Describe the place of the American horse in today's society. 10. (Analysis Level) Recognize and relate the importance of reproduction, management, feeding and selection in the equine and poultry industry.

Course Requisites

ANS102 - Horsemanship I

General

Division
Skilled Trades & Technology Division

Course Description
Fundamental knowledge and skill development in horse anatomy and function. Conformation, and riding is emphasized in this course. Individual help is given in areas needed. The student must supply a horse and tack for this course. May be taken two times for credit. Recommended: A basic knowledge of horses. Student must own their own horse, and assume all responsibilities of horse ownership.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe correct and incorrect use of hands. (CSLO 3)
2. (Application Level) Demonstrate a range of work related tasks of relevance in the equine industry with due regard for health and safety. (CSLO 2, 3)
3. (Evaluation Level) Assess the capacity of the horse to perform as an athlete. (CSLO 2, 4)
4. (Evaluation Level) Describe signs and symptoms of common equine diseases and assess the effectiveness of treatment. (CSLO 2, 4)
5. (Comprehension Level) Discuss key concepts in marketing. (CSLO 2)
6. (Comprehension Level) Explain the diversity of the equine industry, and the problems and opportunities this diversity creates. (CSLO 1, 2)
7. (Analysis Level) Differentiate traditional equine training and traditional equine management. (CSLO 2)
8. (Knowledge Level) List the natural motivations and behavior of the horse. (CSLO 1, 2)
9. (Synthesis Level) Develop a broad knowledge of epidemiological principles and their application to disease control programs and preventive medicine programs. (CSLO 2, 4)
10. (Application Level) Present a wide range of tack and how it should be adjusted. (CSLO 2, 3)

ANS104 - Human and Animal Interrelationships from Domestication to Present

General

Division
Skilled Trades & Technology Division

Course Description
Evaluation of interrelationships between humans and animals from ancient to modern times, including evolution through domestication of animals in Europe and the New World. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and explain methods and theoretical frameworks used in the study of human and animal relationships.
2. (Evaluation Level) Critically read and synthesize scientific and humanities literature then clearly present original ideas through written work and oral presentations.
3. (Evaluation Level) Critically evaluate human relationships with animals and analyze changes in relationships within a multi-cultural and/or historical framework.
4. (Analysis Level) Identify and analyze animal contributions to the development of human civilizations.
5. (Analysis Level) Describe and analyze economically significant breeds of animals and their unique adaptations.
6. (Analysis Level) Analyze genetic change using the scientific theory of evolution, including the artificial/natural selection process.
7. (Evaluation Level) Evaluate and describe animal behavior related to animal domestication, health and performance.

Course Requisites

ANS110 - Horse Event Production

General

Division
Skilled Trades & Technology Division

Course Description
Horse event production for future equine professionals including organizing shows, events or clinics related to the equine industry. Prerequisite: ANS200.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss management principles and techniques to organize equine shows/events/clinics.
2. (Knowledge Level) Identify local and state laws and regulations governing equine events.
3. (Application Level) Demonstrate marketing techniques for equine events.
4. (Synthesis Level) Produce equine events, including developing a budget, marketing plan, personnel management plan, and strategies for adhering to regulations and reporting functions.

Course Requisites

ANS111 - Horseshoeing I

General

Division
Skilled Trades & Technology Division

Course Description
Fundamentals for the beginning horseshoer, including horse anatomy and physiology relative to the proper shoeing of horses.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Know safety procedures for shoeing horses. (CSLO 2, 3)
2. (Comprehension Level) Explain the bones, joints, ligaments and tendons from the knee down in horses. (CSLO 2)
3. (Application Level) Demonstrate basic knot tying for restraining horses. (CSLO 3)
4. (Analysis Level) Distinguish between various types of lameness in horses and explain corrective techniques utilized. (CSLO 2, 4)
5. (Application Level) Prepare and fit shoes using correct procedures. (CSLO 2, 3)
6. (Application Level) Show how to shoe a horse utilizing correct procedures. (CSLO 2, 3)
7. (Application Level) Manipulate some common gaits and faults in horses using basic corrective shoeing procedures. (CSLO 2, 4)
8. (Evaluation Level) Evaluate a shoeing job. (CSLO 2, 4)

ANS121 - Equine Facility Management I

General

Division
Skilled Trades & Technology Division

Course Description
This course is designed to educate students in safe and effective equine facilities management. Students boarding a horse in a CAC facility must sign up for the Equine Facility Management course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate feed and facility requirements of horses.
2. (Synthesis Level) Develop business and management principles and practices that are relevant to equine employer expectations.
3. (Knowledge Level) Identify the characteristics of a successful business.
4. (Comprehension Level) Discuss the relationship between stable management regime and horse health.
5. (Evaluation Level) Evaluate and assess techniques used to rehabilitate horses following injury.
6. (Synthesis Level) Develop an effective strategy for ensuring the success of a small business.
7. (Analysis Level) Recognize signs and symptoms of common equine diseases and assess the effectiveness of treatment.
8. (Application Level) Perform a range of work-related tasks with due regard for health and safety.
9. (Application Level) Illustrate how to catch and handle the horse correctly, and properly groom and prepare the horse for use.
10. (Comprehension Level) Identify types of tack and explain their proper use.
11. (Comprehension Level) Discuss the liabilities associated with horse ownership, the precautions needed when buying a horse and the impact of the horse industry on the economy.

ANS122 - Equine Facilities Management II

General

Division
Skilled Trades & Technology Division

Course Description
Students will plan, design and perform a cost analysis of a horse facility, paying attention to safety and ease of use. Students boarding a horse in a CAC facility must sign up for the Equine Facilities Management course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Describe hoof care, general horseshoeing, and balanced horseshoeing.
2. (Analysis Level) Recognize and explain core equine personalities and how to work with them.
3. (Comprehension Level) Describe features you would look for when selecting a prospect horse. This could be things like conformation, bloodlines and attitude.
4. (Analysis Level) Compare methods of evaluating levels of training and making training schedules.
5. (Evaluation Level) Assess behavior and needs of the horse and ways to adjust treatment and facilities to meet them.
6. (Comprehension Level) Describe the information needed to create a customer management plan for an equine business.
7. (Knowledge Level) Present information to create a business plan for a small business.
8. (Evaluation Level) Evaluate signs and symptoms of common equine diseases and assess the effectiveness of treatment.
9. (Analysis Level) Compare all types of tack and know their proper use.
10. (Analysis Level) Examine the liabilities associated with horse ownership, the precautions needed when buying a horse and the impact of the horse industry on the economy.
11. (Comprehension Level) Describe all relevant methods of diagnosis, treatment, management and prevention of equine diseases and the ability to apply these methods with complete competence.

ANS131 - Equine Behavior and Training I

General

Division
Skilled Trades & Technology Division

Course Description
Fundamentals of starting a horse in roping events including the many stages of roping, from starting the horse in the pen through finishing the horse out of a roping box. The emphasis is on correct horsemanship principles as well as physical and mental preparation of the horse and rider. The student must supply the horse and tack for this course. May be taken two times for credit. Prerequisite: ANS121.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Recognize and correct the incorrect use of hands while riding the horse.
2. (Analysis Level) Recognize visually and through feel while riding, the correct cadence and rhythm for the walk, jog (trot), and lope (canter) at a novice level.
3. (Application Level) Demonstrate safety at all times when working with and around horses.
4. (Comprehension Level) Identify tack and adjust it correctly.
5. (Application Level) Demonstrate an even temper while performing all training and strengthening exercises.
6. (Synthesis Level) Demonstrate use of safety while tacking up a horse for riding and recognize and ride with a balanced position in a coachable manner.
7. (Evaluation Level) Demonstrate the ability to make ethically sound and scientifically informed qualitative and quantitative judgments on equine welfare and other equine issues.
8. (Synthesis Level) Develop confidence in learning to ride and rope correctly.
9. (Evaluation Level) Recognize and critique any bad habits the horse or rider may have.
10. (Synthesis Level) Develop and demonstrate proper safety concerning horsemanship and roping.
11. (Application Level) Demonstrate the proper way to start a horse on cattle.

Course Requisites

ANS172 - Introduction to Western Horsemanship

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to the basic theories of western horsemanship with an emphasis on correct seat, leg, and hand positions. Course includes proper equine handling techniques. Students will ride in a schooling show environment using western tack. S/U grading option available. May be taken two times for credit.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Distinguish between safe and unsafe horse handling practices. 2. Describe the proper physical characteristics of the western horse. 3. Describe the components and purpose of western tack. 4. Recognize proper grooming, saddling and bridling techniques. 5. List proper procedures for warm-up and cool-down as they relate to equine soundness. 6. Develop equitation skills including proper seat, leg and hand aid positions. 7. Develop control of the western horse at the walk, jog and lope. 8. Observe various equine competitive patterns. 9. Describe methods for maintaing horse flexability and optimum performance. 10. Demonstrate improvement in equitation skills. 11. Discuss processes for effective rewarding and discipline of the equine.

ANS195 - Careers in Veterinary Science

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to the various careers and industries associated with the veterinary science field. Students build industry network relationships.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Explore various resume styles and create a professional resume. 2. (Synthesis Level) Explore the job interview process and successfully role play mock job interviews. 3. (Synthesis Level) Investigate industry contacts and build a personal career option file through field trip contacts. 4. (Application Level) Observe various career opportunities in the field of veterinary science and actively participate in field trips to nationally recognized equine, small animal and dairy veterinary facilities.

ANS200 - Introduction to Equine Science

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to equine sciences including basic structure and function of equine anatomy, disease prevention and treatment, common breeds, and nutritional requirements of horses. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the history and development of the horse.
2. (Comprehension Level) Discuss the basics of equine science.
3. (Analysis Level) Compare the common breeds of horses and assess their differences.
4. (Comprehension Level) Describe the structure and function of a horse.
5. (Knowledge Level) Identify the general anatomical areas of a horse.
6. (Evaluation Level) Interpret and apply the process for determining the age, height, and weight of a horse.
7. (Comprehension Level) Explain basic genetic principles involved in horse breeding.
8. (Analysis Level) Examine the anatomy and physiology of the skeletal, muscular, cardiovascular, respiratory, digestive, and reproductive systems.
9. (Evaluation Level) Describe and defend the ideal conformation characteristics of a horse.
10. (Evaluation Level) Predict the possible lameness that could result from poor conformation
11. (Analysis Level) Examine and explain signs, symptoms, treatment, and prevention of equine infectious diseases and parasites.
12. (Evaluation Level) Assess the nutrient requirements of different ages and uses of horses.
13. (Evaluation Level) Predict the possible problems due to dietary excess or deficiencies of nutrients, vitamins, minerals, and trace elements.

Course Requisites

ANS202 - Horsemanship II

General

Division
Skilled Trades & Technology Division

Course Description
Advanced Horsemanship emphasizing correct horsemanship practices, stabling, training, health care and parasite control, horse anatomy and function, conformation and riding (cues, aids, gaits, and maneuvers). The student must supply a horse and tack for this class. May be taken two times for credit. Prerequisites: ANS102 and ANS121.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe correct and incorrect use of hands and the consequences of incorrect use. (CSLO 3, 4)
2. (Application Level) Demonstrate a range of work-related tasks of relevance in the equine industry with due regard for health and safety. (CSLO 2, 3)
3. (Evaluation Level) Assess the capacity of the horse to perform as an athlete. (CSLO 2, 4)
4. (Evaluation Level) Describe signs and symptoms of common equine diseases and assess the effectiveness of treatment. (CSLO 2, 4)
5. (Comprehension Level) Discuss key concepts in marketing. (CSLO 2)
6. (Evaluation Level) Critique the diversity of the equine industry, and the problems and opportunities this diversity creates. (CSLO 1, 2, 4)
7. (Analysis Level) Explain the differences between traditional equine training and traditional equine management. (CSLO 2)
8. (Comprehension Level) Discuss the natural motivations and behaviors of the horse. (CSLO 1, 2)
9. (Application Level) Present a wide range of tack and demonstrate how it should be adjusted. (CSLO 2, 3)

Course Requisites

ANS211 - Advanced Horseshoeing

General

Division
Skilled Trades & Technology Division

Course Description
Advanced skills in shoeing horses to eliminate and/or correct lameness to the extent that the animal remains useful and pain free. Prerequisite: ANS111.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Select and apply the proper bar shoe for each lameness by correctly applying shoe to horse to achieve remediation of problem without creating additional pain or distress. (CSLO 2, 3)
2. (Application Level) Apply foam blocks for the purpose of assisting the foundered or abused horse. (CSLO 1, 3)
3. (Evaluation Level) Assess various types and causes of lameness by examination (visually and with tools). (CSLO 2, 4)
4. (Analysis Level) Recognize and diagnose the deterioration of the hoof due to a fungal infection. (CSLO 2, 4)
5. (Analysis Level) Recognize thrush and white line disease by examination (visually and with tools) of the hoof capsule. (CSLO 2, 4)
6. (Application Level) Select the appropriate protective pad for each lameness diagnosed. (CSLO 2, 3)

Course Requisites

ANS213 - Animal Genetics

General

Division
Skilled Trades & Technology Division

Course Description
Principles of domestic animal genetics, including molecular, classical and population genetics. Prerequisite: BIO100 or higher.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify historic advances in genetics. 2. (Comprehension Level) Describe cellular process of meiosis and mitosis. 3. (Application Level) Apply Mendelian genetics as a model of inheritance. 4. (Analysis Level) Analyze and explain chromosome mapping methods. 5. (Analysis Level) Analyze and explain sex determination of chromosomes. 6. (Analysis Level) Deconstruct, analyze, and describe the structure of DNA. 7. (Synthesis Level) Describe the entire process of DNA replication, including how DNA splits apart, copies, and produces new chromosomes. 8. (Analysis Level) Analyze and describe the process of DNA and protein synthesis. 9. (Evaluation Level) Critique and interpret the implications of modification of genetic feed sources in animals and the subseqent impact on humans.

Course Requisites

ANS215 - Anatomy and Physiology of Domestic Animals

General

Division
Skilled Trades & Technology Division

Course Description
Functional anatomy and systemic physiology of domestic animals with emphasis on physiological systems of importance to animal production. Prerequisite: BIO100 or higher.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the process of embryonic growth and development. (CSLO 2) 2. (Comprehension Level) Explain the function of organelles in the eukaryotic cell. (CSLO 2) 3. (Comprehension Level) Identify individual components associated with the nervous system, cardiovascular system, respiratory system, urinary system and endocrine system. (CSLO 2) 4. (Comprehension Level) Identify components of muscles, bones and joints. (CSLO 2) 5. (Analysis Level) Explain how the individual components function together to perform the operation of each anatomical system. (CSLO 2) 6. (Analysis Level) Explain how the individual components function together to perform the operation of muscle contraction, bone and joint movement. (CSLO 2) 7. (Evaluation Level) Compare and contrast the functional anatomy and physiology of domestic animals. (CSLO 4)

Course Requisites

ANS216 - Equine Anatomy & Physiology

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the structure and function of the equine. Includes cell structure, and anatomy and physiology of major systems including skeletal, muscular, circulatory and digestive systems. Prerequisite: ANS200.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the various epidermal structures of equine anatomy.
2. (Knowledge Level) Identify basic equine cellular and tissue composition and function.
3. (Knowledge Level) Recognize the bones and joints of the equine skeleton and basic skeletal physiology.
4. (Knowledge Level) Name muscle types and physiology.
5. (Comprehension Level) Explain the functions of the equine nervous system.
6. (Comprehension Level) Explain the functioning mechanism of the equine endocrine system.
7. (Evaluation Level) Evaluate the unique importance of sensory organs of the equine.
8. (Analysis Level) Distinguish between the specific components of blood and body fluids and explain their functions in the equine.
9. (Analysis Level) Recognize and relate the purpose and structure of the equine circulatory system.
10. (Evaluation Level) Evaluate the purpose and structure of the equine respiratory system.
11. (Analysis Level) Recognize the structure of the urinary system and the physiology of renal filtration.
12. (Analysis Level) Examine and differentiate basic anatomy and physiology of male and female equine reproductive systems.

Course Requisites

ANS220 - Artificial Insemination

General

Division
Skilled Trades & Technology Division

Course Description
Anatomy and physiology of reproduction, heat detection, semen handling, herd management, and the techniques of artificial insemination.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify the anatomy of male and female reproductive systems in domestic animals. (CSLO 2) 2. (Synthesis Level) Explain the physiology of reproduction in domestic animals, including the interaction between reproductive organs, hormones, and the environment. (CSLO 2) 3. (Comprehension Level) Identify the system of techniques of artificial insemination. (CSLO 2) 4. (Application Level) Demonstrate proper techniques of artificially inseminating beef or dairy cattle. (CSLO 4) 5. (Analysis Level) Detect symptoms of estrous and standing heat in cattle and equine. (CSLO 4) 6. (Application Level) Demonstrate proper technique and timing of artificial insemination to ensure maximum conception. (CSLO 2, 4) 7. (Comprehension Level) Identify proper management practices which will assist the producer in improving the cattle herd. (CSLO 2,3,4)

ANS223 - Advanced Equine Training

General

Division
Skilled Trades & Technology Division

Course Description
Fundamental concepts and basic horsemanship skills applied to training a timed event horse, including conformation and bloodlines, types and uses of equipment, and training methods. Physical and mental conditioning of both horse and rider along with fundamentals needed to help the horse perform to its highest potential in a competition setting. May be taken three times for credit. Prerequisite: ANS231.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of student confidence when learning to ride and rope correctly.
2. (Comprehension Level) Explain proper safety techniques concerning horsemanship and roping.
3. (Comprehension Level) Describe the different types of roping, such as Jackpot Roping, Rodeo Roping, or Matched Roping.
4. (Evaluation Level) Justify creative solutions to problems and demonstrate independent critical and analytical thought.
5. (Comprehension Level) Explain the importance of safety when tacking up a horse for riding.
6. (Synthesis Level) Model the importance of an even temper while performing all training and strengthening exercises.
7. (Comprehension Level) Discuss a wide range of tack and explain how it should be used.
8. (Application Level) Present work methods and demonstrate ways of starting the young horse.
9. (Synthesis Level) Perform general training of riding horses, e.g., horse responds to commands, relaxation and training of the gaits.
10. (Evaluation Level) Critique methods of evaluating levels of training and create training schedules.

Course Requisites

ANS226 - Feeds and Feeding

General

Division
Skilled Trades & Technology Division

Course Description
Fundamentals of nutrition through feeds and feeding. Identification and classification of livestock feeds. Discuss anatomy and physiology of digestion. Computation of standard rations for livestock.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify feeds used in livestock production.
2. (Analysis Level) Classify feeds based on nutritional value.
3. (Evaluation Level) Evaluate the nutritional value of different feeds.
4. (Comprehension Level) Describe the function of proteins, fats, carbohydrates, minerals and vitamins in the animal.
5. (Analysis Level) Diagram the anatomy of the digestive system.
6. (Analysis Level) Diagram how nutrients are broken down and absorbed through the digestive system.
7. (Evaluation Level) Balance feed rations to provide proper nutrition for livestock.
8. (Comprehension Level) Identify problems in livestock feeding.
9. (Analysis Level) Calculate cost and returns for feeding.

ANS231 - Equine Behavior & Training II

General

Division
Skilled Trades & Technology Division

Course Description
Advanced training of the roping horse, both in the pen and from the roping box. Emphasis on correct horsemanship principles, as well as, physical and mental preparation of the horse and rider. The student must supply the horse and tack for this course. May be taken two times for credit. Prerequisite: ANS131 or instructor consent. Recommended: ANS122.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Recognize and correct incorrect use of hands while riding the horse.
2. (Application Level) Recognize visually, and through feel while riding, the correct cadence and rhythm for the walk, jog (trot), and lope (canter) at an advanced level.
3. (Application Level) Demonstrate safety at all times when working with and around horses.
4. (Application Level) Identify tack and adjust it correctly.
5. (Synthesis Level) Demonstrate use of safety while tacking up a horse for riding and recognize and ride with a balanced position in a coachable manner.
6. (Evaluation Level) Demonstrate the ability to make ethically sound and scientifically informed qualitative and quantitative judgments on equine welfare and other equine issues.
7. (Synthesis Level) Develop further confidence in learning to ride and rope correctly.
8. (Evaluation Level) Recognize, critique, and correct the horse's or rider's bad habits.
9. (Synthesis Level) Develop and demonstrate proper safety concerning horsemanship and roping.
10. (Application Level) Demonstrate the proper way to train a horse to herd cattle.

Course Requisites

ANT100 - Anthropology and You

General

Division
Social & Behavioral Sciences Division

Course Description
Introduction to cultural anthropology, linguistic anthropology, physical anthropology, and archaeology. Students will investigate the value of the study of anthropology in today's society.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Provide definitions of anthropology terms. 2. (Analysis Level) Differentiate and exemplify ethnocentrism and cultural relativism. 3. (Comprehension Level) Discuss the value of cultural anthropology in society today. 4. (Comprehension Level) Discuss the value of linguistic anthropology in society today. 5. (Comprehension Level) Discuss the value of physical anthropology in society today. 6. (Comprehension Level) Discuss the value of archaeology in society today. 7. (Application Level) Demonstrate a personal approach to using understanding of anthropology fields in a real-world setting.

ANT101 - Physical Anthropology and Archaeology

General

Division
Social & Behavioral Sciences Division

Course Description
Evidence and processes of human evolution and of culture change. Includes primates, primate comparative anatomy and behavior, biomolecular variation, fossil hominids and their tools, variation models, heredity, environment and human biology, prehistoric culture and society. Field work activities may be required. Recommended: RDG100. Students with prior background in biology may have a richer course experience.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Discuss and simulate research methods of physical anthropology, including forensic anthropology, and archaeology. 2. (Comprehension Level) Discuss goals and contributions of physical anthropology and archaeology. 3. (Application Level) Demonstrate the role of genetic theory in the history of evolutionary thought and the processes of evolution. 4. (Comprehension Level) Discuss human variation and adaptation. 5. (Analysis Level) Describe and differentiate among living primates; discuss issues concerning their endangered status. 6. (Analysis Level) Analyze and debate concepts and issues in primate evolution. 7. (Analysis Level) Describe and differentiate early hominids and summarize issues in human evolution. 8. (Comprehension Level) Discuss the emergence of genus Homo and the origins of culture and language. 9. (Comprehension Level) Discuss the emergence of Homo sapiens and the culture of the Upper Paleolithic. 10. (Comprehension Level) Discuss the origins of food production and settled life. 11. (Comprehension Level) Discuss the origins of cities and states. 12. (Application Level) Demonstrate competency in scientific methodology in labs on genetics; primate anatomy; primate behavior; comparative anatomy and behavior of monkeys, apes, and hominins; anatomical features used in assessing age and sex; and the anatomical characteristics typically chosen to use as social markers for the forensic designation of "race."

Course Requisites

ANT102 - Cultural Anthropology

General

Division
Social & Behavioral Sciences Division

Course Description
Principles and concepts of sociocultural anthropology and anthropological linguistics with illustrations from a variety of cultures around the world. Field work activities may be required. Recommended: RDG100

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Recall research methods and purposes in cultural anthropology and point out limitations of various research methods. 2. (Analysis Level) Contrast cultural relativism and ethnocentrism; discuss value of cultural relativism in fostering appreciation of diversity. 3. (Analysis Level) Discuss and illustrate the characteristics of culture. 4. (Comprehension Level) Discuss sociocultural systems, including language, economics, marriage and family, kinship and descent, subsistence, aesthetic systems, political organization, religion, health, and education, their variations across cultures, and the merits of such variations. 5. (Analysis Level) Identify, analyze, and discuss issues concerning ethnicity, race, gender, and social stratification across cultures. 6. (Analysis Level) Identify, discuss, and contrast types of culture change and the impact of globalization. 7. (Application Level) Demonstrate the value of diversity in cultural, ethnic-racial, and gender-based values and practices.

Course Requisites

ANT200 - Principles of Archaeology

General

Division
Social & Behavioral Sciences Division

Course Description
History of archaeological research; survey of concepts, methods, and goals of archaeology as a subdiscipline of anthropology. Analysis and synthesis of archaeological data. Theories in archaeology, including theories of cultural evolution. Recommended: RDG100

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and address goals of archaeology in research design. 2. (Comprehension Level) Discuss major archaeological concepts, theories, and methods and the past and current goals of archaeology. 3. (Comprehension Level) Discuss the archaeological principles of culture and context and identify how and why material remains are classified, dated, and preserved. 4. (Comprehension Level) Describe the techniques of data recovery, including site location and identification, survey, excavation, and analysis. 5. (Evaluation Level) Using a grid system, locate, identify, and interpret artifacts. 6. (Synthesis Level) Analyze, synthesize, and discuss archaeological data within the context of the theoretical reconstruction of past societies, including their settlement patterns, economy, social organization, and religious life. 7. (Evaluation Level) Evaluate theories of cultural evolution. 8. (Evaluation Level) Evaluate the usefulness of archaeological data for understanding modern ecological adaptations by contemporary societies.

Course Requisites

ANT201 - Indians of the Southwest

General

Division
Social & Behavioral Sciences Division

Course Description
Cultural geography and social institutions of contemporary Indian cultures of the American Southwest and their antecedents. Includes examining similarities and differences, gender roles, and the historic and contemporary relations of Southwestern Indian cultures and federal and state governments of Spain, Mexico, and the U.S. Field work activities may be required. Recommended: RDG100

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Debate differing theories regarding the earliest migrations to the Americas.
2. (Evaluation Level) Evaluate factors leading to culture change from the Paleo-Indian period to that of Archaic Indians.
3. (Analysis Level) Analyze the nature of cultural interactions among the Hohokam, Ancient Puebloans, and Mogollon and those of Meso-America.
4. (Evaluation Level) Evaluate the impact of Spain, Mexico, and the U.S. upon Indians of the Southwest.
5. (Evaluation Level) Assess changes in the cultural geographies and sociocultural systems of selected contemporary Southwest Indian cultures.
6. (Evaluation Level) Research, analyze, and evaluate contemporary issues of concern to selected Indian communities of the Southwest.
7. (Evaluation Level) Critique present-day federal and state laws and economic practices impacting Indians of the Southwest.
8. (Application Level) Apply knowledge of Southwest Indian cultures to everyday life situations.

Course Requisites

ANT203 - Intro to the Principles of Human Rights

General

Division
Social & Behavioral Sciences Division

Course Description
Examination of the history and evolution of human rights within the political, economic, social, and cultural contexts of capitalism, race-based oppression, and gender-based oppression around the world. Recommended: ENG100 and RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Discuss the history and evolution of human rights from a global perspective. (CSLO 4) 2.(Comprehension Level) Discuss the concepts of human rights. (CSLO 2) 3.(Comprehension Level) Describe the article in the Universal Declaration of Human Rights (UDHR). (CSLO 2) 4.(Comprehension Level) Discuss the interdependence and indivisibility of rights. (CSLO 2,4) 5.(Analysis Level) Recognize universalist and relativist arguments given by different cultural, religious, and ethnic groups around the world. (CSLO 2,4) 6. (Evaluation Level) Critique/defend the relativist/universalist debate of UDHR and how this debate has evolved since the declaration of human rights was born. (CSLO 1,2,3,4)) 7. (Analysis Level) Recognize how governmental and non-governmental organizations around the world (including the U.S.) articulate their commitment to human rights. (CSLO 2) 8. (Evaluation Level) Evaluate the role of governmental and non-governmental organizations around the world in the implementation and protection of human rights. (CSLO 2,4) 9. (Evaluation Level) Critique/defend the role of governments in violating/upholding human rights. (CSLO 1,2,4) 10. (Comprehension Level) Discuss capitalism's impact on the government, economy, and society, and how human rights are constructed and defined in the context of capitalism's ideology. (CSLO 1,2,4) 11. (Comprehension Level) Discuss how human rights have evolved in the context of capitalism's ideology, and capitalism's impact on the government, economy, and society around the world. (CSLO 1,2,4) 12. (Synthesis Level) Formulate and analyze arguments to criticize/defend capitalism's effect on defending/violating human rights in a capitalist society. (CSLO 1,2,3,4) 13. (Comprehension Level) Discuss how human rights have been shaped and continue to be shaped by past and present racial policies and views of race around the world. (CSLO 1,2,4) 14. (Analysis Level) Recognize racial policies and views that defend/violate human rights around the globe. (CSLO 1,2,3,4) 15. (Comprehension Level) Discuss how women's rights and lesbian, gay, bisexual, transgender, and queer (LGBTQ) rights have been shaped and continue to be shaped by past and present gender based policies. (CSLO 1,2,4) 16. (Analysis Level) Recognize gender-based policies that defend/violate human rights around the world. (CSLO 1,2,3,4) 17. (Analysis Level) Recognize human rights violations that are based on the intersectionality of gender, social class, and race. (CSLO 1,2,3,4)

Course Requisites

ARH210 - Archaeology of the Southwest

General

Division
Social & Behavioral Sciences Division

Course Description
No description.

Total Number Of Credits:
3

ART100 - Art Appreciation

General

Division
Visual & Performing Arts Division

Course Description
Introduction to the history, vocabulary, materials and processes of art with an emphasis on painting, sculpture and architecture. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Accurately use art terminology to identify and describe techniques and materials employed in specific works of art.
2. (Evaluation Level) Using accurate, descriptive art terminology, evaluate the use of elements and principles of design in specific works of art from diverse time periods or cultures in a written or verbal format.
3. (Comprehension Level) Recognize stylistic characteristics, similarities and differences in art of various time periods, cultures and geographic regions.
4. (Comprehension Level) Identify works by important master artist and explain their cultural and aesthetic significance in written or verbal format.
5. (Evaluation Level) Apply research strategies to find, record and evaluate visual symbolism, including iconography and visual metaphor relating them to works of art from diverse regions and cultures.
6. (Synthesis Level) Accurately use art terminology to express a personal response to the design and content of various art works in a classroom discussion or written format.
7. (Synthesis Level) In a written or verbal format, explain the cultural significance of artwork from a variety of cultures and time periods.
8. (Analysis Level) Chronologically categorize art masterpieces by the artists, cultures, or time periods in which they were created.
9. (Application Level) Experiment with the application of artistic techniques, tools or media traditionally employed by visual artists.

Course Requisites

ART101 - Two-Dimensional Design

General

Division
Visual & Performing Arts Division

Course Description
A study of perception emphasizing the elements and principles of design as a basis of all creative work in the visual arts. Emphasis on two-dimensional media. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify basic design vocabulary and properties that have been used throughout time and across cultures which are unique to two dimensional design.
2. (Comprehension Level) Discuss the principles of design (repetition, variety, rhythm, balance, emphasis and economy) as used in historical or contemporary context.
3. (Synthesis Level) Integrate one or more design principles into a studio project.
4. (Application Level) Utilize line as the basis for two dimensional design.
5. (Comprehension Level) Organize designs which explore the qualities of shape (positive, negative, organic geometric) and shape relationships (overlapping, abutting, interlocking, aligning).
6. (Synthesis Level) Using conventions of linear perspective, proportion and scale, create a design showing illusionary space.
7. (Application Level) Utilize actual, simulated or visual texture in a two dimensional design.
8. (Application Level) Employ value changes in a design and relate color to value in one or more designs.
9. (Synthesis Level) Create original designs using colored media.
10. (Analysis Level) Recognize aesthetic content and meaning in design.
11. (Evaluation Level) Critique and defend the aesthetic properties of designs.

Course Requisites

ART102 - Three-Dimensional Design

General

Division
Visual & Performing Arts Division

Course Description
A study of perception, emphasizing the elements and principles of design as a basis of all creative work in the visual arts, with emphasis on three-dimensional media. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and explain basic design vocabulary and properties that have been used throughout time and across cultures which are unique to three dimensional design.
2. (Knowledge Level) Recognize the principles of design (repetition, variety, rhythm, balance, emphasis, economy) as used in historical or contemporary context.
3. (Synthesis Level) Integrate one or more design principles into a studio project.
4. (Synthesis Level) Using clay, wax or other pliable material, create an additive three dimensional design.
5. (Synthesis Level) Using knives, scrapers, saws or other cutting tools, carve a three dimensional form from a workable material.
6. (Synthesis Level) Construct, fabricate or cast a three dimensional project using appropriate materials.
7. (Synthesis Level) Employ the elements of art (line, form/void, texture, light, color, time) in three dimensional projects.
8. (Evaluation Level) Critique the aesthetic properties of three dimensional designs.
9. (Analysis Level) Correctly utilize design vocabulary in discussions and critiques of three dimensional designs.

Course Requisites

ART103 - Beginning Jewelry and Metalwork

General

Division
Visual & Performing Arts Division

Course Description
Basic jewelry design and metalwork techniques for the beginner. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Correctly recall and consistently use all safety rules required in the jewelry studio. (CSLO 3&4)
2. (Application Level) When shown examples, name tools used for basic metalworking and demonstrate their proper use. (CSLO 3)
3. (Comprehension Level) Explain basic metalwork procedures in a written format or classroom discussion. (CSLO 1,2,3,4)
4. (Knowledge Level) Describe important historical and cultural traditions of metalwork and jewelry making in a written or verbal format. (CSLO 1,2)
5. (Evaluation Level) Use piercing, cutting and joining as part of completing a finished project. (CSLO 3)
6. (Evaluation Level) Design and create one or more projects using simple fabricating, casting, or rendering techniques. (CSLO 3)
7. (Evaluation Level) Participate in a class discussion evaluating and critiquing technique and design of metalwork according to a given rubric. (CSLO 1,2,3,4)

Course Requisites

ART104 - Advanced Jewelry and Metalwork

General

Division
Visual & Performing Arts Division

Course Description
Advanced jewelry design and metalwork techniques. May be taken more than four times for credit. Prerequisite: ART103. May be used as an Arts AGEC course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Recall safety procedures in a discussion and consistently apply those rules while working in the jewelry studio. (CSLOs 3,4)
2. (Application Level) Describe the correct use of tools and equipment in a verbal or written format and demonstrate this knowledge while working in the studio. (CSLO 3)
3. (Application Level) Implement one or more advanced casting, rendering, fabrication or embellishment techniques. (CSLO 3)
4. (Evaluation Level) Invent an original maquette or concept drawing for a piece of jewelry or metalwork and discuss the application of design principles and composition before beginning an advanced level project. (CSLOs 1,3,4)
5. (Evaluation Level) Independently produce one or more finished, well designed projects showing mastery of an advanced jewelry or metalwork technique. (CSLOs 3,4)
6. (Evaluation Level) In a written or verbal format, critique the design and execution of metalwork using a given rubric in a classroom discussion. (CSLOs 1,2,3,4)

Course Requisites

ART105 - Ceramics I

General

Division
Visual & Performing Arts Division

Course Description
An overview of hand building, wheel throwing, glazing, materials, and concepts of ceramics as a foundation for further work in ceramic arts. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Consistently demonstrate safe and respectful behavior in the studio.
2. (Application Level) Prepare clean, wedged clay for use in ceramic projects.
3. (Synthesis Level) Construct coil built ceramic pieces.
4. (Synthesis Level) Construct slab built ceramic pieces.
5. (Synthesis Level) Complete a tile project with applied, integrated design elements.
6. (Application Level) Demonstrate knowledge of correct throwing principles.
7. (Comprehension Level) Identify basic design vocabulary and properties that have been used through time and across cultures that are unique to ceramic production and kiln firing.
8. (Synthesis Level) Utilize correct glazing techniques on tiles or ceramic pieces.
9. (Evaluation Level) Critique the aesthetic properties of ceramic designs.

Course Requisites

ART106 - Ceramics II

General

Division
Visual & Performing Arts Division

Course Description
Instruction in advanced ceramic techniques and in-depth study of one or more construction techniques and/or surface treatments. May be taken up to four times for credit. Prerequisite: ART105. May be used as an Arts AGEC course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Measurable Student Learning Outcomes
1. (Comprehension Level) Describe ceramic work using pertinent technical and aesthetic vocabulary.
2. (Application Level) Demonstrate respect and safety while using tools in the studio.
3. (Application Level) Prepare ceramic work for firing and participate in kiln firing.
4. (Synthesis Level) Develop a body of work demonstrating developmental progress.
5. (Evaluation Level) Explain and evaluate the use of design elements and principles in ceramic work.
6. (Analysis Level) Design, construct and examine functional or non-functional ceramic pieces.
7. (Synthesis Level) Develop work using one or more processes of ceramic construction or surface decoration.

Course Requisites

ART107 - Drawing I

General

Division
Visual & Performing Arts Division

Course Description
Introductory study of linear perspective, classical shading theory, and composition using basic drawing media, including perspective theory, local values of objects, depiction of three-dimensional space, and the basic principles of design. Prerequisite or Corequisite: RDG100. May be used as an Arts AGEC course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Independently create a linear perspective drawing by sketching basic geometric forms using perspective theory. (CSLO 2,3,4)
2. (Application Level) Name and illustrate in a drawing at least five parts of the classical shading theory. (CSLO 2,3,4)
3. (Evaluation Level) Independently observe and interpret the local value of observed objects in a drawing. (CSLO 2,3,4)
4. (Synthesis Level) Create a drawing from observation of actual objects depicting three dimensional space on a two dimensional surface. (CSLO 2,3,4)
5. (Synthesis Level) Incorporate the principles of design into the composition of a drawing of observed objects. (CSLO 2,3,4)
6. (Evaluation Level) Present a portfolio of selected original drawings exhibiting convincing representation of observed objects, correct application of perspective and shading theories, and independent use of design principles. (CSLO 1,2,3,4)

Course Requisites

ART108 - Intermediate Drawing

General

Division
Visual & Performing Arts Division

Course Description
Drawing with emphasis upon the creative use of various media, tools, supports, and techniques as a means of expression. May be taken four times for credit. Prerequisite: ART107. Recommended: ART101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Complete a drawing of an observed figure or object that accurately simplifies its structure into planes or geometric forms.
2. (Evaluation Level) Interpret visual stimuli in a drawing to accurately represent a specific textural surface.
3. (Synthesis Level) Present a minimum of three original, completed, advanced level drawings which successfully employ the principles of design and rules of composition.
4. (Synthesis Level) Prepare a portfolio of purposefully designed, completed drawings that use a variety of media, drawing instruments and supports.
5. (Synthesis Level) Employing a primarily tonal visual description, introduce a limited element of color or temperature variation into a drawing.
6. (Synthesis Level) Construct a two dimensional spatial illusion of purely conceptual imagery by employing principles of linear and aerial perspective.
7. (Evaluation Level) Verbally participate in class critiques of drawings according to a given rubric.

Course Requisites

ART109 - Color Theory

General

Division
Visual & Performing Arts Division

Course Description
The study of color theory, color perception, psychology of color, and their applications to visual design and composition. As of Fall 2018 this course counts as an Arts AGEC course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Duplicate a color swatch. (CSLO #2)
2. (Comprehension Level) Explain the fundamentals of color perception. (CLSO #2 & #4)
3. (Application Level) Implement essential terms of color theory. (CSLO #4)
4. (Application Level) Employ the optical phenomena of color to affect the appearance of color. (CSLO #4)
5. (Analysis Level) Use and compare systems of color harmony in visual designs. (CSLO #2)
6. (Synthesis Level) Compose a portfolio of original designs using principles of color theory. (CSLO #2)
7. (Evaluation Level) Assess psychological factors that influence human response to color. (CSLO #4)
8. (Evaluation Level) Critique the use of color in visual compositions. (CSLO #4)

Course Requisites

ART201 - Painting I

General

Division
Visual & Performing Arts Division

Course Description
An introduction to painting techniques and subject matter with emphasis on skilll building. Prerequisite: ART107. Recommended: ART101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Appropriately use a palette, brushes, easel and other painting tools through out the semester.
2. (Application Level) Illustrate value, saturation and hue in preliminary color charts using assigned pigments.
3. (Analysis Level) Prepare and critique composition sketches before beginning paintings.
4. (Application Level) Analyze the value, saturation and local color of a variety of observed still life objects and represent those properties with assigned pigments.
5. (Synthesis Level) Compose a landscape painting incorporating spatial illusion and aerial perspective.
6. (Application Level) Use a plaster cast or a live model as the subject matter for a painted figure study.
7. (Synthesis Level) Complete a portfolio of five or more well designed paintings including still life, landscape and figurative subject matter.
8. (Evaluation Level) Verbally participate in class critiques and defend composition decisions demonstrating a working knowledge of appropriate terminology.

Course Requisites

ART202 - Painting II

General

Division
Visual & Performing Arts Division

Course Description
Exploration of color, composition, techniques, and subject matter in painting media. Prerequisite: ART201. Recommended: ART101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Employ the indirect painting method by preparing a tonal under painting and building color using a series of transparent glazes to represent an observed object.
2. (Application Level) Use direct painting (a la prima) methods to depict still life, figure or landscape.
3. (Analysis Level) Organize a composition and execute a painting using a dominant key (light, medium or dark) in the painting.
4. (Synthesis Level) Illustrate observed textures including transparent or reflective surfaces using representational, simulated texture in a painting.
5. (Application Level) Experiment with the use of actual texture in a painting.
6. (Synthesis Level) Using the rules of composition and principles of design, execute a non-representational painting.
7. (Evaluation Level) Critique and compare concepts and techniques of paintings in a class discussion according to a given rubric.
8. (Synthesis Level) Use independent research strategies to prepare sketches and studies prior to completing a minimum of four paintings.

Course Requisites

ART207 - Art History I

General

Division
Visual & Performing Arts Division

Course Description
A survey of the history of art from the Prehistoric Era through 1300 C.E. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify important world artwork created before 1300 CE when shown visual reproductions.
2. (Knowledge Level) Arrange works of art chronologically when given title, artist's name or image.
3. (Synthesis Level) Communicate the cultural significance of art masterpieces created before 1300 CE.
4. (Comprehension Level) Discuss images of artwork by culture of origin.
5. (Evaluation Level) Evaluate the influences of artistic expression on subsequent cultures.
6. (Analysis Level) Examine the interconnectedness of socio-economic, political, scientific and creative events and processes over time and between geographic areas.
7. (Comprehension Level) Explain the interrelationship of political, global and cultural concerns of a society with that society's artistic expression.
8. (Comprehension Level) Describe the formal properties used in a work of art created before 1300 CE.
9. (Evaluation Level) Locate and assess geographic areas associated with artistic styles.
10. (Analysis Level) Classify a variety of art works according to their stylistic period.
11. (Evaluation Level) Compare and contrast works of art using external criteria.
12. (Analysis Level) Recognize influences of ethnicity, race and gender on the creative process.

Course Requisites

ART208 - Art History II

General

Division
Visual & Performing Arts Division

Course Description
A survey of the history of art from 1300 C.E. to the present. Prerequisite: RDG100. Meets Special Awareness Area: CU or GI or HI.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Referencing art from 1300 C.E. to contemporary times, identify important artwork of the Western world when shown visual reproductions.
2. (Knowledge Level) Arrange works of art chronologically when given title, artist's name or image.
3. (Synthesis Level) Examine and explain the cultural significance of art masterpieces created after 1300 CE.
4. (Analysis Level) Recognize images of art work by culture of origin.
5. (Evaluation Level) Evaluate the influences of artistic expression on subsequent cultures.
6. (Synthesis Level) Examine the interconnectedness of socio-economic, political, scientific and creative events and processes over time and between geographic areas.
7. (Synthesis Level) Examine and explain the interrelationship of political, global and cultural concerns of a society with that society's artistic expression.
8. (Comprehension Level) Describe the formal properties used in a work of art created after 1300 CE.
9. (Comprehension Level) Locate geographic areas associated with artistic styles.
10. (Analysis Level) Classify a variety of art works or artists according to their stylistic period.
11. (Evaluation Level) Compare and contrast works of art created after 1300 CE using external criteria.
12. (Analysis Level) Recognize influences of ethnicity, race and gender on the creative process.

Course Requisites

ASL101 - American Sign Language I

General

Division
Literary Arts & Language Division

Course Description
Introduction to deaf culture and the vocabulary and sentence structures of American Sign Language. Mastery of receptive and expressive basic communication skills.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proper use and comprehension of the manual alphabet and numbers in typical conversation situations. CSLO#3

2. (Application Level) Demonstrate conversational signing ability regarding self. CSLO#3

3. (Application Level) Demonstrate the ability to describe basic hobbies, likes and dislikes. CSLO#3

4. (Application Level) Demonstrate ability to describe people and give directions in relation to real-life situations. CSLO#3

5. (Application Level) Use basic American Sign Language (ASL) grammatical structure. CSLO#3 & #4

6. (Synthesis Level) Formulate statements and questions to satisfy basic needs. CSLO#3

7. (Comprehension Level) Demonstrate receptive ability to understand basic conversation, finger spelling, numbers. CSLO#3

8. (Comprehension Level) Describe, at a basic level, the culture of those who use American Sign Language. CSLO#1

9. (Comprehension Level) Discuss Deaf culture and community. CSLO#1

ASL102 - American Sign Language II

General

Division
Literary Arts & Language Division

Course Description
Expanded knowledge of American Sign Language vocabulary and performance skills. Refinement of receptive and expressive skills. Prerequisite: ASL101 or instructor consent.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the understanding of when and how to use Lexicalized finger spelling. CSLO#3 &#4

2. (Application Level) Demonstrate the ability to initiate, respond, and contribute to simple face-to-face conversations. CSLO#3

3. (Application Level) Converse about abstract topics such as feelings, opinions, likes, and dislikes. CSLO#3

4. (Application Level) Demonstrate the ability to narrate a series of events using the past, present, or future time frames. CSLO#3

4. (Application Level) Demonstrate more complex knowledge of ASL sentence structure. CSLO#2 & #4

5. (Application Level) Demonstrate understanding of the definition and differences of the "Medical/Pathological Perspective" versus the "Cultural Perspective" as it relates to deafness. CSLO#1 & #2

6. (Application Level) Demonstrate moderate receptive ability in basic conversations and storytelling. CSLO#3

7. (Application Level) Demonstrate ability to use classifiers successfully. CSLO#3

8. (Application Level) Show appropriate behavior in deaf culture. CSLO#1

9. (Application Level) Demonstrate knowledge of past and current methodologies used in the education of deaf children. CSLO#1 & #2

ASL201 - American Sign Language III

General

Division
Literary Arts & Language Division

Course Description
Building on the skills taught in ASL102, this course emphasizes improved fluency and deeper comprehension of ASL, Deaf culture, and the evolution of ASL. The course is taught primarily in American Sign Language. Prerequisite: ASL102.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the history of residential and day schools for the deaf. CSLO#1

2. (Application Level) Demonstrate creativity in signing both on familiar and unfamiliar topics. CSLO#3

3. (Comprehension Level) Discuss the process by which ASL was accepted as an actual language. CSLO#1

4. (Comprehension Level) Explain the laws that aid those who have a hearing loss. CSLO#1 & #2

5. (Comprehension Level) Explain the difference between the terms "deaf" and "Deaf." CSLO#1

6. (Comprehension Level) Extend feelings, opinions, emotional reactions, and contingent situations. CSLO#3

7. (Application Level) Demonstrate intermediate receptive abilities. CSLO#3

8. (Application Level) Use appropriate conversational structure in medium length A.S.L. conversations. CSLO#3 & #4

9. (Application) Apply A.S.L. skills in communicating short stories, narrative, and dialogues at the intermediate level. CSLO#3

10. (Synthesis Level) Respond in writing to questions based on signed sentences and stories from a variety of signers. CSLO#2

11. (Comprehension Level) Describe and exhibit an initial understanding of cultural norms, values, beliefs, and regional variations within areas where sign language is used. CSLO#1

ASL202 - American Sign Language IV

General

Division
Literary Arts & Language Division

Course Description
Building on the skills taught in ASL201, this course emphasizes advanced sign language fluency, conversational skills, comprehension skills, and cultural features. The course is taught primarily in American Sign Language. Recommended: RDG100. Prerequisite: ASL201.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
Production

Using American Sign Language and an appropriate amount of creativity, improvisation, and elaboration to:

1. (Comprehension Level) Describe objects, places, people, and events. CSLO#3

2. (Application Level) Express feelings, opinions, emotional reactions, volition, doubt, and contingent situations. CSLO#3

3. (Synthesis Level) Narrate a series of events in past, present & future timeframes. CSLO#3

4. (Application Level) Apply A.S.L. skills in communicating short stories, narrative, and dialogues at the advanced level. CSLO#3

5. (Synthesis Level) Initiate, respond, and maintain face-to-face conversations with a moderate amount of spontaneity using present and past tenses. CSLO#3

Reception

From a signer who uses natural pace and articulation, visually comprehend the gist and numerous details to:

6. (Comprehension Level) Comprehend descriptions of objects, places, people, and events on topics containing subjective information. CSLO#3

7. (Comprehension Level) Comprehend beliefs, feelings, opinions, emotional reactions, and contingent situations. CSLO#1 &#3

8. (Comprehension Level) Comprehend narrations of a series of events in past, present & future timeframes. CSLO#3

Culture

9. (Evaluation Level) Interpret cultural norms, values, beliefs, and regional variations within areas/communities where sign language is used. CSLO#1

Language ATF guidelines applied to Measurable Student Learning Outcomes listed above.

AST101 - Survey of Astronomy

General

Division
Science & Engineering Division

Course Description
An introduction to the history of astronomy, use of astronomical instruments, celestial motion, space flight, planetary systems, structure and evolution of stars, galaxies and cosmology. Labs include nighttime observing sessions. Recommended: RDG100, MAT087 or MAT097.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify prominent constellations, stars, planets and other astronomical objects under the nighttime sky. (CSLO 2,3,4) 2. (Analysis Level) Utilize binoculars, astronomical telescopes, and related instruments to make astronomical observations. (CSLO 3,4) 3. (Comprehension Level) Describe the historical development of modern astronomy and the scientific method. (CSLO 2,4) 4. (Analysis Level) Explain basic physical laws and principles that govern the operation of the universe. (CSLO 2,4) 5. (Application Level) Calculate physical quantities by applying formulas. (CSLO 2,3,4) 6. (Comprehension Level) Explain the physical nature of the Sun, Moon and planets along with the stars and galaxies. (CSLO 2,4) 7. (Synthesis Level) Explain the evolution of various astronomical objects. (CSLO 2,4) 8. (Application Level) Graph physical quantities related to Hubble's Law. (CSLO 2,3,4) 9. (Comprehension Level) Discuss questions about the origin and fate of the Universe. (CSLO 2,4) 10. (Evaluation Level) Summarize current research on moons and planets and their suitability for simple life or extraterrestrial intelligence. (CSLO 2,4)

Course Requisites

BCT100 - NCCER Core

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the NCCER core curriculum. Topics include knowledge of all safety rules, pre- and post-operating equipment inspections, builder's level readings, identifying needed repairs or routine maintenance jobs, and maintaining records of maintenance.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate knowledge of all safety rules when using, loading, moving, and working on all pieces of heavy equipment. (CSLO 2, 3)
2. (Application Level) List the steps for a complete walk-around inspection for each piece of equipment and perform pre- and post-operating equipment inspections on a variety of equipment in a safe/efficient manner. (CSLO 2, 3)
3. (Evaluation Level) Assemble a builder's level and evaluate the reading including determining the height of three different points on the ground with the builder's level and rod; and locate three points on the ground in a previously staked plot. (CSLO 2, 4)
4. (Analysis Level) Examine the condition of equipment during walk-around inspections, identify needed repairs or routine maintenance jobs, and maintain records of maintenance. Record hours from an hour meter or equipment log on each piece of equipment used. (CSLO 2, 3, 4)
5. (Application Level) Demonstrate knowledge of all safety rules when using, loading, moving, and working on/around all pieces of heavy equipment. (CSLO 2, 3)
6. (Evaluation Level) Assess the requirements of a given job and choose the appropriate equipment. (CSLO 2, 3, 4)
7. (Application Level) Demonstrate the ability to work cooperatively with a team in completing a given task/job. (CSLO 1, 3)

BCT121 - Industrial Carpentry

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to Industrial Carpentry. Topics include knowledge of all safety rules, OSHA Regulations, Building Materials, Fasteners, Adhesives, Hand and Power Tools, and Basic Stair Layout.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate the importance of safety in the construction industry, and describe the obligations of the contractor, subcontractor, and employee to ensure a safe work environment. (CSLO 2, 3)
2. (Application Level) Explain how to calculate the quantities of lumber, panel, and concrete products using industry standard methods. (CSLO 2, 3, 4)
3. (Evaluation Level) Demonstrate the safe and proper use of the following hand tools: level, square, clamp, and saw. (CSLO 3)
4. (Analysis Level) Examine the condition and serviceability of basic construction hand tools. (CSLO 3)
5. (Application Level) Demonstrate the proper lay out and cutting of a stinger. (CSLO 3)
6. (Evaluation Level) Assess the requirements of a given job and choose the appropriate tools and materials. (CSLO 2, 3, 4)
7. (Application Level) Demonstrate the ability to read and interpret foundation, floor, and other plan view drawings. (CSLO 3)

BCT133 - Concrete

General

Division
Skilled Trades & Technology Division

Course Description
Basics of concrete construction are covered, including slump, composition, and aggregate concrete

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define terms associated with concrete construction.
2. (Comprehension Level) Identify and describe concrete tools and their use.
3. (Comprehension Level) Explain the concrete construction process.
4. (Analysis Level) Outline proper procedures for safe handling of concrete and concrete tools.
5. (Analysis Level) Examine and explain quality control tests on concrete ingredients, fresh concrete, and hardened concrete.

BCT140 - Introduction to Concrete Finishing

General

Division
Skilled Trades & Technology Division

Course Description
Focus on helping students develop the knowledge, skills, and attitudes needed to successfully examine their own lives, explore and evaluate a wide range of education and career options, and make reasoned and researched goals for their future.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define terms associated with concrete construction.
2. (Comprehension Level) Explain the concrete construction process.
3. (Comprehension Level) Describe proper procedures for safe handling of concrete and concrete tools.
4. (Comprehension Level) Describe quality control tests on concrete ingredients, fresh concrete, and hardened concrete.
5. (Knowledge Level) Identify concrete tools and their use.
6. (Application Level) Demonstrate proper set up and placement of concrete.
7. (Application Level) Apply broom and rubbing finishes.
8. (Comprehension Level) Identify and describe curing processes.
9. (Synthesis Level) Troubleshoot concrete defects.

BCT141 - Industrial Concrete

General

Division
Skilled Trades & Technology Division

Course Description
Application of advanced concrete finishing construction, including finishes, mix composition, and quality practices.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe various types of specifications, along with the standard procedures for sampling and testing concrete mix.
2. (Analysis Level) Examine requirements for, and application of, dry shakes, self-leveling topping, epoxies, and shotcrete.
3. (Synthesis Level) Complete procedures for preparation, placing, finishing, and curing. (CSLO 3)
4. (Evaluation Level) Evaluate architectural concrete and architectural finishes. (CSLO 2)
5. (Comprehension Level) Describe different finishing techniques.
6. (Synthesis Level) Develop and explain examples of calculations for estimating quantities of concrete for curb and gutter, stairs, slab, and walls. (CSLO 2)
7. (Comprehension Level) Describe the physical and chemical properties of various materials used in a concrete mix.

BCT150 - Industrial Safety and OSHA 30

General

Division
Skilled Trades & Technology Division

Course Description
Using OSHA standards as a guide, students will receive instruction in construction safety and health principles to help prevent injury. Special emphasis is placed on those areas that are the most hazardous. Topics include but are not limited to: OSH Act, safety programs, fall protection, personal protective equipment, stairways and ladders, excavations and confined space entry. This course meets the 30 hour OSHA requirement in construction industry safety.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply OSHA regulations and safe practices to construction work sites. (CSLO 1, 3)
2. (Comprehension Level) Describe the major requirements of OSHA construction industry standards. (CSLO 2)
3. (Analysis Level) Examine and explain the role of the employer and the employee with regard to the OSHA standards. (CSLO 1, 2, 4)
4. (Analysis Level) Identify relate construction industry safety hazards. (CSLO 2, 3, 4)
5. (Application Level) Demonstrate an awareness of OSHA regulations when performing assigned tasks. (CSLO 3)

BCT180 - Communication for the Trades

General

Division
Skilled Trades & Technology Division

Course Description
Research, develop, and write detailed start-up business plans to create a successful business. Note: this course is a combination of BUS250A, BUS250B, BUS250C, and BUS250D.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the need for effective communication on the job site.
2. (Application Level) Demonstrate an understanding of basic terminology within the construction trades in both English and Spanish. (CSLO 1)
3. (Application Level) Demonstrate hand signals used in the construction trades. (CSLO 3)
4. (Synthesis Level) Develop and model an understanding of effective communication in the construction trades. (CSLO 4)

BCT221 - Advanced Industrial Carpentry

General

Division
Skilled Trades & Technology Division

Course Description
Advanced industrial carpentry training. Topics include knowledge of management safety concepts, building codes, project time management, advanced building techniques, and construction job layout.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Application Level) Apply safe techniques in use of ladders, scaffolding, hand signals, personal protective equipment, and power tools. (CSLO 3)
3. (Application Level) Solve problems related to hands-on construction project(s). (CSLO 3, 4)
4. (Comprehension Level) Estimate the cost of a small project. (CSLO 2, 3)
5. (Application Level) Determine dimensions and locations from a blueprint and apply them to a project. (CSLO 3)
6. (Application Level) Apply local building codes related to residential construction. (CSLO 2)
7. (Analysis Level) Recognize code violations in a work-in-progress. (CSLO 2, 4)
8. (Application Level) Lay out a building with batter boards and strings. (CSLO 3, 4)
9. (Synthesis Level) Assemble and fasten material together to construct wood structures selecting appropriate fastening devices. (CSLO 3, 4)
10. (Application Level) Frame a wall and ceiling. (CSLO 3)
11. (Application Level) Install rough door and window frames. (CSLO 3)
12. (Synthesis Level) Design and install a complete residential plumbing system (drain, waste, and vent). (CSLO 2, 4)
13. (Analysis Level) Outline and explain the installation of electrical system components in residential construction. (CSLO 2)

BCT296 - Industrial Carpentry Internship

General

Division
Skilled Trades & Technology Division

Course Description
Construction industry placement tailored to the students' academic program pathway, skill set, and abilities.

Total Number Of Credits:
3

Internship Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply construction theory to practice. (CSLO 2,3) 2. (Evaluation Level) Appraise career goals following applied experiences in specific construction projects. (CSLO 3) 3. (Evaluation Level) Examine and assess understanding and knowledge of the NCCER standards. (CSLO 2) 4. (Evaluation Level) Assess ability to apply discipline-related knowledge to the specific construction site assignment. (CSLO 2,3,4)

BIO100 - Biology Concepts

General

Division
Science & Engineering Division

Course Description
Basic principles and concepts of biology. Exploration of methods of scientific inquiry and behavior of matter and energy in biological systems. Fieldtrips may be required. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use the scientific method to perform experiments which include proper controls. 2. (Analysis Level) Using physical and metabolic processes, contrast living organisms with non-living substances. 3. (Comprehension Level) Name basic components of the atom and describe how atoms are bonded together to form compounds. 4. (Synthesis Level) Explain the structure and function of enzymes. 5. (Comprehension Level) Identify major structural components of a cell, including organelles, and describe how these structures correlate with cellular functions. 6. (Analysis Level) List the major steps in photosynthesis and respiration and describe the major similarities and differences between these two important metabolic processes. 7. (Analysis Level) Contrast sexual with asexual reproduction and describe the major events in mitosis, meiosis and cytokinesis. 8. (Analysis Level) Describe the structure of DNA and RNA and differentiate between them based on their functions. 9. (Evaluation Level) Use Punnett squares to predict probable inherited genotypes and phenotypes of offspring based on parental genotype. 10. (Comprehension Level) Describe how mutations, crossing-over, independent assortment, and random fertilization increase genetic diversity in organisms. 11. (Comprehension Level) Explain how natural selection leads to evolution and describe events that lead to speciation and diversity. 12. (Analysis Level) Classify organisms and distinguish between various groups based on major characteristics. 13. (Comprehension Level) Describe how organisms interact with their environment based on the principles of population and community ecologies. Use examples to describe how diversity is vitally important to our ecosystem. 14. (Analysis Level) Analyze the data from laboratory experiments or field trips in which observation and critical reasoning skills are employed.

Course Requisites

BIO109 - Natural History of the Southwest

General

Division
Science & Engineering Division

Course Description
A study of common plants and animals of the southwest, including identification, distribution, adaptations, behavior and ecology and regional geography/climate. Introduction to basic field and laboratory techniques used in natural history studies with an emphasis on the Sonoran Desert. Field trips required at student's expense. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify common fungi, plants, animals, and biomes of the Southwest. (CSLO 2 & 3) 2. (Comprehension Level) Describe features of regional geography, geology, and communities with an emphasis on the Sonoran Desert and its subdivisions. (CSLO 2, 3 & 4) 3. (Analysis Level) Locate, describe, and characterize the terrestrial biomes in the Southwest, and exceptional features within biomes. (CSLO 2 & 3) 4. (Comprehension Level) Describe the climatic patterns and weather events common to the region and how they affect natural communities and people. (CSLO 1, 2, 3 & 4) 5. (Comprehension Level) Explain unique characteristics and ecological relationships of common fungi, plants, and animals in the Southwest. (CSLO 2, 3 & 4) 6. (Application Level) Demonstrate techniques for designing experiments, using scientific equipment, collecting and analyzing data, and objectively testing hypotheses, using the scientific method. (CSLO 2, 3 & 4) 7. (Analysis Level) Contrast adaptations of organisms in different biomes and different subdivisions of the Sonoran Desert. (CSLO 2, 3 & 4) 8. (Analysis Level) Discriminate between basic ecological terms, compare ecosystem complexity descriptors, and distinguish between species trophic and sociobiological concepts. (CSLO 2, 3 & 4) 9. (Analysis Level) Contrast quantitative and qualitative data collection and approaches to research. (CSLO 2, 3 & 4) 10. (Evaluation Level) Interpret numerical and graphical representations of ecological data. (CSLO 2, 3 & 4) 11. (Synthesis Level) Conduct an individual natural history experiment in the field to test a hypothesis and write a scientific paper describing the research. (CSLO 2, 3 & 4) 12. (Evaluation Level) Use ecological principles and understanding of the natural history of the region as a foundation to evaluate current issues in the Southwest including water availability, pollution, climate change, energy resources, border issues, invasive species, endangered species conservation, resource use on public lands, genetically modified crops, habitat change, and human population growth. (CSLO 1, 2, 3 & 4)

Course Requisites

BIO156 - Introductory Human Biology

General

Division
Science & Engineering Division

Course Description
Introductory biology course with an emphasis on human biology. Topics include fundamental concepts of cell biology, histology, genetics, and microbiology. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop hypotheses, design or carry out experiments considering a proper control and variables, collect and analyze data, and formulate conclusions based on collected data. (CSLO 2, 3, 4) 2. (Analysis Level) Explain the characteristics of living organisms and use those characteristics to differentiate between living and nonliving entities. (CSLO 2, 4) 3. (Analysis Level) Discuss fundamentals of chemistry as it relates to the structure and processes of living organisms. (CSLO 2) 4. (Comprehension Level) Identify and describe the structure and function of cells. (CSLO 2) 5. (Comprehension Level) Identify human tissues and describe their function. (CSLO 2) 6. (Analysis Level) Analyze and discuss the fundamental process of energy generation in human cells. (CSLO 2, 4) 7. (Analysis Level) Describe and analyze the processes involved in DNA replication in human cells.(CSLO 2, 4) 8. (Comprehension Level) Discuss gene expression in human cells. (CSLO 2) 9. (Comprehension Level) Identify and describe the events of cell reproduction in humans. (CSLO 2) 10. (Analysis Level) Analyze the events and processes involved in the inheritance of genes in humans. (CSLO 2, 4) 11. (Analysis Level) Analyze the impact of microbes on human populations. (CSLO 1, 2, 4) 12. (Comprehension Level) Identify the general function of individual organ systems in humans. (CSLO 2) 13. (Application Level) Apply fundamental concepts of cell biology, histology, genetics, and microbiology to a specific set of demonstrable lab skills. (CSLO 2, 3, 4) 14. (Synthesis Level) Construct an understanding of how scientific inquiry has helped to treat and cure disease, genetic, and cellular disorders. (CSLO 1, 2, 4)

Course Requisites

BIO160 - Intro to Human Anatomy and Physiology

General

Division
Science & Engineering Division

Course Description
An introduction to essential concepts in human anatomy and physiology. The structure and function of organ systems, the tissues and organs comprising them, homeostasis, disease, and related terminology will be emphasized. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Define and properly use anatomical terminology of the human body. (CSLO 3)

2. (Comprehension Level) Understand and describe fundamental chemistry concepts applicable to introductory human anatomy and physiology. (CSLO 4)

3. (Analysis Level) Understand homeostasis and analyze major human physiological functions to interpret how homeostasis is maintained. (CSLO 4)

4. (Analysis Level) Describe, identify, and differentiate between major tissues of the human body, and understand how those tissues contribute to organ function. (CSLO 4)

5. (Comprehension Level) Describe, identify, and differentiate between anatomical features of major organ systems of the human body including: integumentary system, skeletal system, muscular system, nervous system, endocrine system, cardiovascular system, lymphatic system and immune defenses, respiratory system, digestive system, urinary system, and reproductive system. (CSLO 4)

6. (Analysis Level) Examine, describe, and interpret human physiological functions, including how structure denotes these functions, for major organ systems: the integumentary system, skeletal system, muscular system, nervous system, endocrine system, cardiovascular system, lymphatic system and immune defenses, respiratory system, digestive system, urinary system, and reproductive system. (CSLO 4)

7. (Comprehension Level) Describe common pathological conditions of the human body. (CSLO 4)

8. (Analysis Level) Apply scientific reasoning skills to form hypotheses and analyze experimental results in the context of human anatomy and physiology. (CSLO 4)

Course Requisites

BIO181 - General Biology I

General

Division
Science & Engineering Division

Course Description
Biological principles of structure and function at the molecular and cellular levels, and processes of scientific inquiry. Field trip may be required at student's expense. Recommended: RDG100 and CHM130 or one year of high school chemistry.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize the seven themes of life and provide an example for each. *(CSLO 2)*
2. (Application Level) Apply the scientific hypothesis-based method and the qualitative science method when studying scientific questions. *(CSLOs 1, 3, 4)*
3. (Application Level) Demonstrate safe and appropriate application of scientific laboratory and field techniques. *(CSLO 3)*
4. (Comprehension Level) Describe how basic chemistry concepts, including those of carbon, relate to biology. *(CSLO 2)*
5. (Analysis Level) Analyze and discuss the properties of water and describe how they are important to life. *(CSLOs 2, 4)*
6. (Analysis Level) Examine the classes of biological molecules and their functions. *(CSLOs 2, 4)*
7. (Comprehension Level) Describe the basic cell structures and functions. *(CSLO 2)*
8. (Comprehension Level) Describe cell membrane structures and functions. *(CSLO 2)*
9. (Evaluation Level) Assess the basics of cell energetics and metabolism, including cell respiration and photosynthesis. *(CSLOs 2, 4)*
10. (Comprehension Level) Explain the processes of cellular communication. *(CSLO 2)*
11. (Comprehension Level) Describe the process and functions of cell divisions (both mitosis and meiosis). *(CSLO 2)*
12. (Application Level) Apply the principles of Mendelian genetics to solve basic genetics problems. *(CSLO 4)*
13. (Analysis Level) Differentiate between sex-linked inheritance, linked genes, genomic imprinting, organelle genes, and abnormal chromosome structure/number. *(CSLO 4)*
14. (Evaluation Level) Evaluate and explain the structure and replication of DNA, including the history of its discovery. *(CSLOs 2, 4)*
15. (Comprehension Level) Summarize the processes of transcription, translation, and basic gene expression regulation. *(CSLO 2)*

Course Requisites

BIO182 - General Biology II

General

Division
Science & Engineering Division

Course Description
A detailed study of evolutionary mechanisms, bioecology of organisms, and biological diversity. This includes the study of form, function, and behavior at cellular, organismic, and higher levels of organization through processes of scientific inquiry. Field trips may be required at student's expense. Prerequisite: BIO181.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply the scientific hypothesis-based method and the qualitative science method correctly when studying scientific questions. (CSLOs 2, 4)
2. (Application Level) Demonstrate safe and appropriate application of scientific laboratory and field techniques. (CSLO 3)
3. (Comprehension Level) Explain the basic mechanisms of evolution, including population evolution, origin of species, and key events in the history of life. (CSLO 2)
4. (Analysis Level) Analyze a phylogenetic tree. (CSLOs 2, 4)
5. (Comprehension Level) Describe the characteristics and the ecological roles of bacteria, archaea, protists, and fungi. (CSLO 2)
6. (Comprehension Level) Explain how plants colonized land and how that led to the evolution of seed plants. (CSLO 2)
7. (Analysis Level) Classify plants as angiosperms or gymnosperms. (CSLO 2)
8. (Comprehension Level) Summarize plant structures, growth and development. (CSLO 2)
9. (Comprehension Level) Describe animal diversity, including the basic classification of invertebrates and vertebrates and the basic principles of animal form and function. (CSLO 2)
10. (Analysis Level) Distinguish between simple and complex animal behaviors. (CSLO 2)
11. (Comprehension Level) Describe basic ecological principles. (CSLOs 2, 4)
12. (Evaluation Level) Compare and contrast the study of population biology and community ecology. (CSLOs 2, 4)
13. (Analysis Level) Examine and describe ecosystem dynamics, including energy flow and chemical cycling. (CSLOs 2, 4)
14. (Comprehension Level) Summarize the principles of conservation biology and restoration ecology. (CSLO 2)
15. (Analysis Level) Use the concepts of ecology, conservation biology, and restoration ecology to discuss and differentiate current ecological problems such as climate change, pollution, loss of habitat, and loss of biodiversity. (CSLOs 2, 4)

Course Requisites

BIO201 - Human Anatomy and Physiology I

General

Division
Science & Engineering Division

Course Description
A study of structure and function of the human body, including a general introduction and basic orientation of the human body, basic chemistry for biology, cells, tissues, integumentary system, skeletal system, muscular system, nervous system and the special senses. Prerequisites: BIO156 or BIO181 or a grade of C or better on the Introductory Biology Assessment. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe the interrelationship between anatomy and physiology; explain the role of homeostatic balance in bodily functions; and apply the concepts of positive and negative feedback systems to the maintenance of homeostasis. (CSLO 2 & 4)
2. (Analysis Level) Classify structural organization of the human body and describe how it relates to specific organ structures and functions. (CSLO 2 & 4)
3. (Application Level) Use anatomical terminology to describe relative human body positions, sections and regions. (CSLO 2 & 3)
4. (Evaluation Level) Evaluate the structure and functions of various cellular organelles; describe basic cell biochemical pathways. (CSLO 2 & 4)
5. (Comprehension Level) Describe the cell cycle, cell division and how loss of control over cell division can lead to cancer. (CSLO 2)
6. (Comprehension Level) Describe tissue types and their functions, including how they form organs, repair themselves, and the mechanisms used for repair. (CSLO 2)
7. (Comprehension Level) Describe major functions of the integumentary system and relate functions to structures found in the various layers of the skin. (CSLO 2)
8. (Comprehension Level) Identify the major muscles and describe the movement associated with each major muscle. (CSLO 2)
9. (Comprehension Level) Describe bone composition and texture, types of bone tissue, functions of bone, formation of bone, bone growth, bone remodeling and repair, the anatomy of a long bone, and homeostatic imbalances of the skeletal system. (CSLO 2)
10. (Analysis Level) Classify the articulations of the human skeletal system by structure and function. (CSLO 2) 11. (Comprehension Level) Identify the major bones and describe how the various bone features connect muscle to bone. (CSLO 2)
12. (Comprehension Level) Describe basic skeletal muscle physiology and explain how the sliding filament mechanism works. (CSLO 2)
13. (Comprehension Level) Identify the basic categories of joints, describe some homeostatic imbalances of joints, and use the structure of various joints to explain extension, flexion, adduction, and abduction. (CSLO 2)
14. (Evaluation Level) Evaluate the structural/functional relationships of skeletal muscle, smooth muscle, and cardiac muscle. (CSLO 2 & 4)
15. (Comprehension Level) Describe the nervous system in terms of being the body's master control and communication system. (CSLO 2)
16. (Analysis Level) List and compare the basic and major structures/functions of the central nervous system and peripheral nervous system. (CSLO 2)
17. (Comprehension Level) Describe how an action potential works; describe the function of an action potential. (CSLO 2)
18. (Comprehension Level) Describe structural and functional relationships of the special senses including taste, smell, vision, touch, hearing, and balance. (CSLO 2)
19. (Synthesis Level) Apply the foundations of human anatomy and physiology to a specific set of demonstrable lab skills, activities, and reports in which observation and critical reasoning skills are employed. (CSLO 2, 3 & 4)

Course Requisites

BIO202 - Human Anatomy and Physiology II

General

Division
Science & Engineering Division

Course Description
Continuation of structure and function of the human body. Topics include endocrine, blood, cardiovascular, lymphatic/immune, respiratory, digestive, urinary, acid-base and fluid electrolyte balance, pregnancy and human development and human genetics. Prerequisite: BIO201. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) List the organs of the endocrine system and describe the physiological role of the hormones produced by the various glands. (CSLO 2)
2.(Comprehension Level) Discuss the composition and physical characteristics of whole blood including the mechanism of blood clotting. Understand the ABO system of blood typing. (CSLO 2)
3. (Evaluation Level) Relate the anatomy of the heart to its physiology by comparing each deflection on an ECG recording to the heart chamber that is affected. (CSLOs 2, 4)
4. (Comprehension Level) Accurately describe the major differences between arteries and veins. (CSLO 2)
5. (Comprehension Level) List the organs of the lymphatic system and understand their role in the development of immunity in humans. Describe the function of B cells and T cells. (CSLO 2)
6. (Comprehension Level) List the organs of the respiratory system and describe the physical principles governing ventilation and diffusion of gases throughout the body. (CSLO 2)
7. (Synthesis Level) Accurately portray the relationship between the structure and function of the various organs of the digestive system. In addition, explain the control of acid secretion, chemical and mechanical digestion and the physiology of intestinal absorption of nutrients and water. (CSLOs 2, 3, 4)
8. (Comprehension Level) List the organs of the urinary system and describe how wastes are filtered from the blood and excreted in the urine. Understand the similarities and differences between hydrostatic and osmotic pressures. (CSLO 2)
9. (Synthesis Level) Accurately describe the physiology of fluid and electrolyte regulation and relate it to the buffering systems that balance the pH of bodily fluids. Explain the concept of pH and understand how it is measured. (CSLOs 2, 3, 4)
10. (Comprehension Level) List the major organs of the male and female reproductive systems and explain how gametes are formed by each sex. (CSLO 2)
11. (Comprehension Level) Successfully explain the processes of fertilization, embryonic development, fetal development and birth. (CSLO 2)
12. (Synthesis Level) Successfully complete a series of laboratory (wet vs. virtual) experiments in which observation, data collection and critical reasoning skills are employed in completing a lab report. Laboratory assignments may be completed independently or in groups. (CSLOs 1, 3, 4)

Course Requisites

BIO205 - Microbiology

General

Division
Science & Engineering Division

Course Description
Examines the structure and function of microorganisms and the role they play in human disease with emphasis on classification and characteristics of microorganisms, microbial metabolism and genetics, pathogenesis, immunology and epidemiology. Laboratory work includes the practice of microscopy, culturing, aseptic technique and identification of microorganisms through biochemical and other tests. Prerequisites: BIO156 with minimum grade of C, or BIO181 with minimum grade of C or Introductory Biology Assessment with minimum grade of C.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline the history of microbiology and the contributions of various scientists to the field. (CSLO 2)
2. (Analysis Level) Describe and distinguish between the various types of microbes. (CSLO 2,3,4) 3. (Analysis Level) Describe and differentiate the structural and functional characteristics of prokaryotic and eukaryotic cells. (CSLO 2,4)
4. (Evaluation Level) Explain and analyze the various metabolic pathways of microbes with a focus on different methods of energy acquisition. (CSLO 2,4)
5. (Analysis Level) Describe and analyze microbial growth media, patterns, and factors that affect growth. (CSLO 2,3,4)
6. (Analysis Level) Identify and evaluate antiseptics, disinfectants, and sterilizing methods used to control microbial growth. (CSLO 2,3,4)
7. (Comprehension Level) Understand principles of microbial genetics including the structure and function of microbial genomes and plasmids, horizonal gene transfer, and gene regulation. (CSLO 2,4)
8. (Comprehension Level) Identify the role of microbiology in modern healthcare and biotechnology. (CSLO 1,2,4)
9. (Comprehension Level) Identify and explain the principles involved in classification of microbes. (CSLO 2,4)
10. (Comprehension Level) Explain basic principles of acellular pathogens with a focus on viral structure, genomes and replicative life cycles. (CSLO 2,4)
11. (Comprehension Level) Understand fundamental concepts of epidemiology and their application to public health. (CSLO 1,2,3,4)
12. (Synthesis Level) Describe microbial mechanisms of pathogenicity. (CSLO 2,4)
13. (Analysis Level) Describe and analyze specific and nonspecific host immune defenses against pathogens. (CSLO 2,4)
14. (Comprehension Level) Explain the modes of action of antimicrobial drugs and the mechanisms of drug resistance in microbes. (CSLO 1,2,4)
15. (Analysis Level) Explain the importance of microorganisms in the microbiome, industry and environment. (CSLO 1,2,4)
16. (Application Level) Apply essential laboratory techniques for cultivating and characterizing microbes including sub culturing, microscopy, staining, biochemical reactions, and serological testing. (CSLO 2,3,4)
17. (Application Level) Demonstrate and explain the importance of aseptic technique with live microorganisms using proper safety and disposal protocol. (CSLO 2,3,4)

Course Requisites

BUS100 - Introduction to Business

General

Division
Business & Computer Technology Division

Course Description
Business administration trends, technology, communication, ethics, economics, business organization and ownership including entrepreneurship, management and production, marketing, finances, laws and regulations, and human resources management. Recommended : RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the environment including laws and regulations in which businesses operate in local, regional and global markets.
2. (Comprehension Level) Identify the importance of communication and teamwork within the business environment.
3. (Application Level) Examine the importance of ethics and social responsibility in business.
4. (Evaluation Level) Interpret the role of business economics in creating and distributing wealth to the business and its stakeholders.
5. (Analysis Level) Predict the advantages and disadvantages of the different types of business ownership, including entrepreneurship.
6. (Analysis Level) Explain the importance of human resources management to a business including labor/union relations.
7. (Analysis Level) Analyze financial management including accepted accounting practices and current trends.
8. (Evaluation Level) Compare and contrast 2-3 business careers from the textbook and evaluate your findings by completing a career exploration project.

Course Requisites

BUS101 - Business Mathematics

General

Division
Business & Computer Technology Division

Course Description
Business and accounting topics covered are: computing discounts, reconciling bank statements, computing sales taxes and property taxes, utilizing present value computations, mortgages, installment buying, and computing basic statistical descriptors of central tendency. Basic computations of payroll are covered in detail. Includes a review of arithmetical fundamentals such as fractions, decimals, percents and basic algebra. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply math concepts to solve business problems by correctly adding, subtracting, multiplying, and dividing whole numbers, fractions, decimals, and percents for a given set of problems based on business applications. (CSLO-2)
2. (Application Level) Demonstrate the skills needed to reconcile a bank account. (CSLO-1)
3. (Application Level) Calculate and apply mark ups and mark downs to products and compute break-even analysis. (CSLO-4)
4. (Application Level) Compute appropriate cash and trade discounts and agent commissions based on a sales or purchase invoice. (CSLO-4)
5. (Application Level) Determine gross pay, deductions, and net pay for various employees including pay based on hourly rates, salaries, and commissions. (CSLO-3)
6. (Application) Determine and apply appropriate statistical concepts to business transactions and data sets. (CSLO-4)
7. (Evaluation Level) Calculate and apply financial concepts to appropriate annuities and sinking funds using present and future values. (CSLO-3)
8. (Evaluation Level) Compute and compare simple and compound interest rates on business, consumer loans, credit cards, mortgages, and installment purchases. (CSLO-2)
9. (Synthesis Level) Calculate interest, due dates, and proceeds for simple interest and discount promissory notes. (CSLO-2)
10. (Synthesis Level) Determine the tax base for a piece of real estate and compute the property tax when given the rules for computing. (CSLO-1)

Course Requisites

BUS111 - Principles of Logistics and Supply Chain Management

General

Division
Business & Computer Technology Division

Course Description
Introduction to the field of logistics and supply chain management including development of logistics systems, careers in logistics, distribution planning, supply chain principles, and customer service. Topics include: purchasing, inventory control, physical distribution, warehousing, transportation methods, and packaging.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the objectives of logistics and of a supply chain. (CSLO #4)
2. (Comprehension Level) Review the development and growth of logistics systems. (CSLO #2)
3.(Comprehension Level) Describe the responsibilities of logistics managers. (CSLO #3)
4. (Analysis Level) Analyze various roles and functions involved in logistics. (CSLO #3)
5. (Analysis Level) Analyze aspects of product distribution critical to customer satisfaction. (CSLO #3)
6. (Analysis Level) Relate the impact on profitability of effective logistics planning. (CSLO #4)
7. (Synthesis Level) Create a logistic plan. (CSLO #2)

BUS120 - Personal Money Management

General

Division
Business & Computer Technology Division

Course Description
A study of consumer decision-making in a technological society where individuals have limited time and income, including planning and budgeting for food, shelter, transportation, healthcare, insurance, savings, investments, debts, and taxes. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Recognize and define economic values and financial goals. (CSLO 3) 2. (Synthesis Level) Design and create a relevant personal budget. (CSLO 4) 3. (Synthesis Level) Develop and present a personal financial plan to achieve financial goals. (CSLO 4) 4. (Evaluation Level) Define and evaluate the tools of cash management. (CSLO 4) 5. (Evaluation Level) Compare and contrast installment and non-installment credit. (CSLO 4) 6. (Comprehension Level) Explain the importance of various taxes and how they affect one's personal financial future. (CSLO 4) 7. (Knowledge Level) Identify the key aspects of savings and checking accounts, electronic funds transfers, and daily expense accounts. (CSLO 4) 8. (Analysis Level) Prepare a balance sheet and an income statement, explain the information contained in them, and analyze them to determine adherence to long-term financial goals. (CSLO 4) 9. (Comprehension Level) Describe how to open a credit account, how lenders evaluate applicants, and explain the importance of maintaining a strong credit score. (CSLO 3)

Course Requisites

BUS122 - Small Business Management

General

Division
Business & Computer Technology Division

Course Description
Factors in planning, owning and managing a small business with use of case materials to develop entrepreneurship and managerial/marketing skills.
Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe characteristics of successful entrepreneurs. (CSLO 2,3,4)
2. (Comprehension Level) Identify and describe marketing techniques for a product or service. (CSLO 1,2,4)
3. (Application Level) Complete an entrepreneur self-evaluation checklist and interpret findings. (CSLO 2,3,4)
4. (Analysis level) Analyze local, state, national and global economic business environments. (CSLO 1,2,4)
5. (Analysis Level) Analyze the requirements for manufacturing a product or generating a service. (CSLO 2,4)
6. (Synthesis Level) Create a comprehensive business plan and illustrate the importance. (CSLO 1,2,3,4)
7. (Evaluation Level) Justify the pros/cons of various capital generation methods for funding businesses. (CSLO 1,2,4)
8. (Evaluation Level) Compare and contrast methods of selecting and acquiring business facilities.(CSLO 1,2,4)

BUS123 - Business Relations

General

Division
Business & Computer Technology Division

Course Description
This course explores the development of interpersonal skills and increasing the understanding of the underlying dynamics of human interactions necessary for improving supervision and leadership in the workplace. Topics include work/life balance, communication processes, self-esteem, leadership/management styles and theories, conflict and stress management, developing organizational cultures which value diversity, traits of great presenters, and ethics. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the importance of understanding human relations to achieve career success and work/life balance.
2. (Comprehension Level) Identify the dynamics of the communication process and the filters that affect communication through technology, including voice mail and e-mail.
3. (Evaluation Level) Assess and explain how self-esteem influences human relations and success at work.
4. (Evaluation Level) Compare and contrast Theory X and Theory Y leadership/management styles and the positive reinforcement theory relating to personal leadership management philosophy.
5. (Analysis Level) Identify and describe major causes of conflict between people in the work setting and effective stress management strategies.
6. (Comprehension Level) Explain why organizations are striving to develop organizational cultures that value diversity.
7. (Application Level) Apply important traits of public speaking and delivery of information speech appropriate to audience.
8. (Evaluation Level) Evaluate how one's personal value system may be applied to making ethical choices.
9. (Analysis Level) Outline examples of how success can be measured using one's own needs and values.

Course Requisites

BUS124 - Inventory Control

General

Division
Business & Computer Technology Division

Course Description
Study of inventory control concepts and techniques, including cost concepts, determining size and nature of inventory, planning and control, forecasting, transportation, security, and the tools used.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe common costs associated with inventory. (CSLO 3)
2. (Comprehension Level) Discuss techniques for determining the size and nature of inventory. (CSLO 2)
3. (Evaluation Level) Evaluate multiple forecasting techniques and systems. (CSLO 4)
4. (Comprehension Level) Describe methods of inventory planning and control. (CSLO 3)
5. (Analysis Level) Compare ordering methods and tools. (CSLO 3)
6. (Synthesis Level) Describe inventory loss and develop and design strategies to prevent loss. (CSLO 4)

Course Requisites

BUS180 - Introduction to Marketing

General

Division
Business & Computer Technology Division

Course Description
An introduction to marketing, including product, principles, practices, and total marketing process planning and analysis. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define marketing and identify marketing elements.
2. (Comprehension Level) Explain the importance of marketing planning and forecasting.
3. (Comprehension Level) Define market segmentation and describe relevant characteristics of buyer groups.
4. (Analysis Level) Examine and explain components of product strategy, including the product life cycle.
5. (Comprehension Level) Explain physical distribution and channels.
6. (Knowledge Level) Identify elements of communication strategies.
7. (Knowledge Level) Identify the elements of pricing strategy.
8. (Comprehension Level) Explain quality as it relates to the marketing of products to various audiences.
9. (Evaluation Level) Create a marketing case study and evaluate the product using a given rubric.
10. (Evaluation Level) Evaluate various marketing case studies and analyze the marketing and ethical concepts through oral discourse and written work.
11. (Synthesis Level) Design a marketing plan emphasizing buyer behavior and identifying market segments through class projects.

Course Requisites

BUS190 - Principles of Management and Leadership

General

Division
Business & Computer Technology Division

Course Description
A comparative examination of classic and contemporary theories of management and leadership to include the social, ethical, legal and team-building implications of workplace issues. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the systemic functions of management.
2. (Comprehension Level) Explain various classic and contemporary management and leadership philosophies.
3. (Comprehension Level) Explain issues related to planning and making decisions in a business environment.
4. (Synthesis Level) Identify various management tools and models which aid managers and create a management plan for an organization, including addressing social and ethical dilemmas.
5. (Evaluation Level) Assess the performance of a manager, including goal setting and team building.
6. (Evaluation Level) Examine social, ethical and legal issues that affect managers and evaluate various case studies to analyze management concepts and ethical situations.
7. (Evaluation Level) Summarize management theories and concepts in traditional and contemporary settings and evaluate them as they may apply to case studies or current events.

Course Requisites

BUS201 - Legal Environment of Business

General

Division
Business & Computer Technology Division

Course Description
An examination of the legal framework governing rules of conduct among businesses and the legal implications of establishing business policy. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Describe the nature and function of law and contrast U.S. law with that of other countries.(CSLO 1)
2. (Comprehension Level) Explain the differences between civil and common law.(CSLO 1)
3. (Analysis Level) Explain the meaning of ethical conduct in the marketplace and workplace. (CSLO 2)
4. (Analysis Level) Summarize the organization and function of the courts and other dispute resolution mechanisms.
5. (Comprehension Level) Explain the process of governmental regulation of business and identify the major regulatory authorities that affect business. (CSLO 1)
6. (Evaluation Level) Compare and contrast the types of business legal organizations and their liability status.(CSLO 4)
7. (Analysis Level) Analyze and discuss various categories of contracts and their role in business.
8. (Analysis Level) Differentiate between tortuous and criminal liability of businesses and the remedies for each kind.
9. (Knowledge Level) Cite important laws which affect employer-employee relations. (CSLO 3)
10. (Application Level) Perform library and internet searches for applicable standards, international treaties, and laws.(CSLO 4)

Course Requisites

BUS207 - Business Communications

General

Division
Business & Computer Technology Division

Course Description
Written, oral, and visual communication delivered through digital and non-digital channels with an emphasis on the shift to mobile communication and connectivity in business today. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the changes in business communication brought about by digital and mobile communication and social media and how interpersonal and team communication are impacted. (CSLO #2)
2. (Analysis Level) Analyze communications in a global economy; discuss solutions to intercultural circumstances and barriers that may occur in business activities. (CSLO #1)
3. (Synthesis Level) Plan, write, revise and deliver oral, written, and digital business communications. (CSLO #4)
4. (Synthesis Level) Assess a situation, determine and convey routine messages, positive messages, negative messages, and persuasive messages appropriate in business and deliver them in a group setting for discussion. (CSLO #4)
5. (Synthesis Level) Design and present visual communications and adapt to the audience the communication. (CSLO #4)
6. (Synthesis Level) Plan, write, revise and present written and oral business reports incorporating critical-thinking arguments as well as demonstrating acceptable business ethics and standards. (CSLO #2)
7. (Analysis Level) Employ business research methods to support oral, written, and visual presentations. (CSLO #4)
8. (Synthesis Level) Engage in the career-seeking process including writing effective resumes and cover letters, participating in simulated interviews and providing acceptable business follow-up communications. (CSLO #3)
9. (Synthesis Level) Create salutations and closings (both oral and written) acceptable to business organizations. (CSLO #3)
10. (Synthesis Level) Apply principles of cultural parameters to oral presentations and writing assignments. (CSLO #1)

Course Requisites

BUS208 - Business Statistics

General

Division
Business & Computer Technology Division

Course Description
A study of business applications using descriptive and inferential statistics, measurement of relationships, and statistical process control management techniques. Recommended: RDG100. Prerequisites: MAT151; CIS120 or Instructor Consent.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Collect, organize, present, and analyze numerical data using a spreadsheet or statistical program and prepare reports in correct form that may include: frequency distributions, contingency tables, histograms, stem-and-leaf charts, pie charts.
2. (Evaluation Level) Accurately calculate and interpret the measures of central tendency (mode, median, mean) and spread (variance, standard deviation) for either raw or grouped data.
3. (Evaluation Level) Accurately calculate and interpret the measures of dispersion and skewness for a data set.
4. (Analysis Level) Use statistical methods to make statistical inferences, such as Chi square, simple regression, and correlation analysis.
5. (Evaluation Level) Test hypotheses employing the normal distribution and central limit theorem.
6. (Evaluation Level) Describe probability sampling, probability distributions and their uses and organize data as a probability distribution in order to make inferences.
7. (Application Level) Correctly demonstration how to utilize the Excel statistical functions by applying them to projects.

Course Requisites

BUS216 - Transportation and Traffic Management

General

Division
Business & Computer Technology Division

Course Description
Study of the domestic freight transportation system and the demand for freight movement. Topics include laws, regulations, pricing, and policies, as related to traffic management, customer service, and security.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the domestic freight transportation system. (CSLO #1)
2. (Analysis Level) Compare different modes of transportation. (CSLO #3)
3. (Analysis Level) Analyze the demand for and pricing of freight transportation. (CSLO #2)
4. (Application Level) Demonstrate the use of Transportation Management Systems. (CSLO #3)
5. (Analysis Level) Research freight transportation laws, regulations, and policies. (CSLO #1)
6. (Application Level) Discuss customer service issues and demonstrate how to avoid or resolve problems. (CSLO #3)
7. (Evaluation Level) Evaluate the security of transportation components and recommend solutions. (CSLO #4)

BUS220 - Retail Management

General

Division
Business & Computer Technology Division

Course Description
Management principles of retailing with application to small, medium, and large stores, evaluating store locations, layout, employment, merchandising management and current trends in retailing. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the functions of retail management.
2. (Comprehension Level) Explain the concept of retailing and its role in society.
3. (Application Level) Describe and apply the key factors to set up a retail business.
4. (Analysis Level) Analyze and propose solutions to case studies involving retailing problems.
5. (Analysis Level) Analyze local, national and global trends in retail management.
6. (Synthesis Level) Create personal management career objectives and goals. 7. (Evaluation Level) Evaluate existing retail organizations and their major business operations.

Course Requisites

BUS227 - Introduction to Purchasing and Supply Management

General

Division
Business & Computer Technology Division

Course Description
Survey of basic purchasing functions and supply management. Includes determining requirements and quantities, developing policies and procedures for purchasing, making purchasing decisions, receiving acceptable goods, arranging packaging and shipping, and managing inventory levels.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the complete purchasing process. (CSLO #2)
2. (Application Level) Calculate inventory levels.(CSLO #2)
3. (Comprehension Level) Explain purchasing policies and procedures.(CSLO #3)
4. (Analysis Level) Determine needed requirements and quantities. (CSLO #3)
5. (Evaluation Level) Recommend and justify purchasing strategies. (CSLO #4)
6. (Evaluation Level) Select and justify appropriate vendors. (CSLO #3) 7. (Analysis Level) Relate customer satisfaction to profit. (CSLO #3)

Course Requisites

BUS260 - Applied Business Seminar

General

Division
Business & Computer Technology Division

Course Description
A capstone course that includes community service learning project experience for students completing degree requirements. Students develop career goals, professional job skills and research problems by critiquing peer presentations and actual local and global business community situations. Open to students who have successfully completed a minimum of 30 college credits. Prerequisite: Successful completion of 30 college credits.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Demonstrate personal and job readiness skills in the areas of problem identification, alternative evaluation and the communication of a business related message. (CSLO 2,3,4)
2. (Applying Level) Demonstrate skills learned related to goal setting, organizational management, business dress, etiquette, customer service, networking, teamwork, leadership and ethics. (CSLO 2,3,4)
3. (Applying Level) Develop a career portfolio and a personal development plan focused on demonstrating the communication skills, networking and job interview skills needed to transition successfully from CAC into the workforce or continue an educational course of study. (CSLO 1,2,3,4)
4. (Applying Level) Develop personal goals related to the course and contribute to meaningful participation in the activities, project presentations and writing assignments of the course. (CSLO 1,2,3,4)
5. (Evaluating Level) Evaluate current events that influence the global business environment to develop awareness of business problems that impact on local, state and national businesses. (CSLO 1,2,4)
6. (Analyzing Level) Analyze local political community events or situations and implications to the business. (CSLO 1,2,3,4)
7. (Applying Level) Demonstrate the ability to set objectives, establish project timelines and use appropriate research methods, and integrate applicable components of the business curriculum to create and accomplish individual and group organization goals. (CSLO 2,3,4)
8. (Evaluating Level) Critique the quality benchmarks for written and/or oral presentations of projects. (CSLO 1,4)

Course Requisites

BUS292 - Fundamentals of Logistics - Organizational Managment

General

Division
Business & Computer Technology Division

Course Description
Introduction to the fundamentals of logistics, including procurement, inventory, transportation, warehousing, materials handling, packaging, information management, sustainability and international logistics of supply chain management.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify the fundamentals of the key logistics-related activities including purchasing, inventory management, warehousing, materials handling, transportation, information management for logistics, network design and global logistics.
2. (Comprehension Level) Identify and discuss the complexities caused by the cross-border reach of global logistics networks.
3. (Application Level) Demonstrate effective communication in both written and spoken form, including communication involving the use of appropriate facilitating technologies.
4. (Application Level) Demonstrate effective work skills as both a member and a leader of a diverse team.
5. (Application Level) Demonstrate collaborative team-building skills, especially in a virtual context.
6. (Analysis Level) Categorize the potential benefits to the firm of having strong logistics capabilities.
7.(Synthesis Level) Organize technologies available to bridge barriers of location, culture and language.
8. (Synthesis Level) Organize effective global logistics networks, including the environmental impact of logistics activities, to develop reasoned proposals for improvement that support the strategy of the firm as well as the supply chain as a whole.
9. (Evaluation Level) Appraise the tradeoffs between inventory, transportation, warehousing, packaging and information.
10. (Evaluation Level) Determine the basic logistics-related information needs of a firm and a logistics network.
11. (Evaluation Level) Evaluate the financial outcomes of logistic decisions by utilizing the strategic profit model to influence the key corporate financial measures of net income, capital employed and return on capital employed.

Course Requisites

CBA133A - Spreadsheet Applications in Excel

General

Division
Business & Computer Technology Division

Course Description
Create, format and print both structured and "what-if" spreadsheets using formulas and functions, charting, tables and analysis. Skills learned will cover the Core Level skills for Microsoft Office Specialist (MOS) Certification: Microsoft Office Excel 2013. Prerequisites: Basic Windows and file management knowledge; and BUS101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Create and Manipulate Data in worksheets and workbooks. (CSLO 4)
2. (Application Level) Apply data and content formatting to: a) control the appearance, placement and format of numbers used in a spreadsheet, b) format data as a table, c) format columns, rows, cells and ranges. (CSLO 4)
3. (Application Level) Use pre-defined functions to summarize data. (CSLO 4)
4. (Synthesis Level) Calculate by creating user-designed mathematical formulas to summarize data. (CSLO 4)
5. (Application Level) Show data visually using Charts, Conditional formatting, Illustrations, Outline and sort and filter data. (CSLO 1)
6. (Synthesis Level) Use collaboration and data security techniques to manage workbook changes, protect & share workbooks and prepare workbooks for distribution. (CSLO 1)
7. (Application Level) Use the procedures necessary to store, retrieve and print data, worksheets and workbooks. (CSLO 4)
8. (Application Level) Use Import and export techniques to get data from or give data to other software applications or web pages. (CSLO 4)

Course Requisites

CET101 - Intro Surveying Heav Eq Oper

General

Division
Skilled Trades & Technology Division

Course Description
Theory and application of plane surveying, including horizontal and vertical measurements, differential leveling, topographic mapping and ground safety.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) List at least three examples of famous American surveyors. 2. (Comprehension Level) Summarize the History of Surveying including its origins. 3. (Mathematical Behavior) Calculate various measurement conversions including feet to tenths. 4. (Application Level) Demonstrate various methods of Horizontal Measurement. 5. (Application Level) Use pacing, chaining, & stadia to demonstrate distance measurements, per given examples. 6. (Application Level) Identify and illustrate parcels of land using the Rectangular Survey System, per given examples. 7. (Evaluation Level) Interpret Construction Plans with elevations, legends, detail drawings, approval stamps, grading, paving, and utility locations, per given examples. 8. (Application Level) Identify and explain equipment used in differential leveling and grade staking: measuring chains/tapes, survey levels, survey rods, hand levels, flagging tape and lath. 9. (Synthesis Level) Demonstrate the fundamentals of Differential Leveling. 10. (Synthesis Level) Obtain elevations for benchmarks and hubs by differential leveling to confirm elevations, per given examples. 11. (Synthesis Level) Establish scale and plot hub elevations on graph paper to create a topographic map from data collected in differential leveling. 12. (Application Level) Demonstrate construction site safety at all times.

CET125 - Intro to Earthmoving Methods & Operations

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the process of earthmoving, including capabilities, limitations, uses and maintenance of heavy equipment employed in heavy construction and mining. Use mathematical formulas and calculations as well as computer software to determine owner costs and equipment requirements.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and discuss the aspects of heavy equipment dynamics and how they relate to efficiency.
2. (Synthesis Level) Prepare an example of the economics of an earthmoving project, including interest, worth, depreciation, and hourly costs.
3. (Comprehension Level) Identify and explain the best equipment for performing a given earthmoving operation.
4. (Application Level) Compute estimation of cycle times, equipment usage, and costs of an earthmoving project.
5. (Application Level) Use computer software programs to estimate owner cost of a piece of heavy equipment. (i.e. Microsoft Excel and Word)
6. (Application Level) Use computer software to estimate equipment production.
7. (Application Level) Using a computer, explore information contained in the performance handbooks.

CET127 - Intro Survey Applications

General

Division
Skilled Trades & Technology Division

Course Description
No description.

Total Number Of Credits:
4

CET221 - Basic Surveying & Grade Stakng

General

Division
Skilled Trades & Technology Division

Course Description
Theory and application of plane surveying, including horizontal and vertical measurements, differential leveling, topographic mapping, and construction staking. Grade staking skills are covered including percent, ratio, stake reading, hubs and lath, grade transfers, offsets, laser use and ground safety.

Total Number Of Credits:
4

Lecture Credits
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize the history of surveying.
2. (Analysis Level) Calculate various measurement conversions.
3. (Application Level) Demonstrate various methods of horizontal measurement.
4. (Analysis Level) Illustrate and explain the Rectangular Survey System.
5. (Comprehension Level) Explain the details of construction plan reading.
6. (Application Level) Identify and demonstrate equipment used in differential leveling and grade staking.
7. (Application Level) Demonstrate and explain the fundamentals of differential leveling.
8. (Synthesis Level) Design a topographic map from data collected in differential leveling.
9. (Knowledge Level) Identify Maricopa Association of Governments (MAG) construction specifications.
10. (Application Level) Demonstrate and explain proper use of survey and grade staking lath and fagging.
11. (Analysis Level) Define grade as used in construction and determine appropriate grade for projects.
12. (Analysis Level) Calculate percent slope.
13. (Analysis Level) Calculate slope ratio.
14. (Analysis Level) Calculate horizontal distances using the Pythagorean Theorem.
15. (Application Level) Demonstrate and explain OSHA construction site safety.
16. (Analysis Level) Outline and analyze the basic fundamentals of grade staking.

CHM090 - Preparation for General College Chemistry

General

Division
Science & Engineering Division

Course Description
The basic aspects of chemistry including matter, measurement, unit conversions, atoms and subatomic particles, molecules, ions, ionic bonding, moles, stoichiometry, and problem solving skills. Recommended: MAT097 or higher; RDG100.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Using units, labels, dimensional analysis and significant figures concepts, accurately perform simple chemical calculations. (CSLO 2,4)
2. (Analysis Level) Predict formulas and the behavior of atoms and isotopes accurately by using the periodic table and atomic composition. (CSLO 2,4)
3. (Analysis Level) Using standard chemistry nomenclature, accurately name ionic binary and tertiary compounds and predict their formulas. (CSLO 2,4)
4. (Application Level) Using the mole as the basis of stoichiometry, accurately relate mass to number of molecules. (CSLO 2,4)
5. (Application Level) Using the principles of stoichiometry, accurately complete and balance chemical equations. (CSLO 2,4)

CHM130 - Fundamental Chemistry

General

Division
Science & Engineering Division

Course Description
The basic aspects of chemistry, including matter, energy, measurement, atoms, molecules, ions, chemical bonding, chemical arithmetic and nuclear reactions. Recommended: MAT087 or higher, RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
2

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Using units, labels, dimensional analysis and significant figures concepts, accurately perform simple chemical calculations. (CSLO 2)
2. (Analysis Level) Predict formulas and the behavior of atoms and isotopes accurately by using the periodic table and atomic composition. (CSLO 2)
3. (Analysis Level) Using standard chemistry nomenclature, accurately name ionic and covalent compounds and predict their formulas. (CSLO 2)
4. (Application Level) Using the mole as the basis of stoichiometry, accurately relate mass to number of molecules. (CSLO 2)
5. (Application Level) Using the principles of stoichiometry, accurately complete and balance chemical equations. (CSLO 2)
6. (Analysis Level) Using standard classification methods, accurately differentiate reaction types. (CSLO 2)
7. (Application Level) Define solubility, solutions, and concentration. Using molarity, accurately calculate concentrations, titrations and dilution amounts. (CSLO 2, 4)
8. (Analysis Level) Using periodic trends and effective nuclear charge, accurately explain and predict atomic properties. (CSLO 2)
9. (Application Level) Define covalent bonding. Using the Valence Shell Electron Repulsion (VSEPR) theory and the octet rule construct Lewis structures accurately. Use Lewis structures to predict electronic and molecular geometries of molecules, their polarity and their central atom hybridization. (CSLO 2)
10. (Application Level) Use gas laws accurately to predict and calculate behaviors of gases. (CSLO 2, 4)
11. (Application Level) Using the pH concept, accurately calculate acid concentrations for strong acids. (CSLO 2,4)
12. (Application Level) Define thermochemical equations. Using concepts of heat capacity, specific heat capacity, enthalpy and calorimetry accurately analyze and calculate energy changes in physical and chemical reactions. (CSLO 2)
13. (Application Level) Define chemical equilibrium, equilibrium constant and Le Chatlier's principle. Use equilibrium concepts accurately to solve equilibrium problems. (CSLO 2)
14. (Analysis Levels) Demonstrate the proper techniques for using scientific lab equipment safely to perform a variety of basic chemical procedures and techniques, such as to obtain chemical data, measure and dispense reagents. Actively and successfully complete safely the assigned series of laboratory experiments (in a supervised instructional laboratory) or field trips in which observation and critical reasoning skills are employed in the development of detailed report writing within the allotted time. (CSLO 2,4)
15. (Synthesis Level) Actively and successfully develop and write detailed reports on the assigned series of laboratory experiments or field trips while demonstrating observation and critical reasoning skills. (CSLO 2,4)

Course Requisites

CHM138 - Chemistry for Allied Health

General

Division
Science & Engineering Division

Course Description
A one semester lecture and lab course that is an introduction to general, organic and biological chemistry for allied health. This course covers the major topics in general chemistry which is the foundation for understanding organic and biological chemistry, and the fundamentals of organic chemistry in such a way to provide support for the biological chemistry portion, and has an overview of the most important and timely topics in biological chemistry. Topics covered in lecture and lab include measurements, atomic structure, bonding, nomenclature, states of matter, solutions, reactions, hydrocarbons, functional groups, carbohydrates, lipids, proteins, enzymes, and metabolic pathways. Labs will be appropriate for general, organic and biological chemistry for allied health. Recommended: BUS101 or MAT087or higher; RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
2

Recitation Credits
1

Other Credit Information
Total 90 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Using the Periodic Law, correctly describe matter and the structure of the atom, including locating elements in the periodic table and applying the trends on the basis of group and period designations, such as metals, nonmetals, metalloids, alkali metals, halogens, and noble gases. (CSLO 2) 2. (Synthesis Level) Using chemical element symbols and nomenclature, and the principles of chemical bonding, correctly construct and name proper combinations of atoms into formulas for ionic compounds and covalent molecules, and calculate their molecular weights. (CSLO 2) 3. (Application Level) Using the principles of intermolecular attractive forces, accurately determine whether a covalent molecule is polar or non-polar, and whether it will exhibit the hydrogen-bonding phenomenon, and arrange the expected melting and boiling points of pure substances relative to the strength and type of these intermolecular forces. (CSLO 2) 4. (Analysis Level) Using the laws of chemical stoichiometry and the mole, accurately write and balance equations that describe chemical change using accepted nomenclature and symbols, and calculate the relative amounts of such chemicals. (CSLO 2) 5. (Analysis Level) Using the conventions of solution concentration, accurately calculate solution concentrations and dilutions in both percent concentration and molarity terms, and explain colligative solution properties of boiling point, freezing point, and osmotic pressure. (CSLO 2, 4) 6. (Analysis Level) Using the Arrhenius and Bronsted-Lowery theories, correctly name and identify the roles of reactive species as acids and bases in proton-transfer reactions, including molarity and pH calculations and the roles of weak acids and their conjugates in buffer reactions, especially in medical applications. (CSLO 2, 4) 7. (Application Level) Using the standard reactions of radioactive decay, accurately describe the common forms of radiation emitted during natural radioactive decay processes, their effects on health, and the uses of radioisotopes in nuclear medicine. (CSLO 2) 8. (Evaluation Level) Using the principles and nomenclature of organic chemistry, correctly interpret and name organic compounds containing alkanes, multiple bonds, aromatic structures, and common functional groups such as alcohols, amines, aldehydes, ketones, and carboxylic acids, and their key reactions. (CSLO 2) 9. (Comprehension Level) Using the proper nomenclature of biochemistry, accurately describe the structure and function of carbohydrates, lipids, proteins, and enzymes, and their importance to cells. (CSLO 2) 10. (Comprehension Level) Using the chemical concepts of intermolecular attraction and bonding, accurately describe metabolic reactions such as absorption and transport of protons and oxygen molecules within the body. (CSLO 2) 11. (Application Level) Use tools and equipment for basic scientific analysis: manipulate and measure chemical quantities safely to perform a variety of chemical procedures, measurements and techniques, by applying principles, concepts and procedures of chemistry to chemical experiments. Complete laboratory activities competently and produce chemistry lab reports that include your observations, a summary of the results and a description of the conclusions drawn and why. (CSLO 2, 4) 12. (Evaluation Level) Use the scientific method in evaluating the student's chemical data to arrive at rational conclusions, including by evaluating numerical and graphical presentation of scientific lab data to support a conclusion or interpretation, to analyze unknowns and to make conclusions regarding chemical relationships, the changes matter undergoes, and to evaluate chemical effects on reaction rates. (CSLO 2, 4) 13. (Analysis Level) Perform calculations involving the student's chemical measurements, such as to examine the concepts of acids and bases, analyze forces between particles, and of phase transitions between states of matter, and analyze the general characteristics of lipids and biochemical enzymes in lab. (CSLO 2, 4)

Course Requisites

CHM151 - General Chemistry I

General

Division
Science & Engineering Division

Course Description
Chemistry topics including matter, energy, measurement, atoms, ions, molecules, chemical formulas and equations, chemical arithmetic, thermochemistry, states of matter, chemical bonding, and solutions are covered. Includes one credit of in-person labs. Prerequisites: CHM130 or one year of high school chemistry with a grade of "C" or better, or CHM090 may be used as a prerequisite or a corequisite. Corequisite: If none of the prerequisites are fulfilled, CHM090 must be taken as a corequisite.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
2

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Using units, labels and the concept of significant figures, accurately perform simple chemical calculations. (CSLO 2,4)
2. (Application Level) Accurately predict formulas and the behavior of atoms and isotopes by using the periodic table and atomic composition. (CSLO 2,4)
3. (Application Level) Using standard chemistry nomenclature, accurately name ionic and covalent compounds and predict their formulas. (CSLO 2,4)
4. (Application Level) Using the mole as the basis of stoichiometry, accurately relate mass to number of molecules. (CSLO 2,4)
5. (Application Level) Using the principles of stoichiometry, accurately complete and balance chemical equations. (CSLO 2,4)
6. (Analysis Level) Use solubility data accurately to analyze and predict species precipitating or remaining in a net ionic equation. (CSLO 2,4)
7. (Application Level) Using standard classification methods, accurately identify reaction types, including oxidation-reduction reactions. (CSLO 2,4)
8. (Application Level) Using molarity, accurately calculate concentrations, titrations and dilution amounts. (CSLO 2,4)
9. (Analysis Level) Using concepts of specific heat capacity, enthalpy and calorimetry, accurately analyze and calculate energy changes in physical and chemical reactions. (CSLO 2,4)
10. (Application Level) Relate colors of light to energies of electronic transitions in atoms accurately using standard equations. (CSLO 2,4)
11. (Analysis Level) Using periodic trends and effective nuclear charge, accurately explain and predict atomic properties. (CSLO 2,4)
12. (Application Level) Using the main-group valence electron theory and the octet rule, accurately draw Lewis structures. (CSLO 2,4)
13. (Analysis Level) Use Lewis structures accurately to predict electronic and molecular geometries of molecules, their polarity, and their valence-bond hybridization. (CSLO 2,4)
14. (Application Level) Using IUPAC rules and common names, identify and name simple organic molecules accurately. (CSLO 2,4)
15. (Application Level) Use gas laws accurately to predict and calculate behaviors of gases. (CSLO 2,4)
16. (Analysis Level) Using molecular geometry, accurately predict relative intermolecular forces and boiling points. (CSLO 2,4)
17. (Analysis Levels) Demonstrate the techniques for using scientific lab equipment properly and safely to perform a variety of chemical procedures and techniques, such as to obtain chemical data, measure and dispense reagents. Actively and successfully complete safely the assigned series of laboratory experiments (in a supervised instructional laboratory) or field trips in which observation and critical reasoning skills are employed in the development of detailed report writing, within the allotted time. (CSLO 2,4)
18. (Synthesis Level) Actively and successfully develop and write detailed reports on the assigned series of laboratory experiments or field trips while demonstrating observation and critical reasoning skills. (CSLO 2,4)

Course Requisites

CHM152 - General Chemistry II

General

Division
Science & Engineering Division

Course Description
Topics such as chemical kinetics, spontaneity of chemical change, chemical equilibrium, precipitation reactions, acid and base equilibria, complexions, oxidation-reduction reactions, nuclear reactions, and introduction to organic chemistry are covered. Prerequisite: CHM151.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
2

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Calculate solution concentrations. (CSLO 4)
2. (Analysis Level) Analyze concentration data to calculate reaction rates. (CSLO 4)
3. (Application Level) Calculate equilibrium constants and reaction extents. (CSLO 4)
4. (Application Level) Calculate equilibrium acidities and pH values. (CSLO 4)
5. (Analysis Level) Analyze buffer concentrations to calculate titration curves for strong or weak acids. (CSLO 4)
6. (Application Level) Calculate concentrations of soluble species in reactions. (CSLO 4)
7. (Analysis Level) Analyze bonding rearrangements to calculate thermodynamic equilibria. (CSLO 4)
8. (Application Level) Calculate quantities in electrochemistry reactions. (CSLO 4)
9. (Application Level) Calculate rates of radioactive decay and radiochemical dating. (CSLO 4)
10. (Analysis Level) Demonstrate the proper techniques for using scientific lab equipment properly and safely to perform a variety of chemical procedures and techniques, such as to obtain chemical data, measure and dispense reagents, to analyze samples by performing titration experiments, or to do chemical qualitative analysis of a solution of multiple ions through selective precipitation of specific ions. (CSLOs 2, 3)
11. (Synthesis Level) Prepare written reports: organize data in a logical format, analyze and interpret data, and report conclusions, using the scientific method. The lab report should be clear, understandable and complete. (CSLOs 1, 3, 4)

Course Requisites

CHM235 - General Organic Chemistry I

General

Division
Science & Engineering Division

Course Description
A comprehensive study of organic chemistry with emphasis on reactivity and synthesis. Topics include the areas of structure and bonding, molecular properties, alkanes, cycloalkanes, stereochemistry, mechanisms for organic reactions, alkenes, alkynes, alkyl halides, and conjugated dienes. In-person lab experience includes laboratory techniques and practice with emphasis on separations, purification, synthesis, halide reactivity, and spectroscopic identification of organic structures. Prerequisite: CHM152.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
2

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the bonding properties of carbon with other atoms. (CSLO 2)
2. (Comprehension Level) Describe the relationships between a compound's structure and its physical properties, and between its structure and chemical properties. (CSLO 2)
3. (Knowledge Level) Define acids and bases in terms of Bronsted-Lowry and Lewis acid-base theory. (CSLO 2,4)
4. (Comprehension Level) Explain bond dissociation energy, activation energy, and enthalpy of reaction in terms of transition state theory. (CSLO 2)
5. (Analysis Level) Outline the accepted reaction mechanisms for nucleophilic substitution, elimination, electrophilic addition, and free radical reactions as applied to alkanes, organic halogen compounds, alkenes, alkynes, and conjugated dienes. (CSLO 2,4)
6. (Analysis Level) Use facts to compare confirmation stabilities of cyclic and acyclic compounds. (CSLO 4)
7. (Knowledge Level) Name and draw structures of appropriate examples of organic compounds. (CSLO 2)
8. (Analysis Level) Outline successful stepwise syntheses of organic compounds from simpler starting compounds. (CSLO 2,4)
9. (Evaluation Level) Interpret infrared and nuclear magnetic resonance spectra. (CSLO 2)
10. (Comprehension Level) Describe valid methods of separating stereoisomers from each other, and use accepted nomenclature conventions to define the structures of stereoisomers. (CSLO 2)
11. (Evaluation Level) Identify and evaluate chemical hazards for all chemicals involved in each laboratory experiment. (CSLO 2,4)
12. (Knowledge Level) Cite the location and operation of common laboratory safety equipment in the laboratory, such as fire extinguisher(s), eyewash station, and safety shower. (CSLO 2)
13. (Synthesis Level) Prepare valid written reports using an organized scientific method and format to include presenting and analyzing data and observations and reporting rational conclusions using appropriate chemical terminology. (CSLO 4)
14. (Application Level) Safely use appropriate personal protective equipment, such as goggles, lab apron, gloves, shoes, and other safety gear. (CSLO 2)
15. (Synthesis Level) Maintain a detailed laboratory notebook that correctly records your work in the lab. (CSLO 2,4)
16. (Synthesis Level) Given a written experimental procedure and plan, complete a series of steps to safely and successfully complete the experiment in the allotted time. (CSLO 2,4)
17. (Evaluation Level) Record and interpret quantitative and qualitative data successfully. Perform calculations using the proper number of significant figures and appropriate terminology. (CSLO 4)
18. (Synthesis Level) Perform laboratory operations and measurements using standard-size or microscale organic chemistry glassware according to accepted procedures. (CSLO 2)
19. (Application Level) Perform valid melting point temperature determinations. (CSLO 2)
20. (Application Level) Perform successful vacuum filtrations. (CSLO 2)
21. (Application Level) Prepare purified products using crystallization, distillation, liquid-liquid extractions, and other appropriate methods successfully. (CSLO 2)
22. (Synthesis Level) Perform effective chromatographic separations of organic chemicals, using techniques such as column chromatography, thin-layer chromatography or gas chromatography. (CSLO 2)
23. (Synthesis Level) Perform valid instrumental analyses of prepared samples using melting point, infrared (IR) spectrometry or gas chromatography (GC), or nuclear magnetic resonance spectroscopy (NMR). (CSLO 2,4)

Course Requisites

CHM236 - General Organic Chemistry II

General

Division
Science & Engineering Division

Course Description
A continuation of CHM235, explore the general principles of organic chemistry with advanced continued emphasis on reactivity and synthesis. Topics covered are alcohols and thiols, ethers and epoxides, aldehydes and ketones, carboxylic acids and their derivatives, carbohydrates, lipids, amines, amino acids, polymers, and aromatic compounds. In-person lab experience includes additional techniques in organic chemistry; preparation, separation, and identification of organic compounds, including polymers, benzocaine, soaps, and amines. Prerequisite: CHM235.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
2

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the known relationship between a compound's structure and its physical and chemical properties. (CSLO 2)
2. (Comprehension Level) Outline valid stepwise syntheses of organic compounds from simpler starting materials. (CSLO 2,4)
3. (Analysis Level) Outline accepted reaction mechanisms of alcohol and aromatic compounds, aldehydes, ketones, carboxylic acids, carboxylic acid derivatives, ethers, and amines. (CSLO 2)
4. (Knowledge Level) Name and draw useful structures of appropriate organic compounds. (CSLO 2)
5. (Evaluation Level) Interpret the results of infrared and nuclear magnetic resonance spectra. (CSLO 4)
6. (Analysis Level) Outline reactions that successfully convert one type of functional group to another. (CSLO 2,4)
7. (Application Level) Perform vacuum filtrations. (CSLO 2)
8. (Synthesis Level) Prepare purified products significantly well, using crystallization, distillation, liquid-liquid extractions and other appropriate methods. (CSLO 2)
9. (Synthesis Level) Perform valid instrumental analyses of prepared samples using melting point, infrared (IR) spectrometry, gas chromatography (GC), or nuclear magnetic resonance (NMR). (CSLO 2,4)
10. (Analysis Level) Perform lab experiments to analyze the identity of functional groups in chemicals. (CSLO 2,4)
11. (Evaluation Level) Identify and evaluate chemical hazards for all chemicals involved in each laboratory experiment. (CSLO 2,4)
12. (Knowledge Level) Cite the location and operation of common laboratory safety equipment in the laboratory, such as fire extinguisher(s), eyewash station, and safety shower. (CSLO 2)
13. (Synthesis Level) Prepare meaningful written reports using an organized scientific method and format to include presenting and analyzing data and observations and reporting rational conclusions using appropriate chemical terminology. (CSLO 4)
14. (Application Level) Safely use appropriate personal protective equipment, such as goggles, lab apron, gloves, shoes, and other safety equipment. (CSLO 2)
15. (Synthesis Level) Maintain a detailed laboratory notebook that correctly records your work in the lab. (CSLO 2,4)
16. (Synthesis Level) Given a written experimental procedure, plan and complete a series of steps to safely and successfully complete the experiment in the allotted time. (CSLO 2,4)
17. (Evaluation Level) Record and interpret quantitative and qualitative data. Perform calculations using the proper number of significant figures and appropriate terminology. (CSLO 4)
18. (Application Level) Successfully perform laboratory operations and measurements using standard-size or microscale organic chemistry glassware. (CSLO 2)

Course Requisites

CIS110 - Fundamentals of Computer Literacy

General

Division
Business & Computer Technology Division

Course Description
Introduction to microcomputer technology, including terminology, software applications, operating systems, tools, basic set up and maintenance. Also includes Internet searches, and evaluation of websites' validity and reliability of information. Use Microsoft (MS) Word, MS Excel, MS Access, and MS PowerPoint to analyze data, solve problems, and present solutions. Not designed for CIS degree or CIS Certificate seekers. Recommendation: 9th Grade reading level.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Define and use computer terminology related to hardware, operating systems, application software, basic maintenance, and the Internet. CSLO 2
2. (Application Level) Use file management tools including creating and organizing folders and shortcuts; copy, move, and delete files; and search for files. CSLO 3
3. (Comprehension Level) Discuss routine issues and troubleshooting techniques, including purchase, privacy, data security, installing and upgrading software, and resolving routine computer problems. CSLO 4
4. (Evaluation Level) Evaluate social and ethical issues related to computer technology. CSLO 1
5. (Analysis Level) Explain the purpose, tools, and kinds of documents produced using Microsoft (MS) Word, MS Excel, MS Access, and MS PowerPoint. CSLO 3
6. (Synthesis Level) Produce letters, memos, and reports with tables using MS Word. CSLO 3
7. (Synthesis Level) Produce spreadsheets and charts with MS Excel that interpret data and solve financial, mathematical, and statistical problems. CSLO 3
8. (Synthesis Level) Produce standard database queries, forms and reports with Microsoft Access that collect, extract, sort and report data needed to make decisions. CSLO 3
9. (Synthesis Level) Produce and deliver slideshow presentations using MS PowerPoint that includes graphics, charts, tables, and animation. CSLO 3
10. (Application Level) Use email to send and receive messages, attach and download files, and manage contacts. Demonstrate proper email etiquette. CSLO 3
11. (Analysis Level) Search websites using various search engines for project specific tools and examples. CSLO 2 12. (Evaluation Level) Evaluate the credibility of various websites based on specific guidelines. CSLO 4

CIS112 - Web Design Fundamentals with HTML

General

Division
Business & Computer Technology Division

Course Description
Teaches HTML and CSS topics such as text configuration, color configuration, and page layout, with focus on design, accessibility, and Web standards. Covers HTML5, CSS, JavaScript, design, e-commerce, and promotion strategies; considered fundamental to contemporary web development. An emphasis on hands-on practice provides a well-rounded foundation to help students as they pursue careers as web professionals. Recommendations: Basic computer user skills: able to use a mouse and keyboard, save a file, use the internet to find information are essential.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss HTML5, internet, and web terminology and concepts necessary for professional web developers (CSLO #2).
2. (Comprehension Level) Identify the basic web page structure and the HTML5 elements/tags (CSLO #2).
3. (Application Level) Apply the System Development Life Cycle to the development of web projects. (CSLO #2)
4. (Synthesis Level) Modify web page layouts and formats by changing the cascading style sheet (css) or applying new css (CSLO #3).
5. (Analysis Level) Compare multiple websites using design principles and techniques including: ease of navigation, accessibility, and appropriate visual elements, graphics and multimedia (CSLO #4).
6. (Synthesis Level) Organize web pages with tables, lists, and forms (CSLO #3).
7. (Synthesis Level) Construct websites that are user-friendly, appeal to target audience, and are easy to maintain using storyboards, cascading style sheets, market research, and limited levels (CSLO #3).
8. (Synthesis Level) Build professional quality web pages based on a pre-established set of rules and quality standards (CSLO #3).
9. (Comprehension Level) Describe domain name selection, registration, and web hosting (CSLO #2).
10. (Application Level) Demonstrate the use of Java, JavaScript, and JQuery within a web page (CSLO #3).
11. (Analysis Level) Explain mobile design best practices, queries, and links (CSLO #2).
12. (Analysis Level) Analyze web design issues in a global economy; discuss solutions to intercultural circumstances and barriers that may occur in e-commerce activities (CSLO #1).
13. (Evaluation Level) Evaluate web promotion, meta tags, and search engine optimization (CSLO #4).

CIS113 - E-Commerce and Social Media

General

Division
Business & Computer Technology Division

Course Description
Introduction to Electronic Commerce and Social Media: including marketing, advertising, digital payment systems, professionalism, and ethical, legal, and security considerations.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define e-commerce. (CSLO#2) 2. (Comprehension Level) Describe common uses of e-commerce. (CSLO#3) 3. (Evaluation Level) Evaluate various social media technologies for professional and business applications. (CSLO#3) 4. (Comprehension Level) Summarize issues involved in designing an electronic storefront. (CSLO#2) 5. (Evaluation Level) Appraise storefront features and designs. (CSLO#1,2) 6. (Comprehension Level) Discuss digital currency. (CSLO#4) 7. (Analysis Level) Examine ethical, legal, privacy, and security issues related to e-commerce and social media. (CSLO#4) 8. (Evaluation Level) Evaluate current social and business apps and determine their effectiveness and impact. (CSLO#2)

CIS115 - Customer Service and Workplace Success

General

Division
Business & Computer Technology Division

Course Description
Examines skills, tools and strategies necessary for becoming a computer helpdesk or end-user support professional.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Apply Level) Demonstrate proper personal and workplace hygiene. CSLO 4
2. (Create Level) Create a Professional persona that includes standard greetings, customer interaction strategies, and a disciplined routine. CSLO 2
3. (Understand Level) Define Congruency and why it is important. CSLO 3
4. (Evaluate Level) Actively observe a company's culture to determine how you fit and how to implement best practices. CSLO 3
5. (Understand Level) Discuss how words, tones, and body language can help or hurt customer and colleague interactions. CSLO 4

CIS119 - Set-up and Maintenance of Personal Computers

General

Division
Business & Computer Technology Division

Course Description
Theory and application of servicing personal computers. Set-up, upgrade, and troubleshoot. Topics include advanced configuration, diagnoses and repair of hardware problems, workstation setup and configuration, storage and optical drives, random-access memory modules, motherboard-level diagnosis, and repair, installation, replacement, and upgrade of expansion cards. Recommendations: Basic computer user skills: able to use a mouse and keyboard, save a file, use the internet to find information.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Select, install, configure, and maintain PC, storage, and peripheral components. (CSLO 2,3)
2. (Understanding Level) Discuss file management systems: including security and ethical issues. (CSLO 1,2,3,4)
3. (Application Level) Implement disaster prevention and recovery methods. (CSLO 2,3,4)
4. (Application Level) Configure Remote Desktop and VPN connections. (CSLO 2,3,4)
5. (Application Level) Enable hardware virtualization: Install and configure a hypervisor, and a virtual machine. Create and add virtual hard disks. (CSLO 2,3,4)
6. (Application Level) Implement security best practices; tools to detect, remove, and prevent malware, and mobile device security. (CSLO 1,2,3,4)
7. (Application Level) Troubleshoot hardware and software components. (CSLO 2,3)
8. (Application Level) Troubleshoot network connections. Use networking utilities to view, test, and troubleshoot network configuration, communication, and connectivity issues. (CSLO 2,3,4)

CIS120 - Survey of Computer Information Systems

General

Division
Business & Computer Technology Division

Course Description
Survey of computer information systems, fundamental computer concepts, programming techniques, and networking. Hands-on experience with Microsoft Office application software with an emphasis on database and spreadsheets for problem solving. Prerequiste: RDG100. Consult an academic advisor as to how this course meets CAC's computer Competency degree requirement.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define basic terminology related to computer hardware, software, operating systems, networks, and programming. CSLO 2
2. (Comprehension Level) Describe hardware components and their function in a computer system. CSLO 2
3. (Analysis Level) Compare different operating systems used in industry and identify their components. CSLO 4
4. (Knowledge Level) Identify ASCII, EBCIDEC and Unicode codes, and binary, hexadecimal, and decimal bases used in a computer system. CSLO 3
5. (Comprehension Level) Discuss the basic input, processing, and output functions used in data processing. CSLO 3
6. (Comprehension Level) Discuss computer usages in student's specific program of study and identify an application that applies. CSLO 4
7. (Comprehension Level) Identify programming languages, their importance, and recognize the use of flowcharts and/or pseudo code to define algorithms for simple computer programs. CSLO 3
8. (Comprehension Level) Review issues related to: the digital divide, security & privacy, the web, computer ethics, ergonomics, and computer careers. CSLO 1
9. (Application Level) Produce reports and documents containing title pages, headers, footers, tables, tabs, columns, bullets, graphics, paragraph formats, and styles and use operating system file management capabilities. CSLO 3
10. (Synthesis Level) Create, format, edit, save, and print spreadsheet workbooks containing formulas, functions, and charts; use relative and absolute cell references and use operating system file management capabilities. CSLO 3
11. (Application Level) Use advanced features of Excel such as data tables, PivotTables, conditional formatting, IF, VLOOKUP, and PMT functions; create Web pages and queries; use logical functions; database functions; create macros. CSLO 3
12. (Synthesis Level) Design, create, modify and manage data, relationships, forms and reports using a database application and use operating system file management capabilities. CSLO 3

Course Requisites

CIS121 - Windows Operating System Fundamentals

General

Division
Business & Computer Technology Division

Course Description
Course covers proper installation of the operating system, the features of the system, maximum utilization of the user interface, efficient file handling, create, edit and delete user profiles, create a functional user environment, create and utilize shared network resources, utilize troubleshooting skills to overcome simple and complex problems in the Microsoft operating system environments. May lead to Microsoft 365 Certified Modern Desktop Administration Associate. Recommended: Basic computer user skills: able to use a mouse and keyboard, save a file, use the internet to find information.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe windows operating systems, their features, prominent system properties, and common operating system commands. (CSLO 2)
2. (Application Level) Use Windows Help and Support Center and troubleshooting tools to solve operating system problems. (CSLO 2,4)
3. (Application Level) Customize the windows operating system environment to meet the needs of a given operating environment. (CSLO 1,2,3)
4. (Analysis Level) Examine Object Linking and Embedding (OLE) technology to share data across applications. (CSLO 2,3,4)
5. (Analysis Level) Analyze common backup strategies and practice creating settings to match a maintenance plan. (CSLO 2,3,4)
6. (Comprehension Level) Explain the difference between, basic and dynamic disks and different file system formats (FAT32, NTFS). (CSLO 2)
7. (Application Level) Examine ways to safeguard your computer against virus infection and spyware. (CSLO 2,3)
8. (Evaluation Level) Evaluate system performance and practice modifying a registry entry. (CSLO 2,4)
9. (Comprehension Level) Explain the different approaches used to access, backup and modification of the registry. (CSLO 2,4)
10. (Comprehension Level) Describe the command-line environment, when it might be helpful, and the more common operating system commands. (CSLO 2,4)
11. (Application Level) Apply common commands in GUI and command-line interfaces to administer a computer client. (CSLO 1,2,3)
12. (Application Level) Use system utilities to effective control the system. (CSLO 2,4)

CIS123 - Introduction to Programming

General

Division
Business & Computer Technology Division

Course Description
Concepts of problem solving using an object-oriented programming language. Topics include data types, control structures, classes, arrays, methods and argument passing, iteration, inheritance and programming and documentation style.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize the types of variables and constants used in programming solutions. (CSLO 2)
2. (Analysis Level) Analyze the behavior of programs involving the fundamental program constructs. (CSLO 4)
3. (Analysis Level) Examine and explain methods, classes, objects, and advanced object techniques. (CSLO 2)
4. (Synthesis Level) Create programs that use the fundamental program constructs including standard conditional and iterative control structures. (CSLO 3)
5. (Analysis Level) Examine inheritance concepts. (CSLO 2)
6. (Evaluation Level) Evaluate exception handling instances. (CSLO 4)
7. (Analysis Level) Examine and explain file input and output functions. (CSLO 2)
8. (Application Level) Apply documentation techniques throughout the program development cycle. (CSLO 3)
9. (Synthesis Level) Create solutions for given business and scientific problems that apply the structural features of object oriented programming which include objects, classes, methods, inheritance, and input/output functions. (CSLO 3)
10. (Analysis Level) Analyze the use of arrays in programs. (CSLO 4)
11. (Comprehension level) Locate and correct syntax and logic errors in short programs. (CSLO 4)
12. (Comprehension Level) Discuss ethical and social issues of the computing world. (CSLO 1)

Course Requisites

CIS130 - Networking Essentials

General

Division
Business & Computer Technology Division

Course Description
Introduction to networking principles. Topics include: seven-layered Open Systems Interconnection (OSI) Model of networking, physical and logical network topologies, networking protocols, network services, network fault tolerance, and hardware/software devices used in a network. Prepares students for Network+ Certification.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define common networking terms for LANs and WANs. CSLO 3
2. (Analysis Level) Compare a file-and-print server with an application server. CSLO 3
3. (Comprehension Level) Describe the characteristics and purpose of the media used in IEEE802 standards. CSLO 3
4. (Analysis Level) Classify media used in networking. CSLO 3
5. (Application Level) Solve common connectivity problems with cards, cables, and related hardware. CSLO 3
6. (Comprehension Level) Explain the basic purpose of protocols such as TCP/IP, IPX/SPX, NDIS, ODI, SLIP and PPP. CSLO 3
7. (Comprehension Level) Describe each of the seven layers of the OSI model. CSLO 3 8. (Knowledge Level) Identify communication devices that operate at each level of the OSI model. CSLO 3

CIS153 - Network Security

General

Division
Business & Computer Technology Division

Course Description
Identify security risks and plan and design Windows network security solutions on currently-supported operating system used in business organizations by securing network resources, services, communications, remote access users and designing secure access to the Internet. May lead to Security+ Certification. S/U grading option available. Prerequisite: CIS130.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify network security risks and defenses to protect networks from attacks. (CSLO 2)
2. (Analysis Level) Analyze network security options and techniques to create security plans. (CSLO 2)
3. (Evaluation Level) Evaluate corporate components in security planning. (CSLO 2)
4. (Comprehension Level) Practice methods to secure resources on Windows servers and clients.(CSLO 3)
5. (Synthesis Level) Design a vulnerability assessment approach and configure controls to deter attacks. (CSLO 3)
6. (Application Level) Use a Network Protocol Analyzer to capture and analyze traffic and explore how this information is used to research and resolve security risks.(CSLO 3)
7. (Application Level) Demonstrate basic and advanced cryptography methods for secure systems including the use of Digital Certificates, PKI (public key infrastructure), key management and IPSec. (CSLO 3)
8. (Application Level) Demonstrate techniques to be prepared for disaster recovery and provide business continuity, including approaches for incident response. (CSLO 3)
9. (Analysis Level) Compare and contrast access control (Access Control Lists, group policies and account restrictions) and authentication service approaches (RADIUS, Kerberos, TACACS and LDAP). (CSLO 2)
10. (Analysis Level) Outline plans to secure access for remote access users and access between corporate locations with secure WAN or VPN technology. (CSLO 4)
11. (Synthesis Level) Devise approaches with network security devices, technologies and or architectural design elements for securing the network and providing secure access to the Internet.
12. (Comprehension Level) Discuss controlling risk through policies, awareness, training and technical configurations.

Course Requisites

CIS162 - Comparative Programming Languages

General

Division
Business & Computer Technology Division

Course Description
Explores alternative ways of specifying computation and helps in understanding and harnessing the power of various dynamic object-oriented and scripting programming languages. Learn to understand the characteristics of the programming paradigms supported by programming languages and be able to apply some of the techniques in other languages. Increases the ability to learn new languages paramount in today's job market. Prerequisite: CIS123.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Understand data types (like character strings, integers, and real numbers) and the operations that can be applied to each data type. (CSLO 2)
2. (Synthesis Level) Develop programs that get input, perform calculations, and provide output (using conditional logic, loops, and functions). (CSLO 3)
3. (Synthesis Level) Develop well designed and well documented programs that are easily maintainable. (CSLO 3)
4. (Comprehension Level) Understand the syntax and semantics of the three programming languages. (CSLO 2)
5. (Application Level) Locate and correct syntax and logic errors in a program, using systematic testing and debugging techniques. (CSLO 4)
6. (Comprehension Level) Describe the main features of three programming languages. (CSLO 2)
7. (Synthesis Level) Create user-defined classes that use a variety of types including: object types, dynamic types, strings, lists, dictionary, and tuples. (CSLO 3)
8. (Comprehension Level) Describe the languages operators for manipulating lists, dictionaries, tuples, and files. (CSLO 2)
9. (Application Level) Use exception handling features to trap errors encountered while operating on files. (CSLO 3)
10. (Synthesis Level) Develop an application which receives input from various sources and displays results on it. (CSLO 3)
11. (Comprehension Level) Describe how scripting languages are used in networking, programming, and web development. (CLSO 3)

Course Requisites

CIS176 - Python Programming

General

Division
Business & Computer Technology Division

Course Description
Introduction to the Python programming language. Covers the basic programming constructs of Python, including basic data types, control structures, decision constructs, regular expressions, input and output techniques, functions, object-oriented design, lists, dictionaries, file I/O, and exception handling. Students are responsible for being prepared for the class in the areas of installing software and file management.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Understand data types (like character strings, integers, and real numbers) and the operations that can be applied to each data type. (CSLO 2)
2. (Synthesis Level) Develop programs that get input, perform calculations, and provide output (using conditional logic, loops, and functions). (CSLO 3)
3. (Synthesis Level) Develop well designed and well documented programs that are easily maintainable. (CSLO 3)
4. (Comprehension Level) Understand the syntax and semantics of the Python programming language. (CSLO 2)
5. (Application Level) Locate and correct syntax and logic errors in a python program, using systematic testing and debugging techniques. (CSLO 4)
6. (Comprehension Level) Describe the main features of Python. (CSLO 2)
7. (Synthesis Level) Create user-defined classes that use a variety of types including: object types, dynamic types, strings, lists, dictionary, and tuples. (CSLO 3)
8. (Comprehension Level) Describe the Python operators for manipulating lists, dictionaries, tuples, and files. (CSLO 2)
9. (Application Level) Use Python's exception handling features to trap errors encountered while operating on files. (CSLO 3)
10. (Synthesis Level) Develop an application which receives input from a GUI and displays results on it. (CSLO 3)

Course Requisites

CIS178 - Database Fundamentals and Programming

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of relational database management systems and their use in business environments. Topics include: database classifications, data models with extensive coverage of the relational model, entity-relationship and extended entity models, normalization, advanced data modeling, and Structured Query Language (SQL) programming. Students design and implement a real-world relational database and create complex SQL queries to retrieve data from the database. Students are responsible for being prepared for the class in the areas of installing software and file management.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use modern techniques of database organization and access in a database environment. (CSLO 3)
2. (Comprehension Level) Describe the importance of database modeling and design. (CSLO 2)
3. (Comprehension Level) Understand the relational database model and Entity Relationship Diagrams. (CSLO 2)
4. (Synthesis Level) Plan, create, and analyze databases for reporting. (CSLO 4)
5. (Synthesis Level) Design and create multiple tables and table relationships. (CSL0 3)
6. (Application Level) Implement queries with Structured Query Language to solve a business problem. (CSLO 3) 7. (Comprehension Level) Discuss normalization of a database. (CSLO 2)
8. (Comprehension Level) Understand what transaction management and concurrency are in a database. (CSLO 2)
9. (Comprehension Level) Discuss the different types of databases. (CSLO 2)

Course Requisites

CIS181 - C#.NET

General

Division
Business & Computer Technology Division

Course Description
Object-oriented programming language to create visual applications for Windows, MS Office, the web, controls, and more. Created to work within the .NET framework. Prerequisite: CIS123. Satisfactory/Unsatisfactory grading option available.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Classify all Data types. 2. (Application Level) Use "if," "if-else," "compound if," and "switch" statements and conditional operators for decision making. 3. (Application Level) Use "while," "for," and "do" statements to streamline repetitive tasks and instructions. 4. (Application Level) Implement Arrays, Methods, Classes, and Objects. 5. (Synthesis Level) Create an Exception class. 6. (Synthesis Level) Design forms using Visual Studio Integrated Development Environment (IDE). 7. (Application Level) Use built-in Event Handler and declare customized events and corresponding handlers. 8. (Synthesis Level) Create LINQ queries to retrieve data from an Access database. 9. (Comprehension Level) Describe Thread properties and a Thread's life cycle. 10. (Synthesis Level) Modify interactive applications by adding graphic and multimedia elements. 11. (Comprehension Level) Explain and discuss dynamic data structures including self-referential classes, linked lists, stacks, queries, and trees.

Course Requisites

CIS195 - Computer Information Internship

General

Division
Business & Computer Technology Division

Course Description
Structured practical experience in the Computer Technology field. For students to develop the knowledge, skills, abilities, and attitudes to improve career options. Positions only at Signal Peak Campus. Prerequisites: Successful completion of 1 CIS course; instructor approval required; must pass background check.

Total Number Of Credits:
1

Internship Credits
1

MSLOs

Measurable Student Learning Outcomes
1. Demonstrate enhanced professionalism, including punctuality, communication skills, and appropriate workplace behavior.(CSLO 3)
2. Apply theories, concepts, problem-solving skills, and techniques relevant to the field.(CSLO 2,4)
3. Communicate effectively with colleagues, supervisors, and clients within the professional environment. (CSLO 1, 3)
4. Demonstrate ethical behavior and adherence to professional standards and codes of conduct within the workplace. (CSLO 1, 2, 3,
5. Understand the importance of confidentiality, and respect in the workplace. (CSLO 2, 3)

CIS210 - Cloud Foundations & Architecture

General

Division
Business & Computer Technology Division

Course Description
Cloud Computing theory and application, including Cloud Computing network design and connectivity, server management, best-practices, security and provider service level agreements. Case studies of industry examples are used as applications to reinforce the theories discussed. Recommendation: Knowledge of basic computer skills.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and explain the theories behind Cloud Computing for storage, computing resources and software. (CSLO 2)
2. (Comprehension Level) Explain historical events in the development of Cloud Computing.
3. (Comprehension Level) Describe Software as a Service (SaaS) applications and identify industry examples. (CSLO 2)
4. (Comprehension Level) Discuss PaaS connectivity and show key elements of the user interface.(CSLO 2)
5. (Comprehension Level) Give examples of IaaS and custom applications utilizing IaaS.(CSLO 2)
6. (Comprehension Level) Summarize the important components of a Cloud Computing Service Level Agreement (SLA) document.
7. (Evaluation Level) Evaluate options for storage and the use of Remote Data Management Systems (RDMS) within cloud solutions. (CSLO 4)
8. (Evaluation Level) Analyze the marketing of cloud computing solutions and make recommendations. (CSLO 4)
9. (Evaluation Level) Compose a Case Study on a deployed Cloud Computing solution, summarizing the business justification and the key legal information on this solution. Explain the costs in providing and using this solution. Examine and assess the key processes for end users, system administrators and the company as a whole. Evaluate the solution, identifying possible oversights, mistakes and alternative approaches that could add value.(CSLO 3)
10. (Application Level) Construct diagrams that document network devices, typical network traffic, cabling standards and router/routing details for connectivity to Cloud solutions. (CSLO 4)
11. (Evaluation Level) Evaluate Cloud Computing security requirements. (CSLO 4)
12. (Synthesis Level) Practice, revise and present Cloud network reports that identify and summarize Cloud technology concepts and details of the technology solution. (CSLO 2)
13. (Comprehension Level) Explain aspects of deploying and administering Cloud Computing.
14. (Analysis Level) Examine existing methods for troubleshooting and maintaining Cloud Computing solutions. (CSLO 4)
15. (Evaluation Level) Explore emerging Cloud Computing technologies and evaluate their possible impact on the industry.

Course Requisites

CIS211 - Cloud Development

General

Division
Business & Computer Technology Division

Course Description
AWS Cloud Development is a course designed to help students develop technical expertise in development using cloud technologies. Throughout the course, students will explore a scenario that provides opportunities to build a variety of infrastructures through a guided, hands-on approach. Prerequisite: CIS210.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the hardware, software, and services options with their specific purposes and requirements. (CSLO 2)
2. (Apply Level) Perform initial installation of major distributions, configure system settings, network services, and access rights. (CSLO 4)
3. (Apply Level) Use the command line for everyday management of server systems, implement security options. (CSLO 4)
4. (Knowledge Level) Discuss workplace-readiness skills and professionalism. (CSLO 2)
5. (Analysis Level) Compare and contrast computer network systems, network infrastructure, network operations, network security, network troubleshooting and tools, industry standards, practices, network theory, network communications, network user support, and professional development skills. (CSLO 3)
6. (Create Level) Create a fundamental database, using conceptual design principles, basic SQL (Standard Query Language) syntax, optimized information retrieval, and Business Intelligence/Decision Support Systems. (CSLO 2)
7. (Knowledge Level) Discuss Cloud fundamentals including Cloud Computing uses, properties and components, service models, deployment models, Cloud actors, Cloud essential characteristics, and Cloud services from a business perspective. (CSLO 4)
8. (Knowledge Level) Describe deployment solutions, data center fundamentals, technical aspects of Cloud computing, adoption and implementation, Cloud IT service management and support. (CSLO 2)

CIS213 - Linux Server

General

Division
Business & Computer Technology Division

Course Description
Learn the fundamentals of working on the Linux platform including installation, file system management and administration. Emphasis on the command-line BASH shell command interface, Introduction to the GUI options with Linux. Learn about initialization options, how to manage processes and operating system utilities, and administration tasks, including network configurations. May lead to Linux Certification.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Successfully install and configure a Linux system. CSLO 3
2. (Knowledge Level) Identify common uses of Linux in deployed business computer solutions CSLO 3
3. (Synthesis Level) Plan and create network file systems in Linux. CSLO 4
4. (Synthesis Level) Manage users, groups, login security, and system resources in Linux. CSLO 3
5. (Application Level) Recognize trust relationships and utilize appropriate commands to see file ownership assignments and file attributes. CSLO 3
6. (Synthesis Level) Create a variety of Linux processes and manage them with viewing, setting priorities, deleting processes and scheduling processes. CSLO 4
7. (Application Level) Employ the use of Linux shell scripts to execute basic command sequences. CSLO 3
8. (Application Level) Utilize both the graphical and BASH shell interfaces to administer your Linux computer. CSLO 3
9. (Synthesis Level) Demonstrate skill in utilizing multiple interface shells, managing files and directories and administering permission levels on files and directories. CSLO 3
10. (Analysis Level) Experiment with administration task options in controlling files systems, log files, printers' software and users. CSLO 4
11. (Comprehension Level) Describe hardware redundancy and fault tolerance in Linux. CSLO 3
12. (Synthesis Level) Demonstrate use of command-line and graphical utilities to perform remote administration. CSLO 3
13. (Synthesis Level) Configure a network interface to use TCP/IP and TCP/IP routing. CSLO 3

CIS216 - Java Programming

General

Division
Business & Computer Technology Division

Course Description
Thorough coverage of class construction, inheritance, Applets Exception Handling, String Buffer class, and JavaFX objects-oriented techniques. Course is also appropriate for those building on experiences in another programming language. May lead to Sun Program Developer Certification. S/U grading option available.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe numeric data types and variables. (CSLO 2)
2. (Comprehension Level) Discuss characters, strings, arrays, and string buffer class variable types.
3. (Analysis Level) Examine and explain methods, classes, objects, and advanced object techniques. (CSLO 2)
4. (Synthesis Level) Develop and implement a Java Applet to provide interactive features for a given web application.
5. (Analysis Level) Examine inheritance concepts. (CSLO 4)
6. (Comprehension Level) Describe GUI components. (CSLO 2)
7. (Application Level) Demonstrate input and selection methods. (CSLO 3)
8. (Application Level) Use layout managers and the event model.
9. (Evaluation Level) Evaluate exception handling instances. (CSLO 4)
10. (Analysis Level) Examine and explain file input and output functions. (CSLO 2)
11. (Synthesis Level) Create multithread and animation.
12. (Application Level) Apply documentation techniques throughout the program development cycle. (CSLO 2)
13. (Synthesis Level) Create Java solutions for given business problems that apply the structural features of Java programming which include objects, classes, methods, inheritance, and input/output functions. (CSLO 3)

CIS218 - C++ Programming

General

Division
Business & Computer Technology Division

Course Description
Comprehensive coverage of C++ programming and data structure topics through a problem-solving approach. May lead to IBM Developer Certification. S/U grading option available. Prerequisites: CIS123.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe numeric data types and variables.
2. (Application Level) Apply programming and decision-making techniques in designing a C++ solution to an application.
3. (Analysis Level) Examine input with strings and functions.
4. (Application Level) Demonstrate repetition techniques in programming.
5. (Synthesis Level) Create user-defined data types and functions.
6. (Application Level) Apply recursion methodology.
7. (Synthesis Level) Create records, class inheritance, lists, linked lists with pointers, overload functions, stacks and queues.
8. (Analysis Level) Differentiate records and classes.
9. (Comprehension Level) Describe searching and sorting techniques.
10. (Analysis Level) Organize data in a binary search tree for searching and sorting in a database.
11. (Comprehension Level) Explain inserting and deleting items in a binary search tree.
12. (Synthesis Level) Develop documentation techniques.

Course Requisites

CIS225 - Practical Applications in CyberSecurity

General

Division
Business & Computer Technology Division

Course Description
A study of cyber security that integrates knowledge gained through previous coursework and experience and builds on that conceptual foundation through integrative analysis, practical application, and critical thinking. The goal is to protect an organization's critical information and assets by ethically integrating cyber security best practices and risk management throughout an enterprise. Emerging issues in cyber security are considered. Provides extensive hands-on exercises to reinforce key course concepts.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate an understanding of balancing security needs, available resources, and user requirements. (CSLO 3)
2. (Knowledge Level) Identify the appropriate methodologies for use in normal network maintenance activities. (CSLO 2)
3. (Application Level) Demonstrate appropriate responses to various attack vectors and methodologies. (CSLO 3)
4. (Synthesize Level) Create appropriate plans for the use of firewalls. (CSLO 2)
5. (Application Level) Identify and implement the key components of a secure operating system. (CSLO 2)
6. (Application Level) Implement continuous monitoring and provide real-time security solutions. (CSLO 3)
7. (Analysis Level) Analyze advanced persistent threats and deploy countermeasures, and conduct risk and vulnerability assessments of planned and installed information systems. (CSLO 4)
8. (Synthesize Level) Formulate, update, and communicate short- and long-term organizational cyber security strategies and policies. (CSLO 4)

CIS231 - Object Oriented Programming and Data Structures

General

Division
Business & Computer Technology Division

Course Description
Topics include stacks and queues, recursion, lists, binary search trees, iteration over collections, hashing, searching, sorting algorithms, Big-O notation, and standard collection classes. Also included is an overview of advanced topics. May lead to Oracle Program Developer Certification. Satisfactory/Unsatisfactory grading option available. Prerequisite: CIS216.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop programs that declare and use interface types. (CSLO 3)
2. (Application Level) Use object-oriented design techniques to build complex programs. (CSLO 3)
3. (Application Level) Implement simple recursive algorithms. (CSLO 3)
4. (Application Level) Implement simple sorting algorithms, such as insertion sort and selection sort. (CSLO 3)
5. (Application Level) Implement the sequential search and binary search algorithms. (CSLO 3)
6. (Application Level) Use the collection classes supplied in the Java library. (CSLO 3)
7. (Application Level) Use and work with basic structures such as linked lists, stacks, queues, binary search trees, and iterators. (CSLO 3)
8. (Evaluation Level) Compare and contrast the relative estimates of the running time of alternative algorithms using big-O estimates. (CSLO 4)
9. (Comprehension Level) Understand and explain the objective of generic programming. (CSLO 2)
10. (Comprehension Level) Discuss the use of streams in a program. (CSLO 2)
11. (Application Level) Use layout managers to arrange user-interface components in a container. (CSLO 3)
12. (Synthesis Level) Create simple Graphical User Interfaces. (CSLO 3)
13. (Comprehension Level) Understand and explain when to use sequential and random file access. (CSLO 2)
14. (Synthesis Level) Create multi-threaded and Client/Server programs. (CSLO 3)
15. (Synthesis Level) Develop programs that insert, update, and query data in a relational database. (CSLO 3)
16. (Comprehension level) Discuss ethical and social issues of the computing world. (CSLO 1)

Course Requisites

CIS233 - Web Application Dev Using PHP

General

Division
Business & Computer Technology Division

Course Description
A cutting edge Web development dedicated to covering the latest in emerging Internet and Web technologies. Design and maintain interactive and dynamic Web applications with the server-based scripting language PHP/MySQL. Prerequisites: CIS112, CIS123.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate how Data Types and Operators are used in PHP. (CSLO #3)
2. (Application Level) Use Functions and Control Structures in PHP. (CSLO #3)
3. (Application Level) Manipulate Strings in PHP. (CSLO #3)
4. (Synthesis Level) Assemble Arrays in PHP. (CSLO #3)
5. (Application Level) Demonstrate Object-Oriented PHP development to solve a specified e-commerce Web application. (CSLO #3)
6. (Synthesis Level) Create databases using MySQL. (CSLO #3)
7. (Synthesis Level) Modify MySQL databases with PHP. (CSLO #3)
8. (Synthesis Level) Manage state information. (CSLO # 1)
9. (Analysis Level) Analyze secure coding issues. (CSLO #4)
10. (Synthesis Level) Develop necessary documentation for the developed applications. (CSLO #3)

Course Requisites

CIS252 - Windows Network Infrastructure

General

Division
Business & Computer Technology Division

Course Description
Windows networking class where students learn about and complete hands-on labs to configure multiple servers in a network using currently supported operating systems. Topics covered include Active Directory configuration, DNS naming services, connectivity and security services, managing IP routing, remote access, IP security, network address translation and virtual private networking. May lead to Microsoft Certification.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe Windows networking. (CSLO 2)
2. (Application Level) Examine and implement Windows computers following naming conventions and deploying security services. (CSLO 3)
3. (Application Level) Install and configure network protocols including DHCP and TCP/IP. (CSLO 3)
4. (Synthesis Level) Combine & configure Active Directory, DNS & DHCP to work together properly. (CSLO 3)
5. (Application Level) Install and manage Internet naming services. (CSLO 3)
6. (Synthesis Level) Manage IP routing. (CSLO 3)
7. (Application Level) Install and configure remote services. (CSLO 3)
8. (Synthesis Level) Configure virtual private networking (VPN) connectivity.
9. (Application Level) Installation and configuration of a network client computer. (CSLO 3)
10. (Synthesis Level) Configured network address translation (NAT) settings. (CSLO 4)
11. (Application Level) Demonstrate Server Core configuration commands. (CSLO 3)

Course Requisites

CIS253 - Windows Server Identity

General

Division
Business & Computer Technology Division

Course Description
Install, configure, secure, and manage the identity services using the functionality and tools within the Microsoft Server. May lead to Microsoft certification. Prerequisite: CIS252.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Install Active Directory Domain Services (AD DS). (CSLO 2)
2. (Application Level) Configure Active Directory Domain Services (AD DS). (CSLO 2,4)
3. (Synthesis Level) Manage and maintain Active Directory Domain Services (AD DS). (CSLO 2,4)
4. (Synthesis Level) Implement Group Policy Objects (GPOs). (CSLO 2)
5. (Synthesis Level) Implement and manage Active Directory Certificate Services (AD CS). (CSLO 2)
6. (Synthesis Level) Implement and manage Active Directory Federations Services (AD FS). (CSLO 2)
7. (Synthesis Level) Implement and manage Active Directory Rights Management Services (AD RMS). (CSLO 2)
8. (Synthesis Level) Implement and manage Web Application proxy. (CSLO 2)

CIS263 - Cloud Operations

General

Division
Business & Computer Technology Division

Course Description
Solving problems and troubleshooting various scenarios; creating automatable and repeatable deployments of cloud networks and systems, configuring and deploying various cloud services, and building a variety of infrastructures. Prerequisite: CIS210.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understand Level) Describe cloud infrastructure as it relates to system operations, such as global infrastructure, core services, and account security. (CSLO 2)
2. (Apply Level) Use the Command Line Interface and other administration and development tools. (CSLO 4)
3. (Analyze Level) Manage, secure, and scale compute instances, configurations, and databases.(CSLO 4)
4. (Understand Level) Identify container services and services that are available for server less computing.(CSLO 2)
5. (Apply Level) Build virtual private networks.(CSLO 4)
6. (Create Level) Configure and manage storage options.(CSLO 2)
7. (Evaluate Level) Rate various infrastructure-monitoring tools.(CSLO 2)
8. (Analyze Level) Calculate and manage resource consumption.(CSLO 4)
9. (Create Level) Create and configure automated and repeatable deployments. (CSLO 2)

Course Requisites

CIS273 - Network Defense

General

Division
Business & Computer Technology Division

Course Description
Cybersecurity principles and techniques. Topics include the tools and tactics used in assessing the security posture of computer networks; the steps involved in a penetration testing methodology-network footprinting and discovery, service enumeration, attack vector evaluation, and vulnerability assessments; and the legal and ethical issues raised by penetration testing. Prerequisite: CIS130.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain how to obtain login credentials using social engineering, reconnaissance, and internet tools. CSLO #1
2. (Understanding Level) Describe active and passive scanning techniques: uses, vulnerabilities, and limitations. CSLO #2
3. (Evaluation Level) Test for vulnerabilities in Wi-Fi, Bluetooth, mobile, and Internet of Things devices, implement security measures. CSLO #1
4. (Understanding Level) Identify types of Cryptoanalysis, types of Cryptographic attacks and effective countermeasures. CSLO #4
5. (Application Level) Use system hacking tools to gain access to a network and report vulnerabilities. CSLO #4
6. (Application Level) Defend against sniffer, hijacking, and denial of service attaches. CSLO #2
7. (Evaluation Level) Evaluate Intrusion Detection Systems, firewalls, and Honeypots. CSLO #4
8. (Creative Level) Create and implement an anti-malware program. CSLO #4

Course Requisites

CIS275 - Computer Forensics & Investigation

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of Computer Forensics: the acquisition, authentication, reconstruction, examination, and analysis of data stored on electronic media. Topics include: ethics, rules of evidence, hardware and software tools, various operating systems, forensic lab setup, and the investigational process. Satisfactory/Unsatisfactory grading option available. Prerequisites: CIS119, CIS121.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Review and explain rules of evidence, as related to: seizure or acquisition of media, handling, marking and storage of electronic evidence, appropriate chain of custody, and right to privacy. (CSLO 2)
2. (Synthesis Level) Develop various recovery strategies for different types of computer investigations. (CSLO 3).
3. (Application Level) Use computer forensic tools and manual techniques to retrieve data. (CSLO 3)
4. (Analysis Level) Apply various data recovery protocols on MS Windows, DOS, Macintosh, Unix, and Linux operating systems. (CSLO 3)
5. (Analysis Level) Differentiate between the recovery of images and data. (CSLO 2)
6. (Synthesis Level) Create and implement a network forensic plan. (CSLO 4)
7. (Synthesis Level) Create forensic investigation plans and demonstrate e-mail, social media, and cloud investigation techniques, per given case studies. (CSLO 4)
8. (Comprehension Level) Explain how to approach investigating social media communications. (CSLO 2)
9. (Comprehension Level) Explain standard procedures for conducting forensic analysis of virtual machines. (CSLO 2)

Course Requisites

CIS1146 - VMWare Deployment

General

Division
Business & Computer Technology Division

Course Description
No description.

Total Number Of Credits:
3

CIS23120 - Object Oriented Programming/Data Structures

General

Division
Business & Computer Technology Division

Course Description
Topics include stacks and queues, recursion, lists, binary search trees, iteration over collections, hashing, searching, sorting algorithms, Big-O notation, and standard collection classes. Also included is an overview of advanced topics. May lead to Oracle Program Developer Certification. Prerequisite: CIS216.

Total Number Of Credits:
4

CIS150SU22 - Windows Server

General

Division
Business & Computer Technology Division

Course Description
A study of a currently active and deployed Microsoft server network operating system including Active Directory, security policy, group policies, Internet Information Server (IIS), configure Domain Name Services (DNS), file and print services, and building trust relationship between servers. May lead to Microsoft Certification. Satisfactory/Unsatisfactory grading option available. Prerequisite: CIS120 and CIS121.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Compare different network topologies and their structures. CSLO 4 2. (Application Level) Install a dominantly deployed version of Windows server. CSLO 3 3. (Application Level) Configure Active Directory in a dominantly deployed of Windows server. CSLO 3 4. (Synthesis Level) Create and modify user accounts and server policies. CSLO 3 5. (Analysis Level) Configure group policies. CSLO 3 6. (Application Level) Examine server domain configuration options and establish a new computer forest and domain. 7. (Application Level) Complete DNS Configuration on a dominantly deployed version of Windows server. CSLO 3 8. (Application Level) Demonstrate configuring a DHCP server. CSLO 3 9. (Application Level) Implement active directory certificates. CSLO 3 10. (Synthesis Level) Configure a trust relationship between servers. CSLO 3 11. (Evaluation Level) Complete network configuration settings for proper network functionality. CSLO 3 12. (Synthesis Level) Practice troubleshooting processes and run appropriate reports to get information to resolve common server configuration errors. CSLO 4

CIS213SU22 - Linux Server

General

Division
Business & Computer Technology Division

Course Description
No description.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Successfully install and configure a Linux system. CSLO 3 2. (Knowledge Level) Identify common uses of Linux in deployed business computer solutions CSLO 3 3. (Synthesis Level) Plan and create network file systems in Linux. CSLO 4 4. (Synthesis Level) Manage users, groups, login security, and system resources in Linux. CSLO 3 5. (Application Level) Recognize trust relationships and utilize appropriate commands to see file ownership assignments and file attributes. CSLO 3 6. (Synthesis Level) Create a variety of Linux processes and manage them with viewing, setting priorities, deleting processes and scheduling processes. CSLO 4 7. (Application Level) Employ the use of Linux shell scripts to execute basic command sequences. CSLO 3 8. (Application Level) Utilize both the graphical and BASH shell interfaces to administer your Linux computer. CSLO 3 9. (Synthesis Level) Demonstrate skill in utilizing multiple interface shells, managing files and directories and administering permission levels on files and directories. CSLO 3 10. (Analysis Level) Experiment with administration task options in controlling files systems, log files, printers software and users. CSLO 4 11. (Comprehension Level) Describe hardware redundancy and fault tolerance in Linux. CSLO 3 12. (Synthesis Level) Demonstrate use of command-line and graphical utilities to perform remote administration. CSLO 3 13. (Synthesis Level) Configure a network interface to use TCP/IP and TCP/IP routing. CSLO 3

Course Requisites

CIS215SU22 - CISCO CCNA Routers

General

Division
Business & Computer Technology Division

Course Description
Learn OSI internetowrking, Ethernet networking, TCP/IP, subnetting and Variable Length Subnet Masks (VLSNs) and how to design a network design using VLSNs. Learn the Cisco IOS (Internetowrking Operating System) and command-line interfaces. Develop management skills with router configurations, including statis and dynamic routing with various protocols including RIP, RIPv2, EIGRP and OSPF. May lead to CISCO CCNA (Cisco Certified Network Associate) Certification.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply basic router configuration. CSLO 3 2. (Application Level) Relate TCP/IP addressing to Cisco routers. CSLO 3 3. (Comprehension Level) Discuss IP routing concepts and configurations. CSLO 3 4. (Analysis Level) Examine WAN protocols and LAN switching methodologies. CSLO 4 5. (Comprehension Level) Describe the Configuration of frame relay. CSLO 3 6. (Synthesis Level) Manage IP addresses and broadcasts. CSLO 3 7. (Evaluation Level) Evaluate the Use OSPF protocol and the Use OSPF in multiple areas. 8. (Application Level) Configure EIGRP protocol. CSLO 3 9. (Analysis Level) Analyze route filtering and policy routing. CSLO 3 10. (Application Level) Apply routing table redistribution policy. CSLO 3 11. (Comprehension Level) Explain border gateway protocol. CSLO 3 12. (Synthesis Level) Configure and troubleshoot BGP. CSLO 3

Course Requisites

CIS225SU22 - Practical Applications in CyberSecurity

General

Division
Business & Computer Technology Division

Course Description
A study of cyber security that integrates knowledge gained through previous coursework and experience and builds on that conceptual foundation through integrative analysis, practical application, and critical thinking. The goal is to protect an organization's critical information and assets by ethically integrating cyber security best practices and risk management throughout an enterprise. Emerging issues in cyber security are considered. Provides extensive hands-on exercises to reinforce key course concepts. Prerequisites: CIS152 and CIS153.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate an understanding of balancing security needs, available resources, and user requirements. (CSLO 3) 2. (Knowledge Level) Identify the appropriate methodologies for use in normal network maintenance activities. (CSLO 2) 3. (Application Level) Demonstrate appropriate responses to various attack vectors and methodologies. (CSLO 3) 4. (Synthesize Level) Create appropriate plans for the use of firewalls. (CSLO 2) 5. (Application Level) Identify and implement the key components of a secure operating system. (CSLO 2) 6. (Application Level) Implement continuous monitoring and provide real-time security solutions. (CSLO 3) 7. (Analysis Level) Analyze advanced persistent threats and deploy countermeasures, and conduct risk and vulnerability assessments of planned and installed information systems. (CSLO 4) 8. (Synthesize Level) Formulate, update, and communicate short- and long-term organizational cyber security strategies and policies. (CSLO 4)

CIS253SU22 - Advanced Microsoft Server

General

Division
Business & Computer Technology Division

Course Description
Install, configure, secure, and manage the identity services using the functionality and tools within the Microsoft Server. May lead to Microsoft certification. Satisfactory/Unsatisfactory grading option is available. Prerequisite: CIS152.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Install Active Directory Domain Services (AD DS). (CSLO 2) 2. (Application Level) Configure Active Directory Domain Services (AD DS). (CSLO 2,4) 3. (Synthesis Level) Manage and maintain Active Directory Domain Services (AD DS). (CSLO 2,4) 4. (Synthesis Level) Implement Group Policy Objects (GPOs). (CSLO 2) 5. (Synthesis Level) Implement and manage Active Directory Certificate Services (AD CS). (CSLO 2) 6. (Synthesis Level) Implement and manage Active Directory Federations Services (AD FS). (CSLO 2) 7. (Synthesis Level) Implement and manage Active Directory Rights Management Services (AD RMS). (CSLO 2) 8. (Synthesis Level) Implement and manage Web Application proxy. (CSLO 2)

Course Requisites

CLA155 - Intro to Phlebotomy

General

Division
Clinical Lab Assistant Program

Course Description
This course is an introduction to the basic knowledge, attitude, skills and practical experience necessary for the safe and successful collection of blood samples via venipuncture using a vacutainer, butterfly, syringe, and micro collection techniques on real patients in a hospital and doctor's office setting under supervision. In addition, this course prepares students to take the national exam to become a Certified Phlebotomist, which ensures a higher standard for phlebotomy jobs. Prerequisites: Junior if graduating early or Senior in HS; High School Diploma; or GED. Recommended: Director approval

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Remembering, Evaluating) Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. *(CSLO* 2)
2. (Understanding) Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas. *(CSLO* 2)
3. (Applying) Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way. *(CSLOs* 2, 3, 4)
4. (Analyzing) Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. *(CSLOs* 3, 4)
5. (Evaluating) Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. *(CSLOs* 1, 3, 4)
6. (Creating) Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions. *(CSLOs* 1, 6)

Course Requisites

CLA169 - Clinical Laboratory Assistant Basics I

General

Division
Clinical Lab Assistant Program

Course Description
This course defines the role of the clinical laboratory assistant in the healthcare delivery system: infection control principles, safety practices, procedures to collect specimens, methods for preparing blood and body fluid specimens for analysis, and the performance of basic tests at the clinical assistant level will be discussed. An overview of quality control protocols and potential pre-analytical errors will be provided. Prerequisites: Phlebotomy Certificate and instructor consent.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
3.1 (Comprehension Level) Describe accepted practices for infection control, isolation techniques, aseptic techniques and methods for disease prevention. (CSLO 2)
3.2 (Knowledge Level) Identify and comply with federal, state and locally mandated regulations regarding safety practices. (CSLO 2)
3.21 (Application Level) Use the OSHA Universal Precaution Standards. (CSLO 2)
3.22 (Application Level) Use prescribed procedures to handle electrical, radiation, biological and fire hazards. (CSLO 2)
3.23 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standard, including the correct use of the Material Safety Data Sheet as directed. (CSLO 3)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
4.1 (Comprehension Level) Describe the circulatory, urinary, and other body systems that relate to specimen collection tasks. (CSLO 2)
4.2 (Comprehension Level) Describe the difference between whole blood, serum and plasma. (CSLO 2)
4.3 (Application Level) Describe and use blood collection equipment. (CSLO 3)
4.31 (Comprehension Level) Describe the additive by the evacuated tube color. (CSLO 2)
4.32 (Application Level) Use equipment properly to collect blood by venipuncture and capillary (skin) puncture. (CSLO 3)
4.4 (Application Level) Demonstrate collection of blood specimens by venipuncture and capillary (skin) puncture. (CSLO 3)
4.5 (Comprehension Level) Describe special precautions necessary during blood collections by venipuncture and capillary (skin) puncture. (CSLO 2)
4.6 (Application Level) Apply the criteria that lead to rejection or recollection of a patient sample. (CSLO 3)
4.7 (Comprehension Level) Describe how to explain to patients the proper collection and preservation for various samples, including: ◈blood sputum stools. (CSLO 2)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
5.1 (Application Level) Apply standard operating procedures for labeling, transport, and processing of specimens, including transport to reference laboratories. (CSLO 3)
5.2 (Comprehension Level) Describe and follow the criteria for specimens and test results that will be used as legal evidence. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
6.1 (Comprehension Level) Describe laboratory protocol for storage and suitability of reagents, standards, and controls. (CSLO 3)
6.2 (Analysis Level) Recognize and report contamination and/or deterioration in reagents, standards, and controls. (CSLO 4)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)
7.1 (Analysis Level) Compare test results to reference intervals. (CSLO 4)
7.2 (Application Level) Report results by manual method or computer according to laboratory protocol. (CSLO 3)
7.3 (Application Level) Report STAT results of completed tests according to laboratory protocol. (CSLO 3)
7.4 (Analysis Level) Recognize critical values and follow established protocol regarding reporting. (CSLO 4)
7.5 (Knowledge Level) Describe how to clean glass and plastic labware. (CSLO 2)
7.6 (Application Level) Use pipetting equipment. (CSLO 2)
7.7 (Application Level) Use measurement equipment such as beakers and flasks. (CSLO 2)
8.0 (Comprehension Level) Describe established quality control protocols to include maintenance and calibration of equipment. (CSLO 2)
8.1 (Application Level) Demonstrate quality control procedures. (CSLO 3)
8.2 (Application Level) Report quality control results. (CSLO 3)
8.3 (Application Level) Report control results that do not meet pre-determined criteria. (CSLO 3)
9.0 (Application Level) Demonstrate effective and appropriate communication (verbal and non-verbal)in workplace settings. (CSLO 1)
9.1 (Synthesis Level) Reinforce confidentiality of privileged information on individuals. (CSLO 2).
9.2 (Comprehension Level) Discuss the value of diversity in the workplace. (CSLO 1)
9.3 (Application Level) Demonstrate appropriate and professional interaction with other individuals. (CSLO 1)
9.4 (Application Level) Demonstrate professional appearance and appropriate work behaviors. (CSLO 1)

9.5 (Application Level) Apply written and verbal instructions in carrying out testing procedures. (CSLO 1)
10.0 (Application Level) Use information systems necessary to accomplish job functions. (CSLO 3) 11.0 (Application Level) Report potential pre-analytical errors that may occur during specimen collection, labeling, transporting and/or processing. (CSLO 4)

Course Requisites

CLA170 - Clinical Laboratory Assistant Basics II

General

Division
Clinical Lab Assistant Program

Course Description
An introduction to the basics of six areas of the clinical laboratory: Immunology, Clinical Chemistry, and Donor Room (collection, screening, and component processing) are discussed as well as a focus on specific Hematology, Urinalysis, and Microbiology testing at the clinical assistant level. Prerequisite: CLA169.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Chemistry Learning Outcomes:
1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
3.1 (Comprehension Level) Describe accepted practices for infection control, isolation techniques, aseptic techniques and methods for disease prevention. (CSLO 2)
3.2 (Knowledge Level) Identify and comply with federal, state and locally mandated regulations regarding safety practices. (CSLO 2)
3.21 (Application Level) Use the OSHA Universal Precaution Standards. (CSLO 2)
3.22 (Application Level) Use prescribed procedures to handle electrical, radiation, biological and fire hazards. (CSLO 2)
3.23 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standard, including the correct use of the Material Safety Data Sheet as directed. (CSLO 3)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
4.1 (Comprehension Level) Describe the circulatory, urinary, and other body systems that relate to specimen collection tasks. (CSLO 2)
4.2 (Comprehension Level) Describe the difference between whole blood, serum and plasma. (CSLO 2)
4.3 (Application Level) Describe and use blood collection equipment. (CSLO 3)
4.31 (Comprehension Level) Describe the additive by the evacuated tube color. (CSLO 2)
4.32 (Application Level) Use equipment properly to collect blood by venipuncture and capillary (skin) puncture. (CSLO 3)
4.4 (Application Level) Demonstrate collection of blood specimens by venipuncture and capillary (skin) puncture. (CSLO 3)
4.5 (Comprehension Level) Describe special precautions necessary during blood collections by venipuncture and capillary (skin) puncture. (CSLO 2)
4.6 (Application Level) Apply the criteria that lead to rejection or recollection of a patient sample. (CSLO 3)
4.7 (Comprehension Level) Describe how to explain to patients the proper collection and preservation for various samples, including: blood sputum stools. (CSLO 2)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
5.1 (Application Level) Apply standard operating procedures for labeling, transport, and processing of specimens, including transport to reference laboratories. (CSLO 3)
5.2 (Comprehension Level) Describe and follow the criteria for specimens and test results that will be used as legal evidence. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
6.1 (Comprehension Level) Describe laboratory protocol for storage and suitability of reagents, standards, and controls. (CSLO 3)
6.2 (Analysis Level) Recognize and report contamination and/or deterioration in reagents, standards, and controls. (CSLO 4)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)
7.1 (Analysis Level) Compare test results to reference intervals. (CSLO 4)
7.2 (Application Level) Report results by manual method or computer according to laboratory protocol. (CSLO 3)
7.3 (Application Level) Report STAT results of completed tests according to laboratory protocol. (CSLO 3)
7.4 (Analysis Level) Recognize critical values and follow established protocol regarding reporting. (CSLO 4)
7.5 (Knowledge Level) Describe how to clean glass and plastic lab ware. (CSLO 2)
7.6 (Application Level) Use pipetting equipment. (CSLO 2)
7.7 (Application Level) Use measurement equipment such as beakers and flasks. (CSLO 2)
8.0 (Comprehension Level) Describe established quality control protocols to include maintenance and calibration of equipment. (CSLO 2)

Draw Room Collection/Screening and Component Processing Learning Outcomes:
1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
3.1 (Comprehension Level) Describe accepted practices for infection control, isolation techniques, aseptic techniques and methods for disease prevention. (CSLO 2)
3.2 (Knowledge Level) Identify and comply with federal, state and locally mandated regulations regarding safety practices. (CSLO 2)
3.21 (Application Level) Use the OSHA Universal Precaution Standards. (CSLO 2)

3.22 (Application Level) Use prescribed procedures to handle electrical, radiation, biological and fire hazards. (CSLO 2)
3.23 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standard, including the correct use of the Material Safety Data Sheet as directed. (CSLO 3)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
4.1 (Comprehension Level) Describe the circulatory, urinary, and other body systems that relate to specimen collection tasks. (CSLO 2)
4.2 (Comprehension Level) Describe the difference between whole blood, serum and plasma. (CSLO 2)
4.3 (Application Level) Describe and use blood collection equipment. (CSLO 3)
4.31 (Comprehension Level) Describe the additive by the evacuated tube color. (CSLO 2)
4.32 (Application Level) Use equipment properly to collect blood by venipuncture and capillary (skin) puncture. (CSLO 3)
4.4 (Application Level) Demonstrate collection of blood specimens by venipuncture and capillary (skin) puncture. (CSLO 3)
4.5 (Comprehension Level) Describe special precautions necessary during blood collections by venipuncture and capillary (skin) puncture. (CSLO 2)
4.6 (Application Level) Apply the criteria that lead to rejection or recollection of a patient sample. (CSLO 3)
4.7 (Comprehension Level) Describe how to explain to patients the proper collection and preservation for various samples, including: blood sputum stools. (CSLO 2)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
5.1 (Application Level) Apply standard operating procedures for labeling, transport, and processing of specimens, including transport to reference laboratories. (CSLO 3)
5.2 (Comprehension Level) Describe and follow the criteria for specimens and test results that will be used as legal evidence. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
6.1 (Comprehension Level) Describe laboratory protocol for storage and suitability of reagents, standards, and controls. (CSLO 3)
6.2 (Analysis Level) Recognize and report contamination and/or deterioration in reagents, standards, and controls. (CSLO 4)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)

Hematology Learning Outcomes:
1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)
8.0 (Comprehension Level) Describe established quality control protocols to include maintenance and calibration of equipment. (CSLO 2)

Immunology Learning Outcomes:
1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)
8.0 (Comprehension Level) Describe established quality control protocols to include maintenance and calibration of equipment. (CSLO 2)

Microbiology Learning Outcomes:
1.0 (Knowledge Level) Define the role of the clinical assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Use common medical terminology. (CSLO 2)
3.0 (Comprehension Level) Describe infection control and safety practices. (CSLO 2)
4.0 (Application Level) Demonstrate standard operating procedures to collect specimens. (CSLO 3)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 3)
6.0 (Application Level) Prepare and reconstitute reagents, standards, and controls according to standard operating procedure. (CSLO 3)
7.0 (Application Level) Demonstrate appropriate tests at the clinical assistant level, according to standard operating procedures. (CSLO 3)
8.0 (Comprehension Level) Describe established quality control protocols to include maintenance and calibration of equipment. (CSLO 2)
9.0 (Application Level) Demonstrate effective and appropriate communication (verbal and non-verbal) in workplace settings. (CSLO 1)
10.0 (Application Level) Use information systems necessary to accomplish job functions. (CSLO 3) 11.0 (Application Level) Report potential pre-analytical errors that may occur during specimen collection, labeling, transporting and/or processing. (CSLO 4)

Urinalysis Learning Outcomes:
1.0 (Application Level) Use common urinalysis terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 2)
2.0 (Application Level) Prepare, store, dispose of and properly transport specimens for urinalysis testing according to standard operating procedure. (CSLO 2)
3.0 (Application Level) Instruct patients in the proper collection and preservation for various urine samples, including: mid-stream, random, clean catch, timed collections, collections for drug screening, urine pregnancy tests. (CSLO 2)
4.0 (Evaluation Level) Decide suitability of specimens for urinalysis procedures related to: the test requested appropriate patient preparation/method of collection time of collection/processing storage, interfering substances. (CSLO 2)
5.0 (Application Level) Prepare reagents, standards and controls for urinalysis testing. (CSLO 2) 6.0 (Application Level) Prepare slides for microscopic examination. (CSLO 2)
7.0 (Application Level) Demonstrate urinalysis tests at the clinical assistant level. (CSLO 3)
8.0 (Analysis Level) Recognize technical errors for each test performed. (CSLO 4)

9.0 (Application Level) Report results of tests using pre-determined criteria. (CSLO 4)
10.0 (Application Level) Demonstrate pre-determined quality control procedures for urinalysis tests, including maintenance and instrument calibration. (CSLO 3)
11.0 (Application Level) Demonstrate inventory control and maintain supplies for urinalysis testing. (CSLO 3)

Course Requisites

CLA175 - Clinical Laboratory Assistant Practicum

General

Division
Clinical Lab Assistant Program

Course Description
Practical experience of 135 hours under the supervision of a laboratory technologist performing a variety of clinical skills including phlebotomy, waived testing, basic procedures, documentation, and the use of information systems. Students must receive a grade of C or better to pass this course. Students who fail will not be allowed to repeat this course. Students who withdraw with instructor's permission may retake this course only once with instructor permission. Prerequisites: Phlebotomy certificate; all program courses must be successfully completed before enrollment; mandatory requirements specific to CLA175 must be met before enrollment; Instructor consent.

Total Number Of Credits:
3

Lab Credits
9

Practicum Credits
3

Internship Credits
3

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Define the role of the clinical laboratory assistant in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. *(CSLO 2)*
2.0 (Application Level) Use common medical terminology. *(CSLO 2)*
3.0 (Application Level) Demonstrate knowledge of infection control and safety practices. *(CSLO 3)*
3.1 (Application Level) Demonstrate accepted practices for infection control, isolation techniques, aseptic techniques and methods for disease prevention. *(CSLO 3)*
3.2 (Synthesis Level) Incorporate the mandated regulations with federal, state and local guidelines regarding all the safety practices required by NAACLS. *(CSLO 3)*
3.2.1 (Application Level) Observe the OSHA Blood Borne Pathogens Standard and Needle Safety Precaution Act. *(CSLO* 3)
3.2.2 (Application Level) Use prescribed procedures to handle electrical, radiation, biological and fire hazards. *(CSLO 3)*
3.2.3 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standards, including the correct use of the Material Safety Data Sheet, as directed. *(CSLO 3)*
4.0 (Application Level) Follow standard operating procedures to collect specimens. *(CSLO 3)*
4.1 (Synthesis Level) Perform assigned specimen collection tasks incorporating knowledge of the circulatory, urinary and other body systems. *(CSLO 3)*
4.2 (Analysis Level) Examine and explain the difference between whole blood, serum and plasma. *(CSLOs 2, 3, 4)*
4.3 (Application Level) Identify and use blood collection equipment. *(CSLO 3)*
4.31 (Evaluation Level) Evaluate and identify the additive by the evacuated tube color. *(CSLOs 3, 4)*
4.32 (Application Level) Identify and properly use equipment needed to collect blood by venipuncture and capillary (dermal) puncture. *(CSLO 3)*
4.4 (Application Level) Collect blood specimens by venipuncture. *(CSLO 3)*
4.5 (Application Level) Collect blood specimens by capillary (dermal) puncture. *(CSLO* 3)
4.6 (Knowledge Level) Identify special precautions necessary during blood collections by venipuncture and capillary (dermal) puncture. *(CSLO 3)*
4.7 (Application Level) List and apply the criteria that would lead to rejection or recollection of a patient sample. *(CSLO 3)*
4.8 (Synthesis Level) Instruct patients in the proper collection and preservation of non-blood samples. *(CSLO 3)*
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. *(CSLO 3)*
5.1 (Synthesis Level) Follow standard operating procedures for labeling, transporting and processing of specimens, including transport to reference laboratories. *(CSLO 3)*
5.2 (Synthesis Level) Follow the criteria for reporting specimens and test results that will be used as legal evidence. *(CSLO 3)*
6.0 (Application Level) Prepare/reconstitute reagents, standards and controls according to standard operating procedures. *(CSLO 3)*
6.1 (Analysis Level) Follow laboratory protocol for storage and suitability of reagents, standards, and controls. *(CSLOs 2, 4)*
6.2 (Synthesis Level) Recognize and report contamination and/or deterioration in reagents, standards and controls. *(CSLOs 2, 3, 4)*
7.0 (Synthesis Level) Perform appropriate tests at the clinical laboratory assistant level, according to standard operating procedures. *(CSLO 3)*
7.1 (Synthesis Level) Identify and report potential pre-analytical errors that may occur during specimens collection, labeling, transporting, and processing. *(CSLOs 3, 4)*
7.2 (Evaluation Level) Compare and evaluate test results to reference intervals. *(CSLOs 2, 3, 4)*
7.3 (Synthesis Level) Record results by manual method or use of computer program according to laboratory protocol. *(CSLO 3)*
7.4 (Synthesis Level) Report STAT results of completed test according to laboratory protocol. *(CSLO 3)*
7.5 (Synthesis Level) Recognize critical values and follow established protocol regarding reporting. *(CSLO 3)*
7.6 (Application Level) Use and handle measurement equipment appropriately. *(CSLO 3)*
9.0 (Synthesis Level) Follow established quality control protocols to include maintenance and calibration of equipment. *(CSLO 3)*
9.1 (Synthesis Level) Perform quality control procedures. *(CSLO 3)*
9.2 (Synthesis Level) Record quality control results. *(CSLO 3)*
9.3 (Synthesis Level) Identify and report control results that do not meet pre-determined criteria. *(CSLOs 3, 4)*

10.0 (Application Level) Communicate (verbally and non-verbally) effectively and appropriately in the workplace. *(CSLO 3)*
10.1 (Application Level) Demonstrate confidential expectations of privileged information for individuals. *(CSLO 3)*
10.2 (Evaluation Level) Evaluate and defend the value of diversity in the workplace. *(CSLOs 1, 3)*
10.3 (Application Level) Demonstrate appropriate and professional interaction when working with other individuals. *(CSLO 3)*
10.4 (Analysis Level) Exam and discuss the major points of the American Hospital Association Patients Bill of Rights and the Patients Bill of Rights from the Institution. *(CSLOs 1, 3, 4)*
10.5 (Application Level) Demonstrate professional appearance and appropriate work behaviors. *(CSLO 3)*
10.6 (Application Level) Apply written and verbal instructions in carrying out testing procedures. *(CSLOs 2, 3)*
11.0 (Application Level) Use information systems necessary to accomplish job functions. *(CSLO 2)*
12.0 (Synthesis Level) Record data using the appropriate form when documenting potential pre-analytical errors that may occur during specimen collection, labeling, transporting, and/or processing. *(CSLOs 2, 4)*

Course Requisites

CLA255 - Phlebotomy Practicum

General

Division
Clinical Lab Assistant Program

Course Description
This course is an introduction to the basic knowledge, attitude, skills and practical experience necessary for the safe and successful collection of blood samples via venipuncture using a vacutainer, butterfly, syringe, and micro collection techniques on real patients in a hospital or doctor's office setting under supervision. This course prepares students to take the national exam in becoming a Certified Phlebotomist, which insures a higher standard for phlebotomy jobs. Corequisite: CLA155.

Total Number Of Credits:
3

Practicum Credits
3

Other Credit Information
3 Practica total 135 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate procedures for infection control and safety. (CSLO 2)
2. (Application Level) Demonstrate proper use of safety equipment and implications that may affect performance. (CSLO 3)
3. (Application Level) Demonstrate venipuncture and capillary puncture techniques. (CSLO 2)
4. (Comprehension Level) Explain puncture techniques. (CSLO 2)
5. (Comprehension Level) Describe requisitioning, specimen transport and processing. (CSLO 2)
6. (Application Level) Demonstrate quality assurance practices in phlebotomy. (CSLO 4)

Course Requisites

CNA125 - Nursing Assistant

General

Division
Nursing Division

Course Description
Entry-level nursing skills, supervised clinical experience, and basic anatomy, physiology, nutrition, and medical terminology pertinent to nursing assistants in nursing homes or hospitals. Potential students convicted of a felony may not apply for state certification or licensure until three years after the absolute discharge of sentence. All court-ordered terms of probation or parole must be completed at least three years prior to the date of application. Students are required to have criminal background check, health and drug screening, and AHA BLS Provider Level CPR. Prerequisites: HS diploma or GED, Proof of Legal presence. Recommended: MAT087 or appropriate test score, and RDG100.

Total Number Of Credits:
7

Lecture Credits
6

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the role and career opportunities for the Nursing Assistant, consumer rights and responsibilities in health care, and ethical and legal issues affecting the Nursing Assistant. 2. (Comprehension Level) Describe the expanded role of the Nursing Assistant in rehabilitation and restorative services, obstetrical and neonate clients, pediatric clients, and related special procedures. 3. (Application Level) Demonstrate communication and interpersonal skills including observation, relating to clients, reporting, documentation, and nursing team member skills (CSLO 1,2,3,4) 4. (Application Level) Apply knowledge of anatomy & physiology, medical terminology, body organization, common disorders and diseases, and related care procedures for all body systems. (CSLO 2) 5. (Application Level) Demonstrate basic nursing skills including vital signs, height and weight, and bed making. (CSLO 2) 6. (Application Level) Demonstrate personal care skills including client bathing and general comfort measures. 7. (Application Level) Demonstrate special care procedures including warm and cold applications, assisting with physical examinations, care of surgical clients, care of emotionally stressed and dying clients. 8. (Application Level) Demonstrate safety, body mechanics, and mobility including environment safety, nursing assistant safety, client safety and positioning, transfer skills and client ambulation. (CSLO 1,2,3) 9. (Application Level) Demonstrate medical asepsis and infection control. (CSLO 1,2) 10. (Application Level) Demonstrate care of the elderly, chronically ill, subacute client, and the cognitively impaired client. (CSLO 1,2,3) 11. (Comprehension Level) Explain individual client's need for independence and methods to accomplish this in daily care. 12. (Comprehension Level) Explain individual client needs including age-specific mental health and social service needs. 13. (Comprehension Level) Explain the client's rights such as right to confidentiality, right to privacy, and right to be free from abuse, mistreatment, and neglect. 14. (Comprehension Level) Explain the right to report abuse, mistreatment, and neglect to appropriate staff. (CSLO 2 15. (Comprehension Level) Explain appropriate responses to basic emergencies. (Prerequisite is Healthcare Provider Level CPR.) 16. (Comprehension Level) Explain nutritional needs and diet modifications for various medical conditions. 17. (Application Level) Demonstrate admission, transfer, and discharge procedures of clients.

Course Requisites

CNA125A - Nursing Assistant Advanced Placement

General

Division
Nursing Division

Course Description
Entry-level nursing skills, supervised clinical experience, and basic anatomy, physiology, nutrition, and medical terminology pertinent to nursing assistants in nursing homes or hospitals. This course is specifically for qualified healthcare workers who want to earn the additional certification and gain entry into a nursing program. Review and Approval of completed coursework sent to D&S testing when all requirements have been met. The student is then eligible to sit for the nursing assistant certification examination and to take the practical examination. Prerequisites: HS diploma or GED, Healthcare Provider Level CPR. Recommended: MAT087 or appropriate test score, and RDG100.

Specific admission criteria include:
1. At least one (1) year full-time employment in the direct provision of health care within five (5) years OR successful completion of course work that includes direct patient care experiences in allied health, medicine, or nursing in the past five (5) years.
2. Meeting the same course outcomes as the traditional course by taking all examinations and completing all skills demonstrations.
3. Successful completion of all clinical objectives during a 16-hour clinical rotation, under direct supervision and observation of a qualified RN instructor, in a long-term care facility.

Total Number Of Credits:
6

Lecture Credits
5

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the role and career opportunities for the Nursing Assistant, consumer rights and responsibilities in health care, and ethical and legal issues affecting the Nursing Assistant. 2. (Comprehension Level) Describe the expanded role of the Nursing Assistant in rehabilitation and restorative services, obstetrical and neonate clients, pediatric clients, and related special procedures. 3. (Application Level) Demonstrate communication and interpersonal skills including observation, relating to clients, reporting, documentation, and nursing team member skills (CSLO 1,2,3,4) 4. (Application Level) Apply knowledge of anatomy & physiology, medical terminology, body organization, common disorders and diseases, and related care procedures for all body systems. (CSLO 2) 5. (Application Level) Demonstrate basic nursing skills including vital signs, height and weight, and bed making. (CSLO 2) 6. (Application Level) Demonstrate personal care skills including client bathing and general comfort measures. 7. (Application Level) Demonstrate special care procedures including warm and cold applications, assisting with physical examinations, care of surgical clients, care of emotionally stressed and dying clients. 8. (Application Level) Demonstrate safety, body mechanics, and mobility including environment safety, nursing assistant safety, client safety and positioning, transfer skills and client ambulation. (CSLO 1,2,3) 9. (Application Level) Demonstrate medical asepsis and infection control. (CSLO 1,2) 10. (Application Level) Demonstrate care of the elderly, chronically ill, subacute client, and the cognitively impaired client. (CSLO 1,2,3) 11. (Comprehension Level) Explain individual client's need for independence and methods to accomplish this in daily care. 12. (Comprehension Level) Explain individual client needs including age-specific mental health and social service needs. 13. (Comprehension Level) Explain the client's rights such as right to confidentiality, right to privacy, and right to be free from abuse, mistreatment, and neglect. 14. (Comprehension Level) Explain the right to report abuse, mistreatment, and neglect to appropriate staff. (CSLO 2 15. (Comprehension Level) Explain appropriate responses to basic emergencies. (Prerequisite is Healthcare Provider Level CPR.) 16. (Comprehension Level) Explain nutritional needs and diet modifications for various medical conditions. 17. (Application Level) Demonstrate admission, transfer, and discharge procedures of clients.

Course Requisites

CNA135 - Nursing Assistant

General

Division
Nursing Division

Course Description
Entry-level nursing skills, supervised clinical experience, and basic anatomy, physiology, nutrition, and medical terminology pertinent to nursing assistants in nursing homes or hospitals. Potential students convicted of a felony may not apply for state certification or licensure until three years after the absolute discharge of sentence. All court-ordered terms of probation or parole must be completed at least three years prior to the date of application. Students are required to complete a criminal background check, health screening, and drug screening. A positive result requires a meeting with the Director of Nursing and can lead to dismissal from course. AHA BLS Provider Level CPR, and immunizations required per clinical facility direction. Recommended: RDG100 or appropriate test score. Prerequisites: HS diploma or GED; Proof of Legal presence; driver license (or official state identification); basic written and oral skills.

Total Number Of Credits:
4.5

Lecture Credits
3

Lab Credits
5

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the role and career opportunities for the Nursing Assistant, consumer rights and responsibilities in health care, and ethical and legal issues affecting the Nursing Assistant.

2. (Comprehension Level) Describe the expanded role of the Nursing Assistant in rehabilitation and restorative services, obstetrical and neonate clients, pediatric clients, and related special procedures.

3. (Application Level) Demonstrate communication and interpersonal skills including observation, relating to clients, reporting, documentation, and nursing team member skills (CSLO 1,2,3,4)

4. (Application Level) Apply knowledge of anatomy & physiology, medical terminology, body organization, common disorders and diseases, and related care procedures for all body systems. (CSLO 2)

5. (Application Level) Demonstrate basic nursing skills including vital signs, height and weight, and bed making. (CSLO 2)

6. (Application Level) Demonstrate personal care skills including client bathing and general comfort measures.

7. (Application Level) Demonstrate special care procedures including warm and cold applications, assisting with physical examinations, care of surgical clients, care of emotionally stressed and dying clients.

8. (Application Level) Demonstrate safety, body mechanics, and mobility including environment safety, nursing assistant safety, client safety and positioning, transfer skills and client ambulation. (CSLO 1,2,3)

9. (Application Level) Demonstrate medical asepsis and infection control. (CSLO 1,2)

10. (Application Level) Demonstrate care of the elderly, chronically ill, subacute client, and the cognitively impaired client. (CSLO 1,2,3)

11. (Comprehension Level) Explain individual client's need for independence and methods to accomplish this in daily care.

12. (Comprehension Level) Explain individual client needs including age-specific mental health and social service needs.

13. (Comprehension Level) Explain the client's rights such as right to confidentiality, right to privacy, and right to be free from abuse, mistreatment, and neglect.

14. (Comprehension Level) Explain the right to report abuse, mistreatment, and neglect to appropriate staff. (CSLO 2)

15. (Comprehension Level) Explain appropriate responses to basic emergencies. (Prerequisite is Healthcare Provider Level CPR.)

16. (Comprehension Level) Explain nutritional needs and diet modifications for various medical conditions.

17. (Application Level) Demonstrate admission, transfer, and discharge procedures of clients.

Course Requisites

COM100 - Fundamentals of Human Communication

General

Division
Social & Behavioral Sciences Division

Course Description
Explore the benefits of effective communication in daily interactions through theoretical and practical approaches to understanding the human communication process. Students will learn communication skills to enhance interpersonal relationships, increase their ability to work in collaborative groups and develop effective presentation skills. Recommended: RDG100; and ENG100 or ENG121.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context, and channels contribute to a transactional exchange. (CSLO 4)
2. (Application Level) Explain and demonstrate the fundamental variables of communication competency theory. (CSLO 4)
3. (Comprehension Level) Describe ways in which perception influences the communication process. (CSLO 3, 4)
4. (Comprehension Level) Describe how verbal and nonverbal messages influence the communication process. (CSLO 3)
5. (Comprehension Level) Describe how factors such as culture, gender, group membership, age, and other social factors influence the communication process. (CSLO 1)
6. (Comprehension Level) Explain the characteristics of effective listening in various contexts. (CSLO 3, 4)
7. (Comprehension Level) Explain the fundamental concepts of the interpersonal communication context including self-concept, relationship development, and conflict resolution. (CSLO 3)
8. (Application Level) Demonstrate the ability to effectively manage communication apprehension in a variety of contexts. (CSLO 3)
9. (Application Level) Demonstrate effective leadership styles, group maintenance roles, task completion roles, critical thinking, and effective and informed decision making techniques while completing a group project resulting in the accomplishment of a group task, product or goal. (CSLO 1, 3, 4)
10. (Application Level) Present an extemporaneously delivered informative speech appropriate to a specific audience that has clear organization, effective content, proper use of verbal and nonverbal messages, integrates researched information, utilizes visual aids, and is prepared in outline format. The speech must be a minimum of 5 minutes in length. (CSLO 2, 4)

Course Requisites

COM101 - Interpersonal Communication

General

Division
Social & Behavioral Sciences Division

Course Description
Explore the benefits of effective communication in daily interactions through theoretical and practical approaches to understanding the human communication process. Students will learn communication skills to enhance interpersonal relationships, increase their ability to work in collaborative groups and develop effective presentation skills. Recommended: RDG100; and ENG100 or ENG121; or appropriate placement test scores.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context, and channels contribute to a transactional exchange in the interpersonal context. (CSLO 2)
2. (Analysis Level) Analyze the effectiveness and appropriateness of a variety of verbal and nonverbal messages in the interpersonal context. (CSLO 2,4)
3. (Application Level) Describe the barriers to effective listening and demonstrate effective and appropriate listening behavior and responses. (CSLO 2,3,4)
4. (Analysis Level) Explain how verbal and nonverbal messages interact to create both content and relational level meaning. Discuss the impact of both types of meaning on interpersonal relationships. (CSLO 2,4)
5. (Comprehension Level) Explain the communication patterns typical of specific states of relationship development. (CSLO 2)
6. (Application Level) Demonstrate communication strategies which contribute to positive communication climates. (CSLO 1,2,3,4)
7. (Comprehension Level) Describe the impact of conflict management styles on interpersonal relationships. (CSLO 1,2,3,4)
8. (Comprehension Level) Explain the impact of emotional intelligence on interpersonal dynamics. (CSLO 2,3)
9. (Comprehension Level) Explain the impact of an individual's cultural and social background on interpersonal dynamics. (CSLO 1,2,3)
10. (Comprehension Level) Describe the processes of self-concept formation and identity management and explain the impact of self-concept and identity management on interpersonal dynamics. (CSLO 2,3)

Course Requisites

COM202 - Small Group Communication

General

Division
Social & Behavioral Sciences Division

Course Description
Group collaboration and small group communication is essential to many professions in the world of business, education, health care, engineering, public safety, hospitality, sports and fitness, and many more. In small groups students will learn to successfully accomplish meaningful tasks. Along the way students will experience the benefits of positive group dynamics by establishing clear goals, anticipating and solving problems, participating in leadership, and building cohesion. Recommended: RDG100; and ENG100 or ENG121, or appropriate placement test scores.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain how the major elements of the communication process including encoding, decoding, message, noise, context, and channels contribute to a transactional exchange in small group contexts. (CSLO 2,4)
2. (Analysis Level) Analyze group socialization and development processes. (CSLO 2,4)
3. (Analysis Level) Identify and examine the functions of various task roles, maintenance roles and leadership roles in the group. (CSLO 2)
4. (Evaluation Level) Evaluate the impact of conflict management strategies in relation to small group dynamics. (CSLO 2,3,4)
5. (Analysis Level) Analyze the impact of verbal and nonverbal communication on group dynamics. (CSLO 2,3,4)
6. (Analysis Level) Examine the impact and value of member diversity in group settings. (CSLO 1,2,3,4)
7. (Synthesis Level) Demonstrate the ability to negotiate a shared vision, to overcome challenges, and achieve group productivity and cohesion. (CSLO 1,2,3,4)
8. (Application Level) Demonstrate ethical communication behavior. (CSLO 1,2,3,4)
9. (Synthesis Level) Organize and conduct effective small group meetings using a variety of approaches which demonstrate small group communication competence through the effective use of group decision making and problem-solving techniques. (CSLO 2,3)
10. (Synthesis Level) Prepare effective group presentations utilizing effective and appropriate content, visual aids and delivery methods. (CSLO 2,3)

Course Requisites

COM206 - Public Speaking

General

Division
Social & Behavioral Sciences Division

Course Description
Gain confidence and poise through hands-on experiences preparing and delivering a variety of presentations. Effective strategies for creating effective and engaging content and delivery tailored to specific audiences is emphasized. Students will deliver extemporaneous presentations using principles of audience adaptation, development of effective content, purposeful organization, appropriate visuals, and proper vocal and physical delivery techniques. Presentations will require research and outlining. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context, and channels contribute to a transactional exchange. (CSLO 1,2,3,4)
2. (Application Level) Explain the importance of selecting and narrowing a topic to the success of a presentation and demonstrate the ability to appropriately frame a topic. (CSLO 1,2,3,4)
3. (Application Level) Describe how audience perceptions, including cultural demographic factors, and situational expectations affect the reception of the speaker's presentation. Demonstrate the ability to adapt appropriately to the audience and situation. (CSLO 1,2,3,4)
4. (Application Level) Use appropriate research methods, including cultural and global perspectives, necessary for finding a variety of forms of support which add power and credibility to a speech. (CSLO 1,2,3,4)
5. (Application Level) Construct appropriate introductions and conclusions. (CSLO 1,2,3,4)
6. (Application Level) Explain the impact of verbal and nonverbal messages in a presentation and demonstrate the ability to use them effectively and appropriately. (CSLO 1,2,3,4)
7. (Application Level) Create appropriate visual aids using presentational software. (CSLO 1,2)
8. (Synthesis Level) Effectively incorporate appropriate strategies of organization, support, and building credibility while achieving an informative goal. (CSLO 1,2,3,4)
9. (Synthesis Level) Effectively incorporate appropriate strategies of organization, evidence, argumentation, critical thinking, and building ethical appeals while achieving a persuasive goal. (CSLO 1,2,3,4)
10. (Application Level) Demonstrate the ability to effectively manage communication apprehension in the public speaking context. (CSLO 1,2,3,4)
11. (Application Level) Demonstrate the ability to critically listening to public presentations. (CSLO 1,2,3,4)

COM207 - Introduction to Communication Inquiry

General

Division
Social & Behavioral Sciences Division

Course Description
Overview of theory and methodological practice in communication. Emphasis on the development of critical thinking and scholarly writing skills through active participation in the research process. Recommended: Students may wish to take several COM courses (other than the required COM100 course) prior to taking this course. Prerequisites: COM100, ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the history of the communication discipline in order to explain the purposes of communication theory and research today.

2. (Analysis Level) Examine the relationship between communication theory and practice.

3. (Application Level) Identify, describe, and apply a broad range of communication theories to varying communication interactions.

4. (Application Level) Identify and report on the basic paradigms of communication research.

5. (Evaluation Level) Analyze, synthesize and evaluate research conducted within the field of communication.

6. (Analysis Level) Identify and explain the areas of research found in the communication field and the methods associated with each.

7. (Synthesis Level) Research and create a comprehensive review of literature.

COM259 - Professional Communication

General

Division
Social & Behavioral Sciences Division

Course Description
Develop communication and critical thinking skills necessary for securing a job and succeeding in diverse, ever-changing workplaces of the 21st Century. Students will explore ways to manage a professional image on the job, in professional settings and even in social media outlets. In addition, they will learn to present ideas clearly and concisely in meetings and in the interview process, build confidence in sharing ideas in collaborative projects, and speak effectively in presenting information. This class emphasizes developing communication skills that will build professionalism, personal presence, and potential for advancement in any career. Corequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context and channels contribute to a transactional exchange. (CSLO 1, 2, 3)
2. (Comprehension Level) Examine the function of effective verbal and nonverbal behaviors in the communication process.(CSLO 2, 3)
3. (Evaluation Level) Identify potential barriers to effective verbal and nonverbal communication and explain how to avoid and to manage them in a variety of situations. (CSLO 1, 2, 3, 4)
4. (Application Level) Apply knowledge and skills to deliver public presentations which demonstrate improvement in one's self-confidence in communicating in business and professional contexts.(CSLO 2, 3, 4)
5. (Synthesis Level) Explain the decoding process and identify the challenges of individual perceptions and listening habits which impact business and professional communications. (CSLO 1, 2, 3, 4)
6. (Comprehension Level) Identify a variety of leadership styles and the impact of each upon communication within business and professional contexts. (CSLO 1, 2, 3, 4)
7. (Application Level) Explain the dynamics of different types of interpersonal relationships in business and professional contexts and demonstrate communication which is effective and appropriate for a variety of business and professional relationships. (CSLO 1, 2, 3, 4)
8. (Application Level) Demonstrate conflict management skills. (CSLO 1, 2, 3, 4)
9. (Evaluation Level) Plan, conduct and critique a variety of interviews in a business and professional setting, including employment, appraisal and counseling interviews. (CSLO 1, 2, 3, 4)
10. (Application Level) Use communication technologies in business and professional settings. (CSLO 1, 2, 3, 4)
11. (Analysis Level) Identify, implement and analyze team building solutions to accomplish a group task. (CSLO 1, 2, 3, 4)

COM263 - Intercultural Communication

General

Division
Social & Behavioral Sciences Division

Course Description
Gain knowledge and skills to aid interaction in a culturally diverse world. Students will discover how cultural beliefs and values guide human behavior and communication including their own. Students will explore how biases and barriers interfere with effective intercultural interaction. Students will build skills for effective interaction with culturally different others. Prerequisites:RDG100, and ENG100 or ENG121, or appropriate placement test scores.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context, and channels contribute to a transactional exchange. (CSLO 2)
2. (Comprehension Level) Describe the impact of cultural differences on the individual elements of the communication process. (CSLO 1,2,3)
3. (Comprehension Level) Identify and describe the relationship between cultural values and communication behaviors. (CSLO 1,2)
4. (Comprehension Level) Explain the influences on the process of identity development. (CSLO 1,2,3)
5. (Application Level) Demonstrate the ability to effectively and appropriately adapt communication for interaction with people from a variety of cultures. (CSLO 1,2,3,4)
6. (Analysis Level) Analyze intercultural interactions by applying multiple cultural dimensions and/or value patterns. (CSLO 1,2,3)
7. (Analysis Level) Analyze the impact of biases and barriers such as ethnocentrism, stereotyping, prejudice, discrimination, and privilege on intercultural interactions and discuss how to manage and/or overcome them. (CSLO 1,2,3,4)
8. (Analysis Level) Analyze ethical issues inherent to intercultural situations. (CSLO 1,2,3,4)
9. (Synthesis Level) Describe the benefits and value of intercultural interactions and multicultural perspectives. (CSLO 1,2,3)

Course Requisites

COM275 - Communication Studies Capstone

General

Division
Social & Behavioral Sciences Division

Course Description
This course requires students to advance and extend their cumulative study of communication theories and practices. It includes discussion of coursework via small groups, independent research, or creative projects presented to an audience. Students must complete a final project to earn a Communication Studies Certificate or Communication Skills for the Professional Certificate. Project must demonstrate synthesis and application of discipline knowledge. Prerequisite: Completion of 9 credits of COM courses.

Total Number Of Credits:
3

Recitation Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Complete a capstone project which demonstrates the ability to analyze verbal and nonverbal communication as it occurs in an interpersonal, group, or public context over a period of time. (CSLO 2,3)
2. (Analysis Level) Complete a capstone project which demonstrates the ability to analyze human communication in an interpersonal, group, or public context according to multiple communication theories learned in a variety of courses. (CSLO 2,3)
3. (Application Level) Demonstrate the ability to apply effective listening skills in an interpersonal, group, or public context.
4.(Evaluation Level) Recommend strategies to improve the effectiveness and appropriateness of the human communication analyzed for the capstone project. (CSLO 2,4)
5. (Application Level) Demonstrate the ability to effectively and appropriately present the final project to a diverse audience. (CSLO 2,3)

COM206SU22 - Public Speaking

General

Division
Social & Behavioral Sciences Division

Course Description
Gain confidence and poise through hands-on experiences preparing and delivering a variety of presentations. Effective strategies for creating effective and engaging content and delivery tailored to specific audiences is emphasized. Students will deliver extemporaneous presentations using principles of audience adaptation, development of effective content, purposeful organization, appropriate visuals, and proper vocal and physical delivery techniques. Presentations will require research and outlining. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context, and channels contribute to a transactional exchange. (CSLO 1,2,3,4) 2. (Application Level) Explain the importance of selecting and narrowing a topic to the success of a presentation and demonstrate the ability to appropriately frame a topic. (CSLO 1,2,3,4) 3. (Application Level) Describe how audience perceptions, including cultural demographic factors, and situational expectations affect the reception of the speaker's presentation. Demonstrate the ability to adapt appropriately to the audience and situation. (CSLO 1,2,3,4) 4. (Application Level) Use appropriate research methods, including cultural and global perspectives, necessary for finding a variety of forms of support which add power and credibility to a speech. (CSLO 1,2,3,4) 5. (Application Level) Construct appropriate introductions and conclusions. (CSLO 1,2,3,4) 6. (Application Level) Explain the impact of verbal and nonverbal messages in a presentation and demonstrate the ability to use them effectively and appropriately. (CSLO 1,2,3,4) 7. (Application Level) Create appropriate visual aids using presentational software. (CSLO 1,2) 8. (Synthesis Level) Effectively incorporate appropriate strategies of organization, support, and building credibility while achieving an informative goal. (CSLO 1,2,3,4) 9. (Synthesis Level) Effectively incorporate appropriate strategies of organization, evidence, argumentation, critical thinking, and building ethical appeals while achieving a persuasive goal. (CSLO 1,2,3,4) 10. (Application Level) Demonstrate the ability to effectively manage communication apprehension in the public speaking context. (CSLO 1,2,3,4) 11. (Application Level) Demonstrate the ability to critically listening to public presentations. (CSLO 1,2,3,4)

Course Requisites

COM207SU22 - Introduction to Communication Inquiry

General

Division
Social & Behavioral Sciences Division

Course Description
Overview of theory and methodological practice in communication. Emphasis on the development of critical thinking and scholarly writing skills through active participation in the research process. Prerequisites: COM100 and ENG101. Recommended: Students may wish to take several COM courses (other than the required COM 100 course) prior to taking this course.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the history of the communication discipline in order to explain the purposes of communication theory and research today. 2. (Analysis Level) Examine the relationship between communication theory and practice. 3. (Application Level) Identify, describe, and apply a broad range of communication theories to varying communication interactions. 4. (Application Level) Identify and report on the basic paradigms of communication research. 5. (Evaluation Level) Analyze, synthesize and evaluate research conducted within the field of communication. 6. (Analysis Level) Identify and explain the areas of research found in the communication field and the methods associated with each. 7. (Synthesis Level) Research and create a comprehensive review of literature.

Course Requisites

COM259SU22 - Professional Communication

General

Division
Social & Behavioral Sciences Division

Course Description
Develop communication and critical thinking skills necessary for securing a job and succeeding in diverse, ever-changing workplaces of the 21st Century. Students will explore ways to manage a professional image on the job, in professional settings and even in social media outlets. In addition, they will learn to present ideas clearly and concisely in meetings and in the interview process, build confidence in sharing ideas in collaborative projects, and speak effectively in presenting information. This class emphasizes developing communication skills that will build professionalism, personal presence, and potential for advancement in any career. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate how the individual elements of the communication process including encoding, decoding, message, noise, context and channels contribute to a transactional exchange. (CSLO 1, 2, 3) 2. (Comprehension Level) Examine the function of effective verbal and nonverbal behaviors in the communication process.(CSLO 2, 3) 3. (Evaluation Level) Identify potential barriers to effective verbal and nonverbal communication and explain how to avoid and to manage them in a variety of situations. (CSLO 1, 2, 3, 4) 4. (Application Level) Apply knowledge and skills to deliver public presentations which demonstrate improvement in one's self-confidence in communicating in business and professional contexts.(CSLO 2, 3, 4) 5. (Synthesis Level) Explain the decoding process and identify the challenges of individual perceptions and listening habits which impact business and professional communications. (CSLO 1, 2, 3, 4) 6. (Comprehension Level) Identify a variety of leadership styles and the impact of each upon communication within business and professional contexts. (CSLO 1, 2, 3, 4) 7. (Application Level) Explain the dynamics of different types of interpersonal relationships in business and professional contexts and demonstrate communication which is effective and appropriate for a variety of business and professional relationships. (CSLO 1, 2, 3, 4) 8. (Application Level) Demonstrate conflict management skills. (CSLO 1, 2, 3, 4) 9. (Evaluation Level) Plan, conduct and critique a variety of interviews in a business and professional setting, including employment, appraisal and counseling interviews. (CSLO 1, 2, 3, 4) 10. (Application Level) Use communication technologies in business and professional settings. (CSLO 1, 2, 3, 4) 11. (Analysis Level) Identify, implement and analyze team building solutions to accomplish a group task. (CSLO 1, 2, 3, 4)

Course Requisites

CPD110 - Transition to College and Career

General

Division
Social & Behavioral Sciences Division

Course Description
Focus on helping students develop the knowledge, skills, and attitudes needed to successfully examine their own lives, explore and evaluate a wide range of education and career options, and make reasoned and researched goals for their future. Recommended: RDG100; for all new students.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify and apply various strategies for academic success, including time management and goal setting strategies; teaching and learning styles; organizational and test taking skills; financial literacy skills; strategies for critical and creative thinking; and written and oral interpersonal communication skills. (CSLO III & IV)

2. (Synthesis Level) Utilizing various self-assessment tools, develop the self-awareness necessary to identify who you are, what you want and how you achieve it, in your college, career and life plan. (CSLO I, II, III & IV)

3. (Synthesis Level) Design career and life goals, personal philosophy and values statement. (CSLO III)

4. (Comprehension Level) Explain the processes of career and life planning and the educational preparation and career training necessary to successfully accomplish your career and life goals. (CSLO IV)

5. (Comprehension Level) Discuss current occupational trends and outlooks, explain how occupations are organized into career families and how disciplines may have multiple related career options. (CSLO III)

6. (Application Level) Correlate the results of self-assessments and career inventories to career and life choices. (CSLO III)

7. (Application Level) Identify and utilize available career information resources to construct an individual career and life plan focusing on individual career pathways, including a review of vocational, professional and entrepreneurial options. (CSLO III)

8. (Comprehension Level) Explain the financial implications of your college, career and life plans, focusing on the costs of any given lifestyle, financial costs, psychological costs and costs in terms of commitment to a given career. (CSLO II, III & IV)

9. (Comprehension Level) Identify and develop strategies to overcome barriers to achieving your college and career plans. (CSLO III & IV)

10. (Application Level) Identify realistic short and long-term educational, career, and life goals and detail the support network of college staff, faculty, family, neighbors, friends and others who can help you to achieve your stated goals. (CSLO III & IV)

11. (Application Level) Use information, knowledge, and skills obtain in this course to conduct basic job hunting activities, writing resumes, locating jobs, researching the job, filling out applications, and interviewing for jobs. (CSLO III)

12. (Synthesis Level) Create an e-portfolio to house an individual 10 Year Career and Life Plan; resume; personal values, goals and philosophy statements; self-assessment reflections; and documents demonstrating personal knowledge, skills, and abilities necessary for your chosen career and life path. (CSLO III)

CPD160 - The Master Learner

General

Division
Social & Behavioral Sciences Division

Course Description
No description.

Total Number Of Credits:
3

CRP101 - Blueprint Rdg. for Carpenters

General

Division
Skilled Trades & Technology Division

Course Description
Survey of basic blueprint reading for carpentry work. Common principles, practices and symbols are covered, as well as building plans and their attributes. Prerequisite: Instructor's permission.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the types of plans and basic principles of print reading. 2. (Analysis Level) Interpret the descriptions and symbols used for construction materials in reading blueprints. 3. (Comprehension Level) Describe the construction details, standards and specifications for a brick veneer residence. 4. (Comprehension Level) Describe the use of steel support in construction plans for a store and apartment.

Course Requisites

CRP132 - Concrete Forming

General

Division
Skilled Trades & Technology Division

Course Description
Construction and installation techniques, including building site and layout factors, parts of forms and related hardware, function of concrete form work in walls, columns, beams, decks, and retaining walls; Wall forms and prefabricated walls, and residential foundations.

Total Number Of Credits:
3

CRP135 - Carpentry Orientation (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides an overview of the construction industry, a safety overview, with focus on tool identification and use. Upon successful completion, students will receive OSHA 10 Hour and Powder Actuated Tool Certifications. Prerequisites: Program Director Consent and State Indentured Carpenter Apprentice.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Read a tape measure and perform basic math operations. (CSLO 2,4)
2. (Understanding Level) Understand and utilize personal protective equipment and safety procedures for basic hand tools. (CSLO 2,4)
3. (Applying Level) Identify potential hazards and site the appropriate accident prevention measures to complete OSHA 10 Certification. (CSLO 2,4)

Course Requisites

CRP136 - Safety and Health Certifications (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides an overview of construction industry safety and health certifications. Topics include hand/power tool and equipment skill development, scaffold building, equipment operating procedures, and financial and life skills. Upon successful completion, students will be issued United Brotherhood of Carpenters (UBC) Scaffold Erector-Welded Frame Qualification Card. Prerequisites: Program Director's Consent, State Indentured Carpenter Apprentice and CRP135.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Understand and describe construction industry safety and health certifications. (CSLO 1,2,4)
2. (Understanding Level) Convert measurement used for layout procedures using 3-4-5 method. (CSLO 2,4)
3. (Understanding Level) Demonstrate proficient use of various power tools and equipment appropriate for the assigned construction tasks. (CSLO 2,3,4)
4. (Application Level) Demonstrate learned skills and requirements for Frame scaffold user/erection certification. (CSLO 2,3,4)

Course Requisites

CRP137 - Tool and Equipment Applications (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the safe and appropriate use of fall protection, and emergency response procedures. Tool applications presented in this training will provide opportunities for tool skill mastery and equipment operation. Upon successful completion, students will be issued an American Red Cross First Aid/CPR Certification Card, and United Brotherhood of Carpenters (UBC) Fall Protection Qualification Card. Prerequisites: Program Director Consent, CRP135, CRP136, State Indentured Carpenter Apprentice.

Total Number Of Credits:
0

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Complete requirements for and attain the Construction Fall Protection, American Red Cross First Aid, and CPR certifications. (CSLO 2,4)
2. (Application Level) Measure, calculate and cut angles for rake wall framing to industry standards using skills learned in class. (CSLO 2,4)
3. (Application Level) Model proper don/doff procedures for fall protection equipment. (CSLO 2,4)

Course Requisites

CRP138 - Basic Wall Framing (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course presents the theory, methods, and procedures required to frame basic walls. Hands-on practice using proper tool techniques and appropriate materials will enhance fundamental skill development. Prerequisites: Program Director's Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Demonstrate understanding of basic wall framing. (CSLO 2,3,4)
2. (Application Level) Identify correct measuring and layout procedures for basic wall framing. (CSLO 2,4)
3. (Application Level)Identify framing components, materials and nailing patterns on drawings. (CSLO 2,4)
4. (Application Level) Construct a basic wood framed wall to industry standards. (CSLO 2,3,4)

Course Requisites

CRP139 - Commercial Floor Framing (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers floor joist construction and the various installation techniques used in the commercial industry. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain the purpose and use of framing cut list process. (CSLO 2,4)
2. (Application Level) Utilize drawing views to calculate measurements and create project cut list. (CSLO 2,3,4)
3. (Application Level) Construct framing for a commercial floor to industry standards. (CSLO 2,3,4)

Course Requisites

CRP140 - Basic Roof Framing (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides an introduction to basic gable roof framing, terminology, characteristics and construction methods. Students will use the skills presented to construct a gable roof. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Determine the criteria for proper angles of a basic gable roof using geometric formulas. (CSLO 2,4)
2. (Applying Level) Utilize proper procedures to create a gable roof assembly plan. (CSLO 2,3,4)
3. (Applying Level) Construct a basic gable roof structure to industry standards. (CSLO 2,3,4)

Course Requisites

CRP141 - Foundations and Flatwork (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the design and function of several types of foundations and concrete flatwork. Students will complete formwork projects as part of this course. Prerequisites: Program Director's Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Categorize foundation building lines and formwork component features on drawings. (CSLO 2,4)
2. (Creating Level) Adapt leveling instruments and batter-board techniques to establish formwork elevation on plans. (CSLO 2,4)
3. (Creating Level) Construct foundation and flatwork project to industry standards. (CSLO 2,3,4)

Course Requisites

CRP142 - Wall Forming (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the skills and procedures for forming reinforced concrete walls using single and double waler systems. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Interpret plans to accurately layout exterior wall lines and features. (CSLO 2,4)
2. (Evaluating Level) Compare constructed and manufactured panel forming methods. (CSLO 2,4)
3. (Creating Level) Combine two types of constructed forming techniques to complete a wall project to industry standards. (CSLO 2,3,4)

Course Requisites

CRP143 - Stair and Ramp Forming (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides the students with the methods, procedures and practices used to form stair and ramp structures. State and Federal building codes pertaining to stairs and ramps will be covered in this class. Prerequisites: Program Director's Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Formulate trigonometric calculations to determine measurements for basic stair form layout. (CSLO 2,4)
2. (Evaluating Level) Evaluate project dimensions in accordance with the Americans with Disabilities Act (ADA). (CSLO 2,4)
3. (Applying Level) Construct stair/ramp to comply with ADA code requirements. (CSLO 2,3,4)

Course Requisites

CRP144 - Moldings and Trims (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers how moldings and trims are used to finish exterior and interior construction design features. Students will install finishing materials according to project plans. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Analyze drawings to determine location and material requirements for molding and trims. (CSLO 2,4)
2. (Evaluating Level) Determine and select suitable tools, fasteners, and installation techniques to employ. (CSLO 2,4)
3. (Applying Level) Build and install molding and trims to drawing specifications. (CSLO 2,3,4)

Course Requisites

CRP145 - Print Reading (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course introduces basic interpretation skills needed for reading and analyzing construction prints. Topics include: views, elevations, and the role of specifications as they relate to insulation details. Sustainable and green building practices will be integrated. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Analyze the principles of orthographic projection used to create plan and elevation view on construction prints. (CSLO 2,4)
2. (Evaluating Level) Evaluate construction methods from two dimensional graphic representations using visualization techniques. (CSLO 2,4)
3. (Evaluating Level) Interpret plan and elevation views and answer questions about the size and arrangement of building elements used to complete construction according to prints. (CSLO 1,2,3,4)

Course Requisites

CRP146 - Transit Level/Laser (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides instruction in the detailing, layout, and construction of abutments used in the heavy highway industry. Abutment training includes keyway, panel, head wall, and wing wall construction procedures, and installation of footing formwork. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Assess optic principles for laser and transit levels. (CSLO 2,4)
2. (Applying Level) Build, setup, and adjust levels as indicated by the manufacturer. (CSLO 2,4)
3. (Applying Level) Utilize proper laser and transit level procedures to establish building line and formwork layouts. (CSLO 2,3,4)

Course Requisites

CRP147 - Basic Stairs (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides an introduction to stair framing theory, terminology, and construction techniques. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Determine stair configuration and stringer layout using trigonometric functions. (CSLO 2,4) 2. (Evaluating Level) Evaluate code and safety standards compliance for stair and railing as designed. (CSLO 2,4) 3. (Applying Level) Construct a basic straight stairway design to print specifications. (CSLO 2,3,4)

Course Requisites

CRP148 - Doors and Door Hardware (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the installation process for several types of security and exit door hardware. Discussion of electrical and card reader systems will be included. Prerequisites: Program Director's Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Assess door and hardware requirements on schedules included in print specifications. (CSLO 2,4) 2. (Creating Level) Design layout and prepare door frame for hardware installation as required. (CSLO 2,4) 3. (Application Level) Construct hinge, door closure, and lockset hardware installation to industry standards. (CSLO 2,3,4)

Course Requisites

CRP149 - Bridge Construction (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers bridge design and construction methods and procedures. Students will construct bridge and deck formwork using job-built forming method. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Analyze bridge construction prints to determine formwork features and dimensions. (CSLO 2,4) 2. (Evaluating Level) Interpret procedures and sequence of construction for bridge/deck or beam/deck projects. (CSLO 2,4) 3. (Applying Level) Apply the correct method to construct a bridge/deck or beam/deck project to industry standards. (CSLO 2,3,4)

Course Requisites

CRP150 - Advanced Print Reading (CE)

General

Division
Skilled Trades & Technology Division

Course Description
In this course, students will analyze multi-view drawings to determine construction type, locate benchmark and building elements; review codes, references, and perform calculations for construction/insulation planning. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Analyze the orthographic projection drawing method to sketch three-dimensional objects in standard views. (CSLO 2,4) 2. (Evaluating Level) Choose details on views and answer questions for all aspects of a building plan. (CSLO 2,4) 3. (Evaluating Level) Decide specifications and estimate costs based on construction elements and insulation requirements found on prints. (CSLO 2,4)

Course Requisites

CRP151 - Basic Commercial Framing (CE)

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to basic rake wall framing theory and commercial construction techniques and materials. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Determine dimensions and design load carrying capacity of commercial walls. (CSLO 2,4) 2. (Evaluating Level) Compare light commercial and commercial wall construction methods, codes, and layout techniques. (CSLO 2,4) 3. (Applying & Evaluating Level) Determine accurate building line layout and construct commercial walls to print specifications. (CSLO 2,4)

Course Requisites

CRP152 - Green Building & Weatherization (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides novice skills in green building and weatherization, including audit procedures, testing and reporting mechanisms, and fundamental installation for residential buildings. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain the basic concepts in Green Building and Weatherization as discussed in the class. (CSLO 1,2,3,4) 2. (Evaluating Level) Assess site conditions and select retro-fit materials based on efficiency levels. (CSLO 1,2,4) 3. (Applying Level) Construct building components to meet green codes and audit energy efficiency goals. (CSLO 1,2,3,4)

Course Requisites

CRP153 - Solar Installer Level 1 (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the design and function of several types of solar installation. The methods, sequences, and procedures for layout, assembly, mounting, and elevating/positioning for solar array construction will be presented to apprentices. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain the design and function of several types of solar installation, and the methods, sequences, and procedures for layout, assembly, mounting, and elevating/positioning for solar array construction. (CSLO 2,4) 2. (Applying Level) Identify electrical and solar power components for roof top, ground mount and large scale PV systems. (CSLO 2,4) 3. (Applying Level) Construct rooftop and ground mounted photovoltaic (PV) panels in accordance with codes and standards. (CSLO 2,3,4)

Course Requisites

CRP154 - Water Treatment Facilities (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides instruction in the detailing, layout and construction of concrete formwork and waterstop used in water treatment facilities. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Distinguish concrete mixture principles to calculate materials, additives, and release agents. (CSLO 2,4) 2. (Analyzing Level) Analyze prints to determine formwork design and strength requirements for water treatment formwork. (CSLO 2,4) 3. (Applying Level) Following manufacturer's specifications, install the 'gang' form panels according to plans. (CSLO 2,4)

Course Requisites

CRP155 - Store Front Installations (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course covers the installation process from constructing storefront openings to putting glass components into commercial store front metal framing. An emphasis will be placed on print interpretation, window and door schedules, symbols, and material recognition. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Analyze prints to determine design and material requirements for commercial store front applications. (CSLO 2,4) 2. (Applying Level) Using commercial framing methods, complete storefront metal framing component installations. (CSLO 2,4) 3. (Applying Level) Construct a single entrance storefront installation to plan specifications. (CSLO 2,3,4)

Course Requisites

CRP156 - Rigging-Hardware and Procedures (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course presents both lifting theory and practical rigging methods and procedures. Rigging attachment procedures, lifting equipment, limits of operation and communication practices will be covered. Upon successful completion, students will receive a UBC Rigging Qualification Card. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Formulate load and center of gravity calculations based on sling configurations. (CSLO 2,4) 2. (Analyzing Level) Examine rigging theories to determine proper rigging configuration for various types of loads. (CSLO 2,4) 3. (Evaluating Level) Assess and employ standard rigging practices and regulations to safely lift, move and place loads in designated locations. (CSLO 2,4)

Course Requisites

CRP157 - Drywall Applications (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course will focus on the needed commercial and residential skills to properly handle and install drywall used in specialized applications to include: fire resistance, sound control, and life safety. Wall framing and drywall finishing methods will be incorporated into the hands-on activity. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain the proper?use and handling?of drywall and specialty drywall products for various applications. (CSLO 2,4) 2. (Evaluating Level) Compare drywall installation procedures based on wood or metal framing applications. (CSLO 2,3,4) 3. (Applying Level) Construct drywall and specialty drywall products for residential and commercial applications to industry standards. (CSLO 2,3,4)

Course Requisites

CRP158 - Basic Metal Framing (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course provides an overview of residential metal framing theory and construction techniques. Students will interpret prints for job planning, material estimation and metal framing construction. Prerequisites: Program Director's Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Examine metal wall framing features for detailing bottom/top plates according to print specifications. (CSLO 2,4) 2. (Evaluating Level) Compare, recognize, and differentiate metal components and fastening methods compared to wood framing methods. (CSLO 2,4) 3. (Applying Level) Using appropriate methods, construct exterior and interior metal framed walls to meet industry standards. (CSLO 2,3,4)

Course Requisites

CRP159 - Tilt Up Panel Construction (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This class will cover layout techniques and building procedures for commercial structures using the tilt up panel construction method. Prerequisite: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Interpret project plans to locate panel sizes, configuration, and quantity. (CSLO 2,4) 2. (Applying Level) Apply panel assembly procedures to create a panel construction sequence plan. (CSLO 2,4) 3. (Applying Level) Construct typical tilt up panel formwork to print specifications. (CSLO 2,3,4)

Course Requisites

CRP160 - Welding Fabrication (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This course is designed as an introduction to layout, and basic welding and fabrication. The students will be introduced to the basic skills of measuring, equipment set-up and cutting, shaping, grinding, welding, filing, heating and bending of metal parts. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Demonstrate understanding of basic welding fabrication. (CSLO 2,4) 2. (Applying Level) Apply the theories and skills learned in class to performing, measuring, and equipment set-up, and cutting, grinding, welding, filing, heating, and bending of metal parts. (CSLO 2,3,4) 3. (Applying Level) Identify operating principles and safety hazards for torch and arc welding equipment. (CSLO 2,4) 4. (Applying Level) Apply proper procedures to safely setup and adjust torch and arc equipment. (CSLO 2,4) 5. (Applying Level) Using the appropriate materials, perform torch cutting and arc welding techniques to fabricate parts. (CSLO 2,3,4)

Course Requisites

CRP161 - Cabinet Installation (CE)

General

Division
Skilled Trades & Technology Division

Course Description
This comprehensive course covers upper and lower cabinet installation from establishing the design layout to attaching countertops. Prerequisites: Program Director Consent, State Indentured Carpenter Apprentice, CRP135 and CRP136.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Identify basic cabinet styles and recognize component parts. (CSLO 2,4) 2. (Evaluating Level) Determine layout out location and elevation for cabinet installation using project prints. (CSLO 2,4) 3. (Applying Level) Plan and build complete cabinetry installation to industry standards. (CSLO 2,3,4)

Course Requisites

CRP202 - PatenFormsGangForms&Columns

General

Division
Skilled Trades & Technology Division

Course Description
Build and plumb a section of gang form using a standard whaler system complete with all the necessary components and hardware. Students build a form for a tilt-up slab complete with all the necessary inserts and block outs for openings. Prerequisite: Program Director approval.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define tilt-up slab terms and specific terms used in gang form construction. 2. (Application Level) Build a section of wall form using a standard whaler assembly, plumb and brace large panels, properly place all necessary hardware for a gang form and splice a long run of whaler. 3. (Knowledge Level) Identify the specific parts of a tilt-up slab form including embedded items. 4. (Application Level) Build and align a tilt-up slab form and install all embedded items as required. 5. (Application Level) Install and brace block outs in a tilt-up slab form.

Course Requisites

CRP204 - RiggingCertification

General

Division
Skilled Trades & Technology Division

Course Description
Occupational Safety and Health Administration (OSHA) rigging practices, American National Standards Institute (ANSI) and manufacturers' guidelines, inlcluding slings, hardware, knots, hitches, splices, hand and voice signals. Prerequisite: Program Director approval.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe safe rigging practices using safety standards from OSHA section 1920 and 1926. 2. (Application Level) Inspect wire rope, slings and rigging hardware using ANSI B30.9 and manufacturing guidelines. 3. (Comprehension Level) Select slings and rigging hardware, attach safely to hoist loads and complete simulated rigging tasks. 4. (Application Level) Properly tie selected knots, hitches and splices for safe and secure rigging procedures used on the job. 5. (Application Level) Demonstrate the proper hand and voice signals used to direct rigging operations at the jobsite.

Course Requisites

CUL105 - Food Safety Foundations

General

Division
Business & Computer Technology Division

Course Description
Applied course in food safety and sanitation to identify and analyze the factors which cause foodborne illnesses through the study of proper purchasing, preparation, handling, and storage. ServSafe Certification is an option. Recommended: RDG100.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the need for food safety, the hazards that threaten food safety and guidelines for training employees.
2. (Comprehension Level) Identify and discuss food safety system development using Hazard Analysis Critical Control Point (HACCP) methods.
3. (Comprehension Level) Identify and describe the flow of food safely and effectively from purchasing, receiving, storing, preparing, cooking, holding, and serving to cooling and reheating.
4. (Comprehension Level) Identify and explain the sanitary maintenance of facilities and equipment.
5. (Comprehension Level) Comprehend and conclude the role and need of regulatory agencies for facility, employee and customer protection.

Course Requisites

CUL108 - Culinary Boot Camp

General

Division
Business & Computer Technology Division

Course Description
Designed for the home cook or culinary apprentice, Culinary Boot Camp features the basics of cooking, including kitchen terms, knife skills, and cooking techniques such as sauté, roast, broil, and braise. Learn how to read and follow a recipe, sample and identify an array of spices, herbs, grains, vegetables and meats, and plan and cook delicious meals. May take 3 times for credit.

Total Number Of Credits:
1

Lecture Credits
0.75

Lab Credits
1

Other Credit Information
26.25 Instructor Hours

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify ingredients, equipment, and cooking terms. (CSLO 3) 2. (Application Level) Demonstrate ability to read a recipe, mise en place, measure wet and dry ingredients, and use a scale. (CSLO 3,4) 3. (Application Level) Demonstrate proper use of a chef's knife and correct technique for basic knife cuts. (CSLO 3,4) 4. (Application Level) Demonstrate basic skill level of various cooking techniques and procedures. (CSLO 3,4)

CUL110 - Asian Cuisine

General

Division
Business & Computer Technology Division

Course Description
Discover the unique flavors, ingredients, and culinary traditions of Asian cuisine. Appreciate the differences between Chinese, Japanese, Thai, and Vietnamese cooking ingredients and techniques. Learn to make your favorite Asian appetizers, soups, entrees, and desserts.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify ingredients ubiquitous to Asian cuisine; various market forms of ingredients; recognize the different ingredients and flavors unique to the cuisines of China, Japan, Thailand, Vietnam, and the Pacific Rim. (CSLO 1) 2. (Application Level) Prepare a variety of appetizers, soups, salads, entrees, and desserts by completing an instructor created menu.(CSLO 1) 3. (Analysis Level) Evaluate through the use of a rubric the preparation and presentation of the foods prepared for visual appearance, taste, and texture. (CSLO 1) 4. (Comprehension Level) Using a pre- and post-test, assess comprehension of cooking terms, ingredients, and menu items.(CSLO 1)

CUL112 - Italian Cuisine

General

Division
Business & Computer Technology Division

Course Description
Discover the unique flavors, ingredients, and culinary traditions of Italian cuisine. Learn to make your favorite Italian appetizers, soups, entrees, pasta, bread, salads and desserts.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify ingredients ubiquitous to Italian cooking; various market forms of ingredients; describe the foods and customs unique to the different regions of Italy. (CSLO 1) 2. (Application Level) Prepare a variety of appetizers, soups, salads, pasta, entrees, breads, and desserts by completing an instructor created menu.(CSLO 1) 3.(Evaluation Level) Using a rubric, evaluate the preparation and presentation of the foods prepared for visual appearance, taste, and texture. (CSLO 1) 4. (Comprehension Level) Using pre- and post-tests, assess comprehension of cooking terms, ingredients, and menu items. (CSLO 1)

CUL114 - Mexican & Latin Amer. Cuisine

General

Division
Business & Computer Technology Division

Course Description
Discover the unique flavors, ingredients, and culinary traditions of Mexico and other Latin American countries. Learn to make some of your favorite appetizers, soups, entrees, salads, breads and desserts.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify ingredients ubiquitous to Mexican and Latin American cuisine; various market forms of ingredients; describe the different ingredients and flavors unique to these regions. (CSLO 1) 2. (Synthesis Level) Prepare a variety of appetizers, soups, salads, vegetables, breads, entrees, and desserts by completing an instructor created menu. (CSLO 1) 3. (Evaluation Level) Using a rubric, evaluate the preparation and presentation of the foods prepared for visual appearance, taste, and texture. (CSLO 1) 4. (Comprehension Level) Using pre- and post-tests, assess comprehension of cooking terms, ingredients, and menu items. (CSLO 1)

CUL116 - French Cuisine

General

Division
Business & Computer Technology Division

Course Description
Discover the unique flavors, ingredients, and culinary traditions of France through this hands-on class. Learn to make some of your favorite appetizers, soups, entrees, salads, breads and desserts. May take 3 times for credit.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify ingredients ubiquitous to French cuisine; various market forms of ingredients; describe the different ingredients and flavors unique to this region. 2. (Application Level) Prepare a variety of appetizers, soups, salads, vegetables, breads, entrees and desserts by completing an instructor created menu. 3. (Evaluation Level) Using a rubric, evaluate the preparation and presentation of the foods prepared for visual appearance, taste and texture. 4. (Evaluation Level) Using pre- and post-tests, assess comprehension of cooking terms, ingredients and menu items.

CUL125 - Sustainable Food Practices

General

Division
Business & Computer Technology Division

Course Description
An introductory overview of the issues currently impacting the U.S. and global food supply, this course uses Internet based articles and videos to present information on such topics as: the carbon footprint of foods, organic versus conventionally grown food, benefits of buying locally grown seasonal foods, and changes individuals can make to contribute to greater sustainability in the food supply.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and define key terms and concepts relating to food sustainability. (CSLO 2, 4)
2. (Analysis Level) Identify the pros and cons of various practices pertaining to food sustainability. (CSLO 2, 4)
3. (Synthesis Level) Formulate ideas and opinions relevant to sustainable food practices and discuss/debate ideas and opinions with others. (CSLO 4)
4. (Evaluation Level) Describe changes in food purchasing and preparation that could be made on a personal level to improve the sustainability of the food supply. (CSLO 4)

CUL130 - Culinary Principles Application I

General

Division
Business & Computer Technology Division

Course Description
Introduction to small and large quantity cooking, including principles, techniques, and preparation with an emphasis on basic skills, food products, equipment, and sanitation practices. Requires 16 hours of supervised experience catering events outside of class. Prerequisite or corequisite: CUL105.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify equipment and tools used in the professional kitchen; demonstrate proper selection, use, and care of equipment and tools. (CSLO 2)
2. (Knowledge Level) Define basic cooking terms and use them appropriately. (CSLO 2)
3. (Application Level) Demonstrate proper scaling and measurement techniques for various types of ingredients. (CSLO 2,3)
4. (Application Level) Demonstrate effective and efficient knife skills, with emphasis on safety. (CSLO 3)
5. (Application Level) Practice industry standards of food safety in all aspects of food preparation, presentation, and storage. (CSLO 3)
6. (Synthesis Level) Perform basic math functions to calculate recipe yield conversions. (CSLO 2,4) 7. (Evaluation Level) Identify quality characteristics, purchasing, and storage principles, and apply various cooking techniques to dairy products, eggs, meats, vegetables, herbs, fruits, legumes, and grains. Evaluate finished products for quality and sensory characteristics, per instructor guidelines. (CSLO 2)
8. (Application Level) Describe and demonstrate proper preparation of various stocks, sauces, soups, and salad dressings. (CSLO 2,3,4)
9. (Synthesis Level) Demonstrate ability to mise en place ingredients and equipment, increase speed and accuracy, and work as a team member. (CSLO 2,3)

Course Requisites

CUL142 - Applied Food Science

General

Division
Business & Computer Technology Division

Course Description
An introduction to the science of food and cooking. This course focuses on the theory of food science as applied in the lab using the scientific method. Prerequisite: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify, classify and differentiate a variety of grain and grain products, meat, poultry, fish, milk and dairy products, fruits and vegetables, fats and oils, spices and herbs. (CSLO: 2, 3, 4)
2. (Comprehension Level) Identify the major nutrients in the food groups and describe how storage and food processing affects the nutrients in food. (CSLO: 2, 3, 4)
3. (Synthesis Level) Develop hypotheses on how the basic elements of temperature, time, pH and chemicals and physical manipulation will affect the appearance, flavor, texture and nutritional values of food. Apply those hypotheses in lab experience. (CSLO: 2, 3, 4)
4. (Analysis Level) Conduct scientific experiments to observe and determine how temperature, time, pH and chemicals, physical manipulation and various measuring techniques affect the appearance, flavor and texture of food. Compare outcomes to standard culinary practices. (CSLO: 2, 3, 4)
5. (Application Level) Apply scientific investigation to food products and determine how the nature of food changes in response to storage and processing. (CSLO: 2, 3, 4)
6. (Synthesis Level) Summarize subjective and objective data using standardized laboratory formats. (CSLO: 2, 3, 4)
7. (Synthesis Level) Write laboratory reports that include the description of the experiment, hypothesis, methodology, data collection, analysis of data, and interpretation of objective and subjective measurements. Write reports based on laboratory experiments or field trips in which observation and critical reasoning skills are employed in the development of detail report writing. Use scientific facts to support opinions. (CSLO: 2, 3, 4)
8. (Application Level) Utilize food science terminology to describe the sensory qualities of food. (CSLO: 2, 3, 4)
9. (Comprehension Level) Discuss the role of food technology as it applies to the growing and raising of food, processing, storage and distribution of food and how this affects our food security, nutritional status, and food sustainability. (CSLO: 2, 3, 4)
10. (Analysis Level) Recognize the scientific factors that influence food safety. (CSLO: 2, 3, 4)

Course Requisites

CUL160 - Baking and Pastry I

General

Division
Business & Computer Technology Division

Course Description
Basic principles and techniques required for the commercial preparation of bakery products, including yeast-leavened breads, pies, tarts, quick breads, cookies, and cakes. Requires 16 hours of supervised experience catering events outside of class. Prerequisite or corequisite: CUL105.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define baking terms. (CSLO 2)
2. (Application Level) Identify equipment and utensils used in baking; demonstrate proper selection, use, and care of equipment and utensils for specific applications. (CSLO 2)
3. (Comprehension Level) Identify ingredients used in baking and describe their properties and functions. (CSLO 2)
4. (Application Level) Demonstrate proper scaling and measurement techniques. (CSLO 2,3)
5. (Analysis Level) Apply basic math skills to recipe conversions based on servings required. (CSLO 2,3,4)
6. (Evaluation Level) Prepare basic yeast-leavened breads and evaluate quality and sensory characteristics. (CSLO 2,3)
7. (Analysis Level) Differentiate between the basic mixing methods for quick-breads, cookies, and cakes. (CSLO 2)
8. (Evaluation Level) Prepare a variety of quick-breads, cakes, cookies, and pies, then evaluate quality and sensory characteristics of the products. (CSLO 3)
9. (Evaluation Level) Prepare pate au choux, pastry cream, and creme anglaise, then evaluate their quality and sensory characteristics. (CSLO 3)
10. (Synthesis Level) Demonstrate ability to mise en place ingredients and equipment, increase speed and accuracy, and work as a team member. (CSLO 2,3,4)
11. (Application Level) Utilize safe food practices in all aspects of food production and service. (CSLO 3)

Course Requisites

CUL161 - Cake Decorating

General

Division
Business & Computer Technology Division

Course Description
Introduction to the art of cake decorating and instruction on how to design and create beautiful cakes using butter cream frosting. Skills presented include baking, leveling and preparing cakes for frosting, proper use of the pastry bag; designing flowers, leaves, and borders utilizing a variety of pastry tips; and tinting butter cream frosting. Recommended: Read class supply list available on website, purchase and bring items to first class. May take 2 times for credit.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Prepare cake for decoration, including baking, leveling and frosting. 2. (Application Level) Pipe frosting using a variety of pastry tips to create borders, flowers, leaves, rose buds and writing characters. 3. (Application Level) Use special tools and techniques to decorate professional looking cakes including crumb coats, tinting frosting, and creating special effects. 4. (Analysis Level) Evaluate the artistic presentation of a personal project and other cakes prepared in class.

CUL162 - Cakes, Fillings, and Frostings

General

Division
Business & Computer Technology Division

Course Description
Learn the fundamentals of preparing a great cake as a foundation for beautiful cake decorating. Prepare a variety of cakes; pair the cake with an appropriate filling, such as ganache, flavored syrup, fruit, or custard. Prepare a variety of frostings, including royal icing and buttercream. Construct a special cake utilizing the various components learned in class. May take 3 times for credit.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify characteristics and attributes of different categories of cake, fillings and frostings in order to choose the appropriate combination of texture, flavor, and keeping qualities. 2. (Application Level) Prepare a variety of cakes, fillings, syrups, and frostings. 3. (Synthesis Level) Assemble a cake composed of one of each of the components of cake making presented in class.

CUL170 - Dining and Beverage Operations

General

Division
Business & Computer Technology Division

Course Description
Theory and practice of food and beverage service; "front-of-the-house" topics such as table and buffet service, customer relations, menu development, management of wait staff, sanitation and safety concerns, and financial considerations of dining operations. Prerequiste: RDG100.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the general rules of table settings and food and beverage service; describe American, English, French and Russian service, and service methods such as banquets, buffets, catering and a la carte service. (CSLO 1, 2, 4)
2. (Knowledge Level) Describe the functions of and training procedures for dining service personnel. (CSLO 2, 3)
3. (Application Level) Apply guest service and customer relations skills to handling difficult situations and accommodating people with disabilities. (CSLO 2, 3)
4. (Knowledge Level) Describe sales techniques for service personnel, including menu knowledge, suggestive selling and procedures for processing guest checks using current technology. (CSLO 2, 3)
5. (Comprehension Level) Explain inter-relationships and work flow between dining room and kitchen operations. (CSLO 2, 3)
6. (Application Level) Plan a variety of menus such as, a la carte, cycle, ethnic, holiday, banquet, reception and buffet. (CSLO 2, 3, 4)
7. (Evaluation Level) Determine and evaluate menu prices using proper cost controls and appropriate technology. (CSLO 2, 4)
8. (Application Level) Identify and apply basic menu planning principles, such as menu layout and design. (CSLO 2)
9. (Synthesis Level) Create menu item descriptions following established truth-in-menu guidelines. (CSLO 2, 3)
10. (Evaluation Level) Critique a restaurant facility and service and write a restaurant review. (CSLO 3, 4)

Course Requisites

CUL185 - Catering Operations

General

Division
Business & Computer Technology Division

Course Description
The theory and practice of planning and executing catering functions with emphasis on sales, marketing, menu development, pricing and controls, equipment, banquet and buffet service and different catering styles. Recommended: RDG100; there is a strong emphasis on culinary math skills.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Examine and critique styles of catering, sales and marketing techniques, contracts, equipment, safety and sanitation concerns and governmental regulations. (CSLO: 2, 3, 4)
2. (Synthesis Level) Develop menus for various types of catering functions, applying food and labor costs to determine pricing strategies and planning long and short term for event. (CSLO: 1, 2, 3, 4)
3. (Synthesis Level) Outline a plan for a specific event: prepare menu, contract, staffing, food, equipment, transportation, timeline and billing issues. (CSLO: 2, 3, 4)
4. (Synthesis Level) Assist in planning and service for catering events in the culinary arts department and follow-up by identifying strategies for improving the planning and service processes. (CSLO: 2, 3, 4)

Course Requisites

CUL230 - Culinary Principles & Apps II

General

Division
Business & Computer Technology Division

Course Description
Build on principles learned in Culinary Principles and Applications I and advance skills in preparing a variety of stocks, sauces, soups, fresh vegetables, herbs, meat, poultry, and fish. Techniques and speed are refined and improved. Requires 16 hours of supervised experience catering events outside of class. Prerequisite: CUL130.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Use proper terminology in reference to equipment, procedures, and ingredients. (CSLO #2)
2. (Application Level) Calculate changes in ingredient measurements and equipment when varying production quantity. (CSLOs #2,4)
3. (Application Level) Describe the function of ingredients in formulas and demonstrate ability to manipulate and substitute ingredients in the formulas. (CSLOs #2,4)
4. (Application Level) Utilize appropriate cooking methods, and prepare and plate products using various meat, fish, poultry, cheese, produce, and sauces. (CSLO #2)
5. (Application Level) Describe and create a variety of forcemeat products such as terrines and pates. (CSLO #2)
6. (Synthesis Level) Organize for large events: prepare menu, manipulate formulas, prepare purchasing sheets, calculate cost and profit, determine staffing and timeline, and execute quantity food production. (CSLOs #1,2,3,4)
7. (Application Level) Select products appropriate for advance production and apply proper holding methods for optimal quality. (CSLOs #2,4)
8. (Synthesis Level) Develop ability to work with increased speed, cleanliness, accuracy, knife skills, and confidence. (CSLO #3)
9. (Application Level) Practice industry standards of food safety in all aspects of food preparation, presentation, and storage. (CSLO #3)

Course Requisites

CUL260 - Baking and Pastry II

General

Division
Business & Computer Technology Division

Course Description
Build on principles and techniques introduced in Baking and Pastry I and learn advanced skills to produce a variety of bakery, pastry, savory and dessert items. Requires 16 hours of supervised experience catering events outside of class. Prerequisite: CUL160 or CUL250 or HRM250.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use proper baking terminology in reference to equipment, procedures, and ingredients.
2. (Application Level) Select and demonstrate proper measurement method per ingredient.
3. (Application Level) Calculate changes in ingredient measurements and equipment when varying production quantity.
4. (Analysis Level) Describe the function of ingredients in formulas and demonstrate ability to manipulate and substitute ingredients in the formulas based on factors such as nutritional concerns and ingredient availability.
5. (Evaluation Level) Prepare products utilizing egg foams, meringues, gelatin, phyllo dough, and laminated dough, then evaluate quality and sensory characteristics of products.
6. (Synthesis Level) Organize for large events; prepare menu, manipulate formulas, prepare purchasing sheets, calculate staffing needs and preparation timeline, calculate profit, and execute quantity food production.
7. (Analysis Level) Analyze products and hypothesize possible problems and solutions based on observed characteristics of the product.
8. (Application Level) Select products appropriate for advance production and apply proper holding methods for optimal quality.
9. (Synthesis Level) Develop ability to work with increased speed, cleanliness, accuracy, and confidence.

Course Requisites

CUL261 - Advanced Cake Decorating

General

Division
Business & Computer Technology Division

Course Description
Decoration of cakes focusing on the preparation and use of fondant, royal icing, and gum paste flowers. Create a variety of flowers and bows that can be used for special occasion and wedding cakes. May take 3 times for credit. Prerequisite: CUL 161 or instructor consent.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Prepare royal icing and fondant; rolling, cutting, shaping and coloring fondant. 2. (Synthesis Level) Create a variety of fondant and gum flowers, bows, swags, and leaves. 3. (Analysis Level) Evaluate the artistic presentation of personal project and other cakes prepared in class.

Course Requisites

CUL262 - Specialty and Wedding Cakes

General

Division
Business & Computer Technology Division

Course Description
Learn the fundamentals of preparing a great cake as a foundation for beautiful cake decorating. Prepare a variety of cakes; pair the cake with an appropriate filling, such as ganache, flavored syrup, fruit, or custard. Prepare a variety of frostings, including royal icing and buttercream. Construct a special cake utilizing the various components learned in class. The entrepreneurial aspects of creating a successful Specialty Cake Business will be presented, including creating a portfolio, pricing, portioning, transporting and marketing. May take 3 times for credit.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify characteristics and attributes of different categories of cake, fillings and frostings in order to choose the appropriate combination of texture, flavor, and keeping qualities. 2. (Application Level) Prepare a variety of cakes, fillings, syrups, and frostings. 3. (Synthesis Level) Assemble a cake composed of one of each of the components of cake making presented in class.

CUL263 - Everything Chocolate

General

Division
Business & Computer Technology Division

Course Description
Comprehensive chocolate course emphasizing the techniques necessary to make unique molded chocolate pieces and gourmet chocolate confections. Introduction to chocolate decorating techniques including tempering, coloring, cutting and using transfer sheets, and working with modeling chocolate. Students will prepare products using different types of chocolate.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Describe the origins of chocolate and how it is made, identify a variety of chocolate products, and define terms used in chocolate work. (CSLO 1) 2.(Application Level) Utilize a variety of techniques related to chocolate work: tempering, piping, modeling, leaves, and how to handle and store chocolate. (CSLO 3) 3.(Application Level) Prepare a variety of products using various forms of chocolate. (CSLO 3) 4.(Evaluation Level) Evaluate products made in class for visual appeal, taste and texture; identify potential causes of problems. (CSLO 4)

CUL268 - Special Dietary Baking and Advanced Techniques

General

Division
Business & Computer Technology Division

Course Description
Introduction to the concepts of common food allergies. Apply this knowledge to baking and pastry production, manipulating and substituting ingredients to meet the goals of dietary restrictions such as lactose and glucose intolerance, food allergies, decreased sugar and fats for diabetic, cardiac and weight loss diets, and preparing delicious products for vegans. Explore advanced techniques in baking including current industry trends, high volume production, quality control, and bakery business start up. Prerequisite: CUL160.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify major food allergens, food intolerance and dietary restrictions. (CSLO 2,3)
2. (Synthesis Level) Modify traditional formulas for specific health needs using the principles of reduce, replace or elimination of ingredients. (CSLO 2,3,4)
3. (Knowledge Level) Describe the function of each ingredient in the production of quality baked goods. (CSLO 2,3)
4. (Comprehension Level) Identify and describe unique ingredients utilized in specialty baking as related to quality, structure, taste, texture and sensory/visual appeal. (CSLO 2,3)
5. (Synthesis Level) Produce high quality baked goods by manipulating and substituting ingredients. (CSLO 2,3)
6. (Comprehension Level) Identify current baking industry trends.
7. (Synthesis Level) Practice techniques and produce products that align with current industry trends. (CSLO 2,3)
8. (Comprehension Level) Identify components necessary for starting and owning a bakery. (CSLO 2,3,4)

CUL289 - Culinary Capstone

General

Division
Business & Computer Technology Division

Course Description
This course empowers culinary students to become culinary entrepreneurs and professionals equipped with the culinary and business knowledge needed to succeed in today's competitive culinary world. Through a fusion of culinary mastery and entrepreneurial strategy, students will create comprehensive business plans, design innovative menus, and refine their culinary skills. By the course's end, students will deliver persuasive business pitches and lead diverse teams, setting them on a path to excel in culinary entrepreneurship and the broader food industry. Prerequisites: CUL105; CUL130; CUL160; CUL170. Corequisites: CUL230; CUL260.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.(Application) Develop comprehensive business plans encompassing market analysis, audience identification, financial projections, and marketing strategies, showcasing entrepreneurship and management understanding. (CSLO 2 & 4)
2.(Evaluation) Acquire skills to identify and evaluate food industry trends, gather data, and make informed decisions for concept and menu design. (CSLO 1 & 4)
3.(Application) Refine culinary skills in hands-on recipe creation, mastering modifications, substitutions, and flavor balancing for marketable dishes. (CSLO 2)
4.(Application) Craft menus aligned with business concepts, considering seasonality, pricing, availability, and cultural influences for customer appeal. (CSLO 2 & 3)
5.(Application) Learn financial concepts and apply them to pricing, profit margins, inventory, and sustainability in business planning. (CSLO 1 & 4)
6.(Evaluation) Enhance communication skills through compelling business pitches, effectively showcasing unique concepts' viability to stakeholders. (CSLO 3)
7.(Application) Perfect advanced culinary skills essential for food ventures, demonstrating industry-standard proficiency through hands-on practice. (CSLO 2)
8.(Application) Develop leadership and team management abilities for successful project execution, fostering collaboration, problem-solving, and positive team dynamics. (CSLO 3)

CUL290 - Culinary Hospitality Internship

General

Division
Business & Computer Technology Division

Course Description
The Culinary Hospitality Internship requires 90-hours of practical, professional work experience in a restaurant/hospitality industry selected by the student and program coordinator. Prerequisite: (CUL105 or NTR105); CUL130; CUL160 and/or HRM100.

Total Number Of Credits:
2

Practicum Credits
2

Other Credit Information
2 Practicums total 90 Hours

MSLOs

Measurable Student Learning Outcomes
1.(Application Level) Use and maintain industry equipment, from start-up to breakdown, relevant to either culinary and/or hospitality settings. (CSLO 3)
2.(Application Level) Demonstrate a personal sense of pride, professionalism, and work ethic essential for success in either the culinary or hospitality industry. (CSLO 3)
3.(Analysis Level) Determine receiving and storage procedures for tangible goods, as well as cleaning supplies and chemicals, applicable to either culinary and/or hospitality. (CSLO 3)
4.(Application Level) Use current computerized and non-computerized systems for purchasing and inventory control, relevant to either culinary and/or hospitality operations. (CSLO 3)
5.(Synthesis Level) Analyze departmental reports and utilize data to understand managerial level decision making, in culinary and/or hospitality management. (CSLO 2, 3)
6.(Evaluation Level) Observe and evaluate the responsibilities of chef/manager roles, including staff scheduling, conflict resolution, production standards, safety and sanitation, purchasing procedures, and reporting, applicable to both culinary and hospitality sectors. (CSLO 2, 3)
7.(Application Level) Develop effective interpersonal communication and customer service skills, essential for building positive relationships with colleagues, customers, and clients in culinary and hospitality roles. (CSLO 3)
8.(Application Level) Demonstrate adaptability and problem-solving abilities by effectively handling unexpected challenges and changes in both culinary and hospitality settings, showcasing versatility and resourcefulness. (CSLO 4)
9.(Application Level) Cultivate time management and organizational skills to efficiently coordinate tasks, prioritize responsibilities, and meet deadlines, promoting productivity and success in culinary and hospitality environments. (CSLO 3)

Course Requisites

DFT127 - AutoCAD I

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course in Computer-Aided Drafting (CAD) computer technology for creation and documentation of 2D drawings utilizing the most recent version of AutoCAD distributed by AutoDesk. Includes operation and capabilities of computers in CAD, drafting fundamentals, dimensioning, annotating, management of CAD files, and printing.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Implement steps to launch AutoCAD's Computer Aided Design (CAD) program. 2. (Application Level) Use AutoCAD to create 2D drawings per American National Standards Institute (ANSI). 3. (Synthesis Level) Create features in AutoCAD through the usage of coordinate entry and angle interpretation. 4. (Analysis Level) Deconstruct provided drawings to identify elements in order to recreate the drawing from learned skills. 5. (Knowledge Level) Reproduce steps to save and retrieve AutoCAD files using given file management protocols. 6. (Comprehension Level) Describe steps to reproduce AutoCAD drawings through printing and the reason for reproducing these documents.

DFT128 - AutoCAD II

General

Division
Skilled Trades & Technology Division

Course Description
Advanced course in Computer-Aided Drafting (CAD) computer technology for creation and documentation of advanced 2D drawings utilizing the most recent version of AutoCAD distributed by AutoDesk. Content to be covered includes learning the usage of Groups, Blocks, External Reference Files, and advanced text modifiers.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop advanced drawings through the usage of text settings to emphasize portions of drawing. 2. (Application Level) Demonstrate the usage of AutoCAD's built-in calculator to perform advanced techniques within the AutoCAD program. 3. (Comprehension Level) Explain the methods to convert drawings between metric and standard measurements standards and to identify the reason behind this process. 4. (Synthesis Level) Assemble a drawing through the usage of AutoCAD's Group tool. 4. (Synthesis Level) Assemble a drawing through the usage of AutoCAD's Block tool. 6. (Analysis Level) Organize drawings through the usage of advanced Block techniques in order to categorize features through the usage of attributes to aid in the development of a Bill of Materials. 7. (Synthesis Level) Arrange a set of drawings logically to leverage the External Reference File capability of AutoCAD to maximize the efficiency of large drawings.

Course Requisites

DFT129 - Computer Draft Application

General

Division
Skilled Trades & Technology Division

Course Description
No description.

Total Number Of Credits:
3

DFT130 - Advanced CAD Applications

General

Division
Skilled Trades & Technology Division

Course Description
Advanced work in an area of individual interest within the scope of computer-aided drafting. Prerequisite: DFT127.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Independently demonstrate knowledge and use of AutoCAD skills. 2. (Synthesis Level) Design self-directed course activities within a topic of particular scholarly interest. 3. (Application Level) Perform and document research for successful scholarship. 4. (Synthesis Level) Compile and present all related subject matter documentation.

Course Requisites

DFT131 - Autocad III

General

Division
Skilled Trades & Technology Division

Course Description
Advanced course in Computer-Aided Drafting (CAD) computer technology for creation and documentation of 3D drawings utilizing the most recent version of AutoCAD distributed by AutoDesk. Includes operation and capabilities of computers in modeling of three-dimensional features through the use of AutoCAD.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain AutoCAD's three methods (Wireframe, Surface, and Solid Models) of developing a 3D object. 2. (Application Level) Demonstrate ability to relocate the User Coordinate Systems (UCS) in AutoCAD to support development of a 3D Model. 3. (Synthesis Level) Arrange objects in a 3D workspace to represent actual real-world features. 4. (Application Level) Demonstrate ability to render 3D models to reflect actual representation of an object. 5. (Application Level) Employ proper methodology of printing 3D models in AutoCAD to accurately represent the feature created. 6. (Synthesis Level) Prepare, plan, and organize a self-generated project idea to use in a class presentation of skills learned in class.

Course Requisites

DIE110 - Intro to Diesel Engine & Fuel

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to diesel engines focusing on the theory of operation of the four main subsystems: basic engine, lubrication, cooling and fuel systems.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and explain safety hazards associated with engines. 2. (Knowledge Level) Recall and define basic engine terminology. 3. (Comprehension Level) Identify and explain external and internal parts of a diesel engine and its subsystems. 4. (Analysis Level) Outline in detail the basic operation of a diesel engine. 5. (Comprehension Level) Explain in detail the five functions of a lubrication system within a diesel engine. 6. (Comprehension Level) Describe how the cooling system functions as a subsystem of the diesel engine. 7. (Comprehension Level) Explain in detail the five basic functions of any given diesel fuel system.

DIE116 - Intro to Diesel Technology

General

Division
Skilled Trades & Technology Division

Course Description
Diesel technology knowledge and skills to prepare students for other heavy equipment technician courses, including fundamental concepts, standard safety procedures, tool use, identification and maintenance of equipment, precision measurement, and electrical theory. Prerequisites: Current and Valid Driver's License.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and practice industry standard procedures in the areas of personal safety, fire safety, environmental safety and tools/equipment safety.
2. (Application Level) Identify and use hand and power tools correctly.
3. (Knowledge Level) Identify the uses of each type of heavy equipment and the major operating system's function.
4. (Application Level) Demonstrate correct practices for preventive maintenance inspections.
5. (Application Level) Practice preventive maintenance service procedures on heavy equipment and demonstrate the correct application of lubricants.
6. (Knowledge Level) Identify track systems and operating principles.
7. (Synthesis Level) Identify and explain rubber tire construction, nomenclature, application, maintenance, and perform repair.
8. (Application Level) Identify common fastener types, sizes, thread pitch, characteristics, and use. Demonstrate correct procedures for threading.
9. (Synthesis Level) Build basic electrical circuits and demonstrate fundamental electrical principles.
10. (Application Level) Demonstrate proficiency interpreting precision measurements using the metric and English systems.

DIE116A - Introduction to Diesel Technology Part A

General

Division
Skilled Trades & Technology Division

Course Description
Diesel technology knowledge and skills to prepare students for other heavy equipment technician courses, including fundamental concepts, standard safety procedures, tool use, identification and maintenance of equipment, precision measurement, and electrical theory. Prerequisites: Current and Valid Driver's License. Closed to Coolidge High School students.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and practice industry standard procedures in the areas of personal safety, fire safety, environmental safety and tools/equipment safety. CSLO 2,3,4

2. (Application Level) Identify and use hand and power tools correctly. CSLO 2,3,4

3. (Knowledge Level) Identify the uses of each type of heavy equipment and the major operating system's function. CSLO 2,3,4

4. (Application Level) Demonstrate correct practices for preventive maintenance inspections. CSLO 2,3,4

5. (Application Level) Practice preventive maintenance service procedures on heavy equipment and demonstrate the correct application of lubricants. CSLO 2,3,4

6. (Knowledge Level) Identify track systems and operating principles. CSLO 2,3,4

7. (Synthesis Level) Identify and explain rubber tire construction, nomenclature, application, maintenance, and perform repair. CSLO 2,3,4

8. (Application Level) Identify common fastener types, sizes, thread pitch, characteristics, and use. Demonstrate correct procedures for threading. CSLO 2,3,4

9. (Synthesis Level) Build basic electrical circuits and demonstrate fundamental electrical principles. CSLO 2,3,4

10. (Application Level) Demonstrate proficiency interpreting precision measurements using the metric and English systems.

DIE116B - Introduction to Diesel Technology Part B

General

Division
Skilled Trades & Technology Division

Course Description
Diesel technology knowledge and skills to prepare students for other heavy equipment technician courses, including fundamental concepts, standard safety procedures, tool use, identification and maintenance of equipment, precision measurement, and electrical theory. Prerequisites: Current and Valid Driver's License. Closed enrollment for Coolidge High School students.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and practice industry standard procedures in the areas of personal safety, fire safety, environmental safety and tools/equipment safety. CSLO 2,3,4

2. (Application Level) Identify and use hand and power tools correctly. CSLO 2,3,4

3. (Knowledge Level) Identify the uses of each type of heavy equipment and the major operating system's function. CSLO 2,3,4

4. (Application Level) Demonstrate correct practices for preventive maintenance inspections. CSLO 2,3,4

5. (Application Level) Practice preventive maintenance service procedures on heavy equipment and demonstrate the correct application of lubricants. CSLO 2,3,4

6. (Knowledge Level) Identify track systems and operating principles. CSLO 2,3,4

7. (Synthesis Level) Identify and explain rubber tire construction, nomenclature, application, maintenance, and perform repair. CSLO 2,3,4

8. (Application Level) Identify common fastener types, sizes, thread pitch, characteristics, and use. Demonstrate correct procedures for threading. CSLO 2,3,4

9. (Synthesis Level) Build basic electrical circuits and demonstrate fundamental electrical principles. CSLO 2,3,4

10. (Application Level) Demonstrate proficiency interpreting precision measurements using the metric and English systems. CSLO 2,3,4

DIE118 - Computer Systems Equip Techs

General

Division
Skilled Trades & Technology Division

Course Description
Basic fundamentals and applications of Caterpillar, Cummins, and Detroit technical mobile computer systems, including onboard computers, sensors, actuators and software. Course includes use of Internet resources and manufacturer software emphasizing the correct use of technical information to develop troubleshooting skills.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Demonstrate the ability to work professionally, ethically, and safely with computer systems. (CSLO 2,3)
2. (Evaluating Level) Evaluate technical information available to the public by using Internet search engines. (CSLO 1,3,4)
3. (Evaluating Level) Use menu and toolbar functions specific to manufacturer software packages to make equipment repair recommendations and successfully view local part store inventories. (CSLO 1,2,4)
4. (Applying Level) Use laptop computers to load software and download software payloads onto vehicle computers via Internet or software packages. (CSLO 2,3)
5. (Applying level) Use vehicle manufacturers intranet pages and software to look up daily product updates and recently updated technical information. (CSLO 2)
6. (Applying Level) Perform vehicle diagnostics using onboard software tools and live connections to vehicle computer systems. (CSLO 1,4)
7. (Analyzing Level) Recognize the similarities within the industry regarding use of onboard computer communication systems and diagnostic equipment. (CSLO 2)
8. (Applying Level) Locate and repair mobile computer communication system failures. (CSLO 1,3,4)
9. (Applying Level) Demonstrate the use of mobile computers to test sensors (inputs) and actuators (outputs) that manage computer controlled components. (CSLO 1,2,3)
10. (Understanding Level) Explain the common sensor and actuator functions. (CSLO 2,3)

Course Requisites

DIE118A - Computer Systems Equipment Techs Part A

General

Division
Skilled Trades & Technology Division

Course Description
Basic fundamentals and applications of Caterpillar, Cummins, and Detroit technical mobile computer systems, including onboard computers, sensors, actuators and software. Course includes use of Internet resources and manufacturer software emphasizing the correct use of technical information to develop troubleshooting skills. Prerequisite: This is a closed enrollment - must be a current Coolidge High school student.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Demonstrate the ability to work professionally, ethically, and safely with computer systems. (CSLO 2,3)
2. (Evaluating Level) Evaluate technical information available to the public by using Internet search engines. (CSLO 1,3,4)
3. (Evaluating Level) Use menu and toolbar functions specific to manufacturer software packages to make equipment repair recommendations and successfully view local part store inventories. (CSLO 1,2,4)
4. (Applying Level) Use laptop computers to load software and download software payloads onto vehicle computers via Internet or software packages. (CSLO 2,3)
5. (Applying level) Use vehicle manufacturers intranet pages and software to look up daily product updates and recently updated technical information. (CSLO 2)
6. (Applying Level) Perform vehicle diagnostics using onboard software tools and live connections to vehicle computer systems. (CSLO 1,4)
7. (Analyzing Level) Recognize the similarities within the industry regarding use of onboard computer communication systems and diagnostic equipment. (CSLO 2)
8. (Applying Level) Locate and repair mobile computer communication system failures. (CSLO 1,3,4)
9. (Applying Level) Demonstrate the use of mobile computers to test sensors (inputs) and actuators (outputs) that manage computer controlled components. (CSLO 1,2,3)
10. (Understanding Level) Explain the common sensor and actuator functions. (CSLO 2,3)

Course Requisites

DIE118B - Computer Systems Equipment Techs Part B

General

Division
Skilled Trades & Technology Division

Course Description
Basic fundamentals and applications of Caterpillar, Cummins, and Detroit technical mobile computer systems, including onboard computers, sensors, actuators and software. Course includes use of Internet resources and manufacturer software emphasizing the correct use of technical information to develop troubleshooting skills. Prerequisite: Closed enrollment - must be a current Coolidge High school student.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Demonstrate the ability to work professionally, ethically, and safely with computer systems. (CSLO 2,3)
2. (Evaluating Level) Evaluate technical information available to the public by using Internet search engines. (CSLO 1,3,4)
3. (Evaluating Level) Use menu and toolbar functions specific to manufacturer software packages to make equipment repair recommendations and successfully view local part store inventories. (CSLO 1,2,4)
4. (Applying Level) Use laptop computers to load software and download software payloads onto vehicle computers via Internet or software packages. (CSLO 2,3)
5. (Applying level) Use vehicle manufacturers intranet pages and software to look up daily product updates and recently updated technical information. (CSLO 2)
6. (Applying Level) Perform vehicle diagnostics using onboard software tools and live connections to vehicle computer systems. (CSLO 1,4)
7. (Analyzing Level) Recognize the similarities within the industry regarding use of onboard computer communication systems and diagnostic equipment. (CSLO 2)
8. (Applying Level) Locate and repair mobile computer communication system failures. (CSLO 1,3,4)
9. (Applying Level) Demonstrate the use of mobile computers to test sensors (inputs) and actuators (outputs) that manage computer controlled components. (CSLO 1,2,3)
10. (Understanding Level) Explain the common sensor and actuator functions. (CSLO 2,3)

Course Requisites

DIE132 - Diesel Engines and Fuel Systems

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to diesel engines focusing on the theory of operation of the four main subsystems: basic engine, lubrication, cooling and fuel systems. Practical training in troubleshooting, diagnosing, and performing repairs on diesel engines and engine subsystems. An in depth study of modern diesel engines used in off and on highway application, emphasizing computer controlled fuel systems and new emission standards.

Total Number Of Credits:
8

Lecture Credits
2

Lab Credits
18

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Understanding Level) Identify and explain safety hazards associated with engines. (CSLO 1,2,3)
3. (Remembering Level) Recall and define basic engine terminology. (CSLO 1,2,3)
4. (Understanding Level) Identify and explain external and internal parts of a diesel engine and its subsystems. (CSLO 2)
5. (Analyzing Level) Outline in detail the basic operation of a diesel engine. (CSLO 2)
6. (Understanding Level) Explain in detail the five functions of a lubrication system within a diesel engine. (CSLO 2)
7. (Understanding Level) Describe how the cooling system functions as a subsystem of the diesel engine. (CSLO 2)
8. (Remembering Level) Identify and list special engine tools and test equipment used to make engine repairs. (CSLO 2)
9. (Evaluating Level) Interpret manufacturer's service literature to assist in diagnosing engine malfunctions and performing repairs. (CSLO 2)
10. (Applying Level) Describe and show a diesel engine tune-up procedure. (CSLO 2)
11. (Evaluating Level) Recognize the importance of a fluid analysis and interpret the results. (CSLO 2)
12. (Applying Level) Define and demonstrate use of computer controlled fuel system terminology. (CSLO 2)
13. (Remembering Level) Identify components related to computer controlled fuel systems. (CSLO 2)
14. (Applying Level) Use laptop computers and on board monitors to find trouble codes for faulty components and wiring. (CSLO 2)
15. (Evaluating Level) Appraise your repair by starting the engine and analyzing the circuit using a laptop or onboard monitoring system, if applicable. (CSLO 2,4)

DIE132A - Diesel Engines and Fuel Systems Part A

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to diesel engines focusing on the theory of operation of the four main subsystems: basic engine, lubrication, cooling and fuel systems. Practical training in troubleshooting, diagnosing, and performing repairs on diesel engines and engine subsystems. An in depth study of modern diesel engines used in off and on highway application, emphasizing computer controlled fuel systems and new emission standards. Prerequisite: Must be a SUNDT Construction employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Understanding Level) Identify and explain safety hazards associated with engines. (CSLO 1,2,3)
3. (Remembering Level) Recall and define basic engine terminology. (CSLO 1,2,3)
4. (Understanding Level) Identify and explain external and internal parts of a diesel engine and its subsystems. (CSLO 2)
5. (Analyzing Level) Outline in detail the basic operation of a diesel engine. (CSLO 2)
6. (Understanding Level) Explain in detail the five functions of a lubrication system within a diesel engine. (CSLO 2)
7. (Understanding Level) Describe how the cooling system functions as a subsystem of the diesel engine. (CSLO 2)
8. (Remembering Level) Identify and list special engine tools and test equipment used to make engine repairs. (CSLO 2)

DIE132B - Diesel Engines and Fuel Systems Part B

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to diesel engines focusing on the theory of operation of the four main subsystems: basic engine, lubrication, cooling and fuel systems. Practical training in troubleshooting, diagnosing, and performing repairs on diesel engines and engine subsystems. An in depth study of modern diesel engines used in off and on highway application, emphasizing computer controlled fuel systems and new emission standards. Prerequisite: Must be a SUNDT employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Interpret manufacturer's service literature to assist in diagnosing engine malfunctions and performing repairs. (CSLO 2)
2. (Applying Level) Describe and show a diesel engine tune-up procedure. (CSLO 2)
3. (Evaluating Level) Recognize the importance of a fluid analysis and interpret the results. (CSLO 2)
4. (Applying Level) Define and demonstrate use of computer controlled fuel system terminology. (CSLO 2)
5. (Remembering Level) Identify components related to computer controlled fuel systems. (CSLO 2)
6. (Applying Level) Use laptop computers and on board monitors to find trouble codes for faulty components and wiring. (CSLO 2)
7. (Evaluating Level) Appraise your repair by starting the engine and analyzing the circuit using a laptop or onboard monitoring system, if applicable. (CSLO 2,4)

DIE133 - Diesel Power Trains

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to power train systems used in heavy equipment focusing on the theory of operation and application of manual, power-shift, and hydro-static transmissions. Training in diagnosis and repair of heavy equipment manual, power shift, and hydro-static transmission systems. Modern power train systems used in on and off highway equipment, emphasizing diagnostic and repair procedures applied to computer controlled power shift and hydro-static transmission systems.

Total Number Of Credits:
8

Lecture Credits
2

Lab Credits
18

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Remembering Level) Identify safety hazards associated with power train systems. (CSLO 1,2,3)
3. (Understanding Level) Recall and explain basic power-train terminology. (CSLO 2)
4. (Understanding Level) Identify and explain external and internal parts of manual shift, power shift, and hydro-static transmission systems. (CSLO 2)
5. (Understanding Level) Explain the theory of operation of manual shift, power shift, and hydro-static transmissions systems. (CSLO 2)
6. (Understanding Level) Identify, list and describe special tools and test equipment used to make repairs on power train systems in manual shift, power shift, and hydro-static transmissions. (CSLO 2)
7. (Evaluating Level) Interpret manufacturer's service literature to assist in diagnosing power train failures and repair procedures. (CSLO 2,3,4)
8. (Applying Level) Demonstrate the use of special tools used to make repairs and adjustments to power train systems of manual shift, power shift, and hydro-static transmissions according to the service manual. (CSLO 2)
9. (Applying Level) Use a service manual to disassemble and assemble a manual, power shift, counter-shaft, and hydro-static transmission. (CSLO 1,2,3)
10. (Evaluating Level) Evaluate parts of a disassembled transmission to determine if they can be re-used using a service manual or serviceability guide. (CSLO 2)
11. (Applying Level) Use a service manual to find troubleshooting, diagnostic, and repair procedures for any given scenario or problem. (CSLO 2)
12. (Applying Level) With the use of a laptop computer, download trouble codes to aid in diagnosing power train failures. (CSLO 2)
13. (Applying Level) Apply basic concepts to determine if a transmission failure is electronic, hydraulic, or mechanical. (CSLO 2)
14. (Evaluating Level) Justify your findings by testing the failed component with the use of a service manual and special tools provided. (CSLO 2)
15. (Evaluating Level) Justify your repair by installing new or repaired components and test machine performance. (CSLO 2)

DIE133A - Diesel Power Trains Part A

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to power train systems used in heavy equipment focusing on the theory of operation and application of manual, power-shift, and hydro-static transmissions. Training in diagnosis and repair of heavy equipment manual, power shift, and hydro-static transmission systems. Modern power train systems used in on and off highway equipment, emphasizing diagnostic and repair procedures applied to computer controlled power shift and hydro-static transmission systems. Prerequisite: Must be a SUNDT employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Remembering Level) Identify safety hazards associated with power train systems. (CSLO 1,2,3)
3. (Understanding Level) Recall and explain basic power-train terminology. (CSLO 2)
4. (Understanding Level) Identify and explain external and internal parts of manual shift, power shift, and hydro-static transmission systems. (CSLO 2)
5. (Understanding Level) Explain the theory of operation of manual shift, power shift, and hydro-static transmissions systems. (CSLO 2)
6. (Understanding Level) Identify, list and describe special tools and test equipment used to make repairs on power train systems in manual shift, power shift, and hydro-static transmissions. (CSLO 2)
7. (Evaluating Level) Interpret manufacturer's service literature to assist in diagnosing power train failures and repair procedures. (CSLO 2,3,4)
8. (Applying Level) Demonstrate the use of special tools used to make repairs and adjustments to power train systems of manual shift, power shift, and hydro-static transmissions according to the service manual. (CSLO 2)

DIE133B - Diesel Power Trains Part B

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to power train systems used in heavy equipment focusing on the theory of operation and application of manual, power-shift, and hydro-static transmissions. Training in diagnosis and repair of heavy equipment manual, power shift, and hydro-static transmission systems. Modern power train systems used in on and off highway equipment, emphasizing diagnostic and repair procedures applied to computer controlled power shift and hydro-static transmission systems. Prerequisite: Must be SUNDT employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Use a service manual to disassemble and assemble a manual, power shift, counter-shaft, and hydro-static transmission. (CSLO 1,2,3)
2. (Evaluating Level) Evaluate parts of a disassembled transmission to determine if they can be re-used using a service manual or serviceability guide. (CSLO 2)
3. (Applying Level) Use a service manual to find troubleshooting, diagnostic, and repair procedures for any given scenario or problem. (CSLO 2)
4. (Applying Level) With the use of a laptop computer, download trouble codes to aid in diagnosing power train failures. (CSLO 2)
5. (Applying Level) Apply basic concepts to determine if a transmission failure is electronic, hydraulic, or mechanical. (CSLO 2)
6. (Evaluating Level) Justify your findings by testing the failed component with the use of a service manual and special tools provided. (CSLO 2)
7. (Evaluating Level) Justify your repair by installing new or repaired components and test machine performance. (CSLO 2)

DIE196 - Diesel Equip/HEO Internship I

General

Division
Skilled Trades & Technology Division

Course Description
Internship offering career study designed to provide hands-on work experience in the Diesel and Heavy Equipment Repair industry as a technician helper/shop laborer. Intern may be required by their employer to possess a basic tool set. This internship requires 135 clock hours. Prerequisite: Enrollment in DIE, CFE or HEO program.

Total Number Of Credits:
3

Internship Credits
3

Other Credit Information
3 Internships total 135 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform hands-on, real-life application of skills and knowledge learned in the theory and skills courses of the program. (CSLO 2, 3, 4) 2. (Evaluation Level) Summarize the internship experience, evaluate best practices employed at the work site, and identify suggestions for improvement of the CAC program, courses, and the internship process. (CSLO 1, 3) 3. (Application Level) Comply with the employer's work rules, regulations, corporate handbook, and regulations. (CSLO 2, 3, 4) 4. (Application Level) Demonstrate reliability and the appropriate safe work habits in the workplace. (CSLO 2, 3, 4) 5. (Application Level) Comply with OSHA safety requirements. (CSLO 2, 3, 4)

Course Requisites

DIE215 - Diesel Electrical Systems

General

Division
Skilled Trades & Technology Division

Course Description
Theory, operation, and components of electrical and electronic circuits.
An application of electrical/electronic principles and theories emphasizing electrical system anomaly diagnostics and repair/replacement of components.

Total Number Of Credits:
8

Lecture Credits
2

Lab Credits
18

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Understanding Level) Describe the theory of electron flow, Ohm's Law, and basic electrical theory. (CSLO 2)
3. (Understanding Level) Describe components of series and parallel electrical circuits. (CSLO 2)
4. (Creating Level) Construct simple electrical circuits. (CSLO 2)
5. (Understanding Level) Describe the operation of digital multi-meters in measuring volts, amps, and ohms. (CSLO 2)
6. (Understanding Level) Describe the role of magnetism, electromagnetism, and electromagnetic induction in electrical system components. (CSLO 2)
7. (Understanding Level) Describe the theory of operation and the role of semi-conductors in circuits. (CSLO 2)
8. (Applying Level) Trace the flow of electricity in a wiring diagram. (CSLO 2)
9. (Understanding Level) Identify and describe the functions of electrical circuits and components. (CSLO 2)
10. (Understanding Level) Describe how a chemical electron pump changes energy levels. (CSLO 2)
11. (Understanding Level) Describe how electromagnetic principles and electromagnetic induction apply to electrical and electronic subsystems. (CSLO 2)
12. (Understanding Level) Describe the theory of operation of an electric motor. (CSLO 2)
13. (Creating Level) Locate and resolve failure concerns in electric motors using test equipment and knowledge of theory of operation. (CSLO 2,4)
14. (Understanding Level) Describe the function of input sensors and the outputs of heavy equipment Power-train Control Modules (PCM) and other electronic control components. (CSLO 2)
15. (Creating Level) Locate and resolve failure code concerns in electronic controls as applied to diesel engines, hydraulic components, and heavy equipment accessories. (CSLO 2,4)

DIE215A - Diesel Electrical Systems Part A

General

Division
Skilled Trades & Technology Division

Course Description
Theory, operation, and components of electrical and electronic circuits.
An application of electrical/electronic principles and theories emphasizing electrical system anomaly diagnostics and repair/replacement of components.
Prerequisite: Must be SUNDT employee.

Total Number Of Credits:
3

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Understanding Level) Describe the theory of electron flow, Ohm's Law, and basic electrical theory. (CSLO 2)
3. (Understanding Level) Describe components of series and parallel electrical circuits. (CSLO 2)
4. (Creating Level) Construct simple electrical circuits. (CSLO 2)
5. (Understanding Level) Describe the operation of digital multi-meters in measuring volts, amps, and ohms. (CSLO 2)
6. (Understanding Level) Describe the role of magnetism, electromagnetism, and electromagnetic induction in electrical system components. (CSLO 2)
7. (Understanding Level) Describe the theory of operation and the role of semi-conductors in circuits. (CSLO 2)
8. (Applying Level) Trace the flow of electricity in a wiring diagram. (CSLO 2)

DIE215B - Diesel Electrical Systems Part B

General

Division
Skilled Trades & Technology Division

Course Description
Theory, operation, and components of electrical and electronic circuits.
An application of electrical/electronic principles and theories emphasizing electrical system anomaly diagnostics and repair/replacement of components.
Prerequisite: Must be SUNDT employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Identify and describe the functions of electrical circuits and components. (CSLO 2)
2. (Understanding Level) Describe how a chemical electron pump changes energy levels. (CSLO 2)
3. (Understanding Level) Describe how electromagnetic principles and electromagnetic induction apply to electrical and electronic subsystems. (CSLO 2)
4. (Understanding Level) Describe the theory of operation of an electric motor. (CSLO 2)
5. (Creating Level) Locate and resolve failure concerns in electric motors using test equipment and knowledge of theory of operation. (CSLO 2,4)
6. (Understanding Level) Describe the function of input sensors and the outputs of heavy equipment Power-train Control Modules (PCM) and other electronic control components. (CSLO 2)
7. (Creating Level) Locate and resolve failure code concerns in electronic controls as applied to diesel engines, hydraulic components, and heavy equipment accessories. (CSLO 2,4)

DIE216 - Diesel Hydraulic Systems

General

Division
Skilled Trades & Technology Division

Course Description
Theory of operation of hydraulic and hydro-static systems used in heavy equipment and truck applications. Application of the theoretical concepts, diagnostic procedures, and service and repair techniques related to hydraulic and hydro-static systems used in heavy equipment and truck applications. The course emphasizes the use of hydraulic schematics, test equipment, and service manuals to diagnose and repair.

Total Number Of Credits:
8

Lecture Credits
2

Lab Credits
18

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Understanding Level) Describe the theory of fluid flow, circuits in a hydro-static system, and hydraulic and hydro-static operations. (CSLO 2)
3. (Remembering Level) Identify the components of hydraulic circuits including flow control valves. (CSLO 2)
4. (Remembering Level) Recite the Pressure and Flow formulas for the movement of hydraulic fluids. (CSLO 2)
5. (Applying Level) Use math to calculate hydraulic pressure and flow rates. (CSLO 2)
6. (Creating Level) Construct simple hydraulic circuits on a hydraulic bench. (CSLO 2)
7. (Applying Level) Use pressure and flow gauges to determine circuit variables. (CSLO 2)
8. (Applying Level) Draw the symbols used to describe hydraulic circuits. (CSLO 2)
9. (Evaluating Level) Interpret hydraulic circuit diagrams and state how various failures in the system will affect expected outcomes.(CSLO 2,4)
10. (Applying Level) Use diagnostic equipment to locate faults in hydraulic and hydro-static equipment. (CSLO 2,4)
11. (Remembering Level) Identify the cause of failures related to hydraulic and hydro-static systems. (CSLO 2)
12. (Understanding Level) Describe the relationship of electro-hydraulic components to hydraulic circuits. (CSLO 2,4)
13. (Applying Level) Repair major hydraulic and electro-hydraulic components. (CSLO 2,4)
14. (Analyzing Level) Analyze technical literature and apply the information to the diagnosis and repair of systems and subsystems. (CSLO 2,4)
15. (Applying Level) Choose appropriate precision measuring tools and demonstrate correct use related to hydraulic system repair. (CSLO 2)

DIE216A - Diesel Hydraulic Systems Part A

General

Division
Skilled Trades & Technology Division

Course Description
Theory of operation of hydraulic and hydro-static systems used in heavy equipment and truck applications. Application of the theoretical concepts, diagnostic procedures, and service and repair techniques related to hydraulic and hydro-static systems used in heavy equipment and truck applications. The course emphasizes the use of hydraulic schematics, test equipment, and service manuals to diagnose and repair. Prerequisite: Must be SUNDT employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Model safe procedures in the workplace, per OSHA. (CSLO 1,2,3)
2. (Understanding Level) Describe the theory of fluid flow, circuits in a hydro-static system, and hydraulic and hydro-static operations. (CSLO 2)
3. (Remembering Level) Identify the components of hydraulic circuits including flow control valves. (CSLO 2)
4. (Remembering Level) Recite the Pressure and Flow formulas for the movement of hydraulic fluids. (CSLO 2)
5. (Applying Level) Use math to calculate hydraulic pressure and flow rates. (CSLO 2)
6. (Creating Level) Construct simple hydraulic circuits on a hydraulic bench. (CSLO 2)
7. (Applying Level) Use pressure and flow gauges to determine circuit variables. (CSLO 2)
8. (Applying Level) Draw the symbols used to describe hydraulic circuits. (CSLO 2)

DIE216B - Diesel Hydraulic Systems Part B

General

Division
Skilled Trades & Technology Division

Course Description
Theory of operation of hydraulic and hydro-static systems used in heavy equipment and truck applications. Application of the theoretical concepts, diagnostic procedures, and service and repair techniques related to hydraulic and hydro-static systems used in heavy equipment and truck applications. The course emphasizes the use of hydraulic schematics, test equipment, and service manuals to diagnose and repair. Prerequisite: Must be SUNDT employee.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Interpret hydraulic circuit diagrams and state how various failures in the system will affect expected outcomes.(CSLO 2,4)
2. (Applying Level) Use diagnostic equipment to locate faults in hydraulic and hydro-static equipment. (CSLO 2,4)
3. (Remembering Level) Identify the cause of failures related to hydraulic and hydro-static systems. (CSLO 2)
4. (Understanding Level) Describe the relationship of electro-hydraulic components to hydraulic circuits. (CSLO 2,4)
5. (Applying Level) Repair major hydraulic and electro-hydraulic components. (CSLO 2,4)
6. (Analyzing Level) Analyze technical literature and apply the information to the diagnosis and repair of systems and subsystems. (CSLO 2,4)
7. (Applying Level) Choose appropriate precision measuring tools and demonstrate correct use related to hydraulic system repair. (CSLO 2)

DIE222 - Mobile Refrigeration

General

Division
Skilled Trades & Technology Division

Course Description
Principles of operation for the various types of mobile air conditioning systems utilized in diagnosing, testing and reconditioning these systems.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate safe shop practices while working with tools and equipment related to Mobile Refrigeration.
2. (Analysis Level) Examine the theory of operation related to Mobile Refrigeration systems used in heavy equipment.
3. (Comprehension Level) Describe how a Mobile Refrigeration system works and recall the main components used in these systems.
4. (Application Level) Demonstrate the ability to properly use the A/C recovering system and other special tools in co-ordinance with the EPA609 standards.
5. (Evaluation Level) Interpret manufacturers service manuals to aid with troubleshooting, diagnosing, repairing and maintaining mobile refrigeration systems.
6. (Analysis Level) Compare the data found while troubleshooting and diagnosing with specifications in the manufacturers service manuals to determine the possible cause of failure.
7. (Analysis Level) Identify the failed component(s) to deduce what needs to be repaired or replaced.

DIE296 - Diesel Equip HEO Internship II

General

Division
Skilled Trades & Technology Division

Course Description
Internship offering advanced career study designed to provide hands-on work experience in the Diesel and Heavy Equipment Repair industry as a technician helper/shop laborer. Intern may be required by their employer to possess a basic tool set. This internship requires 135 clock hours. The internship allows the student to obtain college credit for advanced level hands-on work experience. Prerequisite: DIE196.

Total Number Of Credits:
3

Internship Credits
3

Other Credit Information
3 Internships total 135 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Demonstrate hands-on, real-life application of skills and knowledge learned in the theory and skills courses. (CSLO 2, 3, 4) 2. (Evaluation Level) Summarize the internship experience, evaluate best practices employed at the work site, and identify suggestions for improvement of the CAC program, courses and the internship process. (CSLO 1, 3) 3. (Application Level) Comply with the employer's work rules, regulations, corporate handbook and regulations. (CSLO 2, 3, 4) 4. (Application Level) Demonstrate reliability and the appropriate safe work habits in the workplace. (CSLO 2, 3, 4) 5. (Application Level) Comply with OSHA safety requirements. (CSLO 2, 3, 4)

Course Requisites

DIE13217 - Diesel Engines and Fuel Systems

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to diesel engines focusing on the theory of operation of the four main subsystems: basic engine, lubrication, cooling and fuel systems. Practical training in troubleshooting, diagnosing, and performing repairs on diesel engines and engine subsystems. An in depth study of modern diesel engines used in off and on highway application, emphasizing computer controlled fuel systems and new emission standards.

Total Number Of Credits:
8

DMA101 - Media and Society

General

Division
Visual & Performing Arts Division

Course Description
An introduction to a variety of ways of understanding the role of mass communication in our society. Examine interactions between media and culture. Individual media institutions will be studied in terms of the information they distribute, the entertainment they provide, and the influence they bring. Special attention will be given to the audience-medium relationship and to improving students' media literacy. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine essential ways in which culture and society are shaped by mass media. (CSLO 1 & 4)
2. (Evaluation Level) Recognize and compare and contrast major media sources and critique their content and biases. (CSLO 2 & 4)
3. (Synthesis Level) Communicate how specific media have shaped the world as we know it through developing technologies and changing formats. (CSLO 2 & 4)
4. (Analysis Level) Analyze the fundamentals and history of several forms of media. (CSLO 2)
5. (Analysis Level) Examine media rights and responsibilities, including legal and ethical issues. (CSLO 2 & 3)
6. (Evaluation Level) Critique and interpret at least three media forms, and evaluate the differences in news reporting. (CSLO 2, 3 & 4)

Course Requisites

DMA115 - Digital Imaging

General

Division
Visual & Performing Arts Division

Course Description
Emphasis will be on using Photoshop as a tool in the process of image creation, manipulation, and enhancement for visual expression and communication. Students will explore a variety of creative techniques for producing, editing, and altering images using digital editing software. The course will include technical instruction in Adobe Photoshop including, panels, image editing, selections, layers, masks and paths, layer styles, type effects, and filters.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Identify and specify different graphics file formats for print and web. (CSLO 2, 3 & 4)
2. (Analysis Level) Distinguish image resolution from resolution of input and output devices. (CSLO 2, 3 & 4)
3. (Application Level) Use photo editing software, to edit, retouch, and color-balance digital images. (CSLO 2, 3 & 4)
4. (Knowledge Level) Select and identify the correct editing and workspace tools to transform images using nondestructive editing techniques. (CSLO 2, 3 & 4)
5. (Synthesis Level) Combine digital images using retouching tools to use in composites. (CSLO 1, 3 & 4)
6. (Synthesis Level) Optimize images for output to print and web. (CSLO 2 & 3)

DMA118 - Animation I

General

Division
Visual & Performing Arts Division

Course Description
This course introduces students to the fundamentals of digital animation using Adobe Animate and Adobe Premiere Pro. Emphasis will be on utilizing Adobe Animate as the primary tool for creating, manipulating, and enhancing animations, with Adobe Premiere Pro used for editing and refining animated sequences for visual storytelling and communication. Students will explore a variety of creative techniques for producing, editing, and refining animations using these digital tools. The course includes technical instruction in both Adobe Animate and Adobe Premiere Pro, covering key animation concepts, timeline management, keyframe animation, layers, motion paths, symbol creation, type effects, and the use of filters to enhance animated projects. Recommended: Students should be proficient with the Adobe Creative Suite; Photoshop and Illustrator as well as drawing by hand. Prerequisites: DMA 115, DMA 125 or Corequisites: DMA 115, DMA 125 with permission from instructor only

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. *(Analyzing)* Analyze, compare and differentiate the aesthetic qualities of traditional hand-drawn animation and computer-generated animation. (CSLO 2,3,4)
2. *(Understanding)* Explain the specific hardware and software requirements for effective animation production using animation and video software.(CSLO 2,3,4)
3. *(Applying)* Utilize effective file management using various graphic and video file formats within animation and video software. (CSLO 2,3)
4. *(Creating)* Create and refine graphic characters utilizing animation software tools, including textures, rendering options, fill techniques, and color design. (CSLO 2,3)
5. *(Creating)* Design aesthetically appealing and appropriate background graphics within animation software and effectively incorporate external graphic elements. .(CSLO 2,3,4)
6. *(Applying)* Develop and animate keyframe sequences that adhere to aesthetic principles using animation software. .(CSLO 2,3)
7. *(Applying, Creating)* Draft storyboards that incorporate artistic concepts and aesthetic design tailored for animation software, and edit sequences using video software. .(CSLO 2,3,4)
8. *(Analyzing, Creating)* Produce animations in animation software and refine them using video software, demonstrating appropriate timing, composition, and the effective use of art elements. .(CSLO 2,3,4)
9. (Applying) Export animations from animation and video software for use across multiple digital platforms while maintaining industry standards. .(CSLO 2,3)

DMA120 - Graphic Design and Adobe in Design

General

Division
Visual & Performing Arts Division

Course Description
Focuses on aesthetics and composition for graphic design. Students will use Adobe InDesign software to create original designs for a variety of real-world projects. The course will focus on the basic principles of contrast, alignment, repetition, and proximity while exploring the important role typography plays in successful design solutions. Students will finish the semester with a complete electronic portfolio.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Use research and comprehensives as part of the design process. (CSLO 2, 3 & 4)
2. (Knowledge Level) Identify type elements, characteristics, and basic groups. (CSLO 2 & 3)
3. (Knowledge Level) Become aware of type connotations and implied meanings. (CSLO 2 & 3)
4. (Application Level) Recognize and employ effective type combinations. (CSLO 2 & 3)
5. (Application Level) Learn to spec type for legibility and aesthetic effect. (CSLO 2 & 3)
6. (Synthesis Level) Recognize, construct, and use various grid structures to establish layout structure. (CSLO 2, 3 & 4)
7. (Synthesis Level) Recognize and make use of symmetrical and asymmetrical layouts. (CSLO 2, 3 & 4)
8. (Synthesis Level) Identify and employ Gestalt organizational principles in designing layouts for publications. (CSLO 1, 2, 3 & 4)
9. (Application Level) Effectively use white space to convey meaning and enhance form. (CSLO 2, 3 & 4)
10. (Comprehension Level) Understand printing methods including spot versus process color. (CSLO 2 & 3)
11. (Synthesis Level) Properly scan, crop, resize, and import artwork and photographs. (CSLO 2 & 3)
12.(Evaluation Level) Develop critical skills in evaluating the effectiveness of type in design and layout. (CSLO 2,3 & 4)

DMA121 - Motion Graphics I

General

Division
Visual & Performing Arts Division

Course Description
This course introduces students to the fundamentals of motion graphics using Adobe After Effects, focusing on the creation and animation of graphic elements like typography, shapes, and icons. Students will explore both traditional and digital motion design techniques, learning to organize and manage media assets, apply keyframing, effects, and expressions, and design visually compelling compositions. The course emphasizes the importance of timing, pacing, and keyframe interpolation to enhance storytelling. Students will also gain skills in rendering and exporting motion graphics for various platforms, ensuring compatibility and quality. Recommended: Students should be proficient with the Adobe Creative Suite; Photoshop and Illustrator as well as drawing by hand. Prerequisites: DMA 115, DMA 125 or Corequisites: DMA 115, DMA 125 with permission from instructor only.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. *(Analyzing)* Analyze and differentiate the aesthetic qualities of traditional motion design techniques versus digital motion graphics created in Adobe After Effects.
2. *(Understanding)* Explain the hardware and software requirements critical for creating and rendering high-quality motion graphics in Adobe After Effects.
3. *(Applying)* Utilize effective file organization and management, integrating various media assets such as video, audio, and vector graphics in Adobe After Effects projects.
4. *(Creating)* Create and animate graphic elements, including typography, shapes, and icons, using keyframing, effects, and expressions in Adobe After Effects.
5. *(Creating)* Design and animate visually compelling motion graphics compositions, incorporating external assets and considering principles like balance, rhythm, and movement.
6. *(Applying)* Develop and execute motion graphics sequences that utilize timing, pacing, and keyframe interpolation to enhance storytelling and visual impact.
7. *(Creating)* Draft and conceptualize motion graphic storyboards that incorporate movement, transitions, and visual effects, specific to Adobe After Effects workflows.
8. *(Creating)* Produce complete motion graphics projects in Adobe After Effects, demonstrating effective use of timing, layering, and visual composition to communicate a message or story.
9. *(Applying)* Render and export motion graphics projects in various formats from Adobe After Effects, ensuring compatibility and quality for different platforms such as web, broadcast, and social media.

DMA122 - Introduction to Web Design

General

Division
Visual & Performing Arts Division

Course Description
Create professional quality standards compliant websites using HTML5 and CSS3. Use WYSIWYG editors such as Adobe, Dreamweaver CC or comparable software to create and modify websites. Students will create two professional quality websites: one using HTML5, CSS3 and Dreamweaver and another using content management system such as WordPress. Recommended: RDG100. Interest in web design and coding.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the elements of website construction and management. (CSLO 2 & 3)
2. (Comprehension Level) Identify current copyright and security issues and discuss how it relates to web design. (CSLO 1, 2 & 3)
3. (Comprehension Level) Discuss browser capabilities. (CSLO 2 & 4)
4. (Comprehension Level) Describe domain name selection, registration, and web hosting. (CSLO 1, 2 & 3)
5. (Evaluation Level) Evaluate web promotion, meta tags, and search engine optimization. (CSLO 2,3 & 4)
6. (Analysis Level) Compare multiple websites using design principles and techniques including: ease of navigation, accessibility, and appropriate visual elements, graphics, and multimedia. (CSLO 1, 2 & 3)
7. (Application Level) Demonstrate the use of correct file management protocols for effective website design. (CSLO 2, 3 & 4)
8. (Comprehension Level) Discuss HTML5, Internet, and web terminology and concepts necessary for professional web designers. (CSLO 2, 3 & 4)
9. (Comprehension Level) Identify and explain the basic web page structure and the HTML5 elements/tags. (CSLO 2 & 4)
10. (Synthesis Level) Create external cascading style sheets using CSS3 to enhance layouts and control content. (CSLO 2 & 4)
11. (Analysis Level) Organize web pages with CSS3, lists, and forms. (CSLO 2 & 4)
12. (Application Level) Demonstrate the use of web design tools, such as Java, JavaScript, and JQuery, within a web page. (CSLO 2 & 4)
13. (Application Level) Apply various multimedia tools to enhance user experience of websites. (CSLO 1, 2 & 4)
14. (Application Level) Deploy a web page using file transfer protocol (ftp). (CSLO 2 &3)
15. (Synthesis Level) Use Adobe Dreamweaver or comparable software to build professional quality websites. (CSLO 2, 3 & 4)
16. (Comprehension Level) Describe the Adobe Dreamweaver interface, or interface of comparable software, and explain how to customize the workspace for an efficient work environment. (CSLO 2 &3)
17. (Application Level) Produce and modify page design elements using Adobe Illustrator CC and Photoshop CC. (CSLO 2, 3 & 4)
18. (Synthesis Level) Construct websites that are user-friendly, appeal to target audiences, and are easy to maintain using storyboards, cascading style sheets, market research, and limited levels. (CSLO 1,2,3 & 4)
19. (Synthesis Level) Build professional quality websites according to W3C standards. (CSLO 1,2,3 & 4)
20. (Synthesis Level) Build professional quality web sites using content management software (CMS) such as Wordpress or Drupal. (CSLO 2, 3 & 4)
21. (Synthesis Level) Create, modify, and customize websites built within a CMS. (CSLO 2, 3 & 4)
22. (Analysis Level) Examine and explain mobile design best practices, queries, and links. (CSLO 1, 2 & 3)

Course Requisites

DMA125 - Introduction to Illustrator

General

Division
Visual & Performing Arts Division

Course Description
An introduction to the use of Adobe Illustrator software in the creation of logos, illustrations, and typographic designs for use in multi-media design projects. Prerequisite: RDG100. Offered every fall.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Operate and navigate the illustration software Adobe Illustrator to create illustrations, logos, and typographic designs. (CSLO 2 & 3)
2. (Application Level) Use the various tool palettes to create basic shapes for illustrations. (CSLO 2 & 3)
3. (Synthesis Level) Create artwork using the pen tool and other drawing tools for professional designs. (CSLO 2, 3 & 4)
4. (Synthesis Level) Use stroke, color fills, gradients, transparency, and blending modes to enhance designs and produce CD covers, posters, clip-art, and advertisements. (CSLO 2, 3 & 4)
5. (Comprehension Level) Identify materials on the Internet that can be incorporated into a professional design. (CSLO 1, 2, 3 & 4)
6. (Comprehension Level) Explain 3D design and its best uses. (CSLO 2, 3 & 4)

Course Requisites

DMA130 - Digital Photography I

General

Division
Visual & Performing Arts Division

Course Description
Focus is on the introductory elements of digital photography and the technical skills required to operate a digital camera in manual mode. Students will be introduced to the fundamentals of photo composition and the basics of using computer software to edit photos by computer. Through lectures, critiques, demonstrations, picture taking, and digital manipulation exercises, students will learn to shoot, edit, and use a variety of digital techniques to produce material for print and Web distribution. Recommendation: Student should have an entry level DSLR camera.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use a professional quality digital camera to complete photographic assignments, including but not limited to: landscapes, portraits, and architectural images. (CSLO 2, 3 & 4)
2. (Comprehension Level) Describe the many varied controls on digital cameras that influence light, color, focus, and composition of a photo. (CSLO 2, 3 & 4)
3. (Application Level) Use photo editing software, to edit, retouch, and color-balance digital images. (CSLO 2, 3 & 4)
4. (Knowledge Level) Select and identify the correct editing and workspace tools to transform images using nondestructive editing techniques. (CSLO 2, 3 & 4)
5. (Synthesis Level) Create images in various lighting conditions and control resolution of images for various mediums including websites and publications. (CSLO 1, 3 & 4)
6. (Analysis Level) Recognize the works of both contemporary and historical photographers. (CSLO 1, 2 & 3)

DMA132 - Digital Video I

General

Division
Visual & Performing Arts Division

Course Description
Introductory techniques of video production for digital media. Topics include operation and application of all the basic tools, as well as exploring hardware, software, and technical options. Through lectures and projects, all phases of video production will be addressed, from preproduction through production to post-production, with a focus on digital media aspects.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate knowledge of the following: camera operation, lighting techniques, audio recording, interview techniques, basic visual composition, and conventions. (CSLO 2,3 & 4)
2. (Comprehension Level) Discuss the process of preproduction, including planning and responsibilities. (CSLO 1, 2, 3 & 4)
3. (Analysis Level) Analyze video in terms of effective delivery of information through successful production and post-production techniques. (CSLO 1, 2, 3 & 4)
4. (Application Level) Demonstrate and identify editing techniques used with cameras and software. (CSLO 2 & 3)
5. (Application Level) Demonstrate knowledge of exporting specific media formats for output to common platforms, including DVD and the Web. (CSLO 2, 3 & 4)
6. (Synthesis Level) Create title sequences for digital video sequences and animate the sequences using keyframes. (CSLO 2, 3 & 4)
7. (Synthesis Level) Create cohesive video sequences for output to DVD and web applications using industry standard software. (CSLO 2, 3 & 4)
8. (Evaluation Level) Evaluate and make necessary adjustments regarding compatibility issues including, but not limited to, digital file formats and cross platform connectivity. (CSLO 2, 3 & 4)

DMA135 - Lighting for Photography and Video

General

Division
Visual & Performing Arts Division

Course Description
Introductory lighting techniques and practices, including: the visible spectrum, exposure, using electricity, video and the electronic medium, controlling color temperature, light quality, and measuring light intensity. Topics also include instruction on manipulating light, light concepts in practice, and light in the studio and on location. Recommendation: Students should have an entry level DSLR camera.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate understanding of the properties of visible light. (CSLO 2 & 3)
2. (Application Level) Demonstrate how to determine electrical requirements and load. (CSLO 2, 3 & 4)
3. (Knowledge Level) Identify the various methods of controlling color temperature and light source filters. (CSLO 2 & 3)
4. (Synthesis Level) Devise various methods of controlling color temperature and light source filters. (CSLO 2, 3 & 4)
5. (Analysis Level) Recognize various lighting equipment and their applications. (CSLO 2 & 3)
6. (Application Level) Determine proper exposure by measuring light intensity. (CSLO 2 & 3)
7. (Evaluation Level) Appraise the proper way to manipulate lighting instruments for balance and direction. (CSLO 2, 3 & 4)
8. (Synthesis Level) Incorporate lighting concepts and approaches. (CSLO 2 & 3)
9. (Synthesis Level) Model technical and artistic competencies of employing available light on location, and studio lighting, using a professional quality lighting studio. (CSLO 1, 2, 3 & 4)

DMA202 - Digital Animation II

General

Division
Visual & Performing Arts Division

Course Description
This course focuses on advanced animation techniques using Toon Boom Harmony. Students will refine skills in both vector and bitmap environments, manage project workflows, and navigate the software efficiently. The course covers character design, rigging, and sequence refinement, with an emphasis on timing, keyframe interpolation, and motion. Students will also learn to synchronize sound, composite scenes, and animate in 2D and 3D spaces, producing high-quality animations ready for various platforms. Recommended: Students should be proficient with the Adobe Creative Suite; Photoshop and Illustrator as well as drawing by hand. Prerequisites: DMA 115, DMA 118, DMA 125 OR Corequisites: DMA 115, DMA118, DMA125 with permission from instructor only.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. *(Analyzing)* Analyze and differentiate animation techniques and principles, applying them effectively to create animations in both vector and bitmap environments. (CSLO 2,3,4)
2. *(Understanding)* Understand and apply key historical events and industry developments to enhance animation practices and styles. (CSLO 2,3,4)
3. *(Applying)* Organize and manage assets, project files, and deliverables efficiently, ensuring optimal workflow and project setup for final output requirements. (CSLO 2,3)
4. *(Applying)* Navigate, customize, and utilize animation software interfaces and tools, including drawing, rigging, and color styling, to optimize work efficiency and creativity. .(CSLO 2,3)
5. *(Creating)* Design and animate characters, props, and environments using a variety of artistic skills and processes, incorporating consistent styles, perspective, and motion. .(CSLO 2,3,4)
6. *(Applying, Creating)* Develop, execute, and refine animation sequences by adjusting timing, exposure, and keyframe interpolation to enhance storytelling and visual impact. .(CSLO 2,3)
7. *(Applying, Creating)* Incorporate and synchronize sound, visual references, and third-party images into animations, ensuring coherent and polished final projects. .(CSLO 2,3,4)
8. *(Applying, Creating)* Composite scenes, animate cameras, and add effects in 2D and 3D environments, utilizing a nodal system and understanding spatial staging. .(CSLO 2,3,4)
9. *(Applying)* Render and export animations for various platforms, maintaining high-quality standards and compatibility across different media. .(CSLO 2,3)

DMA205 - Portfolio Development

General

Division
Visual & Performing Arts Division

Course Description
Use digital photography and graphic design to prepare a professional portfolio of original artwork for use in job interviews and in applications to upper division university coursework. Topics include using professional tools and techniques to develop an artistic theme, incorporating the rules of design and composition, developing and implementing selection criteria, identifying and implementing refinements to selected digital images, original artwork, and design work.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Use professional tools and techniques to create a high quality portfolio, including photography, original artwork, and/or designs. The portfolio incorporates the rules of design and composition and represents the student's best work. (CSLO 2, 3, & 4)
2. (Synthesis Level) Create, analyze and perfect digital images taken in various lighting conditions and control resolution of images for various publication mediums. (CSLO 2, 3, & 4)
3. (Evaluation Level) Identify, analyze and critique the principles of design implemented and provide improvement suggestions to peers. (CSLO 1, 2, 3, & 4)
4. (Evaluation Level) Demonstrate and critique the appropriate use of text and typefaces, in conjunction with images, to enhance a message or piece of art. (CSLO 1, 2, 3, & 4)
5. (Synthesis Level) Successfully use professional standard software to adjust images to create the most advantageous outcome. (CSLO 2, 3, & 4)
6. (Evaluation Level) Evaluate and select the most successful photographs of original artwork using established criteria during an oral or written critique. (CSLO 2, 3, & 4)
7. (Synthesis Level) Design an original, professional portfolio which may be presented using the latest technology, such as a website, e-Portfolio, a reproducible CD, jump drive, or other technologies. (CSLO 2, 3, & 4)
8. (Synthesis Level) Compose a coherent, meaningful, original written artistic statement representative of one's personal style. (CSLO 3)

Course Requisites

DMA209 - 3D Computer Animation

General

Division
Visual & Performing Arts Division

Course Description
This course provides a hands-on introduction to essential 3D content creation techniques, including modeling, animating, texturing, lighting, and rendering. Students will apply these skills to create 3D assets for games, cinematics, visual effects, animation, and visualizations. Through practical projects, students will build a foundation for producing high-quality 3D content and prepare for further study or careers in the industry. Recommended: Students should be proficient with the Adobe Creative Suite; Photoshop and Illustrator as well as drawing by hand. Prerequisites: DMA 115, DMA 118, DMA 121, DMA 125.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. *(Creating)* Develop a solid foundation in 3D modeling techniques and best practices. (CSLO 2,3)
2. *(Understanding)* Demonstrate an in-depth understanding of 3D animation principles and their application. (CSLO 2,3)
3. *(Applying, Creating)* Develop proficiency in texturing and surfacing to enhance 3D models. (CSLO 2,3)
4. *(Creating, Applying)* Create and experiment with special effects into 3D animations effectively. (CSLO 2,3)
5. *(Understanding)* Demonstrate the end-to-end processes for developing 3D content for animation, games, entertainment, and design. (CSLO 2,3,4)
6. *(Applying, Creating)* Utilize industry-standard software to explore production cycles, pipeline workflows, and management of project constraints like vision, budget, and time. *(*CSLO 2,3)
7. *(Applying, Analyzing)* Identify diverse methods within 3D animation software for achieving similar outcomes and make strategic decisions throughout project development. (CSLO 2,3,4)
8. *(Understanding)* Compare and recognize the distinctions between various animation tools and their specific uses.(CSLO 2,3,4)

DMA210 - Publications and Packaging Design

General

Division
Visual & Performing Arts Division

Course Description
The role of publications and packaging in brand identification, presentation, and production. Skills necessary for developing publications and packaging design are covered. Other topics include the unique challenges of adapting typography, illustration, design, and materials to three-dimensional forms, as well exploring the fields of newspaper, magazine, and book design. Prerequisite: DMA120.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Distinguish between classification systems of typography needed for the successful creation and typesetting of print publications. (CSLO 3 & 4)
2.(Application Level) Apply fundamental visual communication theories as related to publication design. (CSLO 2 & 3)
3. (Synthesis Level) Integrate design principles and current practices used in print industries into publication designs. (CSLO 2, 3 & 4)
4. (Synthesis Level) Create publications for print media, including newspapers, advertisements, magazines, and newsletters, using production-related skills in typeface recognition, photo sizing and scaling, and layout principles. (CSLO 2 & 3)
5. (Synthesis Level) Integrate 3-D design in advertising communication, specifically in package design and display.(CSLO 1, 2, 3 & 4)
6. (Synthesis Level) Produce 3-dimensional objects using strong compositional skills in type and color.(CSLO 2 & 4)
7. (Evaluation Level) Evaluate strategies for organizing information prior to final construction utilizing roughs, patterns, and structural/graphic design. (CSLO 2, 3 & 4)

Course Requisites

DMA215 - Motion Graphics II

General

Division
Visual & Performing Arts Division

Course Description
This course advances motion design skills in Adobe After Effects, focusing on 3D graphics, motion tracking, and complex visual effects. Students will explore advanced keyframing, particle systems, and expressions, enhancing storytelling through precise timing and transitions. Emphasis is placed on compositing, color grading, and platform-optimized rendering, preparing students to create polished, professional motion graphics for various media. Recommended: Students should be proficient with the Adobe Creative Suite; Photoshop and Illustrator as well as drawing by hand. Prerequisites: DMA 115, DMA 118, DMA121, DMA 125. Corequisite: DMA 217.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes

1. *(Analyzing)* Critically assess and compare advanced 2D and 3D motion design techniques, including their impact on visual storytelling in motion graphics. (CSLO 2,3,4)
2. *(Evaluating)* Evaluate and recommend appropriate hardware, software, and plug-ins required for creating complex, high-quality 3D and particle-based motion graphics in Adobe After Effects. (CSLO 2,3,4)
3. *(Applying) Demonstrate advanced file organization and media management by integrating 3D models, motion tracking, and particle effects into After Effects compositions.* (CSLO 2,3)
4. *(Creating)* Design and animate complex motion graphic sequences incorporating 3D elements, particle systems, and intricate visual effects using advanced keyframing and expressions. (CSLO 2,3)
5. *(Creating) Create visually sophisticated compositions that incorporate motion tracking, dynamic transitions, and effects, emphasizing principles of depth, space, and fluid movement.* (CSLO 2,3,4)
6. *(Applying) Apply advanced timing, pacing, and interpolation techniques to seamlessly integrate sound and visual elements for greater emotional and narrative impact in motion graphics projects.* (CSLO 2,3)
7. *(Creating)* Develop and refine motion graphic storyboards and animatics that incorporate advanced visual effects, motion tracking, and 3D assets to plan complex projects. (CSLO 2,3,4)
8. *(Creating)* Produce fully rendered motion graphics projects that incorporate color grading, compositing, and sound design, demonstrating mastery of advanced After Effects techniques. (CSLO 2,3,4)
9. *(Applying)* Render and export professional-quality motion graphics projects, ensuring format compatibility, color accuracy, and optimization for platforms such as web, broadcast, and immersive media. (CSLO 2,3)

DMA217 - Visual Storyboarding and Storytelling

General

Division
Visual & Performing Arts Division

Course Description
This course introduces the essential principles of visual storytelling and storyboarding, with a focus on animation, 2D, and 3D media, utilizing industry-standard tools. Through a blend of independent research and hands-on projects, students will explore the elements of story structure, development processes, and mechanics. The course emphasizes crafting engaging narratives and effectively translating them into visual form through detailed storyboards. Students will learn to analyze and create storyboards, focusing on shot composition, camera movement, pacing, and scene transitions, equipping students with the skills needed for careers in animation, film, and other visual media industries. Recommended: Students should be proficient with the Adobe Creative Suite; Photoshop and Illustrator as well as drawing by hand. Prerequisites: DMA 115, DMA 118, DMA121, DMA 125, DMA 202, DMA 209. Corequisite: DMA 215.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. *(Analyzing)* analyze story structures and mechanics used in 2D, 3D, and animated visual media to identify key elements of effective storytelling. (CSLO 2,3,4)
2. *(Evaluating)* Evaluate various visual storytelling techniques in animation and film, emphasizing the use of shot composition, camera movement, and pacing.(CSLO 2,3,4)
3. *(Applying)* Demonstrate the ability to develop narrative concepts into storyboards, integrating principles of visual storytelling such as framing, transitions, and timing. (CSLO 2,3)
4. *(Creating)* Create and refine storyboards that effectively communicate character development, plot progression, and emotional tone for visual media projects.(CSLO 2,3)
5. *(Creating)* Utilize industry-standard tools to create professional-quality storyboards that include clear camera directions, shot lists, and annotations. (CSLO 2,3,4)
6. *(Applying, Creating)* Develop a complete visual story, from concept to final storyboard, applying research insights and feedback to enhance narrative clarity and visual impact. CSLO 2,3)
7. *(Evaluating)* Critique visual storytelling in professional media, demonstrating an understanding of how story mechanics are conveyed through visual techniques. (CSLO 2,3,4)
8. *(Applying,)* Render and present storyboards that are optimized for 2D, 3D, and animated production pipelines, ensuring clarity and adaptability for further development.(CSLO 2,3,4)

DMA220 - Advanced Graphic Design

General

Division
Visual & Performing Arts Division

Course Description
Build upon skills learned in MSC120, and introduction to advanced layout techniques using more complex design guidelines and typeface rules. Topics include learning to craft a visual message and identity, and to deliver brand and image consistently across print and electronic media, while pursuing more individualized advanced projects. Prerequisite: DMA120.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Understand a specific set of instructions to design pieces with clear, readable messages using rules of design and typography. (CSLO 3 & 4)
2.(Application Level) Demonstrate an understanding of principles of visual organization/composition, information hierarchy, symbolic representation, typography, and aesthetics. (CSLO 2 & 3)
3. (Synthesis Level) Create and develop design projects in response to communication problems. (CSLO 2 & 4)
4. (Evaluation Level) Discuss the importance of design in America, comparing and contrasting designers in terms of their impact on American graphics. (CSLO 2)
5. (Synthesis Level) Plan, develop, and integrate multiple design projects, using project management skills, to deliver quality work to clients according to a defined schedule. (CSLO 1, 3 & 4)
6. (Evaluation Level) Demonstrate the ability to critique and evaluate design solutions, your own and others, taking into consideration cultural relevance, effectiveness, impact, ethics, and ecological sustainability. (CSLO 1 & 4)

Course Requisites

DMA223 - Designing with Type

General

Division
Visual & Performing Arts Division

Course Description
Explore the art, craft, technical procedures, and concepts involved in producing successful typographic design, which is a fundamental component of visual communications. Topics include typographer history, 20th century typographers, changes in printing technologies, anatomy, classification, measurement systems, legibility, readability, typographic meaning, grid systems, typographic hierarchy, type as a design element, spacing and alignment, type specification, proofreading, and typography as it functions in various media. Students use a variety of software applications to develop letterform design and type organization skills. Prerequisite: DMA 115, DMA125 or instructor consent. Corequisites: DMA 115, DMA 125.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and discuss key events and personages in the history of typeface design and typographic technology. (CSLO 2 & 3)
2. (Analysis Level) Categorize typefaces according to generic groups. (CSLO 2 & 3)
3. (Synthesis Level) Discuss and integrate terminology relating to type anatomy, classifications, and measurement systems into design project conversations. (CSLO 2, 3 & 4)
4. (Analysis Level) Explain the difference between legibility and readability and the need for each. (CSLO 1, 2 & 3)
5. (Comprehension Level) Explain the meaning conveyed by typefaces through their design form and context. (CSLO 2 & 3)
6. (Analysis Level) Select typographic families to establish visual hierarchy. (CSLO 2 & 3)
7. (Synthesis Level) Create typographic designs to direct eye movement through the page. (CSLO 2 & 3)
8. (Synthesis Level) Explore the use of grid systems to organize multi-column layouts. (CSLO 2, 3 & 4)
9. (Evaluation Level) Evaluate type as a design element, including the concepts of form and counter form, color, texture, and contrast. (CSLO 2, 3 & 4)
10. (Synthesis Level) Employ techniques to make type move forward and backward from the surface of the printed page. (CSLO 2, 3 & 4)
11. (Synthesis Level) Adjust spacing and alignment to contribute to the unity of a design. (CSLO 2 & 3)
12. (Evaluation Level) Assess and determine the differences involved in designing with type for print and for digital display. (CSLO 2, 3 & 4)

Course Requisites

DMA230 - Digital Photography II

General

Division
Visual & Performing Arts Division

Course Description
Build on skills developed in DMA130, Digital Photography I, and explore advanced techniques for creating and manipulating still images in the digital environment. Through lectures, critiques, demonstrations, complex photographic assignments, and digital manipulation exercises, learn to use a variety of advanced digital techniques including editing and cataloging with Adobe Lightroom to produce material for print and Web distribution. Emphasis is placed on the development of portfolio-quality pieces. Prerequisite: DMA130. Offered every fall.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Compare and contrast the different styles and rules of shooting fine art photography. (CSLO 2 & 3)
2. (Analysis Level) Recognize historical and contemporary photographers, as well as issues and theories within photography. (CSLO 1, 2 & 3)
3. (Synthesis Level) Produce advanced compositions using visual techniques including: background/foreground, color, texture, line, contrast, and repetition. (CSLO 2, 3 & 4)
4. (Synthesis Level) Create a series of photos that visually tell a story, a photo essay, with a clear, coherent story line. (CSLO 1, 2 & 3)
5. (Evaluation Level) Evaluate different types of light and use a variety of lighting techniques to achieve the desired aesthetic. (CSLO 1, 2, 3 & 4)
6. (Application Level) Demonstrate Adobe Lightroom skills to edit, retouch, enhance, and color balance digital images. (CSLO 2, 3 & 4)

Course Requisites

DMA232 - Digital Video II

General

Division
Visual & Performing Arts Division

Course Description
Build on skills learned in DMA132, Digital Video. Topics include: introduction to advanced digital video production techniques, digital formats and scripting, production plan, utilization of digital camera and lighting equipment in remote and on-location sites, post production, linear and non-linear editing equipment and approaches, editing and the visual storyline, and building a portfolio. Prerequisite: DMA132.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the needs in developing a production plan. (CSLO 2,3 & 4)
2. (Synthesis Level) Outline storyboards, write scripts, and prepare production planning documents. (CSLO 2,3 & 4)
3. (Application Level) Determine professional field production equipment needed for a professional digital video production. (CSLO 1, 2, 3 & 4)
4. (Synthesis Level) Integrate the use of special effects, both in camera and in post production. (CSLO 2,3 & 4)
5. (Synthesis Level) Create layered motion graphic compositions using industry standard software. (CSLO 2,3 & 4)
6. (Application Level) Determine technical requirements for employing available light on location and in studio situations using professional quality lighting equipment and space. (CSLO 2, 3 & 4)
7. (Synthesis Level) Integrate skills into portfolio building, including visual demonstrations of technical and artistic competencies. (CSLO 2, 3 & 4)

Course Requisites

DMA245 - Independent Projects Photography / Video

General

Division
Visual & Performing Arts Division

Course Description
An opportunity to explore a topical area of interest, while developing a personal aesthetic style and vision as they relate to photography or video. Create projects that utilize multi-image photographic skills, audio gathering, video capture, editing video and text. Emphasis is placed on the development of portfolio-quality pieces. Prerequisites: DMA130, DMA 132; Corequisites: DMA230, DMA232.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop complete digital imaging workflow that includes pre-production storyboarding, capture, post processing, and asset management techniques from image/video capture to image/video archive. (CSLO 2, 3 & 4)
2. (Synthesis Level) Formulate ideas and themes for specific audiences by applying a creative, client-centered approach to the creation of photographic and video sequences. (CSLO 2, 3 & 4)
3. (Synthesis Level) Integrate and develop a personal aesthetic into creative and technically focused photographic and video projects. (CSLO 2, 3 & 4)
4. (Evaluation Level) Interpret principles of aesthetics and visual communication and integrate these principles creatively in still and motion-based images and in digital storytelling. (CSLO 1, 2 & 3)
5. (Analysis Level) Distinguish the primary working methods (conceptual and illustrative vs. journalistic and found moment) within different genres of photography/ video in order to understand ethically acceptable images. (CSLO 1, 2, 3 & 4)

Course Requisites

DMS101 - Introduction to Diagnostic Medical Sonography

General

Division
Diagnostic Medical Sonography

Course Description
The lecture component of this course introduces students to the fundamental principles of sonography, focusing on positioning techniques, instrumentation, and terminology essential for diagnostic ultrasound. Students will learn the core concepts related to sonographic procedures for imaging the upper abdomen, including the physics of ultrasound, the operation of sonographic equipment, and the identification of anatomical structures. In addition, the course covers the ethical and legal considerations relevant to the sonography profession. Key topics include medical ethics, patient rights, informed consent, confidentiality, professional conduct, and the legal framework guiding healthcare practices, equipping students with the knowledge needed to navigate ethical dilemmas in patient care. Recommended: Prior healthcare and patient-centered care experience. Recommended: Prior healthcare and patient-centered care experience; RDG100. Prerequisite: Admission to Diagnostic Medical Sonography program. Corequisite: DMS101L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proper positioning techniques and equipment setup for abdominal sonography procedures. Students will apply learned techniques to position patients correctly and prepare sonographic equipment, ensuring optimal imaging during abdominal ultrasound procedures. Students will be observed during practical exams or hands-on lab assessments where students perform abdominal imaging procedures. *(CSLO #3)*

2. (Knowledge Level) Identify and describe anatomical structures observed during upper abdominal sonography. Students will recognize and articulate key anatomical structures in the upper abdomen, such as the liver, kidneys, pancreas, and gallbladder, as seen in diagnostic ultrasound images. Students will be assess with written exams, quizzes, and practical assessments using ultrasound images where students identify anatomical structures. *(CSLO #2)*

3. (Comprehension Level) Explain the basic principles of ultrasound physics, including sound wave propagation, frequency, and resolution. Students will be able to explain the fundamental physics behind ultrasound, including how sound waves travel through the body and interact with different tissues to produce diagnostic images. Students will be assessed with written exams and quizzes covering ultrasound physics principles and their application in sonographic imaging. *(CSLO #2)*

4. (Application Level) Operate sonographic equipment to produce diagnostic images of the upper abdomen, following safety and quality control procedures. Students will demonstrate the ability to use ultrasound equipment effectively to obtain high-quality diagnostic images, adhering to safety protocols and ensuring patient comfort. Students will be assessed with practical exams and in-class activities where students operate ultrasound machines to capture images. *(CSLO #3)*

5. (Analysis Level) Evaluate the quality of ultrasound images, identifying artifacts or issues that may affect diagnostic accuracy. Students will analyze ultrasound images to determine if they meet diagnostic quality standards, identifying common imaging artifacts or errors that could compromise patient care. There will be Practical assessments where students review ultrasound images and identify quality concerns or imaging errors. *(CSLO #4)*

6. (Synthesis Level) Develop a patient care plan that addresses ethical and legal considerations in the context of sonographic procedures. Students will create a patient care plan incorporating ethical and legal considerations, such as patient confidentiality, informed consent, and the right to refuse procedures. Students will be assessed with written assignments or case study analyses where students develop patient care plans considering ethical and legal aspects of the profession. *(CSLO #1)*

7. (Evaluation Level) Assess and resolve ethical dilemmas related to patient care in diagnostic sonography practice, demonstrating professional conduct. Students will demonstrate the ability to assess ethical dilemmas in sonography and resolve them in a manner that aligns with professional conduct and legal standards. Students will be assessed with case study discussions, written assignments, or role-playing scenarios where students address ethical issues in the clinical environment. *(CSLO #1)*

8. (Knowledge Level) Define key medical terminology related to diagnostic sonography and apply these terms appropriately in a clinical context. Students will learn and correctly use medical terminology relevant to sonography, including terms related to anatomy, procedures, and diagnostic findings, in both written and verbal communications. Students will be assessed with written tests and verbal quizzes where students are required to define and apply medical terminology in relevant scenarios. *(CSLO #2)*

These Measurable Student Learning Outcomes (MSLOs) focus on developing students' technical proficiency in sonography, ethical understanding, and communication skills, aligning them with both course and program objectives. They reflect a range of cognitive levels based on Bloom's Taxonomy and are designed to ensure students achieve competence in diagnostic medical sonography and are prepared for future clinical practice.

DMS101L - Introduction to Sonography Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
The lab component of this course provides hands-on training in the practical application of sonographic techniques, allowing students to practice using sonographic equipment, positioning techniques, and anatomical identification. Under the guidance of instructors, students will develop the skills necessary to perform upper abdominal ultrasound exams, gaining proficiency in both the technical and clinical aspects of sonography. Recommended: Prior healthcare and patient-centered care experience; RDG100. Prerequisite: Admission to Diagnostic Medical Sonography program. Corequisite: DMS101.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proper positioning techniques and equipment setup for abdominal sonography procedures. Students will apply learned techniques to position patients correctly and prepare sonographic equipment, ensuring optimal imaging during abdominal ultrasound procedures. Students will be observed during practical exams or hands-on lab assessments where students perform abdominal imaging procedures. *(CSLO #3)*

2. (Knowledge Level) Identify and describe anatomical structures observed during upper abdominal sonography. Students will recognize and articulate key anatomical structures in the upper abdomen, such as the liver, kidneys, pancreas, and gallbladder, as seen in diagnostic ultrasound images. Students will be assessed with written exams, quizzes, and practical assessments using ultrasound images where students identify anatomical structures. *(CSLO #2)*

3. (Comprehension Level) Explain the basic principles of ultrasound physics, including sound wave propagation, frequency, and resolution. Students will be able to explain the fundamental physics behind ultrasound, including how sound waves travel through the body and interact with different tissues to produce diagnostic images. Students will be assessed with written exams and quizzes covering ultrasound physics principles and their application in sonographic imaging. *(CSLO #2)*

4. (Application Level) Operate sonographic equipment to produce diagnostic images of the upper abdomen, following safety and quality control procedures. Students will demonstrate the ability to use ultrasound equipment effectively to obtain high-quality diagnostic images, adhering to safety protocols and ensuring patient comfort. Students will have Practical exams and in-class activities where students operate ultrasound machines to capture images. *(CSLO #3)*

5. (Analysis Level) Evaluate the quality of ultrasound images, identifying artifacts or issues that may affect diagnostic accuracy. Students will analyze ultrasound images to determine if they meet diagnostic quality standards, identifying common imaging artifacts or errors that could compromise patient care. Students will have Practical assessments where students review ultrasound images and identify quality concerns or imaging errors. *(CSLO #4)*

6. (Synthesis Level) Develop a patient care plan that addresses ethical and legal considerations in the context of sonographic procedures. Students will create a patient care plan incorporating ethical and legal considerations, such as patient confidentiality, informed consent, and the right to refuse procedures. Students will be assessed with written assignments or case study analyses where students develop patient care plans considering ethical and legal aspects of the profession. *(CSLO #1)*

7. (Evaluation Level) Assess and resolve ethical dilemmas related to patient care in diagnostic sonography practice, demonstrating professional conduct. Students will demonstrate the ability to assess ethical dilemmas in sonography and resolve them in a manner that aligns with professional conduct and legal standards. Students will be assessed with case study discussions, written assignments, or role-playing scenarios where students address ethical issues in the clinical environment. *(CSLO #1)*

8. (Knowledge Level) Define key medical terminology related to diagnostic sonography and apply these terms appropriately in a clinical context. Students will learn and correctly use medical terminology relevant to sonography, including terms related to anatomy, procedures, and diagnostic findings, in both written and verbal communications. Students will be assessed with written tests and verbal quizzes where students are required to define and apply medical terminology in relevant scenarios. *(CSLO #2)*

These Measurable Student Learning Outcomes (MSLOs) focus on developing students' technical proficiency in sonography, ethical understanding, and communication skills, aligning them with both course and program objectives. They reflect a range of cognitive levels based on Bloom's Taxonomy and are designed to ensure students achieve competence in diagnostic medical sonography and are prepared for future clinical practice.

DMS102 - Clinical Pharmacology for Sonographers

General

Division
Diagnostic Medical Sonography

Course Description
The understanding of how medications and drugs as they relate to clinical sonography practice and how they can affect a patient's body during an ultrasound examination. The course introduces how sonographers make informed decisions during procedures, particularly when considering potential side effects or interactions with medications a patient may be taking; essentially, it's the knowledge of medications relevant to the clinical practice of sonography. Corequisite: DMS149.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Knowledge of Medication Effects on Ultrasound Procedures. Students will be able to identify common medications and their effects on physiological processes relevant to ultrasound procedures, including blood pressure, renal function, and organ perfusion. *(CSLO #2)*
2. (Analysis Level) Ability to Assess Medication Interactions and Side Effects. Students will be able to analyze patient medication regimens and identify potential drug interactions or side effects that may impact the ultrasound procedure, patient comfort, or diagnostic accuracy. *(CSLO #4)*
3. (Application Level) Adjusting Ultrasound Techniques Based on Pharmacological Knowledge. Students will be able to apply their understanding of pharmacology to adjust ultrasound scanning techniques, including probe pressure, timing, and image interpretation, to mitigate the effects of medications on the procedures. *(CSLO #3)*
4. (Evaluation Level) Communicating Medication Information Effectively in a Clinical Setting. Students will be able to evaluate the impact of a patient's medication history on ultrasound exams and communicate relevant pharmacological considerations clearly and effectively with multidisciplinary healthcare teams, including physicians, nurses, and pharmacists. *(CSLO #1)*
5. (Understanding Level) Understanding Pharmacological Concepts and Safety Protocols in Sonography. Students will be able to explain the basic principles of pharmacology, including common drug classes, side effects, and contraindications, and demonstrate knowledge of safety protocols when working with patients taking medications. *(CSLO #2)*
6. (Application Level) Recognizing and Responding to Medication-Related Adverse Events During Ultrasound Exams. Students will be able to recognize and appropriately respond to medication-related adverse events or complications during an ultrasound exam, ensuring patient safety and preventing harm. *(CSLO #4)*

These measurable student learning outcomes align with the course's core goals of enhancing sonographers' ability to understand and apply clinical pharmacology within the practice of sonography. Each outcome fosters the development of essential knowledge, skills, and values that will improve patient safety, diagnostic accuracy, and collaboration with healthcare teams.

DMS120 - Cross Sectional Anatomy for Medical Imaging

General

Division
Diagnostic Medical Sonography

Course Description
This course focuses on the correlation of diagnostic imaging using coronal, axial, and transverse planes of sections to illustrate human anatomy in the head, neck, spine, chest, abdominal and pelvic cavities, and extremities. It is designed for medical imaging professionals. Recommended: Reading and ability to analyze images in different planes. Prerequisite: BIO160. Corequisite: DMS120L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Students will be able to identify key anatomical structures in the head, neck, spine, chest, abdominal, and pelvic cavities, and extremities using coronal, axial, and transverse planes in diagnostic imaging. *(CSLO #2)*
2. (Understanding Level) Students will be able to describe the relationships between anatomical structures in the human body by interpreting images from multiple cross-sectional planes. *(CSLO #2)*
3. (Application Level) Students will be able to demonstrate the use of diagnostic imaging techniques (e.g., CT, MRI) to accurately represent anatomical structures in the human body. *(CSLO #3)*
4. (Analysis Level) Students will be able to analyze cross-sectional images to identify and differentiate between normal and abnormal anatomical findings in various regions of the body. *(CSLO #4)*
5. (Synthesis Level) Students will be able to synthesize their knowledge of cross-sectional anatomy to effectively collaborate with medical teams in diagnosing and planning treatment for patients. *(CSLO #3)*
6. (Evaluation Level) Students will be able to evaluate the quality and clarity of diagnostic images based on anatomical landmarks and planes of section, ensuring accuracy in medical imaging procedures. *(CSLO #4)*
7. (Understanding Level) Students will be able to discuss the impact of diverse cultural and social factors on the interpretation of medical imaging and patient care, demonstrating cultural sensitivity in a clinical setting. *(CSLO #1)*

DMS120L - Cross Sectional Anatomy for Medical Imaging Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
The Cross-Sectional Anatomy Laboratory is designed to complement the Sectional Anatomy course, providing students with hands-on experience in interpreting and correlating diagnostic imaging across various anatomical regions. Focusing on the head, neck, spine, chest, abdomen, pelvis, and extremities, students will gain a deep understanding of human anatomy as visualized through coronal, axial, and transverse planes of section. Through practical lab exercises, students will analyze and identify key structures in medical imaging modalities, such as CT, MRI, and ultrasound scans, to enhance their diagnostic capabilities. This course is specifically tailored for medical imaging professionals. Recommended: Reading and ability to analyze images in different planes. Prerequisite: BIO160. Corequisite: DMS120.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Students will be able to identify key anatomical structures in the head, neck, spine, chest, abdominal, and pelvic cavities, and extremities using coronal, axial, and transverse planes in diagnostic imaging. *(CSLO #2)*
2. (Understanding Level) Students will be able to describe the relationships between anatomical structures in the human body by interpreting images from multiple cross-sectional planes. *(CSLO #2)*
3. (Application Level) Students will be able to demonstrate the use of diagnostic imaging techniques (e.g., CT, MRI) to accurately represent anatomical structures in the human body. *(CSLO #3)*
4. (Analysis Level) Students will be able to analyze cross-sectional images to identify and differentiate between normal and abnormal anatomical findings in various regions of the body. *(CSLO #4)*
5. (Synthesis Level) Students will be able to synthesize their knowledge of cross-sectional anatomy to effectively collaborate with medical teams in diagnosing and planning treatment for patients. *(CSLO #3)*
6. (Evaluation Level) Students will be able to evaluate the quality and clarity of diagnostic images based on anatomical landmarks and planes of section, ensuring accuracy in medical imaging procedures. *(CSLO #4)*
7. (Understanding Level) Students will be able to discuss the impact of diverse cultural and social factors on the interpretation of medical imaging and patient care, demonstrating cultural sensitivity in a clinical setting. *(CSLO #1)*

DMS130 - Sonographic Principles and Instrumentation I

General

Division
Diagnostic Medical Sonography

Course Description
This course introduces the physical principles of ultrasound, covering the analysis of essential terminology and functions involved in generating the diagnostic ultrasound beam, as well as ARDMS testing requirements. Students will learn to utilize ultrasound equipment and transducers to produce sound waves and understand their interactions with tissue, along with topics such as workplace safety, quality assurance and control, patient wellbeing, bioeffects, and associated risks. Recommended: Mathematical analysis and understanding of mathematical relationships. Prerequisites: DMS101; DMS101L; PHY101. Corequisite: DMS130L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Students will be able to define key terminology related to ultrasound physics and instrumentation, including concepts such as sound wave propagation, frequency, and impedance. *(CSLO #2)*
2. (Understanding Level) Students will be able to explain the physical principles involved in generating a diagnostic ultrasound beam and the interaction of sound waves with tissue. *(CSLO #2)*
3. (Application Level) Students will be able to demonstrate the proper use of ultrasound equipment and transducers to generate sound waves and produce diagnostic images. *(CSLO #3)*
4. (Analysis Level) Students will be able to analyze the performance of ultrasound equipment in terms of quality assurance and control, identifying and addressing potential issues related to equipment functionality. *(CSLO #4)*
5. (Evaluation Level) Students will be able to assess the potential bioeffects and risks associated with ultrasound procedures, applying safety guidelines to ensure patient wellbeing. *(CSLO #4)*
6. (Synthesis Level) Students will be able to synthesize their understanding of ultrasound physics, instrumentation, and safety protocols to successfully meet ARDMS testing requirements. *(CSLO #3)*
7. (Understanding Level) Students will be able to discuss the importance of cultural sensitivity in ultrasound procedures, recognizing the impact of diverse backgrounds on patient care and communication. *(CSLO #1)*

DMS130L - Sonographic Principles and Instrumentation I Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
This course introduces the physical principles of ultrasound in a lab setting, focusing on the analysis of image acquisition techniques used to create diagnostic ultrasound images as recommended by ARDMS. Students will learn to utilize ultrasound equipment and transducers to produce sound waves and examine their interactions with tissue. Additional topics include workplace safety, quality assurance and control, patient history, technical worksheets, bioeffects, and potential risks. Recommended: Mathematical analysis and understanding of mathematical relationships. Prerequisites: DMS101; PHY101. Corequisite: DMS130.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate proper operation of ultrasound equipment and transducers, including adjusting settings to generate diagnostic quality images. *(CSLO #3)*
2. (Application Level) Students will be able to identify and apply the principles of sound wave propagation and tissue interaction by performing imaging techniques in a controlled laboratory environment. *(CSLO #2)*
3. (Application Level) Students will be able to perform quality assurance procedures on ultrasound equipment, ensuring optimal performance and patient safety during imaging sessions. *(CSLO #3)*
4. (Application Level) Students will be able to analyze ultrasound images for quality, recognizing artifacts, distortions, and potential issues in the imaging process, and apply corrective measures. *(CSLO #4)*
5. (Evaluation Level) Students will be able to evaluate the bioeffects and safety protocols of ultrasound procedures, ensuring safe practice in accordance with industry standards. *(CSLO #4)*
6. (Synthesis Level) Students will be able to synthesize knowledge of ultrasound physics, instrumentation, and safety measures to create accurate and effective imaging plans for clinical scenarios. *(CSLO #2)*
7. (Application Level) Students will be able to demonstrate cultural awareness by recognizing how diverse patient backgrounds may affect communication and comfort during ultrasound procedures, ensuring a respectful and inclusive clinical environment. *(CSLO #1)*

DMS132 - Abdominal Ultrasound Imaging I

General

Division
Diagnostic Medical Sonography

Course Description
The first in a series of two courses designed to provide students with foundational knowledge and skills in abdominal ultrasound imaging. This course focuses on the principles and techniques of ultrasound as applied to the evaluation of the abdominal organs, including the liver, gallbladder, spleen, kidneys, pancreas, and aorta. Students will learn to perform and interpret abdominal ultrasound exams, emphasizing anatomy, common pathologies, and the clinical indications for imaging. The course incorporates theoretical instruction on image acquisition, equipment settings, patient positioning, and safety protocols essential for accurate and effective diagnostic imaging. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program;
DMS101; DMS101L. Corequisites: DMS120; DMS120L; DMS132L.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Students will be able to identify and describe the anatomy of the liver, gallbladder, spleen, kidneys, pancreas, and aorta using ultrasound images. *(CSLO #2)*
2. (Understanding Level) Students will be able to explain the principles of ultrasound image acquisition, including equipment settings, patient positioning, and proper transducer use for abdominal imaging. *(CSLO #2)*
3. (Application Level) Students will be able to perform abdominal ultrasound exams, including proper patient positioning, transducer manipulation, and image acquisition techniques for optimal diagnostic quality. *(CSLO #3)*
4. (Analysis Level) Students will be able to analyze abdominal ultrasound images to identify normal and abnormal findings, including common pathologies such as cysts, tumors, and other conditions affecting abdominal organs. *(CSLO #4)*
5. (Evaluation Level) Students will be able to evaluate clinical indications for abdominal ultrasound, determining appropriate exam protocols based on patient history and presenting symptoms. *(CSLO #4)*
6. (Application Level) Students will be able to demonstrate effective communication skills when interacting with patients, explaining the ultrasound procedure and ensuring patient comfort and safety during the exam. *(CSLO #3)*
7. (Understanding Level) Students will be able to discuss the ethical considerations, safety protocols, and patient care standards associated with abdominal ultrasound imaging. *(CSLO #1)*

DMS132L - Abdominal Ultrasound Imaging Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
Provides hands-on experience to complement the theoretical knowledge gained in the lecture course. In this lab, students will practice performing abdominal ultrasound examinations on live models, gaining proficiency in imaging techniques, equipment handling, and patient communication. Emphasis will be placed on imaging the liver, gallbladder, spleen, kidneys, pancreas, and aorta using proper technique to achieve high-quality diagnostic images. Students will also identify normal anatomical structures, assess common abnormalities, and troubleshoot technical challenges in real-time. The lab will foster critical thinking, precision, and confidence in abdominal ultrasound practice. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101; DMS101L. Corequisites: DMS120; DMS120L; DMS132.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate proper patient positioning, transducer manipulation, and ultrasound imaging techniques for the abdominal organs, including the liver, gallbladder, spleen, kidneys, pancreas, and aorta. *(CSLO #3)*
2. (Remembering Level) Students will be able to identify and label anatomical landmarks and structures of the abdomen using ultrasound images, ensuring proper visualization of key organs and related structures. *(CSLO #2)*
3. (Analysis Level) Students will be able to examine ultrasound images of the abdominal organs, identifying normal and abnormal findings (e.g., cysts, masses, or other pathologies), and explain their clinical relevance. *(CSLO #4)*
4. (Application Level) Students will be able to apply ultrasound physics principles to adjust equipment settings (e.g., gain, frequency, depth) to optimize image quality and produce diagnostic images of abdominal organs. *(CSLO #2)*
5. (Application Level) Students will be able to demonstrate the application of appropriate safety protocols, including patient care and safety during abdominal ultrasound procedures, ensuring patient comfort and minimizing potential risks. *(CSLO #3)*
6. (Application Level) Students will be able to communicate effectively with patients, providing clear instructions and demonstrating cultural sensitivity during abdominal ultrasound procedures to ensure patient comfort and trust. *(CSLO #1)*
7. (Understanding Level) Students will be able to explain the clinical indications for abdominal ultrasound imaging, identifying appropriate scenarios for the application of ultrasound technology based on patient symptoms or medical history. *(CSLO #2)*

These MSLOs ensure that students are not only equipped with the technical skills necessary for performing abdominal ultrasound procedures but also understand the clinical relevance of their work, are able to evaluate imaging results critically, and communicate effectively with patients from diverse backgrounds.

DMS135 - Small Parts Ultrasound Imaging

General

Division
Diagnostic Medical Sonography

Course Description
Introduction to advanced applications of Sonographic small parts imaging. Topics include normal and abnormal presentations of the thyroid, breast, testicular, prostate, extremities, pediatric applications, interventional and emergency procedures, contrast agents, and emerging modalities. Recommended: Prior healthcare/ patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101; DMS101L. Corequisite: DMS 135L.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate proficiency in performing sonographic imaging of small body structures, including the thyroid, breast, testicular, prostate, and extremities, while accurately identifying normal and abnormal findings. *(CSLO #3)*
2. (Remembering Level) Students will be able to identify the key anatomical structures and pathologies of small parts through ultrasound images, recognizing both normal and abnormal presentations. *(CSLO #2)*
3. (Analysis Level) Students will be able to analyze ultrasound images of small parts to diagnose pathologies, including cancers, cysts, and other abnormalities, and demonstrate understanding of their clinical implications. *(CSLO #4)*
4. (Application Level) Students will be able to apply the principles of ultrasound physics, contrast agents, and emerging modalities in small parts imaging to optimize image quality and enhance diagnostic accuracy. *(CSLO #2)*
5. (Application Level) Students will be able to demonstrate appropriate patient care techniques, including communication and positioning, to ensure comfort and accuracy during small parts ultrasound examinations. *(CSLO #1)*
6. (Understanding Level) Students will be able to explain the indications for small parts ultrasound imaging, including when to utilize interventional and emergency procedures based on clinical signs and symptoms. *(CSLO #2)*
7. (Synthesis Level) Students will be able to synthesize knowledge of small parts ultrasound imaging with clinical and pathological information to support diagnostic decision-making in a multidisciplinary healthcare setting. *(CSLO #3)*
8. (Application Level) Students will be able to apply safety and ethical standards in performing small parts ultrasound procedures, ensuring patient safety and privacy during imaging. *(CSLO #3)*

These MSLOs ensure that students in the *Small Parts Ultrasound Imaging* course are equipped with the necessary technical, clinical, and interpersonal skills to effectively perform and interpret diagnostic imaging for small body structures. Through a combination of practical experience and theoretical knowledge, students will be prepared for the challenges of this specialized field and contribute to high-quality patient care.

DMS135L - Small Parts Ultrasound Imaging Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
This hands-on lab section provides students with the opportunity to apply and reinforce theoretical concepts covered in the lecture portion of the course. Students will gain practical experience in performing sonographic imaging of small parts, including the thyroid, breast, testicles, prostate, and extremities, as well as pediatric applications. The lab will focus on identifying normal and abnormal presentations through real-time scanning techniques. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101; DMS101L. Corequisite: DMS135.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate the ability to perform sonographic imaging of small body structures, including the thyroid, breast, testicular, prostate, and extremities, ensuring accurate positioning and optimal image acquisition. *(CSLO #3)*
2. (Remembering Level) Students will be able to identify and label anatomical structures within small parts (thyroid, breast, testicles, etc.) on ultrasound images, distinguishing normal from abnormal findings. *(CSLO #2)*
3. (Analysis Level) Students will be able to analyze ultrasound images of small body structures to detect and differentiate pathological conditions, including masses, cysts, and tumors, and propose appropriate next steps for diagnosis. *(CSLO #4)*
4. (Application Level) Students will be able to apply ultrasound physics principles to adjust equipment settings (e.g., gain, frequency, depth) to optimize imaging quality and clarity during small parts ultrasound examinations. *(CSLO #2)*
5. (Application Level) Students will be able to demonstrate proper patient care protocols, including explaining the procedure, positioning, and ensuring patient comfort during small parts ultrasound imaging. *(CSLO #1)*
6. (Application Level) Students will be able to apply safety protocols and ethical considerations during ultrasound procedures, maintaining patient confidentiality and adhering to clinical guidelines. *(CSLO #3)*
7. (Analysis Level) Students will be able to examine and document sonographic images accurately, ensuring high-quality image capture and proper documentation to support clinical decision-making. *(CSLO #3)*
8. (Synthesis Level) Students will be able to integrate theoretical knowledge of small parts sonography with hands-on imaging practices, adjusting techniques based on anatomical variation and clinical indications. *(CSLO #2)*

These MSLOs for the *Small Parts Ultrasound Imaging Laboratory* section ensure that students are equipped with the practical skills necessary to apply their theoretical understanding in real-world clinical settings. Through hands-on practice, students will develop the competence and confidence needed to provide high-quality diagnostic imaging for small body structures, ensuring optimal patient care and accurate diagnostic results.

DMS140 - Sonographic OB/GYN Imaging

General

Division
Diagnostic Medical Sonography

Course Description
This course serves as the first of two in a comprehensive OB/GYN ultrasound series. Focusing on foundational skills, students will learn to perform and interpret ultrasound examinations related to obstetrics and gynecology. Key topics include routine assessments in early pregnancy, evaluation of fetal anatomy and well-being, and identification of common gynecological conditions. Through engaging lectures and hands-on lab sessions, participants will gain practical experience with ultrasound machines, developing proficiency in imaging techniques in a supervised environment. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101; DMS101L. Corequisites: DMS140L; DMS120; DMS120L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to perform ultrasound examinations for routine early pregnancy assessments, ensuring proper imaging techniques and patient positioning are utilized. *(CSLO #3)*
2. (Analysis Level) Students will be able to identify and analyze fetal anatomy and evaluate fetal well-being through sonographic images, recognizing key structures and abnormalities. *(CSLO #2)*
3. (Applying Level) Students will be able to demonstrate proficiency in using ultrasound equipment, adjusting settings such as gain, depth, and frequency, to obtain high-quality images for OB/GYN assessments. *(CSLO #3)*
4. (Understanding Level) Students will be able to interpret common gynecological conditions such as ovarian cysts, fibroids, and other pathologies, and demonstrate understanding of their clinical significance. *(CSLO #2)*
5. (Application Level) Students will be able to communicate ultrasound findings clearly and professionally to patients and healthcare providers, ensuring effective collaboration in clinical settings. *(CSLO #1)*
6. (Analysis Level) Students will be able to analyze the clinical indications for obstetric and gynecologic ultrasound procedures, ensuring that imaging is aligned with patient needs and diagnostic objectives. *(CSLO #4)*
7. (Application Level) Students will be able to apply ethical principles and patient safety standards in OB/GYN imaging, ensuring a respectful, culturally competent, and safe examination environment. *(CSLO #1)*
8. (Synthesis Level) Students will be able to synthesize their understanding of OB/GYN ultrasound techniques with theoretical knowledge to adapt imaging strategies to unique patient situations. *(CSLO #2)*

These MSLOs will guide students in developing both the technical and clinical skills necessary for performing high-quality obstetric and gynecologic ultrasound imaging. Upon completion of this course, students will be prepared to accurately assess early pregnancy and fetal well-being, as well as identify common gynecological conditions, ultimately enhancing patient care and supporting effective diagnosis and treatment plans.

DMS140L - OB/GYN Sonography Lab

General

Division
Diagnostic Medical Sonography

Course Description
The OB/GYN Imaging I Laboratory provides hands-on training to complement the foundational skills taught in the OB/GYN Imaging I lecture course. In this lab, students will practice performing ultrasound examinations related to obstetrics and gynecology, focusing on early pregnancy assessments, evaluation of fetal anatomy, and the identification of common gynecological conditions. Students will gain proficiency in using ultrasound equipment, developing essential imaging techniques for routine prenatal evaluations and gynecological exams. Under expert supervision, participants will refine their skills in patient positioning, probe manipulation, and optimize image quality to ensure accurate diagnostics. This lab is designed to enhance the students' clinical abilities, preparing them for real-world OB/GYN ultrasound procedures. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101; DMS101L. Corequisites: DMS 140; DMS120; DMS120L.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate proper patient positioning and ultrasound techniques for early pregnancy assessments, ensuring accurate image acquisition in a clinical setting. *(CSLO #3)*
2. (Application Level) Students will be able to perform and interpret sonographic examinations to assess fetal anatomy, ensuring proper documentation of the fetal structures for clinical evaluation. *(CSLO #2)*
3. (Understanding Level) Students will be able to identify common gynecological conditions, such as ovarian cysts and fibroids, through sonographic images, demonstrating understanding of their clinical significance. *(CSLO #2)*
4. (Application Level) Students will be able to adjust ultrasound equipment settings (e.g., gain, depth, frequency) to optimize image quality during OB/GYN examinations. *(CSLO #3)*
5. (Application Level) Students will be able to demonstrate professionalism and patient care by ensuring the comfort and safety of patients during OB/GYN ultrasound procedures, adhering to ethical and safety standards. *(CSLO #1)*
6. (Application Level) Students will be able to analyze fetal development stages through sonographic imaging, identifying deviations from normal anatomy and understanding their clinical implications. *(CSLO #4)*
7. (Synthesis Level) Students will be able to synthesize OB/GYN ultrasound techniques with theoretical knowledge to adapt imaging strategies in complex or atypical patient scenarios. *(CSLO #2)*
8. (Application Level) Students will be able to communicate ultrasound findings clearly and professionally with healthcare providers, supporting patient management and care planning. *(CSLO #1)*

By achieving these measurable student learning outcomes, students will gain the necessary technical skills, clinical knowledge, and professional attributes needed to perform high-quality OB/GYN ultrasound imaging. Upon completion of the course, students will be equipped with the competencies required to provide effective, accurate, and compassionate care in women’s health imaging.

DMS149 - Pathophysiology for Sonographers

General

Division
Diagnostic Medical Sonography

Course Description
This course offers an in-depth exploration of the major diseases and pathological conditions affecting the body's systems, with a focus on the causes, incidence, signs, symptoms, diagnosis, treatment, and special considerations. Students will gain an understanding of relevant medical terminology and its application in diagnostic imaging. The course examines the critical role of diagnostic ultrasound in the detection, therapy, and treatment of various pathologies. Additionally, cultural implications in the prevention and treatment of disease are explored, emphasizing the importance of providing culturally competent care. By integrating clinical knowledge with sonographic practice, this course prepares students to effectively contribute to patient diagnosis and management in diverse healthcare settings. Recommended: DMS120 & DMS120L or equivalent. Prior healthcare/patient-centered care experience. Prerequisite: BIO160. Corequisite: DMS102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the causes, incidence, signs, symptoms, and diagnostic criteria of major pathological conditions in body systems, applying knowledge to sonographic practice. *(CSLO #4)*
2. (Application Level) Apply medical terminology related to pathological conditions and diseases in the context of diagnostic sonography, ensuring clear and accurate communication in clinical settings. *(CSLO #2)*
3. (Evaluation Level) Evaluate the role of diagnostic ultrasound in the diagnosis, therapy, and treatment of pathological conditions, synthesizing this knowledge into clinical practice. (*CSLO #2)*
4. (Understanding Level) Demonstrate an understanding of cultural considerations in the prevention, diagnosis, and treatment of diseases, ensuring culturally competent care during sonographic procedures. (*CSLO #1)*
5. (Analysis Level) Examine the pathophysiological mechanisms of diseases and their implications for sonographic imaging, using critical thinking to enhance diagnostic accuracy. *(CSLO #4)*
6. (Application Level) Integrate knowledge of disease processes and ultrasound technology to assess patients effectively, demonstrating professional skills in clinical decision-making. *(CSLO #3)*
7. (Creating Level) Propose strategies for addressing the challenges posed by complex pathologies in diagnostic imaging, ensuring patient safety, optimal image quality, and effective diagnostic outcomes. *(CSLO #4)*

DMS150 - Clinical Sonography Practicum I

General

Division
Diagnostic Medical Sonography

Course Description
As the first rotation in a series of six, this Novice DMS supervised practicum introduces students to clinical policies and procedures in various settings, including hospitals, medical offices, and clinics. Students will become familiar with imaging practices, departmental scanning protocols, and techniques for abdominal scanning. Recommended: Prior healthcare/patient-centered care experience. Prerequisite: CPR/BLS certified.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate effective communication with patients and healthcare staff, ensuring that patient comfort, safety, and confidentiality are maintained during abdominal sonographic exams. *(CSLO #1)*
2. (Application Level) Students will be able to identify and adhere to departmental scanning protocols and policies, ensuring that all sonographic practices align with institutional standards and patient care procedures. *(CSLO #2)*
3. (Application Level) Students will be able to perform abdominal sonographic exams with supervision, demonstrating the ability to obtain high-quality images while following proper technique, positioning, and safety standards. *(CSLO #3)*
4. (Analysis Level) Students will be able to analyze patient cases and determine the appropriate sonographic techniques for specific abdominal conditions, demonstrating critical thinking and the application of learned concepts to real-world scenarios. *(CSLO #4)*
5. (Application Level) Students will be able to demonstrate professional behavior, including adherence to ethical standards, punctuality, and appropriate dress, while working in diverse healthcare settings such as hospitals, medical offices, and clinics. *(CSLO #3)*
6. (Application Level) Students will be able to apply their knowledge of abdominal anatomy and sonographic imaging techniques to evaluate and document abdominal structures, recognizing normal and abnormal findings. *(CSLO #2)*
7. (Application Level) Students will be able to adapt to different clinical environments and work effectively with various healthcare professionals, enhancing their ability to contribute to a collaborative, patient-centered approach to care. *(CSLO #1)*
8. (Application Level) Students will be able to demonstrate the ability to document imaging findings accurately and efficiently, using appropriate terminology and ensuring that the images and reports meet clinical documentation standards. *(CSLO #3)*

By achieving these MSLOs, students will transition from classroom learning to real-world clinical practice, honing their technical and professional skills. The course provides essential experience in abdominal sonography, helping students develop the competencies necessary to excel in the field of diagnostic medical sonography.

DMS151 - Clinical Sonography Practicum II

General

Division
Diagnostic Medical Sonography

Course Description
This is the second DMS clinical rotation in a series of six. This beginner-level practicum further reinforces policies, procedures, and protocols within a diagnostic sonography clinical setting. Students will develop scanning competencies in the abdomen, pelvis, and small parts while requiring a high level of supervision at clinical sites, including hospitals, medical offices, and clinics. Recommended: Prior healthcare/patient-centered care experience. Prerequisite: CPR/BLS certified.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate proper sonographic scanning techniques in abdominal, pelvic, and small parts imaging under direct supervision, ensuring the acquisition of high-quality images in accordance with clinical protocols and safety standards. *(CSLO #2)*
2. (Application Level) Students will be able to identify and adhere to departmental protocols and procedures, including patient preparation, positioning, and safety measures, in various clinical settings such as hospitals, medical offices, and clinics. *(CSLO #3)*
3. (Analysis Level) Students will be able to analyze sonographic images, identify normal and abnormal findings in abdominal, pelvic, and small parts scans, and apply clinical reasoning to support diagnostic decision-making. *(CSLO #4)*
4. (Application Level) Students will be able to demonstrate professional behavior, including ethical conduct, punctuality, and appropriate communication, while working in diverse healthcare environments with patients, colleagues, and healthcare providers. *(CSLO #1)*
5. (Application Level) Students will be able to apply theoretical knowledge to real-world clinical situations, integrating anatomical knowledge and sonographic techniques to perform effective abdominal, pelvic, and small parts imaging exams. *(CSLO #2)*
6. (Application Level) Students will be able to document patient history and sonographic findings accurately and efficiently, adhering to clinical documentation standards, and ensuring proper patient care continuity. (*CSLO #3)*
7. (Application Level) Students will be able to demonstrate competency in communication and collaboration with interdisciplinary teams, ensuring patient care is integrated and aligned with medical protocols and patient needs. *(CSLO #1)*
8. (Application Level) Students will be able to adapt to a variety of clinical environments, adjusting their sonographic techniques and communication style to meet the diverse needs of patients and healthcare settings. *(CSLO #1)*

These MSLOs will ensure that students gain hands-on experience, develop technical skills, and learn to navigate the professional and ethical demands of clinical practice. The course will foster both the practical expertise and the professional competencies required for successful careers in diagnostic medical sonography.

DMS152 - Clinical Sonography Practicum III

General

Division
Diagnostic Medical Sonography

Course Description
This is the third clinical rotation in a series of six, designed as an advanced beginner-level practicum. It further reinforces policies, procedures, and protocols in a diagnostic sonography clinical setting. Students will continue to develop their scanning competencies in the abdomen, pelvis, obstetrics, and small parts while working under the direct supervision of a clinical instructor. Recommended: Prior healthcare/patient-centered care experience. Prerequisite: CPR/BLS certified.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will be able to demonstrate advanced sonographic scanning techniques in abdominal, pelvic, obstetric, and small parts imaging, applying department protocols and safety measures under the supervision of a clinical instructor. *(CSLO #2)*
2. (Analysis Level) Students will be able to analyze sonographic images in real-time, identifying normal and abnormal findings, and appropriately documenting results in alignment with clinical standards. *(CSLO #4)*
3. (Application Level) Students will be able to apply theoretical knowledge in a clinical setting, demonstrating improved scanning competence and an understanding of patient history, anatomy, and pathology in abdominal, pelvic, obstetric, and small parts imaging. *(CSLO #2)*
4. (Application Level) Students will be able to demonstrate proficiency in clinical communication, including clear reporting of sonographic findings and collaborating effectively with interdisciplinary healthcare teams to ensure accurate diagnoses and patient care. *(CSLO #3)*
5. (Application Level) Students will be able to adopt professional behaviors, including ethical decision-making, confidentiality, and timely documentation, ensuring alignment with clinical standards in diverse healthcare environments. *(CSLO #1)*
6. (Evaluation Level) Students will be able to evaluate patient positioning and procedural preparation, ensuring that these factors optimize image quality and contribute to effective sonographic procedures under supervision.
(CSLO #3)
7. (Application Level) Students will be able to demonstrate their ability to adapt scanning protocols to meet individual patient needs, including considerations for patient comfort, safety, and special clinical circumstances. *(CSLO #1)*
8. (Evaluation Level) Students will be able to interpret feedback from clinical instructors and utilize it to improve scanning techniques, fostering continuous personal and professional growth in the sonographic practice. *(CSLO #3)*

These outcomes ensure that students are developing the clinical expertise, professional attitudes, and technical skills necessary to excel as diagnostic medical sonographers. Students will continue to enhance their ability to interpret and apply sonographic techniques in a clinical environment, reinforcing their readiness for independent clinical practice in future rotations.

DMS154 - Abdominal Sonography Imaging II

General

Division
Diagnostic Medical Sonography

Course Description
Reinforces foundational Diagnostic Medical Sonography (DMS) concepts while introducing advanced sonographic applications in the abdominopelvic cavity. Building on the knowledge gained in the previous course, students will explore both normal and abnormal presentations of abdominal and pelvic anatomy, with a focus on recognizing complex pathologies. Key topics include pediatric applications, interventional and emergency procedures, the use of contrast agents, and emerging technologies in sonographic imaging. Students will also examine advanced techniques such as Doppler ultrasound for vascular assessment, with an emphasis on clinical indications, procedural protocols, and optimal imaging practices for enhanced diagnostic accuracy. This course prepares students to apply their skills in a variety of clinical settings, focusing on patient safety, advanced scanning techniques, and the latest advancements in sonographic technology. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: DMS132; DMS132L; DMS135; DMS135L. Corequisite: DMS 154L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and interpret sonographic images of normal and abnormal abdominal and pelvic anatomy, including pediatric applications, to accurately identify complex pathologies. *(CSLO #4)*
2. (Understanding Level) Demonstrate advanced Doppler ultrasound techniques for vascular assessment, applying optimal scanning protocols to enhance diagnostic accuracy in clinical settings. *(CSLO #2)*
3. (Evaluate Level) Evaluate and apply clinical indications for the use of contrast agents in sonography, demonstrating an understanding of patient safety and procedural protocols in a variety of clinical environments. *(CSLO #3)*
4. (Application Level) Apply principles of interventional and emergency sonography procedures in the abdominopelvic cavity, ensuring adherence to best practices for enhanced patient care and safety. *(CSLO #3)*
5. (Synthesis Level) Synthesize knowledge of emerging sonographic technologies and their applications in abdominal sonography to assess their potential for improving diagnostic accuracy and patient outcomes. *(CSLO #2)*
6. (Understanding Level) Demonstrate cultural competence in clinical scenarios by providing patient-centered care that respects diverse backgrounds and addresses varying healthcare needs. *(CSLO #1)*

DMS154L - Abdominal Sonography Imaging II Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
Provides hands-on experience to support the advanced concepts introduced in the lecture course. In this lab, students will refine their skills in performing abdominal and pelvic ultrasound exams, focusing on the recognition of normal and abnormal presentations, including complex pathologies. The lab also covers pediatric sonography and interventional techniques, including emergency procedures and the use of contrast agents. Students will practice advanced sonographic applications such as Doppler imaging and learn to adapt scanning techniques for specific clinical scenarios. Emphasis will be placed on the use of emerging technologies in the field, with a focus on optimizing image quality, improving procedural accuracy, and ensuring patient safety during diagnostic and interventional exams. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: DMS132; DMS132L; DMS135; DMS135L. Corequisite: DMS154.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Perform abdominal and pelvic ultrasound exams on both normal and abnormal presentations, accurately identifying complex pathologies using advanced scanning techniques. *(CSLO #4)*
2. (Application Level) Apply Doppler ultrasound techniques to assess vascular conditions, adjusting scanning protocols to optimize image quality and diagnostic accuracy in clinical scenarios. *(CSLO #2)*
3. (Understanding Level) Demonstrate proficiency in pediatric sonography by adapting scanning methods to meet the specific needs of pediatric patients, ensuring safe and accurate imaging. *(CSLO #3)*
4. (Understanding Level) Utilize contrast agents appropriately during ultrasound procedures, adhering to patient safety protocols and clinical guidelines for enhanced diagnostic clarity. *(CSLO #3)*
5. (Analysis Level) Analyze complex clinical scenarios, such as emergency procedures and interventional techniques, to determine the most appropriate scanning protocols and improve procedural accuracy. *(CSLO #4)*
6. (Synthesis Level) Synthesize knowledge of emerging technologies in sonography, applying them to optimize image quality, procedural outcomes, and patient safety during diagnostic exams. *(CSLO #2)*
7. (Understanding Level) Demonstrate cultural competence in the laboratory setting by adapting sonographic practices to meet the diverse needs of patients, ensuring respectful, patient-centered care. *(CSLO #1)*

DMS158 - Practical Case Studies in Sonography I

General

Division
Diagnostic Medical Sonography

Course Description
This is the first of a three-part series that introduces students to critical thinking through case studies in Diagnostic Medical Sonography. Students will analyze real-life diagnostic cases utilizing learned material and ultrasound laboratory scanning techniques. The course covers cases related to anatomy, pathology, physics, imaging, and terminology used in diagnostic sonography, along with discussions on imaging protocols and scanning guidelines. Recommended: Prior healthcare/ patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101; DMS101L.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze real-life diagnostic case studies, applying principles of anatomy, pathology, and imaging techniques to identify and interpret key clinical findings. *(CSLO #4)*
2. (Application Level) Apply learned ultrasound scanning techniques to accurately assess and diagnose clinical scenarios presented in case studies, following proper scanning protocols and imaging guidelines. *(CSLO #2)*
3. (Evaluation Level) Evaluate case study data and imaging results to determine potential diagnostic outcomes, demonstrating the ability to synthesize complex information from anatomy, pathology, and physics. *(CSLO #2)*
4. (Creating Level) Develop a comprehensive understanding of sonographic terminology and imaging protocols by discussing and explaining these concepts in the context of case study analysis. *(CSLO #2)*
5. (Understanding Level) Demonstrate professional skills in clinical reasoning, communication, and teamwork while engaging in case study discussions and collaborative problem-solving with peers and instructors. *(CSLO #3)*
6. (Application Level) Incorporate cultural competence into case study analyses, considering diverse patient backgrounds and the implications for diagnostic decision-making and sonographic practice. *(CSLO #1)*
7. (Creating Level) Propose logical and well-reasoned solutions to complex diagnostic problems, based on the synthesis of imaging findings, clinical information, and relevant sonographic principles. *(CSLO #4)*

DMS159 - Practical Case Studies in Sonography II

General

Division
Diagnostic Medical Sonography

Course Description
Case Studies II emphasize students presenting cases that reflect the complexity and caliber expected of an entry-level sonographer. Students will analyze real-life diagnostic cases utilizing learned material and ultrasound laboratory scanning techniques. Recommended: Prior healthcare/patient-centered care experience. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS158.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze complex diagnostic case studies, integrating knowledge of anatomy, pathology, and sonographic techniques to identify key clinical findings and formulate accurate diagnostic conclusions. *(CSLO #4)*
2. (Application Level) Apply advanced ultrasound scanning techniques to real-life case scenarios, ensuring accurate image acquisition and adherence to clinical protocols for complex diagnostic cases. *(CSLO #2)*
3. (Evaluation Level) Evaluate and synthesize imaging results, patient history, and clinical data to develop a comprehensive diagnostic plan, demonstrating advanced clinical reasoning and decision-making skills. *(CSLO #2)*
4. (Understanding Level) Demonstrate professional communication and presentation skills by clearly articulating diagnostic findings and rationales during case study presentations to peers and instructors. *(CSLO #3)*
5. (Application Level) Incorporate cultural competence into the analysis and presentation of case studies, considering the diverse needs and backgrounds of patients when formulating diagnostic approaches. *(CSLO #1)*
6. (Analysis Level)Propose innovative solutions to complex diagnostic challenges, utilizing critical thinking and emerging sonographic technologies to enhance diagnostic accuracy and patient care. *(CSLO #4)*
7. (Understanding Level) Demonstrate the ability to adapt scanning protocols and techniques in response to complex and varied clinical scenarios, ensuring optimal patient care and diagnostic outcomes. *(CSLO #3)*

DMS200 - Advanced Medical Terminology for Nursing and Healthcare Professionals

General

Division
Diagnostic Medical Sonography

Course Description
Clinical abbreviations and word structures related to clinical diseases, medications, structures of the human body, and relevant clinical procedures. Emphasis is on necessary clinical language needed to assess and care for patients in the clinical setting.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Identify and define key medical terms related to diseases, medications, anatomical structures, and clinical procedures, demonstrating an understanding of their components (prefixes, roots, and suffixes). *(CSLO #2)*
2. (Application Level) Apply medical terminology accurately in clinical scenarios, using appropriate abbreviations and terms when documenting patient assessments, treatments, and medical procedures. *(CSLO #2)*
3. (Analysis Level) Analyze clinical case studies and patient records, interpreting medical terms and abbreviations to accurately assess patient conditions and formulate appropriate care plans. *(CSLO #4)*
4. (Understanding Level) Demonstrate proficiency in using medical terminology to communicate effectively with patients and healthcare teams, ensuring clarity and reducing the risk of errors. *(CSLO #3)*
5. (Evaluation Level) Evaluate the cultural implications of medical terminology and its use in patient interactions, ensuring sensitivity to diverse patient populations and enhancing patient-centered care. *(CSLO #1)*
6. (Synthesis Level) Synthesize medical terminology knowledge with clinical practice, adapting language for different healthcare settings and promoting accurate and effective interdisciplinary communication. *(CSLO #2)*
7. (Creating Level) Propose strategies to incorporate medical terminology into ongoing professional development, improving personal proficiency and contributing to overall career advancement in the healthcare field. *(CSLO #3)*

DMS234 - Sonographic Principles and Instrumentation II

General

Division
Diagnostic Medical Sonography

Course Description
This course covers the advanced application of sonographic physical principles and instrumentation, focusing on topics such as artifacts, bioeffects, quality control, hemodynamics and Doppler, contemporary trends, equipment features and benefits, safety, and preparation for the ARDMS examination. Prerequisites: DMS130; DMS130L. Corequisite: DMS234L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the physical principles of ultrasound imaging, including wave propagation, artifacts, and bioeffects, to optimize sonographic results and minimize diagnostic errors. *(CSLO #4)*
2. (Application Level) Apply advanced Doppler techniques and hemodynamics principles to assess vascular conditions, ensuring accurate flow measurement and diagnosis. *(CSLO #2)*
3. (Evaluation Level) Evaluate and troubleshoot sonographic artifacts, utilizing critical thinking to adjust equipment settings and improve image quality for optimal diagnostic results. *(CSLO #4)*
4. (Understanding Level) Demonstrate proficiency in performing quality control procedures on sonographic equipment, ensuring accurate calibration and consistent image quality in clinical practice. *(CSLO #3)*
5. (Synthesis Level) Synthesize contemporary trends and emerging technologies in sonography, incorporating new techniques and equipment features into clinical practice for improved patient care. *(CSLO #2)*
6. (Evaluation Level) Assess and apply safety protocols in sonography, recognizing the importance of bioeffects and patient safety during diagnostic procedures. *(CSLO #3)*
7. (Remembering Level) Prepare for the ARDMS examination by reviewing key sonographic principles, instrumentation, and clinical practices, ensuring comprehensive knowledge and readiness for certification. *(CSLO #2)*

DMS234L - Sonographic Principles and Instrumentation II Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
The Physics & Instrumentation Laboratory provides hands-on experience to complement the advanced sonographic principles and instrumentation discussed in the lecture course. In this lab, students will explore key topics such as artifacts, bioeffects, quality control, hemodynamics, Doppler imaging, and contemporary trends in ultrasound technology. Through practical exercises, students will gain proficiency in using ultrasound equipment, identifying and troubleshooting artifacts, and performing quality control procedures to ensure optimal image quality and patient safety. The lab also covers Doppler techniques for assessing hemodynamics, and students will become familiar with the latest advancements in equipment features and their clinical benefits. Additionally, the lab will help students prepare for the ARDMS examination by reinforcing the theoretical concepts with practical applications in a supervised setting. Prerequisites: DMS130; DMS130L. Corequisite: DMS234.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze ultrasound artifacts and troubleshoot their causes, applying appropriate techniques to minimize or eliminate them in order to improve image quality. *(CSLO #4)*
2. (Application Level) Apply Doppler ultrasound techniques to assess hemodynamics, ensuring accurate measurement of blood flow and interpreting results for clinical decision-making. *(CSLO #2)*
3. (Understanding Level) Demonstrate proficiency in performing quality control procedures, ensuring the calibration and optimization of ultrasound equipment to maintain high diagnostic standards and patient safety. *(CSLO #3)*
4. (Evaluation Level) Evaluate contemporary trends and emerging technologies in sonography, incorporating these advancements into clinical practice to enhance diagnostic imaging and improve patient care. *(CSLO #2)*
5. (Synthesis Level) Synthesize theoretical knowledge of ultrasound physics with practical laboratory exercises, applying principles of bioeffects and safety to ensure optimal image quality and patient safety during scanning. *(CSLO #3)*
6. (Evaluation Level) Assess the performance of ultrasound equipment during lab exercises, identifying potential issues and troubleshooting to ensure equipment readiness and reliability for clinical use. *(CSLO #4)*
7. (Understanding Level) Prepare for the ARDMS examination by utilizing hands-on lab experiences to reinforce sonographic principles, demonstrating proficiency in both theory and practical applications. *(CSLO #2)*

DMS242 - Sonographic OB/GYN Imaging II - High Risk OB

General

Division
Diagnostic Medical Sonography

Course Description
This course is the second in a comprehensive OB/GYN ultrasound series, building on foundational skills acquired in the first course. Focusing on advanced techniques and high-risk obstetric evaluations, students will deepen their understanding of complex clinical scenarios.
Key topics include the assessment and management of high-risk pregnancies, detailed fetal anatomy, and advanced imaging techniques. Students will learn to recognize and interpret various complications, including multiple gestations, placental abnormalities, and fetal anomalies. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS140; DMS 140L. Corequisite: DMS242L.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and interpret high-risk obstetric ultrasound images to assess complications such as multiple gestations, placental abnormalities, and fetal anomalies, demonstrating advanced diagnostic reasoning. *(CSLO #4)*
2. (Application Level) Apply advanced sonographic techniques for detailed fetal anatomy assessment, recognizing normal and abnormal findings to support high-risk pregnancy management. *(CSLO #2)*
3. (Understanding Level) Demonstrate proficiency in utilizing specialized ultrasound equipment for high-risk obstetric imaging, ensuring accurate data acquisition and enhancing diagnostic capabilities. *(CSLO #3)*
4. (Evaluation Level) Evaluate clinical scenarios involving high-risk pregnancies, synthesizing information from ultrasound images, medical history, and patient data to develop appropriate diagnostic and management strategies. *(CSLO #4)*
5. (Evaluating Level) Assess the ethical and cultural implications of high-risk obstetric care, applying sensitivity and respect when dealing with diverse patient populations and ensuring equitable healthcare delivery. *(CSLO #1)*
6. (Synthesis Level) Synthesize knowledge of advanced OB/GYN sonographic techniques with clinical evidence to improve patient outcomes in high-risk obstetric care settings. *(CSLO #2)*
7. (Application Level) Prepare for high-level obstetric imaging practice by integrating theoretical concepts and practical skills in high-risk OB/GYN ultrasound, contributing to professional development and readiness for clinical application. *(CSLO #3)*

DMS242L - OB/GYN Imaging Laboratory II - High Risk OB

General

Division
Diagnostic Medical Sonography

Course Description
This Laboratory provides hands-on experience to complement the advanced concepts covered in the High-Risk OB lecture course. In this lab, students will practice specialized ultrasound techniques used for high-risk obstetric evaluations, focusing on complex clinical scenarios such as multiple gestations, placental abnormalities, and fetal anomalies. Students will refine their skills in performing detailed fetal anatomy scans and assessing high-risk pregnancies, utilizing advanced imaging tools and Doppler technology. The lab emphasizes the use of specialized ultrasound equipment, allowing students to gain proficiency in handling advanced sonographic procedures while interpreting and recognizing potential complications. With expert supervision, students will enhance their diagnostic abilities, ensuring they are prepared to manage high-risk obstetric cases in a clinical setting. Prerequisites: DMS140; DMS140L. Corequisite: DMS242.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Demonstrate proficiency in performing advanced sonographic techniques, including detailed fetal anatomy scans and assessments of high-risk pregnancies, using specialized ultrasound equipment. *(CSLO #3)*
2. (Application Level) Analyze and interpret sonographic findings for high-risk obstetric cases, such as multiple gestations, placental abnormalities, and fetal anomalies, to support clinical decision-making. *(CSLO #4)*
3. (Application Level) Apply Doppler ultrasound techniques to assess fetal hemodynamics and placental blood flow, ensuring the accurate identification of potential complications in high-risk pregnancies. *(CSLO #2)*
4. (Evaluation Level) Evaluate and troubleshoot ultrasound equipment to ensure optimal image quality, addressing potential issues related to artifacts, resolution, or other technical factors. *(CSLO #3)*
5. (Synthesis Level) Synthesize theoretical knowledge and practical skills to conduct comprehensive high-risk OB imaging assessments, enhancing diagnostic accuracy and patient care in real-world clinical settings. *(CSLO #2)*
6. (Evaluation Level) Assess the cultural and ethical considerations involved in managing high-risk obstetric cases, ensuring sensitivity and respect when delivering care to diverse patient populations. *(CSLO #1)*
7. (Analysis Level) Refine communication skills by accurately documenting and presenting findings of high-risk obstetric imaging assessments, contributing to effective collaboration within a multidisciplinary healthcare team. *(CSLO #3)*

DMS250 - Basics of Clinical Laboratory Science

General

Division
Diagnostic Medical Sonography

Course Description
This course covers the fundamentals of laboratory tests, including how to interpret common lab results, understanding the significance of various tests, and their implications for patient care. Sonographers will learn relevant areas in laboratory to enhance their understanding of how lab results integrate with ultrasound findings in clinical practice. This course would provide valuable skills for sonographers, allowing them to better communicate with healthcare teams and understand the overall clinical picture of their patients. Recommended: Prior Healthcare/Patient-centered care experience. Prerequisite: DMS200 or NUR 200.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify and describe common laboratory tests and their purposes, including blood tests, urine tests, and microbiological cultures, in the context of patient care. *(CSLO #2)*
2. (Analysis Level) Analyze the significance of common laboratory results, such as CBC, liver function tests, and kidney function tests, and interpret their implications for patient care and ultrasound findings. *(CSLO #4)*
3. (Application Level) Apply knowledge of laboratory test results to ultrasound imaging by correlating lab findings with clinical scenarios and patient conditions. *(CSLO #2)*
4. (Evaluation Level) Evaluate the role of laboratory tests in clinical decision-making, recognizing how lab results inform diagnostic and treatment decisions within the healthcare team. *(CSLO #4)*
5. (Application Level) Demonstrate effective communication with healthcare teams by discussing and sharing relevant laboratory findings and their impact on ultrasound procedures and patient management. *(CSLO #3)*
6. (Synthesis Level) Synthesize clinical laboratory knowledge and ultrasound imaging skills to form a comprehensive understanding of patient health, contributing to a holistic diagnostic approach. *(CSLO #2)*
7. (Analyzing Level) Assess cultural and ethical considerations related to laboratory testing and its impact on patient care, ensuring sensitivity and respect for diverse patient populations. *(CSLO #1)*

DMS254 - Clinical Sonography Practicum IV

General

Division
Diagnostic Medical Sonography

Course Description
This is the fourth clinical rotation in a series of six, designed as an intermediate-level practicum. It reinforces policies, procedures, and protocols within a diagnostic sonography clinical setting, including hospitals, medical offices, and clinics. Students will continue to develop their scanning competencies in the abdomen, pelvis, obstetrics, small parts, and vascular imaging studies while working under limited supervision.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Perform diagnostic sonographic exams in the abdomen, pelvis, obstetrics, small parts, and vascular imaging, demonstrating competency in the use of ultrasound equipment and imaging techniques under limited supervision. *(CSLO #2)*
2. (Analysis Level) Interpret sonographic images and communicate findings accurately to the supervising clinician, ensuring that diagnostic information is clear and relevant to patient care. *(CSLO #3)*
3. (Understanding Level) Demonstrate adherence to clinical policies, procedures, and protocols in a diagnostic sonography clinical setting, ensuring patient safety and comfort during examinations. *(CSLO #3)*
4. (Analysis Level) Assess and address potential challenges or complications during sonographic exams, applying problem-solving skills to resolve issues and ensure optimal image quality. *(CSLO #4)*
5. (Evaluation Level) Evaluate the clinical significance of sonographic findings in relation to patient history and diagnosis, ensuring that examinations are thorough and support clinical decision-making. *(CSLO #4)*
6. (Understanding Level) Demonstrate professionalism and ethical behavior while interacting with patients, clinical staff, and other healthcare professionals, contributing to a collaborative and respectful clinical environment. *(CSLO #1)*
7. (Synthesis Level) Synthesize knowledge gained from previous coursework and clinical experiences to refine scanning techniques and improve diagnostic accuracy in sonographic exams. *(CSLO #2)*
8. (Application Level) Adapt to diverse clinical settings and patient populations, demonstrating flexibility and cultural competence in providing high-quality sonographic care. *(CSLO #1)*

DMS255 - Clinical Sonography Practicum V

General

Division
Diagnostic Medical Sonography

Course Description
This is the fifth clinical rotation in a series of six, designed as an advanced intermediate-level practicum. It reinforces policies, procedures, and protocols in a diagnostic sonography clinical setting, including hospitals, medical offices, and clinics. Students will further develop their scanning competencies in the abdomen, pelvis, obstetrics, small parts, vascular imaging, interventional procedures, and other studies while working under minimal supervision.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Perform diagnostic ultrasound exams in the abdomen, pelvis, obstetrics, small parts, vascular imaging, and interventional procedures with minimal supervision, applying established protocols, policies, and safety guidelines. (*CSLO #2)*
2. (Analysis Level) Demonstrate critical thinking and problem-solving skills to adapt imaging techniques and protocols based on clinical indications and patient conditions, ensuring optimal diagnostic results. (*CSLO #4)*
3. (Evaluation Level) Evaluate ultrasound images for diagnostic accuracy and recognize artifacts or limitations in imaging, ensuring high-quality results for clinical assessment. (*CSLO #2)*
4. (Understanding Level) Communicate effectively with healthcare team members to discuss patient conditions, clinical findings, and appropriate next steps, demonstrating professional communication skills in a clinical setting. (*CSLO #3)*
5. (Application Level) Exhibit cultural sensitivity and professional behavior when interacting with diverse patient populations, adhering to ethical guidelines and promoting positive patient experiences. (*CSLO #1)*
6. (Application Level) Document patient information and exam findings accurately in accordance with institutional protocols and legal requirements, ensuring patient confidentiality and high standards of practice. (*CSLO #3)*
7. (Synthesis Level) Prepare for successful certification examinations (such as ARDMS) by integrating learned concepts in clinical practice, demonstrating readiness for entry-level sonography roles. (*CSLO #3)*

These learning outcomes ensure that students are equipped with the knowledge, skills, and professional attributes necessary to succeed in advanced clinical sonography practice and provide quality care in diverse healthcare settings.

DMS256 - Clinical Sonography Practicum VI

General

Division
Diagnostic Medical Sonography

Course Description
The sixth and final rotation is an advanced-level practicum that reinforces policies, procedures, and protocols within a diagnostic sonography clinical setting, including hospitals, medical offices, and clinics. Under minimal supervision, students will gain competencies in abdominal, pelvic, obstetric, small parts, vascular imaging, interventional procedures, and other studies, performing at the level of an entry-level sonographer.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proficiency in performing sonographic imaging exams in various clinical settings, including abdominal, pelvic, obstetric, small parts, and vascular imaging, while adhering to professional and ethical standards. (CSLO #3)
2. (Analysis Level) Evaluate and integrate clinical findings with patient history and medical data to provide accurate and comprehensive diagnostic imaging, demonstrating critical thinking and decision-making skills. (CSLO #4)
3. (Evaluation Level) Exhibit effective communication skills with patients, healthcare providers, and team members, ensuring quality patient care and maintaining professionalism in diverse healthcare environments. (CSLO #1)
4. (Application Level) Apply knowledge of safety protocols and infection control procedures to ensure patient and operator safety during all sonographic procedures, incorporating advanced imaging techniques and protocols. (CSLO #2)
5. (Creation Level) Demonstrate the ability to perform and assess interventional sonography procedures, including but not limited to biopsy and drainage, while ensuring patient comfort and procedural accuracy. (CSLO #2)
6. (Application Level) Adapt to varying clinical scenarios and refine sonographic techniques, troubleshooting technical issues and improving image quality while working under minimal supervision. (CSLO #3)
7. (Synthesis Level) Synthesize knowledge of sonographic procedures and clinical practices to function competently as an entry-level sonographer, meeting the expectations of the healthcare facility. (CSLO #3)

DMS259 - Sonography Case Studies III

General

Division
Diagnostic Medical Sonography

Course Description
The third in a series of three, focusing on students presenting cases that reflect the complexity and caliber expected of entry-level sonographers. Students will analyze real-life diagnostic cases utilizing learned material and ultrasound laboratory scanning techniques. Prerequisite: Admission to Diagnostic Medical Sonography program.

Total Number Of Credits:
1

Lab Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and integrate diagnostic information from real-life sonographic cases, demonstrating an advanced understanding of anatomy, pathology, and imaging protocols in complex clinical scenarios. (CSLO #2)
2. (Evaluation Level) Evaluate ultrasound images and patient histories to identify abnormalities and select the most appropriate imaging techniques for each case, ensuring accurate diagnosis and patient care. (CSLO #4)
3. (Application Level) Apply critical thinking skills to solve complex clinical problems, determining the correct course of action based on the analysis of ultrasound results and clinical data. (CSLO #4)
4. (Application Level) Demonstrate effective communication and teamwork by presenting and discussing complex sonographic cases, actively engaging with peers and instructors to enhance the diagnostic process. (CSLO #1 & CSLO #3)
5. (Synthesis Level) Synthesize learned knowledge from previous sonographic courses to address advanced sonography cases, ensuring a comprehensive understanding of imaging techniques, pathology, and clinical outcomes. (CSLO #2)
6. (Evaluation Level) Develop professional judgment in sonographic practice by evaluating patient cases, making informed decisions based on sonographic findings, and adhering to ethical and professional standards. (CSLO #3)

These outcomes will ensure that students are well-prepared for entry-level positions as sonographers, demonstrating mastery in complex diagnostic situations while contributing meaningfully to healthcare teams.

DMS271 - Concepts of Vascular Imaging

General

Division
Diagnostic Medical Sonography

Course Description
This course explores the vascular applications of sonography in the cerebrovascular, abdominal, obstetric, and gynecological, arterial, and venous systems of the body. Topics include hemodynamics, Doppler techniques, color flow, duplex, and triplex imaging protocols. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101. Corequisite: DMS271L.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Students will analyze vascular sonographic images to identify normal and abnormal hemodynamics in the cerebrovascular, abdominal, obstetric, gynecological, arterial, and venous systems. *(CSLO #2)*
2. (Application Level) Students will demonstrate the ability to apply Doppler techniques, including color flow, duplex, and triplex imaging protocols, to assess vascular conditions across multiple systems. *(CSLO #4)*
3. (Evaluation Level) Students will evaluate and interpret the clinical significance of various vascular abnormalities detected through sonography, including arterial stenosis, venous insufficiency, and cerebrovascular disorders. *(CSLO #2)*
4. (Synthesis Level) Students will synthesize information from vascular sonography results and medical history to contribute to the accurate diagnosis and treatment planning of vascular diseases. *(CSLO #3)*
5. (Evaluation Level) Students will compare and contrast the use of Doppler imaging modalities (color flow, duplex, and triplex) to select the appropriate technique for specific vascular examinations. *(CSLO #2)*
6. (Understanding Level) Students will demonstrate effective communication skills by discussing vascular sonography findings with healthcare professionals and explaining their significance in patient care. *(CSLO #3)*
7. (Remembering Level) Students will identify potential errors in vascular sonography examinations and apply corrective actions to ensure high-quality, reliable results. *(CSLO #4)*

These MSLOs emphasize the development of critical thinking, technical proficiency, and professional communication, which are essential for sonographers specializing in vascular imaging. They also ensure that students will be able to integrate knowledge and perform at an advanced level within clinical settings.

DMS271L - Vascular Imaging Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
This course focuses on the vascular applications of sonography in the cerebrovascular, abdominal, arterial, and venous systems of the body within a lab setting. Prerequisites: Admission to Diagnostic Medical Sonography program; DMS101. Corequisite: DMS271.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Students will demonstrate proficiency in performing vascular ultrasound examinations, including Doppler, duplex, and color flow imaging, on cerebrovascular, abdominal, arterial, and venous systems. *(CSLO #2)*
2. (Analysis Level) Students will identify and differentiate between normal and abnormal findings in vascular imaging, and accurately document and report results for further clinical evaluation. *(CSLO #2)*
3. (Application Level) Students will apply proper scanning techniques and safety protocols while conducting vascular ultrasound examinations to ensure patient safety and optimal image quality. (*CSLO #3)*
4. (Analysis Level) Students will analyze vascular sonographic images and Doppler waveforms to assess hemodynamics and vascular conditions, including stenosis, occlusions, and aneurysms. (*CSLO #4)*
5. (Understanding Level) Students will demonstrate the ability to communicate effectively with the healthcare team, discussing vascular imaging findings and collaborating on patient care. (*CSLO #1)*
6. (Evaluation Level) Students will evaluate and implement quality control procedures to ensure the technical accuracy of vascular images and reports. (*CSLO #3)*

These MSLOs ensure students are able to integrate and apply vascular imaging skills in real-world clinical settings while demonstrating both technical proficiency and professional communication skills.

DMS273 - Advanced Sonography Applications

General

Division
Diagnostic Medical Sonography

Course Description
This course covers advanced applications and emerging trends in sonography worldwide, including interventional, surgical, portable, vascular, pediatric, musculoskeletal, breast, and prostate/male pelvis imaging. Corequisite: DMS273L.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply advanced sonographic techniques to interventional, surgical, portable, vascular, pediatric, musculoskeletal, breast, and prostate/male pelvic imaging. *(CSLO #2)*
2. (Analysis Level) Analyze emerging trends in global sonography applications, considering their impact on healthcare practices and patient outcomes. *(CSLO #4)*
3. (Understanding Level) Demonstrate the ability to perform complex sonographic procedures in specialized areas, ensuring high levels of accuracy and quality control. *(CSLO #3)*
4. (Evaluation Level) Evaluate the integration of emerging sonography applications within diverse clinical settings, considering the technological advancements and global needs of healthcare systems. *(CSLO #1)*
5. (Synthesis Level) Synthesize knowledge from advanced sonography applications to develop comprehensive diagnostic strategies in complex clinical cases, ensuring patient safety and accurate results. *(CSLO #2)*
6. (Application Level) Identify and troubleshoot technical issues in advanced sonography applications, ensuring optimal imaging quality and adherence to clinical protocols. *(CSLO #3)*

These MSLOs aim to develop not only technical skills but also critical thinking, professionalism, and the ability to work effectively in diverse, global healthcare settings.

DMS273L - Advanced Sonography Applications Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
Provides hands-on experience to complement the theoretical concepts covered in DMS273. This lab focuses on advanced sonographic techniques and emerging trends in the field of diagnostic medical sonography. Students will have the opportunity to practice a wide range of advanced applications, including interventional, surgical, portable, vascular, pediatric, musculoskeletal, breast, and prostate/male pelvis imaging. The lab emphasizes the development of clinical skills in performing and interpreting complex sonographic exams, with a focus on improving imaging quality, optimizing procedural techniques, and applying best practices for diverse patient populations. Students will also explore the use of emerging technologies and their impact on the future of sonography, ensuring they are prepared to meet the evolving demands of the healthcare industry. Corequisite: DMS273.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proficiency in performing advanced sonographic techniques, including interventional, surgical, portable, vascular, pediatric, musculoskeletal, breast, and prostate/male pelvis imaging. Students will apply their knowledge of advanced sonography techniques, students will effectively perform complex imaging procedures across various applications, demonstrating comprehensive skills needed for clinical practice. *(CSLO #2)*
2. (Analysis Level) Analyze and evaluate sonographic images to assess image quality, optimize procedural techniques, and ensure diagnostic accuracy across diverse patient populations. Students will be able to critically analyze images, identify areas for improvement, and make necessary adjustments to ensure optimal image quality and diagnostic accuracy, preparing them for real-world sonography tasks. *(CSLO #4)*
3. (Application Level) Apply emerging technologies in sonography to improve patient care and imaging outcomes, demonstrating an understanding of their impact on the future of diagnostic medical sonography. This outcome enables students to integrate knowledge of emerging technologies into their clinical practice, ensuring they are prepared for future advancements in sonography. *(CSLO #2)*
4. (Application Level) Apply emerging technologies in sonography to improve patient care and imaging outcomes, demonstrating an understanding of their impact on the future of diagnostic medical sonography. This outcome enables students to integrate knowledge of emerging technologies into their clinical practice, ensuring they are prepared for future advancements in sonography. *(CSLO #2)*
5. (Synthesis Level) Demonstrate professionalism and effective communication while working in a clinical lab setting, including the ability to collaborate with peers and instructors in a diverse and dynamic healthcare environment. Students will gain experience in working as part of a healthcare team, fostering interpersonal and communication skills in diverse, multicultural environments, while adhering to professional standards of conduct in clinical practice. *(CSLO #1)*
6. (Synthesis Level) Synthesize clinical knowledge, ultrasound techniques, and patient care protocols to handle complex sonographic cases, ensuring comprehensive diagnostic reports and decision-making. This outcome focuses on combining theoretical knowledge and practical experience, preparing students to manage complex sonographic cases independently and confidently in a clinical environment. *(CSLO #3)*

DMS274 - Pediatric/Neurological Sonography

General

Division
Diagnostic Medical Sonography

Course Description
Pediatric/Neurological Sonography focuses on the specialized applications of sonography in pediatric and neurological imaging. This course introduces students to the unique anatomical and physiological considerations when performing ultrasound exams on infants, children, and patients with neurological conditions. Key topics include the assessment of pediatric abdominal organs, cranial sonography, evaluation of the brain in neonates, and imaging of the spinal cord and other neurological structures. Students will also explore sonographic techniques for identifying pathologies such as hydrocephalus, brain hemorrhages, and congenital abnormalities. Emphasis will be placed on adapting scanning techniques for pediatric patients and understanding the complexities of neurological sonography. By the end of the course, students will be equipped to conduct and interpret pediatric and neurological ultrasound exams effectively. Prerequisite(s): Admission to Diagnostic Medical Sonography program, admission to the pediatric certificate program. Corequisite: DMS274L.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) *Analyze the unique anatomical and physiological considerations involved in pediatric and neurological sonography, including the assessment of pediatric abdominal organs, cranial sonography, and spinal cord imaging. (*CSLO #2)
2. (Application Level) *Demonstrate competence in performing pediatric abdominal, cranial, and neurological ultrasound exams, ensuring accuracy in capturing diagnostic images and adhering to appropriate protocols.* (CSLO #3)
3. (Evaluation Level) *Interpret sonographic images to identify pathologies such as hydrocephalus, brain hemorrhages, and congenital abnormalities, and communicate findings clearly to the healthcare team. (C*SLO #4)
4. (Creating Level) *Adapt ultrasound techniques to account for the challenges presented by pediatric and neurological patients, including variations in anatomy and patient positioning.* (CSLO #3)
5. (Evaluation Level) *Examine and apply evidence-based practices and emerging technologies in pediatric and neurological sonography to improve diagnostic accuracy and patient care.* (CSLO #2)
6. (Application Level) *Discuss ethical considerations and demonstrate cultural competence when working with pediatric patients and their families, ensuring effective communication and empathetic care delivery. (*CSLO #1)

These MSLOs align with the core competencies required for effective practice in pediatric and neurological sonography, equipping students with the technical, professional, and ethical skills needed in specialized clinical settings.

DMS274L - Pediatric/Neurological Sonography Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
This laboratory provides hands-on experience to complement the theoretical knowledge gained in DMS 174. Students will practice performing pediatric and neurological ultrasound exams on infant models and simulators, focusing on the assessment of cranial structures, abdominal organs, and spinal cord. In this lab, students will refine their skills in specialized imaging techniques for evaluating conditions such as hydrocephalus, intracranial hemorrhage, and congenital anomalies. Emphasis will be placed on patient positioning, technique modification for pediatric patients, and optimizing image quality for accurate diagnostic results. Through supervised practice, students will gain confidence in performing and interpreting pediatric and neurological sonography exams in a safe, clinical environment. Prerequisite(s): Admission to Diagnostic Medical Sonography program, admission to the pediatric certificate program. Corequisite: DMS 274.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Perform pediatric ultrasound exams with attention to positioning and technique modification for infant models and simulators, optimizing image quality for diagnostic accuracy. (*CSLO #3)*
2. (Analysis Level) Analyze and evaluate sonographic images of pediatric cranial structures, abdominal organs, and spinal cord to identify abnormalities such as hydrocephalus, brain hemorrhages, and congenital anomalies. (*CSLO #4)*
3. (Application Level) Demonstrate competency in utilizing appropriate equipment, including simulators and infant models, for neurological sonography exams, ensuring proper technique for optimal image acquisition. (*CSLO #3)*
4. (Synthesis Level) Synthesize theoretical knowledge with practical application of pediatric and neurological sonography techniques to conduct accurate, reliable imaging exams under clinical conditions. (*CSLO #2)*
5. (Application Level) Communicate effectively with healthcare teams, discussing findings from pediatric and neurological sonography exams to contribute to patient care plans. *(CSLO #1)*

DMS275 - Musculoskeletal Sonography

General

Division
Diagnostic Medical Sonography

Course Description
An advanced course designed to provide students with in-depth knowledge and hands-on experience in musculoskeletal sonography. Students will learn the principles, techniques, and protocols for performing diagnostic ultrasound imaging of the musculoskeletal system, including muscles, tendons, ligaments, joints, and soft tissues. The course emphasizes anatomy, pathology, and the role of sonography in evaluating musculoskeletal injuries, conditions, and disorders. Prerequisite: Admission to Diagnostic Medical Sonography program. Corequisite: DMS275L.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to perform musculoskeletal ultrasound exams of the muscles, tendons, ligaments, joints, and soft tissues, utilizing appropriate imaging protocols and techniques. *(CSLO #2)*
2. (Analysis Level) Analyze musculoskeletal pathology and accurately identify common injuries, conditions, and disorders in musculoskeletal sonography, such as tendonitis, sprains, and ligament tears. *(CSLO #4)*
3. (Synthesis Level) Synthesize musculoskeletal anatomy and pathology to formulate appropriate scanning strategies for evaluating specific musculoskeletal disorders. *(CSLO #2)*
4. (Evaluation Level) Evaluate the role of musculoskeletal sonography in the diagnosis and management of musculoskeletal conditions, demonstrating the ability to collaborate with healthcare teams to optimize patient care. *(CSLO #3)*
5. (Creation Level) Develop effective communication skills to present musculoskeletal ultrasound findings and contribute to patient management discussions in a clinical setting. *(CSLO #3)*
6. (Analysis Level) Assess the ethical considerations and cultural factors involved in performing musculoskeletal sonography on diverse patient populations, ensuring respect and understanding of individual patient needs. *(CSLO #1)*

These outcomes are designed to guide students toward the mastery of practical, diagnostic, and interpretive skills essential in musculoskeletal sonography while fostering a deep understanding of patient-centered care, cultural awareness, and professional collaboration.

DMS275L - Musculoskeletal Sonography Laboratory

General

Division
Diagnostic Medical Sonography

Course Description
This laboratory provides hands-on experience in the practical application of musculoskeletal sonography techniques. Students will actively engage in scanning exercises, learning to identify anatomical structures, evaluate musculoskeletal conditions, and correlate sonographic findings with clinical presentations. The lab will provide real-time feedback from instructors and offer students the opportunity to enhance their skills in a clinical-like setting. Prerequisite: Admission to Diagnostic Medical Sonography program. Corequisite: DMS275.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to identify and evaluate musculoskeletal anatomical structures (muscles, tendons, ligaments, joints, and soft tissues) using sonographic imaging techniques. *(CSLO #2)*
2. (Analysis Level) Interpret sonographic images to identify common musculoskeletal pathologies (e.g., tears, inflammation, cysts, and fractures) and correlate findings with clinical presentations. *(CSLO #4)*
3. (Application Level) Effectively utilize musculoskeletal sonography equipment to capture high-quality images, optimizing techniques for patient positioning and imaging protocols. *(CSLO #3)*
4. (Application Level) Demonstrate professionalism in clinical-like settings by providing clear and accurate communication with peers, instructors, and patients during musculoskeletal ultrasound procedures. *(CSLO #1)*
5. (Evaluation Level) Evaluate the impact of musculoskeletal sonography on patient care by applying best practices for performing exams and ensuring patient comfort and safety. *(CSLO #2)*
6. (Creating Level) Critically assess and adapt sonographic scanning techniques based on the specific musculoskeletal condition, patient population, and exam needs. *(CSLO #4)*

DMS280 - Physics and Instrumentation Registry Review

General

Division
Diagnostic Medical Sonography

Course Description
The review covers the physical principles of ultrasound and instrumentation, including bioeffects, safety, artifacts, imaging, and analysis, with an emphasis on creating diagnostic ultrasound images that align with ARDMS examination content specifications.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and explain the fundamental physical principles of ultrasound technology, including sound wave propagation, reflection, refraction, and transmission. (*CSLO #2)*
2. (Evaluation Level) Identify and evaluate the bioeffects and safety considerations associated with diagnostic ultrasound, including ALARA (As Low As Reasonably Achievable) principles. (*CSLO #4)*
3. (Analysis Level) Interpret common ultrasound artifacts and their impact on diagnostic image quality, applying corrective measures to minimize or eliminate them. (*CSLO #2)*
4. (Application Level) Apply the principles of ultrasound instrumentation, including transducer functions, frequency, resolution, and image processing, to optimize imaging protocols. (*CSLO #3)*
5. (Synthesis Level) Synthesize knowledge from ultrasound physics and instrumentation to successfully create diagnostic-quality images that meet ARDMS examination content specifications. (*CSLO #2)*
6. (Creating Level) Demonstrate proficiency in preparing for the ARDMS registry exam by completing practice questions, identifying key areas of knowledge, and developing effective test-taking strategies. (*CSLO #3)*

DMS281 - Abdominal Sonography Registry Review

General

Division
Diagnostic Medical Sonography

Course Description
This course provides a comprehensive review of abdominal and small parts sonography, focusing on the principles, techniques, and protocols necessary for successful registry exam preparation. Students will revisit normal and abnormal findings in abdominal and small parts imaging, including the evaluation of organs such as the liver, kidneys, pancreas, spleen, and gallbladder, as well as structures like the thyroid, breast, and scrotum. The course will cover relevant pathology, bioeffects, patient care considerations, and imaging techniques while emphasizing interventional and emergency procedures. Case studies and clinical scenarios will be used to reinforce learning, helping students integrate their theoretical knowledge with practical skills. The content is aligned with ARDMS examination content outlines, ensuring that students are well-prepared for certification and competent in applying their knowledge in clinical practice.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Demonstrate a comprehensive understanding of abdominal and pelvic sonography principles, including the recognition of normal and abnormal findings, pathology, and imaging techniques. *(CSLO #2)*
2. (Application Level) Apply knowledge of bioeffects, safety, and patient care considerations in abdominal and pelvic sonography, emphasizing best practices for ensuring patient safety during diagnostic procedures. *(CSLO #3)*
3. (Evaluation Level) Evaluate and interpret complex clinical scenarios involving pediatrics, interventional procedures, and emergency situations in abdominal sonography, demonstrating the ability to make informed clinical decisions. *(CSLO #4)*
4. (Synthesis Level) Synthesize key concepts, protocols, and clinical applications in abdominal, pelvic, and small parts imaging to align with ARDMS examination content specifications, ensuring readiness for the registry exam. *(CSLO #2)*
5. (Analysis Level) Examine case studies to identify pathological conditions in abdominal and pelvic imaging and propose the appropriate diagnostic and clinical actions based on sonographic findings. *(CSLO #4)*
6. (Evaluation Level) Demonstrate effective communication and teamwork skills when discussing case studies, imaging techniques, and patient care considerations in group discussions and class settings. *(CSLO #1)*

These learning outcomes emphasize critical analysis, application of knowledge, and readiness for certification exams, while also ensuring students develop the practical and interpersonal skills necessary to thrive in the clinical environment.

DMS282 - OB/GYN Sonography Registry Review

General

Division
Diagnostic Medical Sonography

Course Description
This course offers an in-depth review of obstetric and gynecologic sonography, with a focus on preparing students for the ARDMS registry exam. Students will study the anatomy and physiology of the female reproductive system and the stages of pregnancy, including fetal development, placental function, and maternal health. The course covers normal and abnormal findings, pathologies, imaging techniques, and protocols for both obstetric and gynecological examinations. Topics such as prenatal screening, sonographic evaluation of the uterus, ovaries, and adnexa, as well as fetal growth, abnormalities, and multiple gestations, are explored. Emphasis is placed on patient care, bioeffects, and emerging technologies in OB/GYN sonography. Real-world case studies and clinical scenarios will be used to reinforce theoretical concepts, ensuring students are well-equipped for both the registry examination and clinical practice.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Demonstrate an understanding of the normal and abnormal anatomy in obstetric and gynecological sonography and apply knowledge to accurately assess fetal development, maternal health, and reproductive system pathology. *(CSLO #2)*
2. (Evaluation Level) Synthesize and evaluate information regarding obstetric and gynecological clinical procedures, including prenatal screening, diagnostic protocols, and intervention techniques, to ensure accurate sonographic assessments. *(CSLO #4)*
3. (Application Level) MSLO: Apply appropriate sonographic techniques to produce high-quality images in obstetric and gynecological sonography, including the use of Doppler, 3D imaging, and other advanced technologies in clinical practice. *(CSLO #3)*
4. (Analysis Level) MSLO: Analyze the latest research, trends, and emerging technologies in OB/GYN sonography and their implications for diagnostic accuracy and patient care. *(CSLO #2)*
5. (Evaluation Level) MSLO: Evaluate the clinical scenarios presented in OB/GYN sonography and develop a sound diagnostic approach for a variety of obstetric and gynecological conditions, including pathologies such as ectopic pregnancies, fibroids, and congenital abnormalities. *(CSLO #4)*
6. (Creating Level) MSLO: Demonstrate cultural sensitivity and professionalism when interacting with patients in obstetric and gynecological settings, considering diverse populations and individual patient needs. *(CSLO #1)*
7. (Evaluation Level) MSLO: Interpret and apply bioethics, safety protocols, and best practices in OB/GYN sonography, ensuring the protection of both the patient and the sonographer during imaging procedures. *(CSLO #3)*

These outcomes reflect a comprehensive understanding of OB/GYN sonography, ensuring students are prepared to apply their knowledge and skills in a clinical environment, while addressing the diverse needs of patients.

DMS283 - Pediatric Sonography Review

General

Division
Diagnostic Medical Sonography

Course Description
This course is designed to provide a comprehensive review of pediatric sonography concepts and techniques in preparation for the ARDMS (American Registry for Diagnostic Medical Sonography) Pediatric Sonography Specialty Board Exam. Students will review essential topics including normal and abnormal pediatric anatomy. Students will develop a deeper understanding of pediatric sonography and gain the necessary knowledge and skills to succeed on the ARDMS certification exam. Emphasis will be placed on exam strategies, critical thinking, and the application of sonographic principles to pediatric cases. Prerequisite(s): Senior standing in the degree program. Last semester of the certificate program. Graduation candidate. Ultrasound graduate.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and interpret normal and abnormal pediatric anatomy in sonographic images to correlate with clinical presentation and pathophysiology; *Students will analyze pediatric sonographic images and identify anatomical structures, distinguishing between normal and abnormal findings to correlate with clinical signs and pathophysiology.* (CSLO #2)
2. (Application Level) Apply critical thinking skills to evaluate pediatric sonographic cases and diagnose common pathologies such as hydrocephalus, brain hemorrhages, and congenital abnormalities; *Students will apply critical thinking to evaluate and interpret pediatric sonographic images, diagnosing pathologies such as hydrocephalus, intracranial hemorrhage, and congenital anomalies with appropriate clinical context.* (CSLO #4)
3. (Synthesis Level) Synthesize knowledge of pediatric sonographic techniques, guidelines, and best practices to prepare for the ARDMS Pediatric Sonography Specialty Board Exam; *Students will synthesize their knowledge of pediatric sonographic protocols and techniques, applying them to diverse clinical scenarios and preparing for the ARDMS Pediatric Sonography Specialty Board Exam.* (CSLO #2)
4. (Evaluation Level) Evaluate and implement effective sonographic examination strategies to optimize image quality and diagnostic accuracy for pediatric patients; *Students will evaluate and implement effective sonographic examination strategies to optimize image quality and diagnostic accuracy, demonstrating professional development in clinical settings. (*CSLO #3)
5. (Evaluation Level) Demonstrate cultural competence and ethical decision-making while performing pediatric sonography on diverse populations in various clinical settings; *Students will demonstrate cultural competence and apply ethical decision-making practices while conducting pediatric sonographic exams, ensuring respectful and appropriate care for diverse patient populations. (*CSLO #1)
6. (Application Level) Assess and apply appropriate sonographic techniques for pediatric pathologies, incorporating critical analysis to refine diagnostic skills; *Students will assess and apply sonographic techniques for evaluating pediatric pathologies, integrating critical analysis to enhance their diagnostic skills and improve clinical practice in pediatric sonography.* (CSLO #2)

These MSLOs ensure that students are adequately prepared to not only excel in their registry exams but also to provide high-quality, ethical, and culturally competent care in pediatric sonography.

DMS289 - Vascular Technology RVS/RVT Registry Exam Review

General

Division
Diagnostic Medical Sonography

Course Description
This course is designed to prepare students for the Registered Vascular Specialist (RVS) and Registered Vascular Technologist (RVT) exams by reviewing key concepts in vascular technology. The course covers essential topics in vascular anatomy, hemodynamics, Doppler ultrasound, and vascular pathology, with a focus on diagnostic techniques and clinical applications in the arterial and venous systems. Students will review and apply best practices for performing and interpreting vascular ultrasound exams, including imaging protocols, patient care, and safety measures. Emphasis will be placed on preparing students to meet the ARDMS exam content specifications and to enhance their ability to think critically, solve problems, and make accurate clinical decisions. This review course provides the tools and knowledge needed to succeed in the RVS/RVT certification exams and excel in professional practice.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to apply principles of vascular anatomy, physiology, and pathology to clinical cases in preparation for the RVS/RVT exams. (*CSLO #2*)
2. (Analysis Level) Analyze and interpret Doppler ultrasound waveforms and hemodynamic data to assess vascular conditions, ensuring understanding of clinical relevance and exam protocols. (*CSLO #4*)
3. (Evaluation Level) Identify and evaluate the appropriate vascular imaging techniques and protocols used for various vascular pathologies in alignment with industry standards and the RVS/RVT exam requirements. (*CSLO #2*)
4. (Creation Level) Create effective strategies for managing patients and performing vascular ultrasound exams, focusing on patient care, safety, and ethical considerations. (*CSLO #1*)
5. (Understanding Level) Demonstrate professional communication and problem-solving skills during simulated clinical scenarios, reflecting critical thinking and readiness for the RVS/RVT registry exams. (*CSLO #3*)
6. (Synthesis Level) Synthesize and apply best practices for performing and interpreting vascular exams, integrating knowledge of vascular conditions, equipment, and protocols as it pertains to the RVS/RVT registry exam. (*CSLO #2*)

DMS290 - Sonography Capstone Senior Project

General

Division
Diagnostic Medical Sonography

Course Description
The Sonography Capstone Senior Project is designed to equip students with essential skills for success in the workplace. This course integrates research, professional development, and industry readiness, preparing students for key responsibilities as entry-level sonographers. Students will refine their knowledge in areas such as ARDMS examination preparation, ICD-10 coding, billing practices, and evidence-based research methodologies. The capstone project emphasizes the application of clinical knowledge and skills, promoting critical thinking, problem-solving, and effective communication, ensuring students are fully prepared for the demands of the sonography profession.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate research proficiency by developing a comprehensive project that integrates sonographic concepts, techniques, and clinical experiences. *(CSLO #2)*
2. (Analysis Level) Analyze and apply ARDMS examination content and prepare a strategy for passing the registry exams based on personal strengths and areas for improvement. *(CSLO #4)*
3. (Application Level) Demonstrate workplace readiness by creating a professional resume, preparing for interviews, and understanding the key elements of employment in the sonography field, including ethical practices and professional behavior. *(CSLO #3)*
4. (Evaluation Level) Evaluate and apply ICD-10 coding and billing procedures related to sonography practice, ensuring compliance with current standards. *(CSLO #2)*
5. (Understanding Level) Demonstrate cultural competency in the context of sonography practice by discussing how diverse patient populations impact diagnostic imaging and patient care. *(CSLO #1)*
6. (Synthesis Level) Synthesize and present a final capstone project that showcases critical thinking, evidence-based decision-making, and an in-depth understanding of the sonography field. *(CSLO #4)*

ECE101 - Intro to Child Care Profession

General

Division
Early Childhood Education Division

Course Description
Introduction to the child care profession focusing on child development and appropriate learning environments for children from birth through age five. Content includes child care licensing, health and safety topics, and developmentally appropriate curriculum in early childhood settings. Satisfactory/Unsatisfactory grading option available.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe milestones of physical, social, cognitive and language development in children from birth through age five. (CLSO 2) 2. (Synthesis Level) Plan and implement developmentally appropriate activities for children from birth through age five. (CLSO 2) 3. (Synthesis Level) Explain and incorporate positive child guidance techniques in early childhood settings. (CSLO 4) 4. (Synthesis Level) Create a professional plan for caring for young children. (CSLO 3) 5. (Synthesis Level) Prepare a healthy and safe environment for young children; with special consideration for nutrition, licensing requirements and personal safety. (CLSO 1)

ECE105 - Foundations Early Child Education

General

Division
Early Childhood Education Division

Course Description
An introduction to the field of early childhood education (ECE). Content includes an overview of different types of programs for young children, professional opportunities within the field, and key philosophies and theories of early childhood education. The course is suggested as an entry level course for an ECE certificate or degree. Recommended: This is an introductory course and should be one of the first courses taken in the ECE program of study.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and summarize different types of programs for young children. (CSLO 2)
2. (Knowledge Level) Identify key concepts of early childhood philosophies and theories. (CSLO 2)
3. (Knowledge Level) Identify the state and federal rules and regulations governing early childhood programs. (CSLO 2)
4. (Comprehension Level) Describe the role of families and other significant adults in the lives of young children. (CSLO 1)
5. (Comprehension Level) Describe the key concepts of culturally and developmentally appropriate practice for young children with diverse abilities. (CSLO 1, 2)
6. (Comprehension Level) Elaborate on the different career opportunities within the field of early childhood education. (CSLO 2, 3)
7. (Comprehension Level) Discuss the major issues facing early childhood education today and their impact on young children. (CSLO 1, 2, 4)
8. (Comprehension Level) Describe the complex roles and responsibilities of professionals in the field of early childhood education. (CSLO 2, 3)
9. (Application Level) Apply the National Association for the Education of Young Children (NAEYC) Code of Ethics to participate in ethical discussions. (CSLO 3, 4)

ECE109 - CDA Portfolio Preparation

General

Division
Early Childhood Education Division

Course Description
Preparation and compilation of a professional portfolio to be used for those seeking a National Child Development Associate (CDA) Credential. The course also includes a review of each of the CDA Competency Areas to support the compiling of the required portfolio. May take 3 times for credit.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1.(Knowledge Level) Identify the health and safety functions and regulations that promote the establishment of a quality early learning environment. (CDA I) 2. (Knowledge Level) Identify strategies that will establish relationships that support the role of families and other significant adults in the lives of young children. (CDA IV) 3. (Comprehension Level) Describe appropriate educational activities that support children's physical and intellectual competence. (CDA II) 4. (Comprehension Level) Describe appropriate behaviors, teaching, and guidance methods for establishing relationships with children that support their social emotional and emotional development. (CDA III) 5. (Application Level) Apply research based knowledge to improve competence for personal and professional growth and for the benefit of children and families. (CDA VI) 6. (Synthesis Level) Explain the importance of how the environment, daily schedule, routines, curriculum, and lesson plans impact planning to meet the needs of children. (CDA V)

ECE110 - Health, Safety, and Nutrition

General

Division
Early Childhood Education Division

Course Description
An introduction to practices and procedures used to promote the health, safety, and nutrition of young children in early childhood settings. Includes an emphasis on planning and implementing education experiences that support the development of lifelong healthy habits and attitudes for young children. This course has been approved by the Department of Economic Security to fulfill both ongoing and pre-service health and safety training requirements outlined in the Child Care and Development Block Grant.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply developmental knowledge of young children, families' culture, and individual needs to identify nutritional and dietary practices that are based on appropriate regulations and recommendations (CSLO 1, NAEYC 1b, HSN 3).
2. (Knowledge Level) Identify indicators, laws, regulations and mandatory reporting procedures for suspected child abuse and neglect (CSLO 2, NAEYC 6b, HSN 2).
3. (Application Level) Implement observation and documentation strategies to identify health and safety concerns to make informed decisions to maintain a safe, healthy learning environment for young children (CSLO 3, NAEYC 3a, HSN 5).
4. (Application Level) Apply developmental knowledge of young children, families' culture, and individual needs to design and maintain a safe, healthy, indoor and outdoor learning environment for young children based on appropriate regulations (CSLO 1, NAEYC 1b, HSN 5).
5. (Comprehension Level) Describe appropriate activities that support an understanding of the importance of practicing healthy behaviors that contribute to the development of lifelong healthy habits and behaviors for both child and educator (CSLO 2, NAEYC 5c HSN 5).
6. (Synthesis Level) Create culturally sensitive strategies for collaborating with families and community partners to promote health, safety, and nutrition practices and resources that are responsive to the diverse abilities of young children (CSLO 1, NAEYC 2b, HSN 5).
7. (Knowledge Level) Identify laws and regulations that address health, safety, and nutrition for young children and role of health education (CSLO 2, NAEYC 6b, HSN 1).
8. (Knowledge Level) Identify developmentally and culturally appropriate learning opportunities for young children in the core content areas of health, physical education, safety, and nutrition. (CSLO 2, NAEYC 1d, HSN 5).

ECE124 - Active Learning Math/Science

General

Division
Early Childhood Education Division

Course Description
An exploration of the fundamental concepts of math and science for young children. Includes the study of strategies and techniques for helping children develop problem solving and reasoning skills, and an awareness and appreciation of the natural environment.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine and describe the steps in the problem solving process and the factors that influence an individual's problem solving ability.
2. (Application Level) Develop and implement activities for young children that promote the development of problem solving skills.
3. (Analysis Level) Examine and describe activities that increase children's awareness of scientific concepts and an appreciation of the natural environment.
4. (Application Level) Develop and implement developmentally appropriate experiences that encourage children to explore science concepts.
5. (Application Level) Develop and implement activities that promote the exploration of mathematical reasoning skills such as number concepts, classification, and spatial relationships.
6. (Application Level) Develop and implement activities for young children that promote the application of fundamental mathematical concepts and skills.

ECE129A - Developing Observation Skills

General

Division
Early Childhood Education Division

Course Description
No description.

Total Number Of Credits:
1

ECE130A - LearningEnvironmentSchoolAgers

General

Division
Early Childhood Education Division

Course Description
This course studies the school-age child's total learning environment, incorporating indoor, outdoor and community aspects, stressing the importance of well-organized learning centers, age-appropriate equipment and materials with consideration to the spaces where school-age programs are located.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe typical developmental characteristics of school-age children and youth.
2. (Comprehension Level) Explain the components of a developmentally appropriate learning environment for school-age children.
3. (Knowledge Level) List the key concepts of creating a quality indoor environment using interest areas.
4. (Application Level) Use outdoor space and equipment in developmentally appropriate ways to encourage play and physical exercise.
5. (Synthesis Level) Develop a daily schedule appropriate to the needs of the children and youth.
6. (Knowledge Level) Identify community resources to use as part of the learning environment.

ECE150 - Resilience and Wellness for Educators

General

Division
Early Childhood Education Division

Course Description
Teaching is one of the most rewarding professions, but it can also be one of the most stressful. Many educators lose sight of their love for the profession and engage in less effective practices because they struggle to manage stress and do not intentionally take care of themselves. Conversely, research has shown that individuals who develop and use resilience skills and other positive strategies and routines are more likely to be effective in their job roles, have strong relationships with others, be physically and mentally healthy, and be satisfied with their lives overall. The purpose of this course is to teach you how to be a resilient educator. S/U grading option available. May take 3 times for credit.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe why "teaching from the inside out" is critical to becoming a resilient, effective educator. (CSLO 3)
2. (Comprehension Level). Explain the benefits of resilience and how the specific skills translate into optimizing social emotional well-being and function as a more effective educator. (CSLO 2)
3. (Application Level) Practice a variety of resilience skills in different aspects of your life, including mindfulness, managing intense emotions, clarifying and committing to your personal values, and identifying and altering unhelpful thoughts. (CSLO 3)
4. (Knowledge Level) Describe why practicing resilience skills is critical to develop the fluency necessary to use them when they are needed the most. (CSLO 3)
5. (Application Level) Develop a resilience plan that serves as a roadmap for your future work as an educator. (CSLO 4)

ECE200 - Current Issues

General

Division
Early Childhood Education Division

Course Description
No description.

Total Number Of Credits:
3

ECE204 - Infant and Early Childhood Mental Health

General

Division
Early Childhood Education Division

Course Description
Introduction to infant and early childhood mental health focusing on risk and protective factors that may impact the development and well-being of infants, toddlers, and their families. Includes research-based principles and approaches to providing effective, relationship-based support using an Infant and Early Childhood Mental Health (IECMH) framework.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify relationship-based principles and practices that build developing brains, foster resilience, and support children and families. (CSLO 3; ZTT 3)
2. (Knowledge Level) Identify typical features and challenges during the transition to parenthood and identify culturally and linguistically responsive ways to support new parents. (CLSO 1; ZTT 5)
3. (Comprehension Level) Describe early development, common infant cues, and responsive caregiving practices. (CSLO 2; ZTT 1)
4. (Analysis Level) Summarize core findings from the adverse childhood experiences (ACEs) study and identify potential risk and protective factors. (CSLO 2; ZTT 4)
5. (Application Level) Articulate individual differences in sensory processing and temperament and ways to support children with diverse needs and abilities. (CSLO 2; ZTT 1)
6. (Application Level) Utilize family centered practices and apply an equity lens in considering issues that affect young children and families. (CSLO 1; ZTT 2)
7. (Application Level) Use infant and early childhood mental health observation and reflective practice skills with case studies and children in early learning settings. (CSLO 3; ZTT 7)
8. (Analysis Level) Analyze how unmet social and emotional needs can cause challenging behavior. (CSLO 2; ZTT 1)
9. (Analysis Level) Recognize how stress can impact early childhood educators and investigate how reflective practice can increase resilience. (CSLO 3; ZTT 7)
10. (Analysis Level) Examine attachment theories and interpret their implications across multiple domains. (CSLO 2; ZTT 1)
11. (Synthesis Level) Synthesize links between toxic stress and trauma and design strategies to respond to the needs of young children who have experienced trauma. (CSLO 4; ZTT 4)
12. (Evaluation Level) Evaluate environmental and cultural contexts in the early years of development. (CSLO 1; ZTT 5)
13. (Evaluation Level) Apply a socio-ecological model to explain how risk and protective factors influence children, families, and outcomes in early childhood. (CSLO 1; ZTT 6)
14. (Synthesis Level) Construct and apply a strength and relationship based approach to working in partnership with families and professional colleagues. (CSLO 3; NAEYC 3d; ZTT 8)

ECE212 - Creative Expressions

General

Division
Early Childhood Education Division

Course Description
This course focuses on the integration of the creative arts into early childhood environments. The course emphasizes the role of music, theater, movement, dance, and the visual arts in supporting developmentally appropriate curriculum and enriched learning environments for young children.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Justify the importance of the inclusion of the creative arts in children's environments and curriculum.

2. (Comprehension Level) Identify and discuss creative arts activities such as dance, music, theater, and the visual arts that are appropriate for the various levels of development in young children and supportive of their emergent interests.

3.(Comprehension Level) Identify and discuss materials and experiences that encourage dramatic play in various activity centers including indoor and outdoor learning environments.

4. (Synthesis Level) Create and implement developmentally appropriate creative arts activities that utilize a variety of media and materials.

5. (Synthesis Level) Organize and plan opportunities for children to explore music, theater, movement, and the creative arts that are inclusive of diverse family and cultural perspectives.

ECE216 - Early Childhood Observation and Assessment

General

Division
Early Childhood Education Division

Course Description
Observation and assessment, along with planning, implementation and evaluation, form an ongoing process that is the basis for making developmentally appropriate educational decisions, informing curriculum planning, and evaluating goals for children and programs. Includes effective strategies for implementing the observation and assessment process and partnerships with families and other professionals to support each child's learning and development. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the purpose and process of child assessment, including observation and documentation, to make informed decisions that support learning and improve outcomes for young children. (CSLO 2; NAEYC 3a)

2. (Application Level) Use ethically grounded practices when selecting, conducting, and reporting assessments that are developmentally, culturally, and linguistically appropriate. (CSLO 3; NAEYC 3c)

3. (Application Level) Apply knowledge of children’s developmental, cultural, linguistic, and environmental contexts to implement assessment practices that promote equitable outcomes. (CSLO 2; NAEYC 3c)

4. (Application Level) Demonstrate strategies for partnering with families and colleagues in the assessment process. (CSLO 1; NAEYC 3d)

5. (Application Level) Collaborate with colleagues to use assessment results for curriculum planning and goal setting. (CSLO 4; NAEYC 3d)

6. (Analysis Level) Analyze observation and documentation data to identify a child’s developmental strengths and needs. (CSLO 4; NAEYC 3a)

7. (Synthesis Level) Develop an individualized support plan for a child based on assessment data. (CSLO 3; NAEYC 3c)

8. (Evaluation Level) Demonstrate the use of multiple assessment tools and methods, including technology-based tools, by conducting systematic observations, interpreting results, and using findings to plan developmentally and culturally responsive practices for diverse learners. (CSLO 2; NAEYC 3b)

ECE229 - Early Childhood Practicum

General

Division
Early Childhood Education Division

Course Description
Practicum requiring 100 hours of field work in an early childhood program where the concepts learned in the Early Childhood Education (ECE) core coursework are applied. The application process requires documentation of a negative TB test, AZ Fingerprint Identity Verified Print (IVP) card, and director approval. This is intended to be the last course taken in the program of study. Recommended: It is recommended this be the last course taken toward a certificate or degree completion. Recommended: RDG100. Prerequisites: ECE278; Program Director consent.

Total Number Of Credits:
4

Lecture Credits
2

Practicum Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Understand and demonstrate positive, caring, supportive relationships and interactions as the foundation of early childhood educators' work with young children. (CSLO 1, NAEYC 4a)
2. (Application Level) Establish and maintain responsive relationships with children, families, colleagues, and community partners in an early childhood setting. (CSLO 1; NAEYC 2b)
3. (Application Level) Demonstrate professional skills, attitudes, and dispositions consistent with the ethical standards of the field. (CSLO 3; NAEYC 6b)
4. (Application Level) Apply developmentally, culturally, and linguistically appropriate assessment methods, incorporating input from families and colleagues, to make informed decisions about children's learning. (CSLO 4; NAEYC 3d)
5. (Application Level) Prepare environments that support and extend children's development and learning informed by appropriate early childhood philosophies and theories. (CSLO 2; NAEYC 4b)
6. (Application Level) Apply multidimensional knowledge of early childhood development, individual children, families, and cultural contexts to make evidence-based decisions that guide curriculum, teaching practices, and learning environments in ways that are safe, respectful, culturally and linguistically responsive, and supportive of each child's growth and development. (CSLO 4; NAEYC 1d)
7. (Application Level) Engage in continuous, collaborative learning with colleagues and related professionals to inform practice and support high-quality early childhood education. (CSLO 3; NAEYC 6d)
8. (Analysis Level) Reflect on learning experiences to inform and improve developmentally appropriate practices with children and families. (CSLO 4; NAEYC 6e)
9. (Analysis Level) Analyze play-based, developmentally appropriate approaches across content areas to support children's holistic learning. (CSLO 2; NAEYC 5c)
10. (Synthesis Level) Design and implement developmentally, culturally, and linguistically appropriate curriculum activities, including strategies for children with diverse abilities. (CSLO 2; NAEYC 4c)
11. (Evaluation Level) Evaluate one's professional practices, philosophy, and goals in relation to community, state, and national expectations for the field. (CSLO 3; NAEYC 6e)

Course Requisites

ECE254 - Emergent Language and Literacy

General

Division
Early Childhood Education Division

Course Description
Foundation for early childhood professionals to become knowledgeable about current theories, research, and best practices to understand early language and literacy development.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Define and describe the developmental continuum of oral language, communication skills, and literacy of young children. (CSLO 2)
2. (Application Level) Demonstrate knowledge of the many functions that language serves in the cognitive, physical, social, and emotional domains of development. (CSLO 2)
3. (Evaluation Level) Identify and use strategies to assess young children's oral language and literacy development. (CSLO 4)
4. (Synthesis Level) Develop and plan play-based language and literacy activities that are integrated with other curriculum content areas throughout the learning environment. (CSLO 4) (CLE 3.5.3)
5. (Synthesis Level) Utilize ongoing observation and assessment to implement language and communication activities based on children's abilities, interests, and individual learning needs. (CSLO 3) (CLE 3.5.2)
6. (Application Level) Identify and utilize culturally and linguistically appropriate resources to engage families in literacy development. (CSLO 1)
7. (Analysis Level) Analyze and select literature and resources that are appropriate for diverse learners including emerging bilingual children. (CSLO 1)

ECE257 - Family Child Care Management

General

Division
Early Childhood Education Division

Course Description
The multi-faceted aspects of providing family child care, including the fundamentals of creating appropriate curriculum and environments, fiscal management and recordkeeping, and marketing and communications. Topics include the principles of achieving a balance of work and family life while operating a family child care business are also addressed.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop and implement appropriate business practices based on regulatory requirements and small business best practice guidelines. (CSLO 4)

2. (Synthesis Level) Design and apply family child care policies and procedures. (CSLO 4)

3. (Comprehension Level) Describe and explain the various components of an effective recordkeeping system for the family child care setting. (CSLO 2)

4. (Synthesis Level) Design an in-home learning environment for young children that is responsive to each child's physical health, intellectual and emotional well-being, and nutritional and safety needs. (CSLO 4)

5. (Synthesis Level) Design a curriculum that promotes developmentally and culturally appropriate practices, and is inclusive of young children with diverse abilities. (CSLO 1)

6. (Evaluation Level) Explain and justify the importance of establishing and maintaining positive, productive, reciprocal relationships with children families, and provide positive guidance. (CSLO 1)

ECE271 - Creating Early Childhood Environments

General

Division
Early Childhood Education Division

Course Description
Focuses on developmentally effective anti-bias learning environments and curriculum content for children birth-age eight. Emphasizes the integration of academic disciplines in early childhood curriculum content areas as it relates to the development of rich learning environments for young children. Twenty hours of field experience in a preschool setting with children ages 3 -5 years old is required. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify high-quality early childhood education environments and the influence on children's learning, development, and well-being. (CSLO 2; NAEYC 1a)
2. (Comprehension Level) Explain how diverse family structures and cultural contexts contribute to children's thriving and learning. (CSLO 1, NAEYC 2a)
3. (Comprehension Level) Understand and demonstrate positive, caring, supportive relationships and interactions as the foundation of early childhood educators' work with young children. (CSLO 1, NAEYC 4a)
4. (Comprehension Level) Describe central concepts and methods of inquiry across core academic disciplines to inform early childhood curriculum planning. (CSLO 2; NAEYC 5a)
5. (Application Level) Apply teaching practices and strategies including routines, transitions, and material organization to support positive learning environments indoors and outdoors. (CSLO 3; NAEYC 4b)
6. (Application Level) Utilize ethically grounded observation and documentation skills to gather data to make informed decisions regarding developmentally appropriate curriculum and teaching. (CSLO 3; NAEYC 3c)
7. (Analysis Level) Analyze the alignment of assessment practices with curriculum goals, teaching strategies, and individual children's needs. (CSLO 4; NAEYC 3a)
8. (Analysis Level) Identify and involve oneself with the early childhood field and serve as an informed advocate for young children, families, and the profession. (CSLO 4; NAEYC 6a)
9. (Synthesis Level) Build partnerships with families and colleagues to use assessment data for individualized goal setting and curriculum planning, including participation in professional teams and decision-making to determine when children may require additional support. (CSLO 1; NAEYC 3d)
10. (Synthesis Level) Design integrated curriculum experiences that support children's learning across multiple content areas using developmentally appropriate practices. (CSLO 2; NAEYC 5c)
11. (Evaluation Level) Evaluate and implement developmentally appropriate, evidence-based practices that are respectful and culturally responsive and build upon children's identities and experiences. (CSLO 3; NAEYC 4c)
12. (Evaluation Level) Engage in reflective practice and advocacy as an early childhood professional, including participation in supervised field experiences. (CSLO 3; NAEYC 6e)

ECE276 - Child Development

General

Division
Early Childhood Education Division

Course Description
Theories, trends and research in human development from prenatal through adolescence with emphasis on the principles, general characteristics and behaviors of physical, social, emotional and intellectual growth of children and adolescents. Satisfactory/Unsatisfactory grading option available. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Describe and explain theories of human growth, development and learning. (CSLO 2)
2.(Comprehension Level) Describe the stages and milestones of human development, and the functions, processes and characteristics of each stage. (CSLO 2)
3.(Comprehension Level) Describe how human development occurs in the following domains: physical, motor, social, emotional, language, cognitive. (CSLO 2)
4.(Analysis Level) Examine the impact of cultural and societal influences on development, and recognize that children are best understood in the contexts of family, culture and society. (CSLO 1, 2 4)
5.(Analysis Level) Distinguish individual differences in development, and the similarities and differences between children who are developing typically and those with diverse abilities. (CSLO 1, 2, 3, 4)
6.(Analysis Level) Recognize how children acquire language, and the many functions language serves in all aspects of development. (CSLO 2, 3, 4)
7.(Evaluation Level) Compare and contrast the interaction between environmental and biological factors that influence the development of each child. (CSLO 2, 4)
8.(Evaluation Level) Assess how self-concept, identity, family and peer relationships develop during childhood and adolescence. (CSLO 1, 3, 4)

Course Requisites

ECE278 - Early Childhood Curriculum Development

General

Division
Early Childhood Education Division

Course Description
Focuses on developmentally and culturally effective anti-bias curriculum for young children. Development and implementation of curriculum in all academic disciplines and content areas is emphasized. Focus on applying early learning standards to curriculum development, implementation, and evaluation to ensure that learning will be stimulating, challenging, and meaningful to each child. 20 hours of field experience in an early learning setting with children, birth to 3 years of age is required. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level 1) Describe how factors and experiences such as play, relationships, social interactions, families and communities, education impact children's learning and development. (CSLO 2; NAEYC 1c)
2. (Comprehension Level) Explain how children's learning is shaped by cultural and linguistic contexts, family and community factors, and individual experiences. (CSLO 1; NAEYC 2a)
3. (Application Level) Apply multidimensional knowledge of early childhood development, individual children, families, and cultural contexts to make evidence-based decisions that guide curriculum, teaching practices, and learning environments in ways that are safe, respectful, culturally and linguistically responsive, and supportive of each child's growth and development. (CSLO 4; NAEYC 1d)
4. (Application Level) Establish and sustain respectful, reciprocal relationships with families by using diverse communication and engagement strategies that honor family cultures, support positive development, and foster collaboration in children's learning, curriculum, and transitions. (CSLO 3; NAEYC 2b)
5. (Application Level) *Collaborate with families and colleagues to integrate authentic assessment practices into curriculum and routines, using results to guide individualized goals and learning supports for all children.* (CSLO 2; NAEYC 3d)
6. (Analysis Level) Analyze and interpret systematic observations and other developmentally, culturally, and linguistically appropriate assessment tools to inform curriculum decisions and support positive outcomes for all children. (CSLO 4; NAEYC 3c)
7. (Analysis Level) Analyze how children learn across academic content areas to inform instructional decisions. (CSLO 4; NAEYC 5b)
8. (Synthesis Level) Design teaching practices that are developmentally appropriate, culturally and linguistically responsive, and *that integrate play and support children's learning trajectories and executive function skills.* (CSLO 4; NAEYC 4b)
9. (Synthesis Level) Prepare and implement a variety of culturally and linguistically responsive teaching approaches to cultivate developmentally appropriate learning environments and positive outcomes for all children. (CSLO 1; NAEYC 4c)
10. (Synthesis Level) Create developmentally appropriate curriculum and learning experiences that foster inquiry, exploration, and children's interests across multiple disciplines. (CSLO 4; NAEYC 5c)
11. (Evaluation Level) Reflect on teaching practices and field experiences to identify and address personal biases, strengthen professional competence, and support advocacy for all children. (CSLO 4; NAEYC 6e)

ECE280 - Inclusion of Children with Special Needs

General

Division
Early Childhood Education Division

Course Description
This course provides an overview of the values, policies and practices of inclusion of children with special needs including laws governing services, individualized plans, and working collaboratively with families.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the purpose, development, and implementation of Individualized Family Service Plans (IFSP) and Individualized Education Plans (IEP) for children with diverse abilities.
2. (Application Level) Demonstrate knowledge of the assessment and evaluation process to support children and families.
3. (Analysis Level) Analyze the strengths and needs of families with children with diverse abilities and the importance of using a family-centered approach.
4. (Analysis Level) Recognize the importance of working collaboratively with team members to identify the characteristics of environments that promote participation and support of children with diverse abilities.
5. (Analysis Level) Examine the laws and regulations governing services and access for children with diverse abilities.
6. (Evaluation Level) Explain and justify the importance of early identification and the referral process for young children with diverse abilities.
7. (Evaluation Level) Compare and contrast the development of children who are developing typically and those with diverse abilities.

ECE283 - Building Family and Community Partnerships

General

Division
Early Childhood Education Division

Course Description
Explores the role of family and community in child development and care and focuses on the role of the early childhood professional in building strong family and community partnerships. Includes awareness of diverse family values and structures and strategies for implementing culturally appropriate programs. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify strategies for family-centered care practices that promote strong family–educator partnerships. (CSLO 2; NAEYC 2a)

2. (Comprehension Level) Explain effective communication and reciprocal relationship-building practices that foster respectful family partnerships. (CSLO 1; NAEYC 2b)

3. (Application Level) Apply reflective practices that empower families to set goals, access community and educational resources, and support smooth transitions to ensure a continuum of quality care and education across early learning settings. (CSLO 3; NAEYC 2c)

4. (Application Level) Use professional communication skills, including technology-mediated strategies, to effectively support young children's learning and development and work with families and colleagues. (CSLO 3; NAEYC 6c)

5. (Analysis Level) Promote the interests of children, families, and the early childhood profession through ethical and collaborative advocacy that advances equitable policies, practices, and resources supporting developmentally appropriate learning opportunities. (CSLO 4; NAEYC 6a)

6. (Analysis Level) Examine how diverse societal and community characteristics—including culture, language, socioeconomic status, and family structures—affect partnerships with families. (CSLO 1; NAEYC 2a)

7. (Synthesis Level) Develop strategies for building equitable partnerships with schools, agencies, and community organizations to connect families to needed resources and supports that enhance children's learning and development. (CSLO 4; NAEYC 2c)

8. (Synthesis Level) Design culturally and linguistically responsive family engagement practices that validate families as essential partners in children's learning and development. (CSLO 1; NAEYC 2b)

9. (Evaluation Level) Evaluate how cultural beliefs and adult attitudes toward play influence family practices and effectively communicate the role of play in children's development. (CSLO 4; NAEYC 1c)

10. (Evaluation Level) Critically reflect on personal values, assumptions, and implicit/explicit biases to strengthen equitable and respectful partnerships with families. (CSLO 4; NAEYC 6e)

Course Requisites

ECE11617 - Effective Interactions and Guidance

General

Division
Early Childhood Education Division

Course Description
Relationships among children and caring adults create the context for healthy social and emotional development. Topics include classroom management strategies and techniques for implementing effective interactions and guidance as a fundamental part of the learning environment and curricula.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify developmentally appropriate guidance techniques and strategies that promote caring relationships among adults and children. (CSLO 2)
2. (Knowledge Level) Recognize that positive relationships create the context for healthy social and emotional development. (CSLO 3)
3. (Knowledge Level) Identify strategies and resources for including families and other professionals to support the individual needs of each child. (CSLO 1)
4. (Comprehension Level) Define and describe strategies for collaborating with families to build positive relationships between home and school that are supportive of each child. (CSLO 3)
5. (Application Level) Demonstrate knowledge of the relationship among the environment, daily schedule, routines, and curriculum, and their impact on the development of children's self-regulatory capacities. (CSLO 4)
6. (Application Level) Use a variety of objective observation methods to gain an understanding of a child's development and interactions. (CSLO 2)
7. (Application Level) Demonstrate the ability to describe and implement effective interactions that support learning and development. (CSLO 4)

ECN200 - Contemporary Economic Issues

General

Division
Business & Computer Technology Division

Course Description
Investigates the basic concepts and principles of economics, and how they operate within the American economic system. Highlights both Macroeconomics and Microeconomics in simplified terms, intended for those who will only take one course in economics. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define scarcity which results from productive resources being limited. (CSLO 2)
2. (Analysis Level) Compare the additional costs of alternatives with additional benefits. (CSLO 2, 3, 4)
3. (Evaluation Level) Critique different methods used to allocate goods and services. (CSLO 2)
4. (Evaluation Level) Judge the value of voluntary exchange. (CSLO 2, 3)
5. (Evaluation Level) Assess the functions of money. (CSLO 2, 3)
6. (Analysis Level) Illustrate how interest rates are adjusted for inflation and the effect of allocation of resources. (CSLO 2, 3, 4)
7. (Knowledge Level) Recognize market value and its effect on worker's earnings. (CSLO 2, 3)
8. (Comprehension Level) Explain the concept of entrepreneurship. (CSLO 2)
9. (Evaluation Level) Interpret the economic role of government in a market economy. (CSLO 1, 2, 3, 4)
10. (Application Level) Demonstrate the impact of investment on standards of living. (CSLO 2, 3, 4)
11. (Analysis Level) Compare the interaction of spending and production on a nation's level of income. (CSLO 2)
12. (Analysis Level) Outline cause and effect of inflation and unemployment on the economy. (CSLO 1, 2, 3)
13. (Analysis Level) Correlate how federal government fiscal and monetary policies influence employment, output, and prices. (CSLO 1, 2, 3, 4)
14. (Analysis Level) Compare and contrast individual, regional, and national production with consumption. (CSLO 2)
15. (Synthesis Level) Categorize types of markets where buyers and sellers interact. (CSLO 1, 2, 3)
16. (Application Level) Relate how prices send signals and provide incentives to buyers and sellers. (CSLO 2, 3, 4)
17. (Evaluation Level) Judge the impact of competition among sellers/buyers. (CSLO 2, 4)
18. (Evaluation Level) Appraise how the costs of government policies sometimes exceed benefits. (CSLO 1, 2, 4)
19. (Evaluation Level) Evaluate the US balance of trade. (CSLO 1, 3, 4)

Course Requisites

ECN201 - Principles of Macroeconomics

General

Division
Business & Computer Technology Division

Course Description
A descriptive analysis of the structure and functioning of the American economy. Emphasis on basic economic institutions and factors that determine general levels of output, employment, income, and prices. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe and define the major concepts in economics and analyze major economic systems. (CSLO 1, 4)
2. (Analysis Level) Compare and contrast the differences between micro and macro economics. (CSLO 2)
3. (Comprehension Level) Describe and define the determinants of supply and demand, and the effect on equilibrium price. (CSLO 2, 4)
4. (Comprehension Level) Identify and illustrate measures of the national economy, and describe how they are compiled and analyzed. (CSLO 2, 4)
5. (Analysis Level) Examine and formulate relationships associated with causes and effects on the economy due to inflation and unemployment. (CSLO 2, 3, 4)
6. (Analysis Level) Compare and contrast concepts of the aggregate demand and supply curve. (CSLO 2)
7. (Analysis Level) Examine and distinguish the relationship between money and prices. (CSLO 2, 4)
8. (Application Level) Illustrate and apply commercial banking procedures and the functions of the Federal Reserve System. (CSLO 2)
9. (Application Level) Demonstrate, modify, and calculate U.S. fiscal and monetary policy and problems which occur. (CSLO 2, 3, 4)
10. (Analysis Level) State difficulties/ similarities and hypothesize possible solutions related to international trade. (CSLO 1, 4)

Course Requisites

ECN202 - Principles of Microeconomics

General

Division
Business & Computer Technology Division

Course Description
A descriptive analysis of the theory of consumer choice, price determination, resource allocation and income distribution. Topics include non-competitive market structures such as monopoly and oligopoly, and the effects of government regulation. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe and define the major concepts in economics and analyze major economic systems. (CSLO 1, 4)
2. (Analysis Level) Compare and contrast the differences between micro and macro economics. (CSLO 2)
3. (Comprehension Level) Describe and define the determinants of supply and demand, and the effect on equilibrium price. (CSLO 2, 4)
4. (Analysis Level) Illustrate and point out the relationship of price elasticity as computed to revenue. (CSLO 3, 4)
5. (Application Level) Illustrate and modify the nature of supply and demand in competitive markets. (CSLO 2, 4)
6. (Analysis Level) Classify and categorize forms of imperfect competition and the need for regulation and antitrust legislation. (CSLO 2)
7. (Application Level) Construct and demonstrate how economic models and concepts relate to fluctuations in prices, output and factor costs. (CSLO 2, 3, 4)
8. (Analysis Level) Distinguish and differentiate income inequalities and the redistribution of income. (CSLO 1, 4)

Course Requisites

EDU221 - Introduction to Education

General

Division
Teacher Education Division

Course Description
This course surveys the profession of teaching by examining the historical, legal, and societal influences on K–12 education. Students evaluate current trends and diversity issues impacting teaching and learning. Students evaluate evidence-based methodologies and strategies to maximize student achievement. The course emphasizes instructional design and lesson planning that incorporate differentiation, accommodations, and modifications to meet the needs of all learners. Integration of developmentally appropriate instructional delivery, facilitation, and methodologies across disciplines, including the Arts and Language domains are emphasized in this course. Students explore assessment practices for monitoring and reporting student progress. The course includes analyzing the ethical and professional responsibilities of educators through the Model Code of Ethics for Educators (MCEE) as outlined by the National Association of State Directors of Teacher Education and Certification (NASDTEC). Students evaluate and interpret the Interstate Teacher Assessment and Support Consortium (InTASC) standards. This course requires a 30-hour practicum field experience in a K–8 general education classroom. Students must apply for and obtain an Identity Verified Prints (IVP) Fingerprint Clearance Card through the Arizona Department of Public Safety (DPS) prior to beginning the practicum experience. The fingerprint clearance card fee is the responsibility of the student. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understand) Identify and discuss at least three main purposes of public education in historical and contemporary times. (Interstate Teacher Assessment and Support Consortium (InTASC 9) (CSLO 1)

2. (Evaluate) Evaluate diversity issues affecting the United States educational process by assessing the effect diverse populations have on classroom dynamics and describing at least one incident of inequity and its corresponding array of solutions. (InTASC 2,3,9) (CSLO 1 & 4)

3. (Analyze) Describe key historical developments in United States public education, as influenced by the European system, by conducting an in-depth analysis of at least three historical events and the significant impact each made on today's educational system. (InTASC 2,10) (CSLO 1, 2 & 4)

4. (Evaluate) Identify and assess the impact of at least three legal issues on students, teachers, administrators, parents and the community. (InTASC 2,9,10)(CSLO 1, 2 & 4

5. (Evaluate) Examine and describe current trends in education through documented observations and professional dialogue as well as evaluate three global influences to current educational practice. (InTASC 3,9,10) (CSLO 1, 2 & 3)

6. (Evaluate) Identify at least three educational theorists and evaluate how their philosophical and psychological theories have shaped current educational practice. (InTASC 1,2)(CSLO 1, 2 & 4)

7. (Understand) Identify at least three teacher groups (including local and national associations, unions, and specific professional groups) and describe the contribution of each to support teachers. (InTASC 9,10)(CSLO 3)

8. (Analyze) Examine and explain the significance of the Model Code of Ethics for Educators. (InTASC 9,10) (CSLO 1, 2 & 3)

9. (Create) Construct a personal philosophy of teaching based on self-reflection and personal beliefs of teaching and learning, pedagogical knowledge for concepts of teaching and learning, significance of diversity in the classroom, structures for using assessment data to drive instruction, and personal professional growth as a teacher. (InTASC 9,10) (CSLOs 1,2,3,4)

10. (Analyze) Analyze the lesson planning process and examine three evidence-based instructional strategies that reflect developmentally appropriate methodologies, accommodations, differentiation, and modifications to meet the needs of all learners and promote equitable access, engagement, and achievement across disciplines, including the Arts and Language domains.
(InTASC 2, 7, 8) (CSLO 2, 3, & 4)

11. (Evaluate) Evaluate effective assessment and progress-monitoring practices to measure and support student learning. Design strategies for using formative and summative assessment data to inform instructional decisions and report student progress in developmentally appropriate ways. (InTASC 1, 2, 4, 6) (CSLO 2, 3, & 4)

EDU221PB - Introduction to Education PB

General

Division
Teacher Education Division

Course Description
This course surveys the profession of teaching by examining the historical, legal, and societal influences on K–12 education. Students evaluate current trends and diversity issues impacting teaching and learning. Students evaluate evidence-based methodologies and strategies to maximize student achievement. The course emphasizes instructional design and lesson planning that incorporate accommodations, differentiation, and modifications to meet the needs of all learners. Integration of developmentally appropriate instructional delivery, facilitation, and methodologies across disciplines, including the Arts and Language domains are emphasized in this course. Students explore assessment practices with monitoring and reporting student progress. The course includes analyzing the ethical and professional responsibilities of educators through the Model Code of Ethics for Educators (MCEE) as outlined by the National Association of State Directors of Teacher Education and Certification (NASDTEC). Students evaluate and interpret the Interstate Teacher Assessment and Support Consortium (InTASC) standards.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Understand) Identify and discuss at least three main purposes of public education in historical and contemporary times. (Interstate Teacher Assessment and Support Consortium (InTASC 9) (CSLO 1)

2. (Evaluate) Evaluate diversity issues affecting the United States educational process by assessing the effect diverse populations have on classroom dynamics and describing at least one incident of inequity and its corresponding array of solutions. (InTASC 2,3,9) (CSLO 1 & 4)

3. (Analyze) Describe key historical developments in United States public education, as influenced by the European system, by conducting an in-depth analysis of at least three historical events and the significant impact each made on today's educational system. (InTASC 2,10) (CSLO 1, 2 & 4)

4. (Evaluate) Identify and assess the impact of at least three legal issues on students, teachers, administrators, parents and the community. (InTASC 2,9,10)(CSLO 1, 2 & 4)

5. (Evaluate) Examine and describe current trends in education and evaluate three global influences to current educational practice. (InTASC 3,9,10) (CSLO 1, 2 & 3)

6. (Evaluate) Identify at least three educational theorists and evaluate how their philosophical and psychological theories have shaped current educational practice. (InTASC 1,2) (CSLO 1, 2 & 4)

7. (Understand) Identify as least three teacher groups (including local and national associations, unions, and specific professional groups) and describe the contribution of each to support teachers. (InTASC 9,10) (CSLO 3

8. (Analyze) Examine and explain the significance of the Model Code of Ethics for Educators. (InTASC 9,10) (CSLO 1, 2 & 3)

9. (Create) Construct a personal philosophy of teaching based on self-reflection and personal beliefs of teaching and learning, pedagogical knowledge for concepts of teaching and learning, significance of diversity in the classroom, structures for using assessment data to drive instruction, and personal professional growth as a teacher. (InTASC 9,10) (CSLOs 1,2,3,4)

10. (Analyze) Analyze the lesson planning process and examine three evidence-based instructional strategies that reflect developmentally appropriate methodologies, accommodations, differentiation, and modifications to meet the needs of all learners and promote equitable access, engagement, and achievement across disciplines, including the Arts and Language domains.
(InTASC 2, 7, 8) (CSLO 2, 3, & 4)

11. (Evaluate) Evaluate effective assessment and progress-monitoring practices to measure and support student learning. Design strategies for using formative and summative assessment data to inform instructional decisions and report student progress in developmentally appropriate ways. (InTASC 1, 2, 4, 6) (CSLO 2, 3, & 4)

EDU222 - Introduction to Special Education

General

Division
Teacher Education Division

Course Description
This course provides a comprehensive overview of the field of special education. Students analyze the historical, legal, and theoretical foundations of special education, including the Individuals with Disabilities Education Act (IDEA). Students evaluate the characteristics and diverse academic needs of learners with exceptionalities. Students examine instructional design, lesson planning, and delivery of developmentally appropriate learning experiences that incorporate accommodations and modifications for ensuring equitable access, participation, and success for all learners. Students explore the skills necessary to interpret, create, and implement Individualized Education Programs (IEPs) and appropriate assessment tools, in monitoring and reporting student progress to evaluate and support student learning and growth within inclusive educational environments.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate historical and contemporary service delivery to individuals with disabilities by delineating the differencing among the practices of segregation, mainstreaming and inclusion. (CSLO 1,2,4) (Interstate Teacher Assessment and Support Consortium (InTASC 1,2,9)) (Council for Exceptional Children (CEC 1,6))
2. (Analysis Level) Distinguish how legislation has influenced practice in special education, both historically and currently by identifying and defining at least three principles of the Individuals with Disabilities Education Act (IDEA), identifying one change in IDEA and its most recent authorization, and listing the appropriate acronyms and what they stand for (e.g. IEP, IFST, LRE). (CSLO 1,2,3) (InTASC 9) (CEC 1,6)
3. (Application Level) Demonstrate knowledge of the characteristics associated with the most common categories in special education using correct and respectful terminology, including students who are gifted and talented, and apply that knowledge to identify potential challenges in the learning environment using case study scenarios. (CSLO 1,2,3,4) (InTASC 2,3,9) (CEC 2,6)
4. (Analysis Level) Examine issues in special education assessment and service delivery within the context of diverse society and discuss possible points of underrepresentation and overrepresentation for specific minority groups. (CSLO 1,2,4) (InTASC 2,3,6) (CEC 1,2,4)
5. (Synthesis Level) Propose skills required for effective multidisciplinary teaming, including working with parents, in a variety of situations while examining the various roles parents must play for the child with a disability. (CSLO 2,3) (InTASC 2,3,7,10) (CEC 2,7)
6. (Evaluation Level) Evaluate the impact that a child with a disability might have on family life and relationships with the schools and the community by incorporating the principles of normalization, self-advocacy and family support and identifying challenges that families of students with disabilities face. (CSLO 1,2,3,4) (InTASC 2,3,7,10) (CEC 1,2,4)
7. (Applying Level) Utilize general and specialized curricula to individualize learning for students with disabilities. (InTASC 4,7) (CEC 3,5)
8. (Applying) Select and use evidence-based instructional strategies to advance learning of individuals with disabilities to include language development and technology to support planning, assessment and delivery of instruction. (InTASC 2,4,7) (CEC 3,5) (International Society for Technology in Education (ISTE 5)

EDU225 - Relationships in a Culturally Diverse Classroom

General

Division
Teacher Education Division

Course Description
Create effective learning environments through the development of positive and appropriate relationships with students in K-8 settings. Explores communication strategies to promote connections between students, families, educators, and community support networks. This course supports general education and special education professionals in understanding how language, culture, and family background influence the learning of general education students and individuals with exceptionalities.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Develop and select instructional content, resources, and strategies that respond to cultural, linguistic, and gender differences. (CSLO 2, 3) (InTASC 1, 2, 3) (CEC ISCI 2, 5)
2. (Analysis Level) Identify methods to involve individual students and family members from diverse backgrounds in effective processes for setting goals and monitoring progress for social participation and instructional tasks. (CSLO 1, 3) (InTASC 9, 10) (CEC ISCI 5, IGC 5)
3. (Evaluation Level) Evaluate various communication methods used in schools and select at least three used to communicate effectively with students of various ages. These include methods to foster respectful relationships between families and professionals and communicating effectively with families of individuals with exceptionalities from diverse backgrounds. (CSLO 1,2) (InTASC 6, 7) (CEC ISCI 7)
4. (Analysis Level) Outline an appropriate communication plan for a student with behavior challenges presented in a given case study with at least two research-based strategies to support the plan, including connections to community resources to promote well-being, lifelong learning, and connection. (CSLO 2,3,4) (InTASC 6, 8) (CEC IGC7)
5. (Synthesis Level) Propose characteristics and behaviors required of teachers to minimize bias and stereotypes and form trusting, positive and authentic relationships with students of all races, genders, socioeconomic status, ability levels, exceptionalities, and cultural backgrounds. (CSLO 1,3) (InTASC 3, 5) (CEC ISCI 2, 5, 6, 7)

Course Requisites

EDU228 - Creating an Effective Learning Environment

General

Division
Teacher Education Division

Course Description
This course provides instruction for developing effective classroom learning environments through positive, appropriate, and proactive behavioral support strategies and methods, including the design of rules, routines, and procedures. Participants will explore principles of instructional and classroom design to support diverse learning needs, particularly in the areas of facilitating social skills, self-regulation and self-advocacy. Emphasis is placed on age-appropriate instructional delivery methods that align with developmental stages and learning styles. The course also equips educators with strategies for using assessment data to monitor student progress, tailor instruction, and effectively communicate learning outcomes. Throughout the course, participants examine ethical practices related to the confidential handling of student concerns, fostering collegial collaboration, and maintaining professional conduct, especially when addressing complex behavioral support needs.
Content incorporates the Interstate Teacher Assessment and Support Consortium (InTASC) Standard #3, Learning Environments and aligns with the Council for Exceptional Children Standard #2 through support of individual and collaborative learning, and encouragement of positive social interaction, active engagement in learning, and self-motivation. Course examines ethical practices for confidential communication of student issues, collegiality, and professional practice as a teacher.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understand Identify and explain key federal, state, and local laws that impact behavior management in schools. (InTASC 9) (CEC 6) (ISCI.6.K2) (ISTE 1) (CSLO 2)

2. (Apply) Interpret and implement school and district policies related to behavior management within the legal rights of students, including those with disabilities in relation to behavior management. (InTASC 9) (CEC 6) (ISCI, IGC.6.K2) (ISTE 2) (CSLO 2)

3. (Apply) Understand and apply ethical principles in behavior management, including respect for student dignity and privacy. (InTASC 9) (CEC 6) (ISCI.2.S2) (ISTE 3) (CSLOs 2,4)

4. (Evaluate) Evaluate behavior management practices to ensure they are fair, non-discriminatory, and culturally responsive. (InTASC 9) (CEC 6) (ISCI.2.K2, .2.S13) (ISTE 7) (CSLOs 2,4)

5. (Create) Create behavior management strategies that align with legal and ethical standards. (InTASC 7) (CEC 5) (ISCI.5.S14) (ISTE 5) (CSLOs 2,4)

6. (Apply Implement proactive and positive behavior interventions that respect student rights. (InTASC 8) (CEC 5) (IGC5 S9) (ISCI.2. S10) (ISTE 6) (CSLO 2)

7. (Create) Utilize effective procedures, rules, and classroom design techniques to enhance learning and engagement to support inclusive settings and diverse learning needs to promote positive behavior and reduce disruptions. (CEC2) (InTASC 3) (IGC5 K8) (IGC.K2) (ISCI.2.S4 & S5) (ISTE 2) (CSLO 2)

8. (Evaluate) Use ethical decision-making frameworks to address complex behavior management issues. (InTASC 9) (CEC 6) (ISCI.2.S13) (ISTE 4) (CSLO 3)

9. (Apply) Assess and modify the classroom environment to accommodate students with varying needs and abilities through assistive technologies and tools to support and cater to different learning styles and preferences. (InTASC 2) (CEC 2) (ISCI2 K2) (ISTE 5) (CSLO 2)

10. (Analyze) Develop and apply strategies for teaching self-regulation and social-emotional skills to foster a growth mindset and resilience in students through positive reinforcement and constructive feedback with an intended outcome of increased independence and self-advocacy (InTASC 8) (CEC 5) (ISCI2 K7) (IGC2 S5) (ISTE 6) (CSLOs1,2,3,4)

11. (Evaluate) Identify potential crisis situations and develop proactive plans to address them. (InTASC 10) (CEC 7, 2) (ISCI. 2. S11) (ISTE 7) (CSLO 2,3)

12. (Apply) Apply de-escalation techniques and crisis intervention strategies to maintain a safe and supportive classroom environment. (InTASC 10) (CEC 7) (ISCI2 S11) (ISTE 6) (CSLOs 2,4)

EDU230 - Cultural Values in Education

General

Division
Teacher Education Division

Course Description
Examine the effects of culture on the formation of the child's self-concept and learning styles, including the role of prejudice, stereotyping and cultural incompatibilities in education. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Explain how changing demographics influence public schools by evaluating the impact of at least three significant changes in United States demographics. (CSLO 1,2)
2. (Application Level) Define multicultural education and describe at least 3 strategies to apply multicultural education in the classroom. (CSLO 1,3)
3. (Evaluation Level) Identify at least five cultural and familial influences and their impact on modes of communication, perception and world view. (CSLO 1,4)
4. (Synthesis Level) Discuss the intercultural dynamics in self, schools and society by relating 2-3 specifics when given simulated situations. (CSLO 1,3,4)
5. (Evaluation Level) Compare concepts of individual and institutional racism; prejudice, ethnocentrism, stereotypes and sociotypes; and equity and equality from a variety of print sources, electronic media, audio/video sources, as well as independent interviews. (CSLO 1,2,4)
6. (Analysis Level) Deduce how the concepts of equity and equal educational opportunity have evolved into educational policy by analyzing minimum of five legal cases. (CSLO 1,2,4)
7. (Analysis Level) Identify legal precedents for equitable educational opportunities by analyzing at least two landmark legislative acts. (CSLO 1,2,4)
8. (Analysis Level) Analyze learning and teaching styles and how personal bias and ethnocentrism influence them. (CSLO 1,3,4)

Course Requisites

EDU240 - Structured English Immersion

General

Division
Teacher Education Division

Course Description
Introduction to Structured English Immersion (SEI) for teachers and administrators who are working in an elementary education K-8 school setting. This course is a Core requirement for students in the AAEE, post baccalaureate, and Bachelor of Science Elementary Education programs. This course is available for practicing teachers to earn the SEI endorsement. Includes SEI foundations, English Language Learner (ELL) proficiency standards, second language acquisition, home/school partnerships, assessment, data analysis, instructional strategies and methods, and lesson planning for Integrated and Targeted English Language Development (ELD). Meets SEI Endorsement requirements for teacher certification with the Arizona Department of Education.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluate) Explain how legal cases, federal and state laws, and policies impact language methodology and instruction in Arizona. (SEI Endorsement Course Framework: Legal and Historical Foundations 2 hours) (CSLOs 1,3) (Interstate Teacher Assessment and Support Consortium InTASC 7,9)
2. (Evaluate) Explain and discuss current societal trends and demographics related to home-language composition and education of EL students. (SEI Endorsement Course Framework: Legal and Historical Foundations 2 hours) (CSLOs 1,3) (InTASC 7,9)
3. (Understand) Define English Learner and explain Arizona's Structured English Immersion (SEI) and compare to Sheltered English Instruction. (SEI Endorsement Course Framework: Arizona’s Language Development Approach 10 hours) (CSLOs 2,4) (InTASC 1,5,7)
4. (Analyze) Identify and discuss Arizona's Language Development Approach (LDA), the Four Principles of LDA, and the components of Arizona's research-based SEI models. (SEI Endorsements Course Framework: Arizona’s Language Development Approach 10 hours) (CSLOs 2,4) (InTASC 1,5,7)
5. (Evaluate) Interpret the uses of the proficiency assessment for EL eligibility and placement, standard accommodations for assessment, and recognize that EL students may qualify for other services. (SEI Endorsement Course Framework: Program Placement of ELs 2 hours) (CSLOs 2,3,4) (InTASC 1,2,6)
6. (Create) Discuss special populations (Refugee, Migrant, Immigrant, and Native American) and explain the relevancy to long term EL (LTEL), Recent Arrival EL (RAEL), and Students with Interrupted Formal Education (SIFE) subgroups and various factors influencing their English language acquisition. (SEI Endorsement Course Framework: Program Placement of ELs 2 hours) (CSLOs 2,3,4) (InTASC 1,2,6)
7. (Understand) Explain current and historical theories of language acquisition as they apply to English learners. (SEI Endorsement Course Framework: Elements of Language Development 15 hours) (CSLOs 1,2,3,4) (InTASC 1,2,5)
8. (Analyze) Examine the English Language Proficiency (ELP) standards to include stages, proficiency levels, performance indicators, lesson planning for Integrated and Targeted English Language Development (ELD), language domains (reading, writing, listening and speaking), and alignment to the Arizona ELA standards. (SEI Endorsement Course Framework: Elements of Language Development 15 hours) (CSLOs 1,2,3,4) (InTASC 1,2,5)
9. (Evaluate) Evaluate foundational skills of reading (concepts of print, phonological awareness, phonics and fluency), discussing the five features of reading, language and literacy instruction, stages of second language acquisition, strategies for vocabulary and writing development, and the tiers of Response to Intervention (RTI) or Multi-Tiered Systems of Support (MTSS). (SEI Endorsement Course Framework: Instructional Practices for Academic English Language and Literacy Development 16 hours) (CSLOs 2,3) (InTASC 4,6,7)
10. (Analyze) Examine the importance of understanding the social, emotional, and cultural needs of EL students and explore strategies to support and celebrate cultural diversity, leverage home language, and build and foster community and family partnerships. (SEI Endorsement Course Framework: Instructional Practices for Academic English Language and Literacy Development 16 hours) (CSLOs 1,2,4) (InTASC 1,2,3,10)
11. (Evaluate) Evaluate instruction aligned to receptive, productive, and interactive communication to include development of Integrated ELD lessons aligned to grade level/age appropriate English Language Proficiency (ELP) content area standards (reading, writing, speaking, and listening) and grades 6-8 strategies to engage students in academic discourse. (SEI Endorsement Course Framework: Instructional Practices for Academic English Language and Literacy Development 16 hours) (CSLOs 1,2) (InTASC 1,2,3,4,7,8)
12. (Analyze) Distinguish between BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency). (SEI Endorsement Course Framework: Instructional Practices for Academic English Language and Literacy Development 16 hours) (CSLOs 3,4) (InTASC 4,5)
13. (Apply) Identify how assessments (diagnostic, formative, and summative) determine student progress and drive instruction, provide meaningful feedback, and align to ELP proficiency and content standards.(SEI Endorsement Course Framework: Instructional Practices for Academic English Language and Literacy Development 16 hours) (CSLOs 2,3,4) (InTASC 2,6,7)

EDU258 - Educational Psychology

General

Division
Teacher Education Division

Course Description
This course examines the application of psychological principles within K–8 educational settings, emphasizing foundational theories, research, and diverse perspectives on teaching and learning, including cognitive, sociocultural, and multicultural approaches. Students will explore motivational strategies, standardized testing, and classroom assessment to include assessment interpretation, monitoring, and reporting student progress. Students discover effective instructional delivery, facilitation, and methodologies for teaching across disciplines, including the Arts and Language domains. Comprehensive strategies for classroom management and student engagement are emphasized throughout the course.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Examine major theories of human growth and development. Compare these theories for relationships and implications for educational practices. (Interstate Teacher Assessment and Support Consortium (InTASC 1) Council for Exceptional Children (CEC 1) (CSLOs 2,4)
2. (Understanding Level) Explain potential teacher bias and the relationship between lesson content, lesson delivery, and the diverse needs and strengths of the learner. (InTASC-2) (CEC 1) (CSLOs 2,3,4)
3. (Applying Level) Identify characteristics of an effective learning environment and behaviors that support individual and collaborative learning, positive social interaction, and self-motivation.(InTASC 1,3) (CEC 2) (CSLOs 2,4)
4. (Analyzing Level) Compare and contrast the physical and psychological stages of human development as related to teaching and learning and the selection of appropriate instructional strategies to promote student learning. (InTASC 1,7,8) (CEC-1)(CSLOs 2,3,4)
5. (Creating Level) Synthesize key concepts of educational psychology as related to grades K-8. (InTASC 1,2,3) (CEC 1,2,4) (CSLOs 2,3,4)

EDU259 - 21st Century Learning EPP

General

Division
Teacher Education Division

Course Description
Introduction to strategies, tools, and resources for teaching in today's classrooms. Includes K-8 content standards, instructional objectives, lesson planning, data literacy, and 21st century skills. Also includes benefits and challenges of technology integration and functions of technology. Incorporates interdisciplinary strategies of instruction for making connections with other content areas. Prerequisite: Baccalaureate Degree and formal acceptance to Central Arizona College state approved post-baccalaureate Educator Preparation Program (EPP) or permission of Department or Division.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Analyzing Level) Examine Arizona Academic Standards to determine levels of proficiency as students progress. (Interstate Teacher Assessment and Support Consortium (InTASC 4) (Council for Exceptional Children CEC 5) (CSLO 2,4) (Arizona Academic Standards K-8)
2.(Analyzing Level) Identify how technology and 21st century skills support and enhance the components of a lesson plan. (InTASC 7,8) (International Society for Technology in Education (ISTE 3,5) (CEC 5) (CSLO 2,4)
3.(Analyzing Level) Analyze assessment data to identify patterns and gaps in learning, guide planning and instruction, and provide meaningful feedback to learners. (InTASC 6) (CEC 4)(CSLO 2,4)
4.(Creating Level) Design an interactive method for student engagement with the 21st century skills of collaboration, communication, creativity and critical thinking. (ie; online survey, assessment, activity, project, etc.). (InTASC 6) (ISTE-2) (CEC 5)(CSLO 1,2,4)
5.(Creating Level) Build a resource bank of educational technologies, their application and impact on teaching and learning. (InTASC 5,8) (ISTE 3) (CEC 5) (CSLO 1,2,3,4)
6.(Creating Level) Create a digital video or website incorporating components of STEM with 21st century learning to include the challenges and benefits of technology integration. (InTASC 5,8) (ISTE-3 (CEC 5)(CSLO 1,2,3,4)

EDU271A - Structured Literacy A: Essential Elements Reading Instruction

General

Division
Teacher Education Division

Course Description
This course provides an overview of the science of reading, systematic phonics instruction, and the essential components of early literacy instruction at the elementary level (grades K-8). Includes developmentally appropriate instructional delivery, facilitation, and methodologies for teaching English Language Arts including phonemic awareness, vocabulary and oral language, phonics and decoding, oral reading fluency, reading comprehension, and writing. The course emphasizes instructional design and lesson planning, including modifications and accommodations for intensifying instruction. Topics of discussion include various assessment tools to analyze miscues, diagnose learner needs, differentiate instruction, monitor learner response, and use data to report student progress. The course also includes interdisciplinary strategies of instruction for making connections with other content areas. Note: The course is approved by ADE for part A of the K-5 Literacy Endorsement on the state Teaching Certificate.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Explain Arizona ELA literacy standards that guide instruction and describe the developmental stages of literacy to include structured literacy, selection of materials, differentiation of instruction, and multi-tiered systems of support.(Interstate Teacher Assessment and Support Consortium (InTASC 4,7)(CSLOs 2,3,4) (Arizona Academic Standards ELA K-8)
2. (Analyzing Level) Examine concepts associated with phonological and phonemic awareness, vocabulary & oral language, phonics, oral reading fluency, and reading comprehension of various text patterns. (InTASC 4)(CSLO 2)
3. (Analyzing Level) Analyze structures of the four types of assessing learning; screening, diagnostic, progress monitoring, and outcome evaluation. (InTASC 6) (CSLOs 2,4)
4. (Analyzing Level) Analyze and interpret literacy assessment data to identify patterns and gaps in learning, guide planning and instruction, and provide meaningful feedback to learners. (InTASC 6) (CEC 4) (CSLOs 2,3,4)
5. (Analyzing Level) Identify research and evidence based systematic phonics instruction and other current theories and instructional approaches for teaching reading. (InTASC 4) (CSLOs 1,2,4)
6. (Creating Level) Design lesson plans and assessments for ELA, examine the interconnection between oral and written communication, and guide learners in examining their own thinking and learning in the development of literacy skills. (InTASC 4,7) (CSLOs 1,2,4) (Arizona Academic Standards ELA K-8)
7. (Analyzing Level) Analyze instructional techniques that focus upon developing strategies for building comprehension, fluency, and independence in reading. (InTASC 4) (CSLOs 2,4)
8. (Analyzing Level) Analyze instructional reading method materials to determine if they align with research and evidence based systematic, explicit phonics instructional programs. (InTASC 4) (CSLOs 2,4)
9. (Creating Level) Develop learning experiences that align with curriculum standards, goals, objectives, and assessments. (InTASC 6,7) (CSLOs 1,2,3,4) (Arizona Academic Standards ELA K-8)

EDU271B - Structured Literacy B: Recognizing & Understanding Dyslexia

General

Division
Teacher Education Division

Course Description
This course provides an overview of a structured literacy approach, including instruction, assessment, intervention, and dyslexia and development of early literacy skills (grades K-8). Topics include developmentally appropriate instructional delivery, facilitation, and methodologies for teaching English Language Arts, with instructional design and lesson planning for interventions, modifications, and accommodations to improve reading proficiency. The course emphasizes characteristics for recognizing and understanding dyslexia, intensifying instruction through interventions, and various assessment tools to analyze miscues, diagnose learner needs, monitor and report on progress, and differentiate instruction through intentional planning. Note: The course is approved by ADE for part B of the K-5 Literacy Endorsement on the state Teaching Certificate.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Describe the characteristics of dyslexia including difficulties with phonemic awareness, challenges with accurate and/or fluent word recognition, poor spelling and decoding abilities, and patterns of brain activation which make it difficult to read. Identify the regions of the brain associated with reading.(Interstate Teacher Assessment and Support Consortium (InTASC 4)(CSLO 2)
2. (Analyzing Level) Examine concepts associated with phonology, sound-symbol association, syllable instruction, morphology, syntax and semantics and their role in effective reading instruction. (InTASC 4)(CSLO 2)
3. (Analyzing Level) Analyze reading interventions designed to change brain activation patterns to build word recognition and improve reading proficiency and overall comprehension. (InTASC 6) (CSLOs 2,4)
4. (Creating Level) Plan literacy instruction which is systematic, cumulative, explicit, and diagnostic to impact reading development. (InTASC 6) (CSLOs 2,3, 4)
5. (Analyzing Level) Identify current theories and instructional approaches for intensifying reading instruction in intervention approaches to support struggling readers. (InTASC 4) (CSLOs 1,2,4)
6. (Analyzing Level) Examine the interconnection between reading and writing in the development of literary skill.(InTASC) 4) (CSLOs 2,4)
7. (Analyzing Level) Analyze instructional techniques that focus upon developing strategies for building comprehension, fluency, and independence in reading. (InTASC 4) (CSLOs 2,4)
8. (Analyzing Level) Analyze instructional reading method materials to determine if they align with research and evidence based systematic, explicit phonics instructional programs. (InTASC 4) (CSLOs 2,4)

EDU272 - Elementary Math Methods Educator Preparation Program

General

Division
Teacher Education Division

Course Description
This course emphasizes the application of theories, methods, and techniques for developmentally appropriate evidence-based instructional delivery, facilitation, and methodologies for teaching mathematics in grades K-8, including students with exceptionalities. Includes standards-based alignment with mathematical practices, elements of effective mathematics instruction with lesson planning, differentiation including accommodations and modifications, formative and summative assessment practices, 21st century skills, technology integration, and data literacy for monitoring and reporting progress. Includes current trends from the National Council of Teachers of Mathematics (NCTM), Standards for School Mathematics (NCTM PSSM), and current research and application of the dimensions aligned with the science of mathematics and making connections with STEAM (Science, Technology, Engineering, the Arts, and Mathematics). Includes concepts of numbers, operations, proportions, measurement, and reasoning, highlighting interdisciplinary strategies of instruction connected with other content areas.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Applying Level) Apply relevant Standards for Mathematical Practice to engage students with academic content as they grow mathematically and make connections to real-world contexts. (Interstate Teacher Assessment and Support Consortium (InTASC 4) (CSLOs 2,4) (Arizona Academic Standards Mathematics K-8)
2.(Analyzing Level) Examine math content standards and progressions to promote learner achievement. (InTASC 4) (CSLOs 2,3,4) (Arizona Academic Standards Mathematics K-8)
3.(Applying Level) Identify techniques, strategies, and methods to assess mathematical processes and skill development, guiding learners in examining their own thinking and learning as well as the performance of others. (InTASC 6) (CSLOs 2,3,4) (Arizona Academic Standards Mathematics K-8)
4.(Creating Level) Design lesson plans with appropriate objectives, sequencing, strategies, resources, and materials for skill attainment. (InTASC 4, 7) (CSLOs 2,3,4) (Arizona Academic Standards Mathematics K-8)
5.(Understanding Level) Explain differentiation strategies for math instruction to address diverse learner strengths and needs. (InTASC 2, 7) (CSLOs 1,2) (Arizona Academic Standards Mathematics K-8)
6.(Creating Level) Develop a unit plan for math to include 21st century learning, technology integration, and making connections with other disciplines in STEM. (InTASC 4, 7) (CSLOs 2,4) (Arizona Academic Standards Mathematics K-8)
7.(Analyzing Level) Identify and explain the purpose of the National Council of Teachers of Mathematics Standards (NCTM) and the Principles and Standards for School Mathematics (PSSM) and their role in communicating current research on mathematical teaching and learning. (InTASC 9) (CSLOs 2,3) (Arizona Academic Standards Mathematics K-8)
8.(Creating Level) Design an interactive method for student engagement with the 21st century skills of collaboration, communication, creativity and critical thinking. (i.e.; online survey, assessment, activity, project, etc.). (InTASC 6) (ISTE-2) (CEC 5)(CSLO 1,2,4)
9.(Creating Level) Build a resource bank of educational technologies and explain their application and impact on teaching and learning. (InTASC 5,8) (ISTE 3) (CEC 5) (CSLO 1,2,3,4)

EDU273 - Science & Social Studies Methods Educator Preparation Program

General

Division
Teacher Education Division

Course Description
This course focuses on applying developmentally appropriate instructional delivery, facilitation, and methodologies for teaching Science and Social Studies in grades K-8. Class topics include standards-based instruction, inquiry-based learning, assessment practices, evidence-based strategies and engagement, 21st Century Learning, and connections with Social Studies and STEAM (Science, Technology, Engineering , the Arts, and Mathematics). Interdisciplinary unit planning includes instructional design, lesson planning, and assessment methods for monitoring and reporting progress, connecting Science and Social studies across content areas (language, math, and the arts).

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Examine content standards for science and social studies. (Interstate Teacher Assessment and Support Consortium (InTASC) 4)(CSLOs 2,4)(AZ Academic Standards Sci/SS K-8)
2. (Remembering Level) Describe strategies to promote self-regulated learning and engagement. (InTASC 3)(CSLOs2,4)(AZ Academic Standards Sci/SS K-8)
3. (Evaluating Level) Evaluate and apply instructional strategies with technology, digital tools, and resources in a global society. (InTASC 5,8; International Society for Technology in Education (ISTE) 1)(CSLOs 2,4)(AZ Academic Standards Sci/SS K-8)
4. (Creating Level) Design lesson plans and assessments for science and social studies, examine the interconnection between oral and written communication, and guide learners in examining their own thinking and learning. (InTASC 4,6,7)(CSLOs 1,2,3,4)(AZ Academic Standards Sci/SS K-8)
5. (Applying Level) Identify strategies to promote higher-order thinking through solving inquiry and problem-based tasks using the Three Dimensions of Science and Social Studies Anchor Standards from ADE. (InTASC 4,5,8)(CSLOs 2,4)(AZ Academic Standards Sci/SS K-8)
6. (Creating Level) Develop a unit plan for social studies or science. (InTASC 4,6,7,8)(CSLOs 1,2,3,4)(AZ Academic Standards Sci/SS K-8)
7.(Creating Level) Create a digital video or website incorporating components of STEM with 21st century learning to include the challenges and benefits of technology integration. (InTASC 5,8)(ISTE-3)(CEC 5)(CSLO 1,2,3,4)
8.(Analyzing Level) Identify how technology and 21st century skills support and enhance the components of a lesson plan. (InTASC 7,8) (International Society for Technology in Education (ISTE 3,5) (CEC 5) (CSLO 2,4)

EDU274 - English Language Arts (ELA) Methods Educator Preparation Program (EPP)

General

Division
Teacher Education Division

Course Description
Emphasizes the application of theories, methods, and techniques for teaching English Language Arts (ELA) and Literacy in grades K-8. Includes standards-based instruction, elements of effective instruction, differentiation through intentional lesson planning, technology, formative and summative assessment practices, language and writing instruction, and 21st century skills in ELA instruction. Includes interdisciplinary strategies of instruction for making connections with other content areas. Prerequisite: Baccalaureate Degree and formal acceptance to the Central Arizona College state approved post-baccalaureate Educator Preparation Program (EPP) or permission of Department or Division.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Summarize the developmental stages of literacy and the impact on reading proficiency. (Interstate Teacher Assessment and Support Consortium (InTASC) 1) (CSLOs 1,2,4) (Arizona Academic Standards ELA K-8)
2. (Creating Level) Develop learning experiences that align with curriculum standards, goals, objectives, and assessments. (InTASC 6,7) (CSLOs 1,2,3,4) (Arizona Academic Standards ELA K-8)
3. (Creating Level) Design lesson plans for ELA to demonstrate understanding of processes, conventions, and modes of written and oral communication. (InTASC 4, 7) (CSLOs 1,2,4) (Arizona Academic Standards ELA K-8)
4. (Analyzing Level) Identify methods to assess literacy development. (InTASC 6) (CSLOs 1,2,4) (Arizona Academic Standards ELA K-8)
5. (Creating Level) Integrate 21st century learning into lessons. (InTASC 5;International Society for Technology in Education (ISTE) 1) (CSLOs 1,2,4) (Arizona Academic Standards ELA K-8)
6. (Analyzing Level) Analyze instructional techniques that focus on developing strategies for building vocabulary, comprehension of various text patterns, and reading fluency. (InTASC 1,8) (CSLOs 2,4) (Arizona Academic Standards ELA K-8)
7. (Evaluating Level) Explain national and state literacy standards that guide instruction of elementary reading competencies. (InTASC 4,7) (CSLOs 2,3,4) (Arizona Academic Standards ELA K-8)

EDU275 - Writing Across Content Areas

General

Division
Teacher Education Division

Course Description
This course will prepare teacher candidates to effectively apply and teach skills in organizing, planning, researching, and writing for a variety of audiences and purposes. Focus is on guiding K-8 students in general and special education with written expression, utilizing technology appropriately, and incorporating self-monitoring, assessment, and feedback practices. Exploration includes strategies to integrate English Language Arts instruction with other content areas.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Describe the progression of writing standards in the Arizona English Language Arts Standards using the Vertical Articulation of Standards and other resources. (InTASC 4, 5) (CSLO 2, 4) (CEC 5) (ADE English Language Arts Standards, K-8)
2. (Analysis Level) Identify methods to guide learners of all ability levels to monitor for errors in oral and written communication. (InTASC 8), (CSLO 4) (CEC IGC5)
3. (Creating Level) Design lessons using instructional and assistive technology, materials, and resources required to educate individuals whose exceptionalities interfere with written communication. (InTASC 2, 7, 8) (CSLO 3) (CEC IGC5)
4. (Evaluating Level) Compare examples of how educators use rubrics and exemplary work to guide students in the editing process and the development of written communication skills. (InTASC 8) (CSLO 3, 4) (CEC IGC 5)
5. (Creating Level) Design lesson plans to incorporate the appropriate use of technology (including AI), 21st centruty skills, graphic organizers and other methods to plan and organize ideas for written presentation. (InTASC 7, 8) (CSLO 2, 4) (CEC IGC 5) (ISTE 3, 5)
6. (Applying Level) Sequence writing tasks appropriately, building from simple to complex sentence structures and culminating in the construction of paragraphs. (InTASC 1, 7, 8) (CSLO 2) (CEC 5)
7. (Evaluating Level) Measure student growth in writing tasks through a variety of assessment methods and present evidence of student progress in a portfolio. (InTASC 6) (CSLO 2, 3) (CEC ISCI 5)
8. (Applying Level) Examine a variety of approaches to providing clear and constructive feedback for improvement in written communication. (InTASC 6) (CSLO 2, 3) (CEC IGC 5)
9. (Creating Level) Write exemplars of effective written correspondence, projects, and reports with evidence of research, organization, and planning skills for a variety of purposes and audiences. (InTASC 9, 10) (CSLO 1, 3) (CEC IGC5, ISCI 6)
10. (Applying Level) Examine a topic, integrating more than one content area and identifying reliable sources for citation of evidence. (InTASC 4, 5) (CSLO 2, 4) (CEC IGC 5)

EDU287A - Master Teacher Seminar TIR

General

Division
Teacher Education Division

Course Description
This course explores essential principles leading to a deeper understanding to allow the teacher to foster student growth across domains by exploring central and emerging disciplinary concepts and employing technologies to enhance content mastery for students including those with exceptionalities. This course encourages aspiring educators to deepen their understanding of key principles of learner development, universal design, and developmentally appropriate instruction, while fostering ongoing professional growth and inquiry. Through weekly sessions featuring expert guest speakers, targeted readings, and interactive activities, students will examine how cognitive, linguistic, social, emotional initiatives shape learning environments that promote collaboration, engagement, and self-motivation. Students evaluate instructional strategies, accommodations, formative assessment methods; and apply leadership and reflective practices to create classrooms to support diverse learners.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical domains. (InTASC 1) (CEC 1,2,3)(CSLOs 2,3)
2. (Understanding Level) Understand individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards, including those with exceptionalities in need of accommodations. (InTASC 2) (CSLOs 1,2,3)
3. (Analyzing Level) Analyze environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation. (InTASC 3) (CSLOs 1,2,3)
4. (Understanding Level) Understands the central concepts, tools of inquiry, and structures of the discipline involved in creating learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content. (InTASC 4) (CSLOs 2,3)
5. (Understanding Level) Understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues. (InTASC 5) (CSLOs 1,2,3)
6. (Understanding Level) Understand the importance of using multiple methods of assessment (academic and other) incorporating and understanding data literacy and how to use data for student achievement and planning. (InTASC 6) (CSLOs 2,3)
7. (Evaluating Level) Evaluates instructional planning that supports learning and content knowledge, curriculum, cross-disciplinary skills, and pedagogy. (InTASC 7) (CSLOs 2,3,4)
8. (Evaluating Level) Evaluates a variety of instructional strategies when working with students to develop deep understanding of content areas and their connections, build skills to apply knowledge in meaningful ways, and provide alternative methods for students to demonstrate competency and reflect on their learning using technology.(InTASC 8) (ISTE 7a)(CSLOs 2,3,4)
9. (Understanding Level) Explain professional learning and evidence based reflection of practice and impacts on learners, families, other professionals, and the community. (InTASC 9) (CSLOs 1,2,3,4)
10. (Applying Level) Identify the importance of engaging in appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession. (InTASC 10) (CSLOs 1,2,3,4)
11. (Understanding Level) Understand job application submission and the interview process with the goal of obtaining a full-time teaching position as needed. (InTASC 10) (CSLOs 2,3)

EDU287B - Master Teacher Seminar Traditional

General

Division
Teacher Education Division

Course Description
This course explores essential principles leading to a deeper understanding to allow the teacher to foster student growth across domains by exploring central and emerging disciplinary concepts and employing technologies to enhance content mastery for students including those with exceptionalities. This course encourages aspiring educators to deepen their understanding of key principles of learner development, universal design, and developmentally appropriate instruction, while fostering ongoing professional growth and inquiry. Through weekly sessions featuring expert guest speakers, targeted readings, and interactive activities, students will examine how cognitive, linguistic, social, emotional initiatives shape learning environments that promote collaboration, engagement, and self-motivation. Students evaluate instructional strategies, accommodations, formative assessment methods; and apply leadership and reflective practices to create classrooms to support diverse learners.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas. (InTASC 1) (CSLOs 2,3)
2. (Understanding Level) Understand individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards, including those with exceptionalities in need of accommodations. (InTASC 2) (CSLOs 1,2,3)
3. (Analyzing Level) Analyze environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation. (InTASC 3) (CSLOs 1,2,3)
4. (Understanding Level) Understands the central concepts, tools of inquiry, and structures of the discipline involved in creating learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content. (InTASC 4) (CSLOs 2,3)
5. (Understanding Level) Understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues. (InTASC 5) (CSLOs 1,2,3)
6. (Understanding Level) Understand the importance of using multiple methods of assessment (academic and other) incorporating and understanding data literacy and how to use data for student achievement and planning. (InTASC 6) (CSLOs 2,3)
7. (Evaluating Level) Evaluates instructional planning that supports learning and content knowledge, curriculum, cross-disciplinary skills, and pedagogy. (InTASC 7) (CSLOs 2,3,4)
8. (Evaluating Level) Evaluates a variety of instructional strategies when working with students to develop deep understanding of content areas and their connections, build skills to apply knowledge in meaningful ways, and provide alternative methods for students to demonstrate competency and reflect on their learning using technology.(InTASC 8) (ISTE 7a)(CSLOs 2,3,4)
9. (Understanding Level) Explain professional learning and evidence based reflection of practice and impacts on learners, families, other professionals, and the community. (InTASC 9) (CSLOs 1,2,3,4)
10. (Applying Level) Identify the importance of engaging in appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession. (InTASC 10) (CSLOs 1,2,3,4)
11. (Understanding Level) Understand job application submission and the interview process with the goal of obtaining a full-time teaching position. (InTASC 10) (CSLOs 2,3)

EDU293A - Teacher in Residence (TIR) Student Teaching

General

Division
Teacher Education Division

Course Description
Student teaching in an elementary (K-8) classroom with coaching from an experienced master teacher and scheduled course meetings will include demonstration of skills across these key areas: principles of learning and development, recognizing learning differences, creating supportive learning environments, mastering content knowledge and its application, assessing, monitoring and reporting student progress, designing and planning lessons for instruction (including modifications, and accommodations), implementing effective instructional strategies, engaging in ongoing professional learning and ethical practice, and fostering leadership and collaboration. This course is considered a 12-week student teaching capstone field experience (excluding breaks and holidays) for Teacher in Residence candidates. Outcomes are aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards.

Total Number Of Credits:
8

Lecture Credits
2

Internship Credits
11

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Implement classroom management techniques that support individual and collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation. (Interstate Teacher Assessment and Support Consortium (InTASC 3) (CSLOs 1,2,3,4)(CEC 5)
2. (Creating Level) Design learning objectives aligned with content standards to assure mastery of the content. (InTASC 4) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8) (CEC 4)
3. (Applying Level) Utilize formative and summative assessments as appropriate to support, verify, and document learning, using data and technology to create, adapt and personalize learning that fosters independent learning and accommodates learner differences and needs. (InTASC 6) (ISTE 5a)(CSLOs 1,2,3,4) (CEC 8)
4. (Creating Level) Develop and implement lesson plans appropriate for every learner utilizing a variety of instructional strategies to make learning meaningful. (InTASC 5,7,8; International Society for Technology in Education (ISTE 2) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8) (CEC 7)
5. (Applying Level) Utilize differentiation strategies at an appropriate level of challenge to meet the needs of diverse learners. (InTASC 1,2) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8) (CEC 3,4,7) (CEC 7)
6. (Analyzing Level) Collaborate with students, parents, colleagues, and mentors to promote learner development and differences, supportive environments, structures of content knowledge, and professional growth. (InTASC 10) (CSLOs 1,2,3,4) (CEC 1,3)
7. (Evaluating Level) Explain relevant educational law connected with classroom practice, students, parents, teachers, and special education. (InTASC 9) (CSLOs 1,2,4)(CEC 1)

EDU293B - Traditional Student Teaching

General

Division
Teacher Education Division

Course Description
Student teaching in an elementary (K-8) classroom under the supervision of an experienced master teacher and scheduled course meetings, will include demonstration of skills across these key areas: principles of learning and development, recognizing learning differences, creating supportive learning environments, mastering content knowledge and its application, assessing, monitoring and reporting student progress, designing and planning lessons for instruction (including modifications, and accommodations), implementing effective instructional strategies, engaging in ongoing professional learning and ethical practice, and fostering leadership and collaboration. This course is considered a 12-week student teaching capstone field experience (excluding breaks and holidays) for Teacher in Residence and Traditional Student Teaching candidates. Outcomes are aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards.

Total Number Of Credits:
8

Lecture Credits
2

Internship Credits
11

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Implement classroom management techniques that support individual and collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation. (Interstate Teacher Assessment and Support Consortium (InTASC 3) (CSLOs 1,2,3,4)(CEC 5)
2. (Creating Level) Design learning objectives aligned with content standards to assure mastery of the content. (InTASC 4) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)(CEC 4)
3. (Applying Level) Utilize formative and summative assessments as appropriate to support, verify, and document learning, using data and technology to create, adapt and personalize learning that fosters independent learning and accommodates learner differences and needs. (InTASC 6) (ISTE 5a)(CSLOs 1,2,3,4)(CEC 8)
4. (Creating Level) Develop and implement lesson plans appropriate for every learner utilizing a variety of instructional strategies to make learning meaningful. (InTASC 5,7,8; International Society for Technology in Education (ISTE 2) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)(CEC 7)
5. (Applying Level) Utilize differentiation strategies at an appropriate level of challenge to meet the needs of diverse learners. (InTASC 1,2) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8) (CEC 3,4,7)(CEC 7)
6. (Analyzing Level) Collaborate with students, parents, colleagues, and mentors to promote learner development and differences, supportive environments, structures of content knowledge, and professional growth. (InTASC 10) (CSLOs 1,2,3,4)(CEC 1,3)
7. (Evaluating Level) Explain relevant educational law connected with classroom practice, students, parents, teachers, and special education. (InTASC 9) (CSLOs 1,2,4)(CEC 1)

EDU296A - Practicum Internship Teacher in Residence (TIR) Emphasis Sem 1

General

Division
Teacher Education Division

Course Description
The practicum internship course is designed to create a strong connection between educational theory and meaningful classroom practice. Participants will engage in authentic classroom experiences that help them develop the knowledge, skills, and dispositions of an effective educator. Throughout the internship, candidates will apply their learning in real settings while receiving guidance, reflection, and feedback. As the course progresses, participants will gradually take on additional teaching responsibilities. They will also strengthen key understandings that support effective teaching and learning for all students.
Course participants will develop skills in instructional design and lesson planning that reflect the diverse needs of learners. This includes learning how to create lessons that include modifications and accommodations that allow every student to access the curriculum and experience success. Candidates will also learn effective ways to assess, monitor, and report student progress in a clear and meaningful manner that supports continued growth. In addition, participants will explore and apply developmentally appropriate instructional delivery, facilitation strategies, and teaching methods within both the Arts and Language domains. Through this work, candidates will learn how to design engaging instruction that honors students' developmental stages, interests, cultural backgrounds, and individual learning needs.
Teacher in Residence (TIR) program participants in internship experiences will match the certificate the program leads to as closely as possible. Therefore, Teachers in Residence (TIR) participants that have placements in single subject areas, including related arts and/or special area classrooms, will be required to document experiences to expose them to the full breadth of content within the target certification. The CAC field experience program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding practicum course. The practicum internship experience requires a total of 90 clock hours over the duration of two full 16-week semesters.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Describe basic classroom management techniques. (Interstate Teacher Assessment and Support Consortium (InTASC) 3; Council for Exceptional Children (CEC) 2); (CSLOs 1,2,3,4)
2. (Creating Level) Develop learning objectives tied to content standards. (InTASC 4; CEC 3) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
3. (Applying Level) Use formative and summative assessments. (InTASC 5, 6; CEC 4) (CSLOs 1,2,3,4)
4. (Creating Level) Create lesson plans with varied instructional strategies to include digital learning environments that engage and support student learning.(InTASC 7, 8) (ISTE 5c) (CEC 5) (CSLOs m1,2,3,4) (Arizona Academic Standards K-8)
5. (Analyzing Level) Identify differentiation strategies for diverse learners. (InTASC 1, 2; CEC 1) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
6. (Analyzing Level) Collaborate with students, parents, colleagues and mentors. (InTASC 10; (ISTE 4d) (CEC 7) (CSLOs 1,2,3,4,)
7. (Evaluating Level) Explain relevant educational law connected with classroom practice, students, parents, and special education. (InTASC 9; CEC 6) (CSLOs 1,2,4)
8. (Analyzing Level) Distinguish and explain the rigor involved for engagement in practicum/internship field experience expectations, monitoring, and evaluation procedures/process.

EDU296B - Practicum Internship Traditional Emphasis Sem 1

General

Division
Teacher Education Division

Course Description
The practicum internship course is designed to create a strong connection between educational theory and meaningful classroom practice. Participants will engage in authentic classroom experiences that help them develop the knowledge, skills, and dispositions of an effective educator. Throughout the internship, candidates will apply their learning in real settings while receiving guidance, reflection, and feedback. As the course progresses, participants will gradually take on additional teaching responsibilities. They will also strengthen key understandings that support effective teaching and learning for all students.
Course participants will develop skills in instructional design and lesson planning that reflect the diverse needs of learners. This includes learning how to create lessons that include modifications and accommodations that allow every student to access the curriculum and experience success. Candidates will also learn effective ways to assess, monitor, and report student progress in a clear and meaningful manner that supports continued growth. In addition, participants will explore and apply developmentally appropriate instructional delivery, facilitation strategies, and teaching methods within both the Arts and Language domains. Through this work, candidates will learn how to design engaging instruction that honors students' developmental stages, interests, cultural backgrounds, and individual learning needs.
Traditional program participants will document experiences matching the certificate the program leads to as closely as possible. Participants will be required to document experiences that expose them to the full breadth of academic content within the targeted certificate area, across varying elementary grade levels. The CAC practicum program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding practicum course. The practicum internship experience requires a total of 90 clock hours over the duration of two full 16-week semesters. At the conclusion of the first 8-week internship (completing 1/2 of the required 45 hours), the traditional practicum student will switch placements. Observation with a second teacher allows for the practicum student to experience different teaching styles, methods, strategies, and grade levels.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Describe basic classroom management techniques. (Interstate Teacher Assessment and Support Consortium (InTASC 3) Council for Exceptional Children (CEC 2)(CSLOs 1,2,3,4)
2. (Creating Level) Develop learning objectives tied to content standards. (InTASC 4)(CEC 3)(CSLOs 1,2,3,4)(Arizona Academic Standards K-8)
3. (Applying Level) Use formative and summative assessments and effectively use assessment data for making instructional decisions. (InTASC 5,6)(CEC 4)(CSLOs 1,2,3,4)
4. (Creating Level) Create lesson plans with varied instructional strategies to include digital learning environments that engage and support student learning(InTASC 7,8)(ISTE 5c)(CEC 5)(CSLOs 1,2,3,4) (Arizona Academic Standards K-8).
5. (Analyzing Level) Identify differentiation strategies for diverse learners. (InTASC 1,2)(CEC 1)(CSLOs 1,2,3,4)(Arizona Academic Standards K-8)
6. (Analyzing Level) Collaborate with students, parents, colleagues and mentors. (InTASC 10)(CEC 7)(CSLOs 1,2,3,4)
7. (Evaluating Level) Explain relevant educational law connected with classroom practice, students, parents, and special education. (InTASC 9)(CEC 6)(CSLOs 1,2,4)
8. (Analyzing Level) Distinguish and explain the rigor involved for engagement in practicum/internship field experience expectations, monitoring, and evaluation procedures/process.

EDU296C - Teacher in Residence (TIR) Practicum/Internship Sem 2

General

Division
Teacher Education Division

Course Description
The practicum internship course is designed to build a strong connection between educational theory and meaningful classroom practice by providing exposure to practical knowledge, skills, and dispositions of an effective educator. Authentic classroom experiences serve as a foundation for candidates to build and discuss the knowledge, skills, and dispositions of an effective teacher. Course participants will progressively develop new teaching capacities and key understandings as they gradually phase into additional responsibilities throughout the internship. Practicum internship course participants will develop skills in instructional design and lesson planning, ensuring they address the unique needs of all learners. This includes learning how to design lessons that incorporate modifications and accommodations, enabling every student to access the curriculum and experience success. Course participants will also learn effective ways for assessing, monitoring, and reporting student progress in ways that clearly and meaningfully promote ongoing growth and development. Additionally, they will investigate and apply instructional delivery methods, facilitation strategies, and teaching approaches that are developmentally appropriate for teaching methods within both the Arts and Language domains. Through these experiences, candidates will gain the ability to create engaging lessons that respect students' stages of growth, interests, cultural backgrounds, and unique learning needs.
Teacher in Residence and Traditional program participants will document experiences matching the certificate the program leads to as closely as possible. Participants will be required to document experiences that expose them to the full breadth of academic content within the targeted certificate area, across varying elementary grade levels. The CAC practicum program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding practicum course. The practicum internship experience requires a total of 90 clock hours over the duration of two full 16-week semesters. At the conclusion of the first 8-week internship (completing 1/2 of the required 45 hours), the traditional practicum student will switch placements. Observation with a second teacher allows for the practicum student to experience different teaching styles, methods, strategies, and grade levels.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Implement classroom management techniques that support individual and collaborative learning. (Interstate Teacher Assessment and Support Consortium (InTASC 3) Council for Exceptional Children (CEC 2) (CSLOs 1,2,3,4)
2. (Creating Level) Develop learning objectives aligned with content standards to support student achievement. (InTASC 4) (CEC 3) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
3. (Evaluating Level) Evaluate formative and summative assessment types and effective use of data to support student growth. (InTASC 5,6) (CEC 4) (CSLOs 1,2,3,4)
4. (Creating Level) Develop and implement lesson plans with varied instructional strategies to include digital learning environments that engage and support student learning.(InTASC 7,8) (ISTE 5c) (CEC 5) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
5. (Analyzing Level) Explain differentiation strategies for diverse learners. (InTASC 1, 2) (CEC 1) (CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
6. (Analyzing Level) Collaborate and develop relationships with students, parents, colleagues and mentors. (InTASC 10) (ISTE 4d) (CEC 7) (CSLOs 1,2,3,4,)
7. (Evaluating Level) Evaluate relevant educational law associated with classroom practice, diversity, students, parents, and special education. (InTASC 9) (CEC 6) (CSLOs 1,2,4)
8. (Evaluating Level) Interpret the complexity required for engagement in practicum/internship field experience expectations, monitoring, and evaluation procedures/processes. (InTASC 9) (ISTE 2) (CEC 1) (CSLO 3,4)

EDU296D - Traditional Practicum Internship Sem 2

General

Division
Teacher Education Division

Course Description
The practicum internship course is designed to build a strong connection between educational theory and meaningful classroom practice by providing exposure to practical knowledge, skills, and dispositions of an effective educator. Authentic classroom experiences serve as a foundation for candidates to build and discuss the knowledge, skills, and dispositions of an effective teacher. Course participants will progressively develop new teaching capacities and key understandings as they gradually phase into additional responsibilities throughout the internship. Practicum internship course participants will develop skills in instructional design and lesson planning, ensuring they address the unique needs of all learners. This includes learning how to design lessons that incorporate modifications and accommodations, enabling every student to access the curriculum and experience success. Course participants will also learn effective ways for assessing, monitoring, and reporting student progress in ways that clearly and meaningfully promote ongoing growth and development. Additionally, they will investigate and apply instructional delivery methods, facilitation strategies, and teaching approaches that are developmentally appropriate for teaching methods within both the Arts and Language domains. Through these experiences, candidates will gain the ability to create engaging lessons that respect students' stages of growth, interests, cultural backgrounds, and unique learning needs.
Teacher in Residence and Traditional program participants will document experiences matching the certificate the program leads to as closely as possible. Participants will be required to document experiences that expose them to the full breadth of academic content within the targeted certificate area, across varying elementary grade levels. The CAC practicum program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding practicum course. The practicum internship experience requires a total of 90 clock hours over the duration of two full 16-week semesters. At the conclusion of the first 8-week internship (completing 1/2 of the required 45 hours), the traditional practicum student will switch placements. Observation with a second teacher allows for the practicum student to experience different teaching styles, methods, strategies, and grade levels.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Implement classroom management techniques that support individual and collaborative learning. (Interstate Teacher Assessment and Support Consortium (InTASC 3) Council for Exceptional Children (CEC 2)(CSLOs 1,2,3,4)
2. (Creating Level) Develop learning objectives aligned with content standards to support student achievement. (InTASC 4)(CEC 3)(CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
3. (Evaluating Level) Evaluate formative and summative assessment types and effective use of data to support student growth. (InTASC 5,6)(ISTE 2.7)(CEC 4)(CSLOs 1,2,3,4)
4. (Creating Level) Develop and implement lesson plans with varied instructional strategies to include digital learning environments that engage and support student learning.(InTASC 7,8)(ISTE 2.5c)(CEC 5)(CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
5. (Analyzing Level) Explain differentiation strategies for diverse learners. (InTASC 1,2)(CEC 1)(CSLOs 1,2,3,4) (Arizona Academic Standards K-8)
6. (Analyzing Level) Collaborate and develop relationships with students, parents, colleagues and mentors. (InTASC 10)(ISTE 2.4d)(CEC 7)(CSLOs 1,2,3,4,)
7. (Evaluating Level) Evaluate relevant educational law associated with classroom practice, diversity, students, parents, and special education. (InTASC 9)(CEC 6)(CSLOs 1,2,4)
8. (Evaluating Level) Interpret the complexity required for engagement in practicum/internship field experience expectations, monitoring, and evaluation procedures/processes. (InTASC 9)(ISTE 2.2)(CEC 1)(CSLO 3,4)

EDU301 - Integrating Fine Arts in Classroom Instruction

General

Division
Teacher Education Division

Course Description
This course explores fine arts integration to include music, dance, visual arts, and theater in diverse K-12 classrooms. The focus is on participants demonstrating knowledge of the ways the arts can be used as a form of communication, self-expression, and social expression. Participants will make connections between the art disciplines and other disciplines as demonstrated by purposeful development and integration of the arts in classroom activities, preparing students for future environments.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Creating Level) Apply current Arizona State Board of Education Professional Teaching Content Knowledge for Elements of the Arts through classroom techniques and strategies. (InTASC 4) (CEC 3) (ISTE 2.1) (CSLO 2, 4)
2. (Knowledge Level) Identify structural and aesthetic elements of music, dance, visual arts, and theater in a K-12 classroom setting. (InTASC 4, 5) (CEC 3) (ISTE2.2) (CSLO 1)
3. (Creating Level) Demonstrate a coherent understanding of the Elementary Content Knowledge Matrix for understanding the basic elements of the arts through the creation of lesson/unit plans. (InTASC 5) (CEC 5) (ISTE 2.3) (CSLO 2, 4)
4. (Creating Level) Demonstrate methods that successfully break down, sequence, and pace complex content for developmental levels of children. (InTASC 7, 8) (CEC 1) (ISTE 2.5) (CSLO 1, 2, 4)
5. (Creating Level) Write child-appropriate criteria for conceptually based art projects for diverse student populations. (InTASC 7, 8) (CEC 1) (ISTE 2.3) (CSLO 1, 2)
6. (Analyzing Level) Analyze and make informed critique of strong and weak models of art assessments. (InTASC 6) (CEC 4) (ISTE 2.6) (CSLO 1, 4)
7. (Evaluating Level) Demonstrate how to collaboratively create criteria effectively using strong and weak models of artwork. (InTASC 6) (CEC 4) (ISTE 2.4) (CSLO 1, 4)
8. (Creating Level) Transfer criteria to child appropriate visual formats for children to use. (InTASC 7, 8) (CEC 5) (ISTE 2.5) (CSLO 1, 4)
9. (Analyzing Level) Differentiate between formative and summative assessment. (InTASC 6) (CEC 4) (ISTE 2.5) (CSLO 3, 4)
10. (Evaluating Level) Distinguish and explain substantive/deep and insufficient/shallow levels of art integration. (InTASC 7) (CEC 4) (ISTE 2.7) (CSLO 1, 4)
11. (Analyzing Level) Research and reflect on differentiated instruction in the field related to fine arts integration. (InTASC 7, 8) (CEC 7) (ISTE 2.7) (CSLO 1, 2, 3, 4)

EDU302 - Educational Psychology

General

Division
Teacher Education Division

Course Description
This course examines the application of psychological principles within K–8 educational settings, emphasizing foundational theories, research, and diverse perspectives on teaching and learning, including cognitive, sociocultural, and multicultural approaches. Students will explore motivational strategies, standardized testing, and classroom assessment to include assessment interpretation, monitoring, and reporting student progress. Students discover effective instructional delivery, facilitation, and methodologies for teaching across disciplines, including the Arts and Language domains. Comprehensive strategies for classroom management and student engagement are emphasized throughout the course. Recommended: PSY101 for background in psychology.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. 1. (Analyzing Level) Examine major theories of human growth and development. Compare these theories for relationships and implications for educational practices, considering the effects of medical conditions, exceptionalities, and cultural and linguistic differences, . (InTASC 1) (CEC 1) (ISCI.1.K1, K9, K13) (IGCI.1.K3, K7, IGC5.S2) (CSLO 2, 4)
2. 2. (Understanding Level) Explain potential teacher bias and the relationship between lesson content, lesson delivery, and gathering relevant background knowledge of the diverse needs and strengths of the learner. (InTASC 2) (CEC 1) (ISCI.4.S1, ISCI.6.K11) (CSLO 2 ,3, 4)
3. 3. (Applying Level) Identify characteristics of an effective learning environment and behaviors that support individual and collaborative learning, positive social interaction, and self-motivation. (InTASC 1, 3) (CEC 2, 6) (IGC4.S5, IGC6.K2, K9) (CSLO 2, 4)
4. 4. (Analyzing Level) Compare and contrast the physical and psychological stages of human development as related to teaching and learning and the selection of appropriate instructional strategies to promote student learning, including students with exceptionalities. (InTASC 1, 7, 8) (CEC 1, 5) (CSLO 2, 3, 4)
5. 5. (Evaluating Level) Investigate appropriate and ethical methods of assessment for individuals of unique abilities which minimize bias and accommodate individuals with exceptionalities. (InTASC 2, 6) (CEC 4) (ISCI.4.K1, K2, ISCI.4.S2) (IGCI.1.K1, IGC4.S2, S3, S4) (CSLO 2, 4)
6. 6. (Creating Level) Synthesize key concepts of educational psychology as related to grades K-8. (InTASC 1, 2, 3) (CEC 1, 2, 4) (CSLO 2, 3, 4)

EDU311 - Instructional Methods for Teaching Elementary Science

General

Division
Teacher Education Division

Course Description
This course focuses on applying developmentally appropriate instructional delivery, facilitation, and methodologies for teaching science in grades K-8. Class topics include standards-based instruction, inquiry and problem-based learning, formative and summative assessment practices, evidence-based strategies and engagement, 21st Century Learning, digital technologies, the Three Dimensions of Science which integrate engineering practices, and the impact of STEAM education (Science, Technology, Engineering, the Arts, and Mathematics). Interdisciplinary unit planning includes instructional design, lesson planning, and assessment methods for monitoring and reporting progress, connecting science across content areas (language, math, social studies, and the arts).

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyze) Examine and evaluate the Arizona State Content Standards for teaching science. (Interstate Teacher Assessment and Support Consortium (InTASC 4,5 (CSLOs 2,4) (AZ Academic Science Standards)

2. (Apply) Develop instructional strategies to promote self-regulated learning to encourage learners in the intentional development and deep understanding of science and cross disciplinary connections for applying knowledge in meaningful ways. (InTASC 3, 5, 8) (CSLOs 2,4) (AZ Academic Science Standards)

3. (Evaluate) Evaluate and apply instructional strategies with technology, digital tools, and resources in a global society. (InTASC 5,8) International Society for Technology in Education 1 (ISTE)) (CSLOs 2,4) (AZ Academic Science Standards)

4. (Create) Design lesson and unit plans that support general education students and students with exceptionalities in meeting rigorous learning goals by drawing upon knowledge, curriculum, cross disciplinary skills and pedagogy for teaching science and Investigate methods for guiding individuals in identifying and organizing critical content. (InTASC 4,6,7) (CEC IGC5 K7) (CSLOs 1,2,3,4) (AZ Academic Science Standards)

5. (Create) Design multiple methods of assessment to engage learners in personal growth, monitor learner progress, guide the teacher's planning practices, and guide learners to examine their own thinking and learning with the examination of the interconnection between oral and written communication and teach individuals with exceptionalities to give and receive meaningful feedback from peers and adults. (InTASC 4,6,7) (CEC IGC2 S4) (CSLOs 1,2,3,4) (AZ Academic Science Standards)

6. (Evaluate) Critique strategies to promote higher-order thinking through solving inquiry and problem-based tasks using the Three Dimensions of Science. (InTASC 4,5,8) (CSLOs 2,4) (AZ Academic Science Standards)

7. (Create) Create a technology-based video or website incorporating components of STEM, 21st century learning , and include the challenges and benefits of technology integration. (InTASC 5,8) (ISTE-3) (CEC 5) (CSLO 1,2,3,4)

8. (Analyze) Identify how technology and 21st century skills support and enhance the components of a science lesson plan. (InTASC 7,8) (International Society for Technology in Education (ISTE 3,5) (CEC 5) (CSLO 2,4)

EDU312 - Instructional Methods for Teaching Elementary Social Studies

General

Division
Teacher Education Division

Course Description
This course focuses on applying developmentally appropriate instructional delivery, facilitation, and methodologies for teaching social studies in grades K-8. Class topics include standards-based instruction, inquiry and problem-based learning, formative and summative assessment practices, evidence-based strategies and engagement, digital technologies, and analysis of the Arizona Department of Education Social Studies Anchor Standards of history, geography, civics, and skills and processes. Interdisciplinary unit planning includes instructional design, lesson planning, and assessment methods for monitoring and reporting progress, connecting social studies across content areas (language, math, science, and the arts).

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyze) Examine and evaluate the Arizona State Content Standards for teaching social studies. (Interstate Teacher Assessment and Support Consortium (InTASC 4,5 (CSLOs 2,4) (AZ Academic Social Studies Standards)

2. (Apply) Develop instructional strategies to promote self-regulated learning to encourage learners in the intentional development and deep understanding of social studies and cross disciplinary connections for applying knowledge in meaningful ways. (InTASC 3, 5, 8) (CSLOs 2,4) (AZ Academic Social Studies Standards)

3. (Evaluate) Evaluate and apply instructional strategies with technology, digital tools, and resources in a global society. (InTASC 5,8) International Society for Technology in Education 1 (ISTE)) (CSLOs 2,4) (AZ Academic Social Studies Standards)

4. (Create) Design lesson and unit plans that support general education students and students with exceptionalities in meeting rigorous learning goals by drawing upon knowledge, curriculum, cross disciplinary skills and pedagogy for teaching social studies and investigate methods for guiding individuals in identifying and organizing critical content. (InTASC 4,6,7) (CEC IGC5 K7) (CSLOs 1,2,3,4) (AZ Academic Social Studies Standards)

5. (Create) Design multiple methods of assessment to engage learners in personal growth, monitor learner progress, guide the teacher's planning practices, and guide learners to examine their own thinking and learning with the examination of the interconnection between oral and written communication and teach individuals with exceptionalities to give and receive meaningful feedback from peers and adults. (InTASC 4,6,7) (CEC IGC2 S4) (CSLOs 1,2,3,4) (AZ Academic Social Studies Standards)

6. (Evaluate) Critique strategies to promote higher-order thinking through solving inquiry and problem-based tasks using the Arizona Academic Social Studies Standards. (InTASC 4,5,8) (CSLOs 2,4) (AZ Academic Social Studies Standards)

7. (Create) Create a technology-based video or website incorporating components of 21st century learning to include the challenges and benefits of technology integration with social studies instruction. (InTASC 5,8) (ISTE-3) (CEC 5) (CSLO 1,2,3,4)

8. (Analyze) Identify how technology and 21st century skills support and enhance the components of a social studies lesson plan. (InTASC 7,8) (International Society for Technology in Education (ISTE 3,5) (CEC 5) (CSLO 2,4)

EDU320A - Structured Literacy A: The Science of Reading and Phonics

General

Division
Teacher Education Division

Course Description
This course provides an overview of the science of reading, systematic phonics instruction, and the essential components of early literacy instruction at the elementary level (grades K-8). Includes developmentally appropriate instructional delivery, facilitation, and methodologies for teaching English Language Arts including phonemic awareness, vocabulary and oral language, phonics and decoding, oral reading fluency, reading comprehension, and writing. The course emphasizes instructional design and lesson planning, including modifications and accommodations for intensifying instruction. Topics of discussion include various assessment tools to analyze miscues, diagnose learner needs, differentiate instruction, monitor learner response, and use data to report student progress. The course also includes interdisciplinary strategies of instruction for making connections with other content areas. Note: The course is approved by ADE for part A of the K-5 Literacy Endorsement on the state Teaching Certificate.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Explain Arizona ELA literacy standards that guide instruction and describe the developmental stages of literacy to include structured literacy, selection of materials, differentiation of instruction, and multi-tiered systems of support. (InTASC 4,7) (CSLOs 2,3,4) (Arizona Academic Standards ELA K-8) (CEC 5)
2. (Analyzing Level) Examine concepts associated with phonological and phonemic awareness, vocabulary & oral language, phonics, oral reading fluency, and reading comprehension of various text patterns. (InTASC 4) (CSLO 2) (CEC IGC5)
3. (Analyzing Level) Analyze structures of the four types of assessing learning: screening, diagnostic, progress monitoring, and outcome evaluation. (InTASC 6) (CSLOs 2,4) (CEC ISCI5)
4. (Analyzing Level) Analyze and interpret literacy assessment data to identify patterns and gaps in learning, guide planning and instruction, and provide meaningful feedback to learners. (InTASC 6) (CEC 4) (CSLOs 2,3,4) (CEC IGC5, ISCI5)
5. (Analyzing Level) Identify research and evidence based systematic phonics instruction and other current theories and instructional approaches for teaching reading. (InTASC 4) (CSLOs 1,2,4) (CEC IGC5)
6. (Creating Level) Design lesson plans and assessments for ELA, examine the interconnection between oral and written communication, and guide learners in examining their own thinking and learning in the development of literacy skills. (InTASC 4,7) (CSLOs 1,2,4) (Arizona Academic Standards ELA K-8) (CEC IGC5)
7. (Analyzing Level) Analyze instructional techniques that focus upon developing strategies for building comprehension, fluency, and independence in reading. (InTASC 4) (CSLOs 2,4) (CEC 4)
8. (Analyzing Level) Analyze instructional reading method materials to determine if they align with research and evidence based systematic, explicit phonics instructional programs. (InTASC 4) (CSLOs 2,4) (CEC 5)
9. (Creating Level) Develop learning experiences that align with curriculum standards, goals, objectives, and assessments. (InTASC 6,7) (CSLOs 1,2,3,4) (Arizona Academic Standards ELA K-8) (CEC IGC2)

EDU320B - Structured Literacy B: Instruction, Assessment, Intervention, and Dyslexia

General

Division
Teacher Education Division

Course Description
This course provides an overview of a structured literacy approach, including instruction, assessment, intervention, and dyslexia and development of early literacy skills (grades K-8). Topics include developmentally appropriate instructional delivery, facilitation, and methodologies for teaching English Language Arts, with instructional design and lesson planning for interventions, modifications, and accommodations to improve reading proficiency. The course emphasizes characteristics for recognizing and understanding dyslexia, intensifying instruction through interventions, and various assessment tools to analyze miscues, diagnose learner needs, monitor and report on progress, and differentiate instruction through intentional planning. Note: The course is approved by ADE for part B of the K-5 Literacy Endorsement on the state Teaching Certificate.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Describe the characteristics of dyslexia including difficulties with phonemic awareness, challenges with accurate and/or fluent word recognition, poor spelling and decoding abilities, and patterns of brain activation which make it difficult to read. Identify the regions of the brain associated with reading. (InTASC 3, 4) (CSLO 2) (CEC 4, 5)
2. (Analyzing Level) Examine concepts associated with phonology, sound-symbol association, syllable instruction, morphology, syntax, and semantics and their role in effective reading instruction. (InTASC 4, 5, 7) (CSLO 2) (CEC IGC5)
3. (Analyzing Level) Analyze reading interventions designed to change brain activation patterns to build word recognition and improve reading proficiency and overall comprehension. (InTASC 6, 7) (CSLOs 2,4) (CEC ISCI5)
4. (Creating Level) Plan literacy instruction which is systematic, cumulative, explicit, and diagnostic to impact reading development. (InTASC 3, 4, 6, 7) (CSLOs 2,3, 4) (CEC IGC5)
5. (Analyzing Level) Identify current theories and instructional approaches for intensifying reading instruction in intervention approaches to support struggling readers. (InTASC 3, 4, 6, 7) (CSLOs 1,2,4) (CEC 5.6, IGC2)
6. (Analyzing Level) Examine the interconnection between reading and writing in the development of literary skill. (InTASC 4) (CSLOs 2,4) (CEC IGC5)
7. (Analyzing Level) Analyze instructional techniques that focus upon developing strategies for building comprehension, fluency, and independence in reading. (InTASC 4, 5, 7) (CSLOs 2,4) (CEC 4.4, 5.1)
8. (Analyzing Level) Analyze instructional reading method materials to determine if they align with research and evidence based systematic, explicit phonics instructional programs. (InTASC 4, 5, 7) (CSLOs 2,4) (CEC 5.1)

EDU330 - Math Methods: Numbers, Operations, Proportions, Measurement, and Reasoning

General

Division
Teacher Education Division

Course Description
This course emphasizes the application of theories, methods, and techniques for developmentally appropriate evidence-based instructional delivery, facilitation, and methodologies for teaching mathematics in grades K-8, including students with exceptionalities. Includes standards-based alignment with mathematical practices, elements of effective mathematics instruction with lesson planning, differentiation including accommodations and modifications, formative and summative assessment practices, 21st century skills, technology integration, and data literacy for monitoring and reporting progress. Includes current trends from the National Council of Teachers of Mathematics (NCTM), Standards for School Mathematics (NCTM PSSM), and current research and application of the dimensions aligned with the science of mathematics and making connections with STEAM (Science, Technology, Engineering, the Arts, and Mathematics). Includes concepts of numbers, operations, proportions, measurement, and reasoning, highlighting interdisciplinary strategies of instruction connected with other content areas.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Applying Level) Apply relevant Standards for Mathematical Practice to engage students with academic content as they grow mathematically and make connections to real-world contexts. (InTASC 4) (CSLOs 2,4) (Arizona Academic Standards Mathematics K-8)
2. (Analyzing Level) Examine math content standards and progressions to promote learner achievement in numbers, operations, proportions, reasoning, geometry, algebra, statistics, and probability. (InTASC 1, 4) (CSLOs 2,3,4) (Arizona Academic Standards Mathematics K-8)
3. (Applying Level) Identify techniques, strategies, and methods to assess mathematical processes and skill development, guiding learners in examining their own thinking and learning as well as the performance of others. (InTASC 1, 6) (CSLOs 2,3,4) (Arizona Academic Standards Mathematics K-8) (CEC 5)
4. (Apply Level) Develop strategies to use summative assessment data for planning future instruction and interventions. (InTASC 2, 7) (CEC 3) (CSLO 1, 2)
5. (Creating Level) Design lesson plans with appropriate objectives, sequencing, strategies, resources, and materials for skill attainment. (InTASC 4, 7) (CSLOs 2,3,4) (Arizona Academic Standards Mathematics K-8) (CEC 5)
6. (Understanding Level) Modify and differentiate the math curriculum to provide appropriate challenges and supports for students with exceptionalities, incorporating assistive technology and manipulatives to enhance learning experiences for students and address diverse learner strengths and needs. (InTASC 2, 7) (CEC 3) (CSLOs 1,2) (Arizona Academic Standards Mathematics K-8)
7. (Creating Level) Develop a unit plan for math to include 21st century learning, technology integration, and making connections with other disciplines in STEM. (InTASC 4, 7) (CSLOs 2,4) (Arizona Academic Standards Mathematics K-8)
8. (Analyzing Level) Identify and explain the purpose of the National Council of Teachers of Mathematics Standards (NCTM) and the Principles and Standards for School Mathematics (PSSM) and their role in communicating current research on mathematical teaching and learning. (InTASC 9) (CSLOs 2,3) (Arizona Academic Standards Mathematics K-8)
9. (Creating Level) Design an interactive method for student engagement with the 21st century skills of collaboration, communication, creativity and critical thinking. (i.e., online survey, assessment, activity, project, etc.). (InTASC 6) (ISTE 2) (CEC 5) (CSLO 1,2,4)
10. (Creating Level) Build a resource bank of educational technologies and explain their application and impact on teaching and learning. (InTASC 5,8) (ISTE 3) (CEC 5) (CSLO 1,2,3,4)

Specific content focus areas for lesson plans, differentiation of instruction, and assessment practices include the following:
1. (Understand) Explain and demonstrate the structure of the Real Number System and explain mental and concrete models for addition, subtraction, multiplication, and division with whole numbers, integers, and rational numbers. (InTASC 4, 5, 8) (CEC 5) (CSLO 2, 4)
2. (Understand) Explain various contextual models for addition, subtraction, multiplication, and division for use in authentic applications, (e.g., for subtraction the takeaway, comparison, and missing addend models) including traditional and non-traditional algorithms of arithmetic. (InTASC 4, 5, 8) (CEC 5) (CSLO 2, 4)
3. (Apply) Apply instructional strategies to determine measurements, including angle measure, area, perimeter, circumference, volume, and surface area. (InTASC 4, 5, 8) (CEC 5) (CSLO 2, 4)
4. (Analyze) Analyze and explain the structure of and the relationships between the US Customary System and the Metric System of Measurement. (InTASC 4, 5, 8) (CEC 5) (CSLO 2, 4)
5. (Create) Represent and interpret data in multiple ways including a bar graph, line graph, circle graph, dot plot, box and whisker plot, scatterplot, and histogram and compare the appropriateness of the representations with a variety of data sets to include set properties and relationships. (InTASC 4, 5, 8) (CEC 5) (CSLO 2, 4)

EDU331 - Math Methods: Geometry, Algebra, Statistics, Ratio, and Probability K-8

General

Division
Teacher Education Division

Course Description
This course emphasizes the application of theories, methods, and techniques for developmentally appropriate evidence-based instructional delivery of mathematics in grades K-8 with an emphasis on grades 6-8. Includes standards-based alignment with mathematical practices, elements of effective mathematics instruction, differentiation, and formative and summative assessment practices. Includes the exploration of ratio and proportion, geometry, algebra, statistics, and probability.
Prerequisite(s): A grade of C or better in MAT141, MAT201, MAT202, EDU272, or EDU330.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply relevant Standards for Mathematical Practice to engage students with academic content as they grow mathematically and make connections to real-world contexts. (InTASC 4)(Arizona Academic Standards Mathematics K-8) *(CSLO 2, 4)*
2. (Analysis Level) Examine math content standards and progressions to promote learner achievement. (InTASC 4) (Arizona Academic Standards Mathematics K-8) *(CSLO 2, 3, 4)*
3. (Application Level) Identify techniques, strategies, and methods to assess mathematical processes and skill development, guiding learners in examining their own thinking and learning as well as the performance of others. (InTASC 6) (Arizona Academic Standards Mathematics K-8) *(CSLO 2, 3, 4)*
4. (Application Level) Develop strategies to use summative assessment data for planning future instruction and interventions. (InTASC 2, 7) (CEC 3) (CSLO 1, 2)
5. (Creating Level) Design lesson plans with appropriate objectives, sequencing, strategies, resources, and materials for skill attainment. (InTASC 4, 7) (Arizona Academic Standards Mathematics K-8) *(CSLO 2, 3, 4)*
6. (Understanding Level) Modify and differentiate the math curriculum to provide appropriate challenges and supports for students with exceptionalities, incorporating assistive technology and manipulatives to enhance learning experiences for students and address diverse learner strengths and needs. (InTASC 2, 7) (CEC 3) (CSLOs 1,2) (Arizona Academic Standards Mathematics K-8)

   Specific content focus areas for lesson plans, differentiation of instruction, and assessment practices include the following:
7. (Application Level) Apply algebraic expressions and equations to analyze relationships between variables and solve problems in mathematical and real-world situations (including dependent and independent variables, linear equations, functions, and inequalities). (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
8. (Analysis Level) Analyze and demonstrate the properties of operations with real numbers including fractions and decimals and the interconnectedness of addition, subtraction, multiplication, division, exponents, and roots. (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
9. (Understanding Level) Explain and apply properties of integers (e.g., even/odd, multiple/factor, divisibility tests, and prime/composite). (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
10. (Application Level) Illustrate and apply the geometric concepts of a point, line, ray, angle, plane, cylinder, cone, sphere, and the Pythagorean Theorem. (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
11. (Application Level) Apply proportional reasoning, similarity, and congruence in relationships between figures, describing length, area, perimeter, surface area, and volume. (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
12. (Application Level) Apply the concept of probability using concrete modeling to gather and analyze data in real world situations to include determining if a game is fair.-(InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
13. (Understanding) Explain and distinguish between probability models and patterns of association, considering complementary, mutually exclusive, independent, and dependent events, and determine probabilities of simple and combined events. (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
14. (Understanding Level) Demonstrate knowledge of mean, median, and mode and analyze data using an appropriate statistical measure. (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*
15. (Analysis Level) Analyze the concept of ratio to solve problems in real-world contexts. (InTASC 4, 5, 8) (CEC 5) *(CSLO 2, 4)*

EDU332 - Mathematics Strategies, Assessment, and Intervention

General

Division
Teacher Education Division

Course Description
This course provides an in-depth exploration of intensive mathematics intervention strategies, focusing on data-based individualization (DBI) to support students struggling with mathematics. Students will apply theoretical knowledge in real-world settings through classroom observations or scenarios (case studies or sample lessons). By the end of the course, students will be equipped with the skills necessary to design, implement, and evaluate effective math interventions.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain the central concepts, structures, and tools of inquiry in math intervention and demonstrate the ability to organize, know, and develop meaningful learning progressions with interdisciplinary connections for students with exceptionalities. (InTASC 1, 2, 5) (CEC 3.1) (ISTE 2.1) (CSLO 1, 3)
2. (Analyzing Level) Analyze and interpret diagnostic assessment data from classroom observations, case studies, or other scenarios to identify students' mathematical needs. (InTASC 6) (CEC 1) (ISTE 1.1) (CSLO 2, 4)
3. (Creating Level) Design individualized intervention plans based on classroom observations, case studies, or other scenarios to select, adapt, and use appropriate materials and evidence-based strategies while considering the strengths and needs of individuals with exceptionalities. (InTASC 7) (CEC 5) (ISCI5.S15) (ISTE 1.3) (CSLO 1, 2, 3, 4)
4. (Applying Level) Modify pace of instruction and provide organizational cues to students. (InTASC 1, 2, 4) (ISC5.S6) (ISTE 2.5) (CSLO 1, 4)
5. (Applying Level) Research and analyze methods in designing instruction for prevention and intervention with individuals at risk for disability, facilitating maintenance and generalization of skills across learning environments, and considering advances and limitations in approaches. (InTASC 8) (CEC 4) (IGC5.K3, K4) (ISC5.S5, S16) (ISTE 2.5) (CSLO 3)
6. (Analyzing Level) Evaluate the effectiveness of interventions and make data-driven adjustments. (InTASC 9) (CEC 6) (ISTE 2.7) (CSLO 3, 4)
7. (Creating Level) Develop strategies for students to prepare for and take assessments. (InTASC 6) (IGC5.K3) (ISTE 2.5) (CSLO 4)
8. (Applying Level) Teach individuals to use self-assessment, problem-solving, and other cognitive strategies to meet their needs. (InTASC 5, 6) (ISCI5.S14) (ISTE 2.6) (CSLO 4)
9. (Applying Level) Apply methods for increasing accuracy and proficiency in math calculations and applications. (InTASC 4, 5) (IGC5.K4) (ISTE 2.6) (CSLO 2, 4)
10. (Evaluating Level) Collaborate with educators, parents, and other stakeholders to support student success. (InTASC 10) (CEC 7) (ISTE 2.4) (CSLO 1, 3)

EDU360 - Master Teacher Seminar

General

Division
Teacher Education Division

Course Description
This course explores essential principles leading to a deeper understanding to allow the teacher to foster student growth across domains by exploring central and emerging disciplinary concepts and employing technologies to enhance content mastery for students including those with exceptionalities. This course encourages aspiring educators to deepen their understanding of key principles of learner development, universal design, and developmentally appropriate instruction, while fostering ongoing professional growth and inquiry. Through weekly sessions featuring expert guest speakers, targeted readings, and interactive activities, students will examine how cognitive, linguistic, social, emotional initiatives shape learning environments that promote collaboration, engagement, and self-motivation. Students evaluate instructional strategies, accommodations, formative assessment methods; and apply leadership and reflective practices to create classrooms to support diverse learners.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical domains. (InTASC 1) (CEC 1, 2, 3) (CSLOs 2, 3) (ISTE 2.1, 2.2, 2.4)
2. (Understanding Level) Understand individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards including those with exceptionalities in need of accommodations. (InTASC 2) (CSLOs 1, 2, 3) (ISTE 2.2) (ICSI.1.K12) (CEC2.1)
3. (Analyzing Level) Analyze environments that support individual and collaborative learning and that encourage positive social interaction, active engagement in learning, and self-motivation. (InTASC 3) (CSLOs 1, 2, 3) (CEC7)
4. (Understanding Level) Understand the central concepts, tools of inquiry, and structures of the discipline involved in creating learning experiences and utilizing technologies that make the discipline accessible and meaningful for learners to assure mastery of the content. (InTASC 4) (CSLOs 2, 3) (CEC 5.2)
5. (Understanding Level) Understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues. (InTASC 5) (CSLOs 1, 2, 3) (ISTE 2.4) (CEC 3.2)
6. (Applying Level) Demonstrate the importance of using multiple methods of assessment (academic and other) utilizing technological advances in student achievement analytics to increase student achievement and planning. (InTASC 6) (CSLOs 2, 3) (ISTE 2.7) (CEC 4.2, 5.2) (ISCI.4.S3)
7. (Evaluating Level) Evaluate instructional planning that supports learning and content knowledge, curriculum, cross-disciplinary skills, and pedagogy. (InTASC 7) (CSLOs 2, 3, 4) (ISTE 2.6) (CEC 2)
8. (Evaluating Level) Evaluate a variety of instructional strategies when working with students to develop deep understanding of content areas and their connections, build skills to apply knowledge in meaningful ways, and provide alternative methods for students to demonstrate competency and reflect on their learning using technology. (InTASC 8) (ISTE 7a) (CSLOs 2, 3, 4) (IGC2.S2) (CEC 2)
9. (Understanding Level) Explain professional learning and evidence-based reflection of practice and impacts on learners, families, other professionals, and the community. (InTASC 9) (CSLOs 1, 2, 3, 4) (ISTE 2.4, 2.7) (CEC 1)
10. (Applying Level) Identify the importance of engaging in appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, paraeducators, and community members to ensure learner growth, and to advance the profession. (InTASC 10) (CSLOs 1, 2, 3, 4) (ISTE 2.2) (CEC 6.5)

EDU370A - Field Experience Teacher in Residence (TIR) Semester 1

General

Division
Teacher Education Division

Course Description
The field experience course is designed to create a strong connection between educational theory and meaningful classroom practice. Participants will engage in authentic classroom experiences that help them develop the knowledge, skills, and dispositions of an effective educator. Throughout the internship, candidates will apply their learning in real settings while receiving guidance, reflection, and feedback. As the course progresses, participants will gradually take on additional teaching responsibilities. They will also strengthen key understandings that support effective teaching and learning for all students.

Course participants will develop skills in instructional design and lesson planning that reflect the diverse needs of learners. This includes learning how to create lessons that include modifications and accommodations that allow every student to access the curriculum and experience success. Candidates will also learn effective ways to assess, monitor, and report student progress in a clear and meaningful manner that supports continued growth. In addition, participants will explore and apply developmentally appropriate instructional delivery, facilitation strategies, and teaching methods within both the Arts and Language domains. Through this work, candidates will learn how to design engaging instruction that honors students' developmental stages, interests, cultural backgrounds, and individual learning needs.

Field experiences for Teacher in Residence (TIR) program participants will match the certificate the program leads to as closely as possible. Therefore, Teachers in Residence (TIR) participants that have placements in single subject areas, including related arts and/or special area classrooms, will be required to document experiences to expose them to the full breadth of content within the target certification. The CAC field experience program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding practicum course. The field experience requires a total of 90 clock hours over the duration of two full 16-week semesters.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. 1. (Creating) Observe, design, and implement effective learning opportunities in a classroom setting that support children's intellectual, social, emotional, and personal development. (InTASC 1) (ISTE 1) (CEC 1, 2, 5) (CSLO 2)
2. 2. (Applying) Develop standards-based lessons with appropriate and aligned objectives and outcomes. (InTASC 2) (ISTE 2) (CEC 3, 5) (CSLO 2,4)
3. 3. (Analyzing) Analyze the critical nature of a positive, safe classroom environment and school culture in providing children with equity, accessibility, and every opportunity to learn. (InTASC 3) (ISTE 3) (CEC 2) (CSLO 2,4)
4. 4. (Remembering) Acquire knowledge and understanding of how children learn and develop. (InTASC 1) (ISTE 4) (CEC 1) (CSLO 2)
5. 5. (Evaluate) Evaluate and apply practical applications of course theory and pedagogy. (InTASC 4) (ISTE 5) (CEC 6) (CSLO 2)
6. 6. (Analyzing) Examine and demonstrate knowledge of authentic assessment practices and data analysis. (InTASC 5) (ISTE 6) (CEC 4) (CSLO 2,4)
7. 7. (Understanding) Demonstrate awareness, appreciation, acceptance, and sensitivity to multiculturalism, diversity, and special needs. (InTASC 5) (ISTE 7) (CEC 1, 6) (CSLOs 1,2,3,4)
8. 8. (Evaluating) Promote reflective practice in connections and relationships that foster student learning. (InTASC 6) (ISTE 7) (CEC 7) (CSLOs 2,4)
9. 9. (Remembering) Explore and acquire knowledge of current trends in education and technology integration strategies utilized in schools. (InTASC 7) (ISTE 1) (CEC 5) (CSLOs 2,4)
10. 10. (Applying) Observe, collaborate with, and value feedback from professionals in education. (InTASC 8) (ISTE 2) (CEC 6, 7) (CSLO 3)
11. 11. (Understanding) Demonstrate understanding of professional teaching dispositions, attitudes, skills, and core teaching standards. (InTASC 9) (ISTE 3) (CEC 6) (CSLO 3)
12. 12. (Analyzing) Analyze relevant educational law and policies connected with classroom practice, students, parents, and special education. (InTASC 10) (ISTE 4) (CEC 6) (CSLOs 2,3)
13. 13. (Creating) Exemplify personal professionalism and adhere to the components of the Model Code of Ethics for Educators (MCEE). (InTASC 10) (ISTE 5) (CEC 6, 7) (CSLO 3)

Course Requisites

EDU370B - Field Experience Traditional Semester 1

General

Division
Teacher Education Division

Course Description
The field experience course is designed to create a strong connection between educational theory and meaningful classroom practice. Participants will engage in authentic classroom experiences that help them develop the knowledge, skills, and dispositions of an effective educator. Throughout the internship, candidates will apply their learning in real settings while receiving guidance, reflection, and feedback. As the course progresses, participants will gradually take on additional teaching responsibilities. They will also strengthen key understandings that support effective teaching and learning for all students.

Course participants will develop skills in instructional design and lesson planning that reflect the diverse needs of learners. This includes learning how to create lessons that include modifications and accommodations that allow every student to access the curriculum and experience success. Candidates will also learn effective ways to assess, monitor, and report student progress in a clear and meaningful manner that supports continued growth. In addition, participants will explore and apply developmentally appropriate instructional delivery, facilitation strategies, and teaching methods within both the Arts and Language domains. Through this work, candidates will learn how to design engaging instruction that honors students' developmental stages, interests, cultural backgrounds, and individual learning needs.

Traditional program participants will document experiences matching the certificate the program leads to as closely as possible. Participants will be required to document experiences that expose them to the full breadth of academic content within the targeted certificate area, across varying elementary grade levels. The CAC program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding field experience course. The field experience requires a total of 90 clock hours over the duration of two full 16-week semesters. At the conclusion of the first 8-week internship (completing 1/2 of the required 45 hours), the traditional student will switch placements. Observation with a second teacher allows for the student to experience different teaching styles, methods, strategies, and grade levels.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. 1. (Creating Level) Observe, design, and implement effective learning opportunities in a classroom setting that support children's intellectual, social, emotional, and personal development. (InTASC 1) (ISTE 1) (CEC 1, 2, 5) (CLSO 2)
2. 2. (Applying Level) Develop standards-based lessons with appropriate and aligned objectives and outcomes across grade levels. (InTASC 2) (ISTE 2) (CEC 3, 5) (CLSO 2, 4)
3. 3. (Analyzing Level) Analyze the critical nature of a positive, safe classroom environment and school culture in providing children with equity, accessibility, and every opportunity to learn. (InTASC 3) (ISTE 3) (CEC 2) (CSLO 2, 4)
4. 4. (Remembering Level) Acquire knowledge and understanding of how children learn and develop at various stages of development. (InTASC1) (ISTE 4) (CEC 1) (CSLO 2)
5. 5. (Evaluating Level) Evaluate and apply practical applications of course theory and pedagogy. (InTASC 4) (ISTE 5) (CEC 6) (CSLO 2)
6. 6. (Analyzing Level) Examine and demonstrate knowledge of authentic assessment practices and data analysis. (InTASC 5) (ISTE 6) (CEC 4) (CSLO 2, 4)
7. 7. (Understanding Level) Demonstrate awareness, appreciation, acceptance, and sensitivity to multiculturalism, diversity, and special needs. (InTASC 5) (ISTE 7) (CEC 1, 6) (CSLO 1, 2, 3, 4)
8. 8. (Evaluating Level) Promote reflective practice in connections and relationships that foster student learning. (InTASC 6) (ISTE 7) (CEC 7) (CSLO 2, 4)
9. 9. (Remembering Level) Explore and acquire knowledge of current trends in education and technology integration strategies utilized in schools. (InTASC 7) (ISTE 1) (CEC 5) (CSLO 2, 3)
10. 10. (Applying Level) Observe, collaborate with, and value feedback from professionals in education. (InTASC 8) (ISTE 2) (CEC 6, 7) (CSLO 3)
11. 11. (Understanding Level) Demonstrate understanding of professional teaching dispositions, attitudes, skills, and core teaching standards. (InTASC 9) (ISTE 3) (CEC 6) (CSLO 3)
12. 12. (Analyzing Level) Analyze relevant educational law and policies connected with classroom practice, students, parents, and special education. (InTASC 10) (ISTE 4) (CEC 6) (CSLO 2, 3)
13. 13. (Creating Level) Exemplify personal professionalism and adhere to the components of the Model Code of Ethics for Educators (MCEE). (InTASC 10) (ISTE 5) (CEC 6, 7) (CSLO 3)

Course Requisites

EDU370C - Field Experience Teacher in Residence (TIR) Semester 2

General

Division
Teacher Education Division

Course Description
The field experience course is designed to build a strong connection between educational theory and meaningful classroom practice by providing exposure to practical knowledge, skills, and dispositions of an effective educator. Authentic classroom experiences serve as a foundation for candidates to build and discuss the knowledge, skills, and dispositions of an effective teacher. Course participants will progressively develop new teaching capacities and key understandings as they gradually phase into additional responsibilities throughout the internship. Field experience course participants will develop skills in instructional design and lesson planning, ensuring they address the unique needs of all learners. This includes learning how to design lessons that incorporate modifications and accommodations, enabling every student to access the curriculum and experience success. Course participants will also learn effective ways for assessing, monitoring, and reporting student progress in ways that clearly and meaningfully promote ongoing growth and development. Additionally, they will investigate and apply instructional delivery methods, facilitation strategies, and teaching approaches that are developmentally appropriate for teaching methods within both the Arts and Language domains. Through these experiences, candidates will gain the ability to create engaging lessons that respect students' stages of growth, interests, cultural backgrounds, and unique learning needs.

Teacher in Residence program participants will document experiences matching the certificate the program leads to as closely as possible. Participants will be required to document experiences that expose them to the full breadth of academic content within the targeted certificate area, across varying elementary grade levels. The CAC program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding field experience course. The field experience requires a total of 90 clock hours over the duration of two full 16-week semesters. Prerequisite: EDU370A.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. 1. (Creating) Observe, design, and implement effective learning opportunities in a classroom setting that support children's intellectual, social, emotional, and personal development. (InTASC 1) (ISTE 1) (CEC 1, 2, 5) (CSLO 2)
2. 2. (Applying) Develop standards-based lessons with appropriate and aligned objectives and outcomes. (InTASC 2) (ISTE 2) (CEC 3, 5) (CSLO 2,4)
3. 3. (Analyzing) Analyze the critical nature of a positive, safe classroom environment and school culture in providing children with equity, accessibility, and every opportunity to learn. (InTASC 3) (ISTE 3) (CEC 2) (CSLO 2,4)
4. 4. (Remembering) Acquire knowledge and understanding of how children learn and develop. (InTASC 1) (ISTE 4) (CEC 1) (CSLO 2)
5. 5. (Evaluate) Evaluate and apply practical applications of course theory and pedagogy. (InTASC 4) (ISTE 5) (CEC 6) (CSLO 2)
6. 6. (Analyzing) Examine and demonstrate knowledge of authentic assessment practices and data analysis. (InTASC 5) (ISTE 6) (CEC 4) (CSLO 2,4)
7. 7. (Understanding) Demonstrate awareness, appreciation, acceptance, and sensitivity to multiculturalism, diversity, and special needs. (InTASC 5) (ISTE 7) (CEC 1, 6) (CSLOs 1,2,3,4)
8. 8. (Evaluating) Promote reflective practice in connections and relationships that foster student learning. (InTASC 6) (ISTE 7) (CEC 7) (CSLOs 2,4)
9. 9. (Remembering) Explore and acquire knowledge of current trends in education and technology integration strategies utilized in schools. (InTASC 7) (ISTE 1) (CEC 5) (CSLOs 2,4)
10. 10. (Applying) Observe, collaborate with, and value feedback from professionals in education. (InTASC 8) (ISTE 2) (CEC 6, 7) (CSLO 3)
11. 11. (Understanding) Demonstrate understanding of professional teaching dispositions, attitudes, skills, and core teaching standards. (InTASC 9) (ISTE 3) (CEC 6) (CSLO 3)
12. 12. (Analyzing) Analyze relevant educational law and policies connected with classroom practice, students, parents, and special education. (InTASC 10) (ISTE 4) (CEC 6) (CSLOs 2,3)
13. 13. (Creating) Exemplify personal professionalism and adhere to the components of the Model Code of Ethics for Educators (MCEE). (InTASC 10) (ISTE 5) (CEC 6, 7) (CSLO 3)

EDU370D - Field Experience Traditional Semester 2

General

Division
Teacher Education Division

Course Description
The field experience course is designed to build a strong connection between educational theory and meaningful classroom practice by providing exposure to practical knowledge, skills, and dispositions of an effective educator. Authentic classroom experiences serve as a foundation for candidates to build and discuss the knowledge, skills, and dispositions of an effective teacher. Course participants will progressively develop new teaching capacities and key understandings as they gradually phase into additional responsibilities throughout the internship. Field experience course participants will develop skills in instructional design and lesson planning, ensuring they address the unique needs of all learners. This includes learning how to design lessons that incorporate modifications and accommodations, enabling every student to access the curriculum and experience success. Course participants will also learn effective ways for assessing, monitoring, and reporting student progress in ways that clearly and meaningfully promote ongoing growth and development. Additionally, they will investigate and apply instructional delivery methods, facilitation strategies, and teaching approaches that are developmentally appropriate for teaching methods within both the Arts and Language domains. Through these experiences, candidates will gain the ability to create engaging lessons that respect students' stages of growth, interests, cultural backgrounds, and unique learning needs.

Traditional program participants will document experiences matching the certificate the program leads to as closely as possible. Participants will be required to document experiences that expose them to the full breadth of academic content within the targeted certificate area, across varying elementary grade levels. The CAC program requires a minimum of 45 clock hours of classroom field experience per semester in conjunction with enrollment in the corresponding field experience course. The field experience requires a total of 90 clock hours over the duration of two full 16-week semesters. At the conclusion of the first 8-week internship (completing 1/2 of the required 45 hours), the traditional student will switch placements. Observation with a second teacher allows for the student to experience different teaching styles, methods, strategies, and grade levels. Prerequisite: EDU370B.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. 1. (Creating Level) Observe, design, and implement effective learning opportunities in a classroom setting that support children's intellectual, social, emotional, and personal development. (InTASC 1) (ISTE 1) (CEC 1, 2, 5) (CLSO 2)
2. 2. (Applying Level) Develop standards-based lessons with appropriate and aligned objectives and outcomes across grade levels. (InTASC 2) (ISTE 2) (CEC 3, 5) (CLSO 2, 4)
3. 3. (Analyzing Level) Analyze the critical nature of a positive, safe classroom environment and school culture in providing children with equity, accessibility, and every opportunity to learn. (InTASC 3) (ISTE 3) (CEC 2) (CSLO 2, 4)
4. 4. (Remembering Level) Acquire knowledge and understanding of how children learn and develop at various stages of development. (InTASC1) (ISTE 4) (CEC 1) (CSLO 2)
5. 5. (Evaluating Level) Evaluate and apply practical applications of course theory and pedagogy. (InTASC 4) (ISTE 5) (CEC 6) (CSLO 2)
6. 6. (Analyzing Level) Examine and demonstrate knowledge of authentic assessment practices and data analysis. (InTASC 5) (ISTE 6) (CEC 4) (CSLO 2, 4)
7. 7. (Understanding Level) Demonstrate awareness, appreciation, acceptance, and sensitivity to multiculturalism, diversity, and special needs. (InTASC 5) (ISTE 7) (CEC 1, 6) (CSLO 1, 2, 3, 4)
8. 8. (Evaluating Level) Promote reflective practice in connections and relationships that foster student learning. (InTASC 6) (ISTE 7) (CEC 7) (CSLO 2, 4)
9. 9. (Remembering Level) Explore and acquire knowledge of current trends in education and technology integration strategies utilized in schools. (InTASC 7) (ISTE 1) (CEC 5) (CSLO 2, 3)
10. 10. (Applying Level) Observe, collaborate with, and value feedback from professionals in education. (InTASC 8) (ISTE 2) (CEC 6, 7) (CSLO 3)
11. 11. (Understanding Level) Demonstrate understanding of professional teaching dispositions, attitudes, skills, and core teaching standards. (InTASC 9) (ISTE 3) (CEC 6) (CSLO 3)
12. 12. (Analyzing Level) Analyze relevant educational law and policies connected with classroom practice, students, parents, and special education. (InTASC 10) (ISTE 4) (CEC 6) (CSLO 2, 3)
13. 13. (Creating Level) Exemplify personal professionalism and adhere to the components of the Model Code of Ethics for Educators (MCEE). (InTASC 10) (ISTE 5) (CEC 6, 7) (CSLO 3)

EDU470A - Student Teaching Teacher in Residence (TIR) Emphasis

General

Division
Teacher Education Division

Course Description
Student teaching in an elementary (K-8) classroom with coaching from an experienced master teacher and scheduled course meetings will include demonstration of skills across these key areas: principles of learning and development, recognizing learning differences, creating supportive learning environments, mastering content knowledge and its application, assessing, monitoring and reporting student progress, designing and planning lessons for instruction (including modifications, and accommodations), implementing effective instructional strategies, engaging in ongoing professional learning and ethical practice, and fostering leadership and collaboration. This course is considered a 12-week student teaching capstone field experience (excluding breaks and holidays) for Teacher in Residence candidates. Outcomes are aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards. Prerequisite: Baccalaureate Degree and formal acceptance to the Central Arizona College state approved post-baccalaureate Educator Preparation Program or permission of Department or Division, and Capstone readiness approval are required before enrolling in this course. Teacher in Residence (TIR) students will enroll in this course the final 12 weeks of the program. TIR students will already be placed in a K-8 classroom under a full-time teaching contract under the auspice of a mentor teacher. TIR teaching in the classroom will count as student teaching field experience. This is the capstone experience required by the post baccalaureate program and must be completed to be eligible for Institutional Recommendation for state teaching certification.

Total Number Of Credits:
8

Lecture Credits
2

Internship Credits
11

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Implement classroom management techniques that support individual and collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation. (InTASC 3) (CSLO 1, 2, 3, 4) (CEC 5)
2. (Creating Level) Design learning objectives aligned with content standards to assure mastery of the content. (InTASC 4) (CSLO 1, 2, 3, 4) (Arizona Academic Standards K-8) (CEC 4)
3. (Applying Level) Utilize formative and summative assessments as appropriate to support, verify, and document learning, using data and technology to create, adapt and personalize learning that fosters independent learning and accommodates learner differences and needs. (InTASC 6) (ISTE 5a) (CSLO 1, 2, 3, 4) (CEC 8)
4. (Creating Level) Develop and implement lesson plans focused on student engagement utilizing a variety of instructional strategies to make learning meaningful and inclusive. (InTASC 5, 7, 8) (ISTE 2) (CSLO 1, 2, 3, 4) (Arizona Academic Standards K-8) (CEC 7)
5. (Applying Level) Utilize differentiation strategies at an appropriate level of challenge to meet the needs of diverse learners. (InTASC 1, 2) (CSLO 1, 2, 3, 4) (Arizona Academic Standards K-8) (CEC 3, 4, 7)
6. (Analyzing Level) Collaborate with students, parents, colleagues, and mentors to promote learner development and differences, supportive environments, structures of content knowledge, and professional growth. (InTASC 10) (CSLO 1, 2, 3, 4) (CEC 1, 3)
7. (Evaluating Level) Explain relevant educational law and policies connected with classroom practice, students, parents, teachers, and special education. (InTASC 9) (CSLO 1, 2, 4) (CEC 1)

EDU470B - Student Teaching Traditional Emphasis

General

Division
Teacher Education Division

Course Description
Student teaching in an elementary (K-8) classroom under the supervision of an experienced master teacher and scheduled course meetings will include demonstration of skills across these key areas: principles of learning and development, recognizing learning differences, creating supportive learning environments, mastering content knowledge and its application, assessing, monitoring and reporting student progress, designing and planning lessons for instruction (including modifications, and accommodations), implementing effective instructional strategies, engaging in ongoing professional learning and ethical practice, and fostering leadership and collaboration. This course is considered a 12-week student teaching capstone field experience (excluding breaks and holidays) for Teacher in Residence and Traditional Student Teaching candidates. Outcomes are aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards. Prerequisite: Formal acceptance to the Central Arizona College state approved post-baccalaureate or bachelor's degree Educator Preparation Program or permission of Department or Division, and Capstone readiness approval are required before enrolling in this course. Students will enroll in this course in the final 12 weeks of the program and will be placed in the auspice of a mentor teacher. This is the capstone experience required by the Elementary Education K-8 program (Traditional post-baccalaureate or bachelor's degree) and must be completed to be eligible for Institutional Recommendation for state teaching certification.

Total Number Of Credits:
8

Lecture Credits
2

Internship Credits
11

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Implement classroom management techniques that support individual and collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation. (InTASC 3) (CSLO 1, 2, 3, 4) (CEC 5)
2. (Creating Level) Design learning objectives aligned with content standards to assure mastery of the content. (InTASC 4) (CSLO 1, 2, 3, 4) (Arizona Academic Standards K-8) (CEC 4)
3. (Applying Level) Utilize formative and summative assessments as appropriate to support, verify, and document learning, using data and technology to create, adapt and personalize learning that fosters independent learning and accommodates learner differences and needs. (InTASC 6) (ISTE 5a) (CSLO 1, 2, 3, 4) (CEC 8)
4. (Creating Level) Develop and implement lesson plans focused on student engagement utilizing a variety of instructional strategies to make learning meaningful and inclusive. (InTASC 5, 7, 8) (ISTE 2) (CSLO 1, 2, 3, 4) (Arizona Academic Standards K-8) (CEC 7)
5. (Applying Level) Utilize differentiation strategies at an appropriate level of challenge to meet the needs of diverse learners. (InTASC 1,2) (CSLO 1, 2, 3, 4) (Arizona Academic Standards K-8) (CEC 3, 4, 7)
6. (Analyzing Level) Collaborate with students, parents, colleagues, and mentors to promote learner development and differences, supportive environments, structures of content knowledge, and professional growth. (InTASC 10) (CSLO 1, 2, 3, 4) (CEC 1, 3)
7. (Evaluating Level) Explain relevant educational law and policies connected with classroom practice, students, parents, teachers, and special education. (InTASC 9) (CSLO 1, 2, 4) (CEC 1)

EDU221SU22 - Introduction to Education

General

Division
Teacher Education Division

Course Description
A survey of the profession of teaching, with emphasis on current trends and diversity, historical and legal perspectives, and societal influences. Course includes observation and participation in preK-12 school environments. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and discuss at least three main purposes of public education in historical and contemporary times. (Interstate Teacher Assessment and Support Consortium (InTASC 9) (CSLO 1) 2. (Evaluation Level) Evaluate diversity issues affecting the United States educational process by assessing the effect diverse populations have on classroom dynamics and describing at least one incident of inequity and its corresponding array of solutions. (InTASC 2,3,9) (CSLO 1 & 4) 3. (Analysis Level) Describe key historical developments in United States public education, as influenced by the European system, by conducting an in-depth analysis of at least three historical events and the significant impact each made on today's educational system. (InTASC 2,10) (CSLO 1, 2 & 4) 4. (Evaluation Level) Identify and assess the impact of at least three legal issues on students, teachers, administrators, parents and the community. (InTASC 2,9,10)(CSLO 1, 2 & 4) 5. (Evaluation Level) Examine and describe current trends in education through documented observations and professional dialogue as well as evaluate three global influences to current educational practice. (InTASC 3,9,10) (CSLO 1, 2 & 3) 6. (Evaluation Level) Identify at least three educational theorists and evaluate how their philosophical and psychological theories have shaped current educational practice. (InTASC 1,2)(CSLO 1, 2 & 4) 7. (Comprehension Level) Identify as least three teacher groups (including local and national associations, unions, and specific professional groups) and describe the contribution of each to support teachers. (InTASC 9,10)(CSLO 3) 8. (Application Level) Examine, list and utilize the teacher code of ethics in constructing a personal philosophy of teaching. (InTASC 9,10) (CSLO 1, 2 & 3) 9. (Analysis Level) Analyze at least three research-based instructional strategies and their appropriate use in specific classroom situations. (InTASC 2,8) (CSLO 2, 3 & 4) 10. (Evaluating Level) Compare the major types of assessment used in K-12 education throughout the U.S. (formative, summative, criterion, standardized) and how each is utilized to promote student growth and achievement. (InTASC 4,6) (CSLO 2,3)

Course Requisites

EDU222SU22 - Introduction to Special Education

General

Division
Teacher Education Division

Course Description
Overview of Special Education theory and practice in the United States today, including the characteristics of students with specific disabilities and the effects on the individuals and their families. Prerequisite or corequisite:RDG100. Meets Special Awareness Area: CU.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate historical and contemporary service delivery to individuals with disabilities by delineating the differencing among the practices of segregation, mainstreaming and inclusion. (CSLO 1,2,4) 2. (Analysis Level) Distinguish how legislation has influenced practice in special education, both historically and currently by identifying and defining at least three principles of the Individuals with Disabilities Education Act (IDEA), identifying one change in IDEA and its most recent authorization, and listing the appropriate acronyms and what they stand for (e.g. IEP, IFST, LRE). (CSLO 1,2,3) 3. (Application Level) Demonstrate knowledge of the characteristics associated with the most common categories in special education using correct and respectful terminology, including students who are gifted and talented, and apply that knowledge to identify potential challenges in the learning environment using case study scenarios. (CSLO 1,2,3,4) 4. (Analysis Level) Examine issues in special education assessment and service delivery within the context of diverse society and discuss possible points of overrepresentation for specific minority groups. (CSLO 1,2,4) 5. (Synthesis Level) Propose skills required for effective multidisciplinary teaming, including working with parents, in a variety of situations while examining the various roles parents must play for the child with a disability. (CSLO 2,3) 6. (Evaluation Level) Evaluate the impact that a child with a disability might have on family life and relationships with the schools and the community by incorporating the principles of normalization, self-advocacy and family support and identifying challenges that families of students with disabilities face. (CSLO 1,2,3,4)

Course Requisites

EDU228SU22 - Behavior Management

General

Division
Teacher Education Division

Total Number Of Credits:
3

EDU240SU22 - Structured English Immersion

General

Division
Teacher Education Division

Course Description
Full endorsement course in Introduction to Structured English Immersion for teachers and administrators who are working in the K-12 school setting, or for students in the AAEE program. This course meets the Arizona Department of Education SEI endorsement. Prerequisite: EDU221.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the format and alignment of English Language Learner (ELL) Proficiency Standards to the Arizona Language Arts (Listening, Speaking, Reading, and Writing) Academic Standards. (CSLO 2,3) 2. (Evaluation Level) Plan, deliver and evaluate instruction using the ELL Proficiency Standards. (CSLO 2,3,4) 3. (Synthesis Level) Integrate the ELL Proficiency Standards in all content areas. (CSLO 2,3) 4. (Evaluation Level) Analyze, interpret and apply data from multiple assessments, including the Arizona English Language Learner Assessment (AZELLA) and snapshots of longitudinal data, in guiding and differentiating ELL instruction, tracking student progress on the ELL Proficiency Standards, and making recommendations for placement and accommodations for students receiving gifted or special education services. (CSLO 2,3,4) 5. (Evaluation Level) Evaluate the relevance of state-mandated achievement measured by the AZELLA while identifying and using alternative methods of the assessment of English Language Learners (ELLs). (CSLO 2,3,4) 6. (Comprehension Level) Demonstrate understanding of the foundational principles of Structured English Immersion (SEI) instruction including the legal, historical and educational reasons for SEI; basic SEI terminology; and by listing language acquisition principles. (CSLO 1,3) 7. (Evaluation Level) Cultivate home and school partnerships of ELLs by identifying sociocultural influences on ELLs, discussing the impact of bilingualism and home language use, outlining the role of culture in learning, and examining parent and community sources for aiding English acquisition. (CSLO 1,3,4) 8. (Synthesis Level) Identify and use multiple SEI strategies to improve student achievement (comprehensible input; specific, ongoing, and immediate feedback; group structures and techniques; student engagement; and building background and vocabulary development). (CSLO 2,3) 9. (Synthesis Level) Integrate instruction across content areas by using SEI strategies that include prior knowledge when planning lessons; selecting, adapting, and sequencing current curricular material; analyzing and applying vocabulary development approaches in content areas; extending SE content methods; integrating current materials in English Language Development (ELD) instruction, describing the Silent Period; and extending SEI methods for beginning ELD. (CSLO 2,3,4) 10. (Analysis Level) Distinguish between BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency). (CSLO 3,4) 11. (Synthesis Level) Design a lesson using the SIOP (Sheltered Instruction Observation Protocol) model that contains all necessary components. (CSLO 2,3)

Course Requisites

EGR102 - Introduction to Engineering

General

Division
Science & Engineering Division

Course Description
Comprehensive engineering problem solving incorporating the design process, its scientific basis, hands-on teamwork, effective communication, ethical implications and the profession itself. Prerequisite: MAT 151

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify and apply the principles of the engineering approach to problem solving. (CSLO 2, 4)
2. (Application Level) Apply the appropriate software tools in order to solve engineering design problems. (CSLO 2, 4)
3. (Application Level) Apply engineering principles on the selection, implementation, and evaluation of multiple solution alternatives. (CSLO 2, 4)
4. (Analysis Level) Analyze, in writing and by means of team presentation, statistical test results. (CSLO 3)
5. (Application Level) Develop and demonstrate the characteristics of an effective and professional team member. (CSLO 3)
6. (Application Level) Develop and demonstrate, in the context of a team environment, effective communication skills. (CSLO 3)
7. (Synthesis Level) Develop and present an education and career plan for the engineering discipline of choice. (CSLO 3)
8. (Evaluation Level) Describe the importance and the varied applications of applied ethics in the engineering profession. (CSLO 1)

Course Requisites

EGR120 - Digital Design Fundamentals

General

Division
Science & Engineering Division

Course Description
The theory and application of digital systems and binary numbers, binary and compliment arithmetic, and Boolean algebra; logic gates, combinational logic, circuit minimization; flip-flops and synchronous sequential logic, registers and counters; memory and programmable logic. Analysis and design of combinational and synchronous sequential circuits, simulation, and building and testing of circuits. Prerequisite or Corequisite: MAT 182 or MAT 187.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Express numbers in binary, octal, hexadecimal, and decimal systems. (CSLO 2)
2. (Application Level) Apply fundamental arithmetic operations within each number system. (CSLO 2)
3. (Knowledge Level) Memorize and reproduce postulates and theorems of Boolean algebra. (CSLO 3)
4. (Application Level) Apply Boolean algebra to binary variable and logic operations to develop Boolean functions. (CSLO 4)
5. (Evaluation Level) Produce and interpret truth tables. (CSLO 3)
6. (Application Level) Write Boolean functions in canonical and standard forms.
7. (Application Level) Manipulate and simplify Boolean functions using DeMorgan's theorem and Karnaugh maps.(CSLO 3)
8. (Application Level) Implement combinational circuits using SSI elements (AND, OR, and inverters), MSI elements (multiplexers, encoders, decoders, comparators, adders, and multipliers). (CLSO 2,3,4)
9. (Application Level) Implement synchronous sequential circuits using latches and edge-triggered flip-flops (shift registers, ripple counters, and synchronous counters). (CLSO 2,3,4)
10. (Analysis Level) Analyze combinational and synchronous sequential circuits. (CSLO 2)
11. (Synthesis Level) Design and analyze synchronous sequential circuits using Mealy and Moore models, state transition tables and diagrams, and simplification techniques. (CSLO 2,3,4)
12. (Synthesis Level) Develop and analyze algorithms for the control of synchronous sequential circuits, such as shift registers and counters. (CSLO 2,3,4)
13. (Comprehension Level) Describe the function of memory elements (RAM, ROM) and programmable logic arrays. (CSLO 3)
14. (Synthesis Level) Design, build, debug, and demonstrate the function of complex synchronous machines to solve given problems. (CSLO 2,3,4)
15. (Application Level) Demonstrate proficiency with laboratory equipment and procedures. (CSLO 2,3,4)

Course Requisites

EGR195 - Special Projects in Engineering

General

Division
Science & Engineering Division

Course Description
Independent Projects is intended to fulfill an undergraduate academic (research and/or engineering design) need of importance to the student and to enhance/broaden what is learned through the regular curriculum. Students will work with the faculty advisor to define the content of the project they undertake to meet their specific needs. Recommended for students who are interested in doing engineering projects outside of regular classes. May take 4 times for credit. S/U grading option only. Prerequisite: EGR102 or instructor permission.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain area of research or an engineering design project.
2. (Understanding Level) Explain and document desired outcomes and constraints.
3. (Evaluating Level) Define various solutions to meet the desired outcome, compare and contrast these solutions, and conclude which specific solution would best deliver the outcomes.
4. (Applying Level) Develop a plan for research or engineering design project, with deliverables.
5. (Applying Level) Implement your research plan and/or construct your design.
6. (Evaluating Level) Examine your research results and/or evaluate your design
7. (Evaluating Level) Interpret whether the desired outcome is met.
8. (Creating Level) Discuss your results.
9. (Creating Level) Discuss and develop an improvement plan.

EGR201 - Statics

General

Division
Science & Engineering Division

Course Description
Force vectors and force system resultants, equilibrium of particles and rigid bodies, friction, centroid and moments of inertia of an area. Prerequisites: MAT231 and PHY121.

Total Number Of Credits:
4

Lecture Credits
3

Recitation Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply the basic ideas of dimensional analysis in the solution of problems of equilibrium. (CSLO 2) 2. (Application Level) Use the methods of vector addition, vector subtraction, and the dot and cross products in the solution of problems of equilibrium. (CSLO 2,4) 3. (Analysis Level) Distinguish and develop a format for the solution of problems related to particle and rigid body equilibrium. (CSLO 2,4) 4. (Analysis Level) Analyze (explain and solve) problems of equilibrium in terms of equivalent force systems. (CSLO 2,4) 5. (Analysis Level) Analyze (explain and solve) the internal forces of structures. (CSLO 2,4) 6. (Analysis Level) Analyze (explain and solve) the effect of friction in equilibrium situations. (CSLO 2,4) 7. (Analysis Level) Calculate and explain centroids of geometrical and composite figures in two and three dimensional space. (CSLO 2,4) 8. (Application Level) Calculate area and mass moments of inertia in two and three dimensional space. (CSLO 2,4) 9. (Analysis Level) Apply and explain the principles of virtual work in the solution of problems of equilibrium. (CSLO 2,4)

Course Requisites

EGR202 - Dynamics

General

Division
Science & Engineering Division

Course Description
Kinematics and kinetics of particles. Work, energy, and momentum principles for particles. Planar kinematics and kinetics of rigid bodies. Conservation of energy and momentum for rigid bodies. Equations of motion for particles and rigid bodies. Vibrations. Prerequisites: EGR201 and MAT275.

Total Number Of Credits:
4

Lecture Credits
3

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe in mathematical terms the rectilinear motion of a particle under constant or variable acceleration. (CSLO 2) 2. (Application Level) Use normal and tangential coordinates to mathematically describe the curvilinear motion of a particle. (CSLO 2,4) 3. (Application Level) Calculate the motion of a system of particles in a dependent motion system. (CSLO 2,4) 4. (Application Level) Compute the relative motion of particles in an inertial frame of reference. (CSLO 2,4) 5. (Application Level) Apply Newton`s laws of motion to describe the interaction of forces upon particles and particle systems. (CSLO 2,4) 6. (Application Level) Apply the work-energy principle to describe the motion of particles and particle systems. (CSLO 2,4) 7. (Application Level) Use the conservation of energy theorem to describe the motion of particles and particle systems. (CSLO 2,4) 8. (Evaluation Level) Evaluate the use of the impulse-momentum principle in particle dynamics. (CSLO 2,4) 9. (Analysis Level) Adapt the conservation of momentum principle to impact and recoil problems involving particles. (CSLO 2,4) 10. (Analysis Level) Describe the various types of motions of a rigid body in a three dimensional space. (CSLO 2,3,4) 11. (Application Level) Apply Newton`s second law to describe the motion of rigid bodies under the action of forces and moments. (CSLO 2,3,4) 12. (Analysis Level) Use the work-energy principle to describe the motion of a rigid body in a two dimensional space. (CSLO 2,4) 13. (Analysis Level) Apply the impulse-momentum principle to describe the motion of a rigid body in a two dimensional space. (CSLO 2,4) 14. (Evaluation Level) Adapt the conservation of momentum principle to describe the motion of a rigid body in a two dimensional space. (CSLO 2,4)

Course Requisites

EGR214 - Engineering Mechanics I - Statics

General

Division
Science & Engineering Division

Course Description
This course focuses on engineering mechanics which includes topics such as problem formulation and solution methods; two- and three-dimensional vector representation of forces, moments and couples; static equilibrium of particles, rigid bodies and engineering structures; analysis of external and internal forces in structures utilizing free-body diagrams; and properties of cross-sectional areas. Prerequisites: MAT231, PHY121. Recommended: Students are strongly recommended to take MAT242 concurrently with this course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Use equations of equilibrium to find unknown forces and couple moments acting on particles and rigid bodies in two and three dimensions. (CSLO 2,4)

2. (Analyzing Level) Solve equilibrium problems involving distributed loads, including hydrostatic loading, using geometry or integration methods to determine their equivalent force and centroid. (CSLO 2,4)

3. (Applying Level) Find the tensile or compressive forces in the members of trusses, machines, and frames.(CSLO 2,4)

4. (Analyzing Level) Solve problems illustrating the properties of forces, moments, couples, and resultants. (CSLO 2,4)

5. (Evaluating Level) Calculate at specific points and graph for whole structural members the internal Shear and Moment values using both geometric and integration methods.(CSLO 2,4)

6. (Analyzing Level) Solve problems involving friction forces between contacting surfaces, wedges, screws, belts, bearings, and rolling resistance. (CSLO 2,4)

7. (Applying Level) Calculate centroids, moments of inertia, and mass moments of inertia for complex objects in two and three dimensions. (CSLO 2,4)

Course Requisites

EGR215 - Engineering Mechanics II - Dynamics

General

Division
Science & Engineering Division

Course Description
Dynamics builds on the concepts learned in EGR214 Statics and looks at bodies which are not in equilibrium. A study of the kinematics and kinetics of particle and rigid body motion. Concepts covered include: force and acceleration, work and energy, and impulse and momentum. Prerequisite: EGR214. Corequisite: MAT275.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Use multiple coordinate systems, including rectangular, normal-tangent and cylindrical to solve problems dealing with the kinematics and kinetics of a particle undergoing rectilinear or curvilinear translation. (CSLO 2,4)

2. (Analyzing Level) Use work and energy concepts to solve problems involving particles undergoing rectilinear or curvilinear translation while being subject to conservative and non-conservative forces. (CSLO 2,4)

3. (Applying Level) Solve problems utilizing principles of impulse and momentum, including linear and angular momentum and the conservation of momentum for both particles and rigid bodies. (CSLO 2,4)

4. (Applying Level) Utilize concepts of kinetics and kinematics to solve problems involving the rectilinear and curvilinear translation and rotation of rigid bodies. Solve problems involving fixed axis rotation and general plane motion. (CSLO 2,4)

5. (Evaluating Level) Use work and energy concepts to solve problems involving rigid bodies undergoing rotation or general plane motion while being subject to conservative and non-conservative forces. (CSLO 2,4)

Course Requisites

EGR222 - Circuits I

General

Division
Science & Engineering Division

Course Description
Principles for analyzing linear and non-linear circuits; using SPICE simulation; design and measurement of linear analog electrical systems. Prerequisites or corequisite: MAT275, PHY122.

Total Number Of Credits:
5

Lecture Credits
4

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain and express the definitions of basic electrical quantities (voltage, current, power, and energy) and the relationship among them. (CSLO 2)
2. (Knowledge Level) Know the symbols for and definitions of independent and dependent sources. (CSLO 2)
3. (Application Level) Calculate the power absorbed by a circuit elements. (CSLO 2,4)
4. (Application Level) Use Ohm's law to solve electric circuits. (CSLO 2,4)
5. (Application Level) Use Kirchhoff's current law and Kirchhoff's voltage law to solve electric circuits. (CSLO 2,4)
6. (Analysis Level) Analyze single-loop and single-node-pair circuits. (CSLO 2,4)
7. (Synthesis Level) Combine resistors in series and parallel, and use voltage and current division to solve simple electric circuits. (CSLO 2,4)
8. (Analysis Level) Analyze electric circuits containing dependent sources. Use SPICE. (CSLO 2,4)
9. (Application Level) Calculate all currents and voltages in circuits that contain multiple nodes and loops. (CSLO 2,4)
10. (Analysis Level) Employ Kirchhoff's current law to perform a nodal analysis to determine all the node voltages in a circuit. Employ Kirchhoff's voltage law to perform a loop analysis to determine all the loop currents in a network. (CSLO 2,4)
11. (Evaluation Level) Determine which of the two analysis techniques should be utilized to solve a particular problem. (CSLO 2,4)
12. (Analysis Level) Analyze op-amp models and their equivalent. circuits. Analyze a variety of circuits that employ op-amps and the use of op-amps in a number of practical applications. (CSLO 2,4)
13. (Application Level) Apply Thevenin and Norton equivalent, and the principle of superposition to analyze linear circuit. (CSLO 2,4)
14. (Application Level) Apply source transformation and the maximum power transfer theorem. (CSLO 2,4)
15. (Application Level) Use circuit models for inductors and capacitors to calculate voltage, current, and power. (CSLO 2,4)
16. (Comprehension Level) Recognize and explain the concepts of continuity of current for an inductor and continuity of voltage for a capacitor.(CSLO 2)
17. (Application Level) Calculate voltages and currents for capacitors and inductors in electric circuits with dc sources. (CSLO 2,4)
18. (Application Level) Compute the combination of capacitors and inductors in series and parallel. (CSLO 2,4)
19. (Application Level) Calculate initial values for inductor currents and capacitor voltages in transient circuits. (CSLO 2,4)
20. (Application Level) Calculate voltages and currents in first-order and second-order transient circuits.(CSLO 2,4)
21. (Synthesis Level) Perform phasor and inverse phasor transformations and draw phasor diagrams.(CSLO 2,4)
22. (Synthesis Level) Calculate impedance and admittance for our basic R, L, C circuit elements; Combine impedances and admittances in series and parallel.(CSLO 2,4)
23. (Application Level) Convert frequency-domain circuit for a given circuit with a sinusoidal source and apply circuit analysis techniques.(CSLO 2,4)
24. (Application Level) Calculate instantaneous and average power in ac circuits, the maximum average power transfer for a load in an ac circuit, the effective or rms value for a periodic waveform, and the real power, reactive power, complex power, and power factor in ac circuits. (CSLO 2,4)
25. (Analysis Level) Analyze the variable-frequency performance of R, L, and C circuit elements. (CSLO 2,4)
26. (Comprehension Level) Identify different types of network functions and their poles and zeros.(CSLO 2)
27. (Analysis Level) Relate pole and zero locations to characteristics of network functions. (CSLO 2,4)
28. (Application Level) Sketch Bode plot for network function. (CSLO 2,4)
29. (Analysis Level) Analyze series and parallel resonant circuits. (CSLO 2,4)
30. (Analysis Level) Analyze basic passive and active filters. (CSLO 2,4)
31. (Analysis Level) Apply Laplace transform to analyze linear circuits and transient circuits. (CSLO 2,4)
32. (Synthesis Level) Perform an inverse Laplace transform using partial fraction expansion. (CSLO 2,4)
33. (Analysis Level) Relate pole and zero locations to characteristics of time-domain functions. (CSLO 2,4)
34. (Analysis Level) Analyze linear circuits using concepts from linear systems theory, including transfer function, impulse response, and stability. (CSLO 2,4)
35. (Synthesis Level) Design linear circuits to implement a desired transfer function, implement, and test (analytically and using SPICE). (CSLO 2,4)
36. (Application Level) Demonstrate proficiency with laboratory equipment and procedures. (CSLO 2,4)

Course Requisites

EGR230 - Computer Organization and Assembly Language

General

Division
Science & Engineering Division

Course Description
Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming. Exception/interrupt handling. Prerequisite: EGR120 or CIS216 or CIS218.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding & Evaluating Level) Explain how programs written in high-level languages are executed by a computer system.(CSLO 2,4)
2. (Understanding & Evaluating Level) Explain what hardware factors impact program performance and how to write programs for performance.(CSLO 2,4)
3. (Understanding & Evaluating Level) Explain data representation, instruction sets and addressing modes.(CSLO 2,4)
4. (Application Level) Write assembly language programs employing flow control constructs and procedures.(CSLO 2,4)
5. (Understanding & Evaluating Level) Explain techniques used by computer hardware designers to improve performance.(CSLO 2,4)
6. (Understanding & Evaluating Level) Explain how a data path can be implemented as a single cycle or pipelined design.(CSLO 2,4)
7. (Understanding & Evaluating Level) Explain how the memory hierarchy impact performance.(CSLO 2,4)
8. (Understanding & Evaluating Level) Explain the reason for the ongoing transition to multiprocessor architectures.(CSLO 2,4)

EIT100 - History of Rock n' Roll

General

Division
Visual & Performing Arts Division

Course Description
A survey of the history and development of rock music noting how cultural, social, political, and economic conditions have affected its evolution. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the origins and beginning elements of Rock music.
2. (Analysis Level) Differentiate the prominent rock styles from 1950 to the present.
3. (Knowledge Level) Identify selected performances aurally by prominent rock artists or groups in all styles.
4. (Comprehension Level) Explain how rock styles have changed or were affected by historic events and social changes.
5. (Comprehension Level) Summarize the technological developments and their influence on the entertainment market throughout Rock history.
6. (Analysis Level) Break down historic examples of prejudice, discrimination, segregation, and eventual integration through rock music in order to develop cultural, gender, and ethnic awareness.
7. (Synthesis Level) Analyze the following through class discussion, assignments and assessments: a) the cultural and technological circumstances that led to the beginning of Rock n' Roll; b) the musical elements that led to the development of 50's rock music; c) discuss specific contributions significant rock artists made to the development of their style of rock music; d) distinguish the changes in rock styles based on historical events and social changes; e) compare and contrast prominent rock styles from 1950 to present; and f) summarize how technological advances influenced the entertainment market through Rock n' Roll.
8. (Evaluation Level) Listening to performances of significant rock artists in all styles, aurally identify them.
9. (Evaluation Level) Deconstruct developments in rock music as they relate to prejudice, discrimination, segregation and integration in our society.

Course Requisites

EIT101 - Introduction to Entertainment

General

Division
Visual & Performing Arts Division

Course Description
An introduction to the live entertainment event industry, including survey of industry, job descriptions and employment opportunities, technical requirements, and basic operation of various live performance and other venues. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe, discuss, and identify careers in the music industry including job titles within several career tracks. (CSLO 1,2,3)
2. (Knowledge Level) Name and define professional organizations. (CSLO 1,2)
3. (Comprehension Level) Identify and explain technical components of recording, live sound reinforcement and live performance lighting. (CSLO 2,3)
4. (Synthesis Level) Summarize marketing principles in the entertainment industry. (CSLO 2,3)
5. (Comprehension Level) Discuss basic legal issues in the entertainment industry. (CSLO 1,2,4)
6. (Application Level) Discover standards for performance venues and events. (CSLO 2,3)

Course Requisites

EIT120 - Entertainment Law

General

Division
Visual & Performing Arts Division

Course Description
An introduction to legal aspects of the entertainment industry, including performance rights, songwriting and personal appearance contracts, copyright law and trademarks. Prerequisite or corequisite: EIT101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain contract law in the entertainment industry.
2. (Analysis Level) Examine the process of contract negotiations with entertainers.
3. (Comprehension Level) Explain copyright and trademark in relation to the entertainment industry.
4. (Comprehension Level) Discuss the laws governing performers' rights.
5. (Knowledge Level) Describe the roles of professional organizations.
6. (Analysis Level) Outline the process of obtaining entertainment licenses.

Course Requisites

EIT130 - Live Audio Production I

General

Division
Visual & Performing Arts Division

Course Description
An introduction to concepts and technical skills required for live event sound reinforcement. Topics include the operation of basic sound systems, including consoles, amplifiers, speakers, processors and microphones. Prerequisite or corequisite: EIT101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the concepts of audio signal flow.
2. (Comprehension Level) Explain the concepts involved in the key components of a sound reinforcement system.
3. (Evaluation Level) Determine and select proper components for basic live sound applications.
4. (Analysis Level) Distinguish the fundamentals of acoustical properties of sound.
5. (Knowledge Level) Identify and label proper electrical connections
6. (Application Level) Complete basic sound reinforcement tasks for a variety of events.

Course Requisites

EIT140 - Introduction to Lighting

General

Division
Visual & Performing Arts Division

Course Description
Introduction to the technical aspects of concert and theatrical lighting, including basic design, color theory, instrument types, power distribution, control, safety, and the proper hanging, connection, focus, and control of instruments and accessories such as gobos, color scrollers, mirrored fixtures and moving lights. Prerequisite or corequisite: EIT101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Read and interpret a lighting plot for a performance area. (CSLO 2,3,4)
2. (Application Level) Manipulate a fly system lighting electric and other lighting accessories according to industry safety standards. (CSLO 2,3)
3. (Application Level) Prepare and position the lighting instruments and accessories for a lighting design, per the directors specifications. (CSLO 2,3)
4. (Synthesis Level) Integrate color into a carefully documented light design of a scene from a play, musical or concert that reflects the physiological, time of day, dramatic, and/or mixing effects of color. (CSLO 1,2,3)
5. (Application Level) Operate and program a standard computerized lighting control console in sync with a presentation/performance. (CSLO 2,3)
6. (Synthesis Level) Create a carefully documented, quality lighting plot using standardized drafting (mechanical and automated) procedures and adhering to symbol guidelines accepted by the United States Institute for Theatre Technology (USITT). (CSLO 2,3)

Course Requisites

EIT151 - Digital Audio Workstation

General

Division
Visual & Performing Arts Division

Course Description
Use of Pro Tools mixing and automation software in conjunction with editing and recording, including computer operation, troubleshooting, and file management. Recommended: Students should possess basic computer skills and should be comfortable navigating personal computers prior to enrolling in this course.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Memorize basic operations of the Macintosh operating system. (CSLO 2,3)
2. (Knowledge Level) Identify the components of a Pro Tools system. (CSLO 2,3)
3. (Application Level) Manipulate the basic views and operations of Pro Tools. (CSLO 2,3)
4. (Application Level) Troubleshoot various conditions affecting inputs and playback. (CSLO 2,3,4)
5. (Synthesis Level) Create a recording project using Pro-Tools. (CSLO 1,2,3,4)
6. (Application Level) Demonstrate basic editing, processing, and mixing techniques. (CSLO 2,3)

EIT153 - Recording Engineering I

General

Division
Visual & Performing Arts Division

Course Description
Introduction to basic topics in the operation of a 24-track audio recording studio, including audio theory, recording console signal flow, microphone placement, multi-track recording, and mixing techniques. At the completion of the course, students will record and mix simple recording sessions. Prerequisite: EIT151. Recommended: Students need to perform basic operations of the Macintosh operating system and operate Pro Tools recording software.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the basic fundamentals of audio theory.
2. (Analysis Level) Analyze audio measurements as they relate to loudness and sound pressure levels.
3. (Comprehension Level) Explain the concepts of recording console signal flow.
4. (Application Level) Prepare signal processing and effects equipment for a recording session.
5. (Application Level) Choose and setup proper microphones for basic recording situations.
6. (Synthesis Level) Create a recording by applying recording console signal flow within the three aspects of multi-track recording: tracking, overdubbing, and mix-down.

Course Requisites

EIT170 - Performance Skills

General

Division
Visual & Performing Arts Division

Course Description
Private coaching and practice for a modern popular music soloist or ensemble that concentrates on proper tone production, technique, style, stage presence, and communication skills, incorporating live sound reinforcement and lighting design in the development of a live audience performance. Intended for students with moderate vocal or instrumental music proficiency. May be taken four times for credit. Prerequisite: The soloist or group must perform a live audition for the coordinator of the Entertainment Industry Technology program. Acceptance into the course is based on approval. Students may register for this course prior to auditioning, but must audition prior to the end of drop week.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate characteristic tone qualities with proper intonation. (CSLO 2,3)
2. (Application Level) Demonstrate technical accuracy as a solo performer or within an ensemble. (CSLO 2,3)
3. (Application Level) Practice and perform in a stylistically appropriate manner in the chosen idioms. (CSLO 2,3)
4. (Application Level) Show proper stage and entertainment skills appropriate to the chosen genre. (CSLO 1,2,3)
5. (Application Level) Practice appropriate communication skills between performers and crews. (CSLO 1,2)
6. (Synthesis Level) Design a short show to include all elements of performance, including live sound reinforcement and lighting design. (CSLO 1,2,3,4)

Course Requisites

EIT171 - Songwriting I

General

Division
Visual & Performing Arts Division

Course Description
An introduction to the basics of song writing including lyrics, rhythmic, melodic, and harmonic development, form, and emotional content.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Express different processes to create song ideas and lyrics from varied sources. (CSLO 2,3)
2. (Synthesis Level) Model the relationship between rhythm and lyrics and how it can affect the style of a song. (CSLO 2,3,4)
3. (Application Level) Apply appropriate scales to write melodies to convey appropriate emotional content. (CSLO 2,3)
4. (Application Level) Demonstrate how the basic properties of time and sound relate to music. (CSLO 2,3)
5. (Application Level) Demonstrate a working knowledge of various note and rest values. (CSLO 2,3)
6. (Comprehension Level) Select appropriate chord progressions to accompany a melody to represent the emotional content of a melody and its lyrics. (CSLO 2,3)
7. (Application Level) Use functional and appropriate cadences to delineate different sections of a song. (CSLO 2,3,4)
8. (Comprehension Level) Select the appropriate form for a song that is being developed, based on lyrics, theme, or style. (CSLO 2,3)
9. (Synthesis Level) Develop title(s) for a song and explain the function of a title. (CSLO 2)

EIT203 - Entertainment Capstone Project

General

Division
Visual & Performing Arts Division

Course Description
A capstone experience for the entertainment professional, including planning, preparing and developing a specific entertainment project by selecting materials, setting up and monitoring a budget, and overseeing a complete compact disk, project portfolio, or a full concert performance. May be taken four times for credit, once for each of the four EIT tracks. Prerequisite: Completion of first three semesters of EIT track with a grade of "C" or better in each course.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) In consultation with a faculty advisor, select a discipline-related project to be completed in an independent study, based on the course guidelines and rubric.
2. (Synthesis Level) Create project guidelines, timelines, processes, and goal steps for the project based on the course rubric, and obtain instructor approval.
3. (Evaluation Level) Choose guidelines for documenting, reporting progress, and evaluating the completed project, and obtain instructor approval of the forms and process.
4. (Synthesis Level) Develop a completed project and present it to the faculty advisor, committee, and/or public forum for evaluation as appropriate, in accordance with established methodology, rubric, and guidelines.
5. (Evaluation Level) Critique the project according to the established critical evaluation/assessment methodology, guidelines and course rubric.

Course Requisites

EIT221 - Entertainment Marketing and Promotion

General

Division
Visual & Performing Arts Division

Course Description
Entertainment business marketing and promotion elements, specifically the creation of publicity materials, designing the process for developing media relations, a press kit, and creating a publicity campaign. Prerequisite or corequisite: EIT101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify markets, professional procedures, and skills necessary for success in the entertainment industry. (CSLO 2,3)
2. (Comprehension Level) Explain delivery system uses of music in the media of radio, telecommunications, and film to market entertainment events. (CSLO 1,2)
3. (Comprehension Level) Describe marketing practices, production, and merchandising in the record industry. (CSLO 1,2)
4. (Application Level) Show the processes of promotion for different settings within the entertainment industry. (CSLO 2,3)
5. (Synthesis Level) Develop a self-promotion package. (CSLO 3)
6. (Application Level) Demonstrate communication skills for employment interviews and in marketing songs, recordings, and performances. (CSLO 1,2,3)
7. (Analysis Level) Examine and explain types of retail operations, products, and advertising management styles in music merchandising practices. (CSLO 2)

Course Requisites

EIT231 - Live Audio Production II

General

Division
Visual & Performing Arts Division

Course Description
A continuation in concepts and technical skills required for live event audio reinforcement. Topics include advanced sound system setup and operation, in-depth operation of program and monitor consoles, system equalization, flown speaker arrays, and musical production considerations. Prerequisite: EIT130.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Combine knowledge of sound and acoustics in proper equipment set-up and operation.
2. (Application Level) Set up a variety of sound systems for vocal and musical reinforcement.
3. (Application Level) Operate a variety of live audio source equipment including: sound mixers, equalization, amplifiers, speakers, monitors, and various processing equipment.
4. (Application Level) Select and set up microphones for a variety of sound sources.
5. (Application Level) Select and set up mixer, amplification, and speakers for a variety of sound sources.
6. (Synthesis Level) Create and maintain a quality house sound mix and multi-channel monitor mix for a variety of reinforcement situations.
7. (Application Level) Practice appropriate communication skills, as well as, display appropriate dress code and professional behavior between crew, performers and clients.

Course Requisites

EIT232 - Equipment Maintenance

General

Division
Visual & Performing Arts Division

Course Description
Introduction to basic concepts and techniques for maintaining and repairing sound and lighting equipment. Topics include basic maintenance, preventative maintenance, troubleshooting, soldering, wiring standards, calibration, and testing of a wide variety of sound, lighting, and performance-related equipment.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the concepts of interfacing professional audio equipment. (CSLO 2,3)
2. (Application Level) Demonstrate the calibration of recording equipment. (CSLO 2,3)
3. (Application Level) Perform basic testing of equipment for electrical voltage, continuity, and impedance. (CSLO 2,3,4)
4. (Application Level) Apply soldering skills in the repair of audio equipment. (CSLO 3)
5. (Synthesis Level) Model basic maintenance of stage lighting infrastructure, fixtures, and cabling. (CSLO 2,3)
6. (Application level) Troubleshoot audio-related equipment by applying basic principles of electronics. (CSLO 2,3,4)
7. (Evaluation Level) Determine problems and assess possible solutions in professional live audio and stage lighting systems. (CSLO 2,3,4)
8. (Application Level) Employ cleaning techniques to maintain professional aesthetics appropriate for recording studio and live performance venues. (CSLO 3)

EIT241 - Concert Lighting

General

Division
Visual & Performing Arts Division

Course Description
An in-depth study of concert lighting to include full lighting design and lighting instrument hang and focus for numerous concert arrangements, specifically choir concert, band/orchestra, and dance lighting. Topics include using computer lighting effects, color scrollers, mirrored fixtures, and moving lights. Fieldtrips required to off-campus area theatres to examine and evaluate an array of lighting venues. Prerequisite: EIT140.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the needs for a variety of concert arrangements and diagram a light plot for each using Computer Assisted Design (CAD) lighting programs and paperwork standard to the industry. (CSLO 2,3,4)
2. (Application Level) Prepare and position lighting instruments and accessories for a CAC Creative Arts concert or Entertainment Industry Technology (EIT) event, based on the CAD light plot developed. (CSLO 2,3)
3. (Synthesis Level) Devise color into a carefully documented light plot for a CAC Creative Arts concert or EIT event, that reflects the physiological, time of day, dramatic, historical, landscape/cityscape, and/or mixing effects of color and the director's notes. (CSLO 1,2,3,4)
4. (Analysis Level) Select, hang, and focus appropriate lighting instruments for each concert arrangement in conjunction with a CAC Creative Arts concert or EIT event. (CSLO 2,3)
5. (Application Level) Operate a standard computerized lighting control console and program light cues for a CAC Creative Arts concert or EIT event. (CSLO 2,3)
6. (Synthesis Level) Develop training for a light board operator to program and run cues on a standard computerized lighting control console in sync with a CAC Creative Arts concert. (CSLO 2,3)
7. (Synthesis Level) Per instructor's guidelines, develop a portfolio including carefully documented, quality light plots using standardized CAD procedures, all appropriate paperwork, and adhering to symbol guidelines accepted by the United States Institute for Theatre Technology (USITT). (CSLO 2,3)

Course Requisites

EIT242 - Rigging

General

Division
Visual & Performing Arts Division

Course Description
Introduction to the technical aspects of rigging for theater and concerts, including single and double purchase counterweight systems, block and tackle, cable and chain rigging, powered hoist systems and portable scenic and lighting trusses. Prerequisite: EIT101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Conduct a needs assessment, analyze the results, and create a plan for rigging a variety of theater and concert equipment.
2. (Synthesis Level) Based upon the customized plan, develop appropriate means to safely handle, raise/lower, anchor and stabilize equipment.
3. (Synthesis Level) According to established industry safety standards, prepare equipment by safely flying system electrics, including speakers, lighting instruments, and electric accessories.
4. (Analysis Level) Select and utilize appropriate rigging configurations to safely hoist and anchor theater and concert equipment or performers.
5. (Application Level) Operate and assemble standard rigging equipment for a theater event and concert, critique the results, and identify future improvements or creative strategies.
6. (Synthesis Level) Develop a light plot portfolio using standardized paperwork accepted by the United States Institute for Theatre Technology (USITT).

Course Requisites

EIT254 - Recording Engineering II

General

Division
Visual & Performing Arts Division

Course Description
A continuation in concepts and technical skills required in recording engineering in a 48-track audio recording studio. Topics include advanced audio theory, signal-processing equipment, advanced musical recording session procedures, production, and engineering. At the completion of the course, students should be able to record and mix advanced multi-track recording sessions. Prerequisite: EIT153.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss advanced concepts of acoustics.
2. (Comprehension Level) Explain advanced concepts of studio signal flow and setup.
3. (Application Level) Operate advanced effects equipment in an appropriate manner.
4. (Analysis Level) Compare, select and connect proper microphones for advanced recording situations.
5. (Application Level) Demonstrate multi-track recording for a variety of situations using appropriate procedures.
6. (Synthesis Level) Conduct correct overdubbing techniques.
7. (Synthesis Level) Create successful mix-down, including imaging and equalization.

Course Requisites

EIT255 - Recording Engineering III

General

Division
Visual & Performing Arts Division

Course Description
A continuation in the study of recording studio procedures learned in EIT254. Topics include mixing techniques, synchronization of various machines, album sequencing and editing, and commercial production. Upon completion, students should be able to conduct any type of recording session and understand the working procedures in a professional recording studio. Prerequisite: EIT254.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Based on listening to a song to be recorded, create a written pre-production plan which includes: choosing the proper microphones, an input list, instrument layout, and track allocations.
2. (Synthesis Level) Organize a schedule for studio time, musicians, and assistants within the boundaries of a given recording budget for a successful session.
3. (Synthesis Level) Conduct a recording session from tracking through post production to include: a) laying down basic tracks b) overdubbing further instrumentation c) mixing with appropriate effects d) digital editing techniques e) mastering
4. (Synthesis Level) Create a mix down according to producers or instructor's instructions.
5. (Evaluation Level) Evaluate a recording project with correct industry techniques.
6. (Comprehension Level) In written or oral discourse explain the internal workings of a recording studio in regard to recording an album.

Course Requisites

EIT272 - Songwriting II

General

Division
Visual & Performing Arts Division

Course Description
Advanced songwriting techniques as a continuation of Songwriting I, including poetic and lyrical rhythm and meter, counterpoint, harmonic development, form and total song development to maximize emotional content. Prerequisite: EIT171.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify various poetic meters and describe how they relate to musical rhythms. (CSLO 2 & 3)
2. (Comprehension Level) Match lyric patterns to musical patterns. (CSLO 2 & 3)
3. (Analysis Level) Contrast the use of varied meters to fit varied lyrical and musical patterns. (CSLO 2 & 4)
4. (Synthesis Level) Construct memorable verses, pre-choruses, choruses and bridges that use the techniques of connection, contrast and flow. (CSLO 2, 3 & 4)
5. (Analysis Level) Select the appropriate song structure to enhance the emotional intent of the music and lyric for a song. (CSLO 2 & 3)
6. (Application Level) Demonstrate the technique of modulation to heighten the emotional content of a song. (CSLO 2 & 3)
7. (Synthesis Level) Develop and use melodic counterpoint effectively. (CSLO 2 & 4)
8. (Synthesis Level) Generate various colors utilizing different grooves, harmony (chords) and modes (melody) with a single or multiple songs. (CSLO 2 & 4)

Course Requisites

EIT296 - Entertainment Internship

General

Division
Visual & Performing Arts Division

Course Description
Students work in entertainment industry internships designed to fit the students' selected degree/certificate track, career goals, interests and skills. The student may take one internship for each of the four tracks of the Entertainment Industry Technology program. May be taken four times for credit, once per each of the four EIT tracks. Prerequisite: Complete all year one EIT courses with grade of C or better.

Total Number Of Credits:
3

Internship Credits
3

Other Credit Information
3 Internships total 135 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Select a place of internship and complete an interview process.
2. (Synthesis Level) In collaboration with instructor and supervisor, create a contract of specific responsibilities and project(s).
3. (Application Level) Demonstrate skills that were learned in classroom instruction within the Entertainment Industry Technology program and apply them to a practical work experience situation.
4. (Synthesis Level) In collaboration with the organization, develop methods to address the needs of that organization.
5. (Application Level) Employ human relation skills in an industry setting.
6. (Evaluation Level) Assess internship experience in relationship to previous course work, completed contract, and future employment opportunities.

Course Requisites

ELC121 - Electrical Level 1

General

Division
Skilled Trades & Technology Division

Course Description
Electricians install electrical systems in structures; they install wiring and other electrical components, such as circuit breaker panels, switches, and light fixtures; they follow blueprints, the "National Electrical Code," and state and local codes.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify electrical hazards and their effects. Understand the effects of electrical shock on the human body. Verify that circuits are de-energized. (CSLO 2,3)
2. (Application Level) Read schematic diagrams. Identify the symbol for a resistor and determine its value based on color codes. Distinguish between series and parallel circuits. Identify the instruments used to measure circuit values. Calculate electrical power. (CSLO 2,3,4)
3. (Evaluation Level) Demonstrate the safe and proper use of the following hand tools: multi-meter, level, clamp, and lineman tool. (CSLO 3)
4. (Analysis Level) Classify conductors by wire size, insulation, and application. (CSLO 3)
5. (Application Level) Cut conduit using a hacksaw. Cut conduit using a pipe cutter. Ream conduit. Thread conduit. Cut and join PVC conduit. (CSLO 3)
6. (Evaluation Level) Assess the requirements of a given job and choose the appropriate tools and materials. (CSLO 2,3,4)
7. (Application Level) Demonstrate the ability to navigate the National Electrical Code (N.E.C.). Identify the chapters in the N.E.C. Use the N.E.C. to find specific installation requirements. (CSLO 3)

ELC212 - Electrical Level 2

General

Division
Skilled Trades & Technology Division

Course Description
This course prepares trainees for a career in the electrical field. National Center of Construction Education & Research (NCCER) certification is offered and comprehensive electrical curriculum that complies with Department of Labor (DOL) time-based standards for apprenticeship.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Application Level) Identify direct current (DC) motors and describe their operating characteristics. Understand how DC motors operate. Identify types of DC motors. (CSLO 3)
3. (Application Level) Solve problems related to hands-on construction project(s). (CSLO 3,4)
4. (Comprehension Level) Size and select equipment grounding. (CSLO 2,3)
5. (Application Level) Determine dimensions and locations from a blueprint and apply them to a project. (CSLO 3)
6. (Application Level) Apply local building codes related to residential construction. (CSLO 2)
7. (Analysis Level) Recognize code violations in a work-in-progress. (CSLO 2,4)
8. (Application Level) Make wire connections, install various types of connectors, make aluminum connections, install control and signal cables. (CSLO 3,4)
9. (Synthesis Level) Select and troubleshoot relays. (CSLO 3,4) a. Select control relays. b. Select timers and timing relays. c. Select solid-state relays. d. Select overload relays. e. Troubleshoot relays.
10. (Application Level) Size and select circuit breakers. (CSLO 3)
11. (Application Level) Bond service equipment. Size the main bonding jumper. Bond multiple service disconnects. Bond enclosures and equipment. (CSLO 3)
12. (Analysis Level) Outline and explain the installation of electrical system components in residential construction. (CSLO 2)

Course Requisites

ELC213 - Electrical Level 2 Apprenticeship 2B

General

Division
Skilled Trades & Technology Division

Course Description
This course meets and/or exceeds Arizona Department of Labor Apprenticeship standards and requirements. Post employment training for commercial electricians. National Center of Construction Education & Research (NCCER) certification is offered and comprehensive electrical curriculum that complies with Department of Labor (DOL) time-based standards for apprenticeship.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Application Level) Plan and install electrical lighting. (CSLO 3,4)
3. (Application Level) Identify motor enclosures, frame designations, and operating characteristics.
4. (Comprehension Level) Size pulls and junction boxes. (CSLO 2,3) a. Size pulls and junction boxes for systems under 1,000V. b. Size pull and junction boxes for systems over 1,000V.
5. (Application Level) Install cable in conduit systems. (CSLO 3) a. Plan the installation. b. Identify a pulling location and set up the cable reels. c. Prepare raceways for conductors. d. Install a pull line. e. Prepare the cable ends for pulling. f. Select cable-pulling equipment.
6. (Application Level) Calculate the load on a cable tray. (CSLO 2) a. Determine the load on supports. b. Identify types of failure under load. c. Identify installation requirements for cable tray.
7. (Analysis Level) Identify magnetic and mechanically help contactors. (CSLO 2,4) a. Select lighting contactors. b. Make forward and reverse motor contactor connections. c. Select mechanically held contactors.

Course Requisites

ELC224 - Electrical Level 3

General

Division
Skilled Trades & Technology Division

Course Description
This course meets and/or exceeds Arizona Apprenticeship standards and requirements. Post employment training for commercial electricians. National Center of Construction Education & Research (NCCER) certification is offered and comprehensive electrical curriculum that complies with Department of Labor (DOL) time-based standards for apprenticeship.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Application Level) Prevent ignitions and explosions in hazardous locations. (CSLO 3,4) a. Identify sources of ignitions. b. Select and install explosion-proof equipment and seals.
3. (Application Level) Identify hazardous locations. (CSLO 3,4) a. Identify Class I locations. b. Identify Class II locations. c. Identify Class III locations. d. Locate NEC? requirements for hazardous locations.
4. (Comprehension Level) Size conductors based on expected load and voltage drop. (CSLO 2,3) a. Calculate wire sizes based on resistance. b. Calculate conductor resistances. c. Calculate voltage drops for various applications.
5. (Application Level) Install commercial services. (CSLO 3) a. Install overhead services. b. Install underground services. c. Install switch gear. d. Install multi-family services.
6. (Application Level) Calculate branch circuit loads. (CSLO 2) a. Calculate branch circuit ratings. b. Apply derating factors. c. Calculate branch circuit ampacity.
7. (Analysis Level) Identify the construction and operation of a transformer. (CSLO 2,4) a. Explain the operation of a typical transformer. b. Describe the construction of a typical transformer. c. Make transformer connections for various applications.

Course Requisites

ELC225 - Electrical Level 3 Apprenticeship 3B

General

Division
Skilled Trades & Technology Division

Course Description
This course meets and/or exceeds Arizona Apprenticeship standards and requirements. Post employment training for commercial electricians. National Center of Construction Education & Research (NCCER) certification is offered and comprehensive electrical curriculum that complies with Department of Labor (DOL) time-based standards for apprenticeship.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Application Level) Select magnetic and manual motor starters. a. Select NEMA magnetic contactors/motor starters. b. Select IEC magnetic contactors/motor starters. c. Identify contactor/motor starter accessories. (CSLO 3,4)
3. (Application Level) Install structured cabling systems. a. Install campus backbone subsystems. b. Install equipment/telecom room subsystems. c. Install riser subsystems. d. Install horizontal subsystems. e. Install work area subsystems. (CSLO 3,4)
4. (Comprehension Level) Size motor circuit conductors. a. Calculate conductor ampacities for a typical motor control center. b. Calculate conductor ampacities for other motor applications. (CSLO 2,3)
5. (Application Level) Install and terminate various types of cable. a. Terminate UTP jacks and plugs. b. Terminate RG6 F-type coaxial cable. c. Install fiber-optic cable. d. Ground and test VDV systems. (CSLO 3)
6. (Application Level) Apply the NEC? requirements for transformers and capacitors. a. Identify the NEC? requirements for transformers. b. Identify the NEC? requirements for capacitors. c. Identify the NEC? requirements for resistors and reactors. (CSLO 2)
7. (Analysis Level) Identify circuit breakers and their applications. a. Identify circuit breaker classifications. b. Identify circuit breaker interrupting capacity ratings. (CSLO 2,4)

Course Requisites

ELC226 - Electrical Level 4

General

Division
Skilled Trades & Technology Division

Course Description
This course meets and/or exceeds Arizona Department of Labor Apprenticeship standards and requirements. Post employment training for commercial electricians. National Center of Construction Education & Research (NCCER) certification is offered and comprehensive electrical curriculum that complies with Department of Labor (DOL) time-based standards for apprenticeship.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Application Level) Perform basic load calculations in accordance with National Electrical Code? (NEC?) requirements. (CSLO 3,4) a. Make adjustments in conductor size for various installations. b. Calculate feeder ampacity. c. Apply tap rules. d. Apply demand factors.
3. (Application Level) Make service calculations for residential installations. (CSLO 3,4) a. Calculate the minimum service size for simple electrical installations. b. Make service calculations for single-family dwellings. c. Make service calculations for multi-family dwellings.
4. (Comprehension Level) Describe battery and UPS system types and explain their maintenance requirements. (CSLO 2,3) a. Describe the different types of batteries used. b. Explain the maintenance requirements of batteries and their charging considerations. c. Identify single- and double-conversion UPS systems.
5. (Application Level) Identify instrument transformers. (CSLO 3) a. Identify and describe the use of current transformers. b. Identify and describe the use of potential transformers.
6. (Application Level) Identify and select equipment, components, and wiring methods for various special locations and applications. (CSLO 2) 7. (Analysis Level) Describe termination classes and important considerations when creating terminations. (CSLO 2,4) a. Identify termination classes. b. Identify stress control methods.

Course Requisites

ELC227 - Electrical Level 4 Apprenticeship 4B

General

Division
Skilled Trades & Technology Division

Course Description
This course meets and/or exceeds Arizona Department of Labor Apprenticeship standards and requirements. Post employment training for commercial electricians. National Center of Construction Education & Research (NCCER) certification is offered and comprehensive electrical curriculum that complies with Department of Labor (DOL) time-based standards for apprenticeship.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Establish safe working procedures using OSHA regulations for a job site. (CSLO 3)
2. (Comprehension Level) Differentiate between emergency and standby systems and identify their primary components. a. Identify emergency and standby power system components. b. Explain the principles of transfer switch operation and their configuration/sizing considerations. (CSLO 3,4)
3. (Application Level) Identify and describe semiconductor devices. a. Describe the operation and uses of diodes. b. Describe the operation and uses of transistors. c. Describe the operation and uses of semiconductor switching devices. (CSLO 3,4)
4. (Comprehension Level) Describe electronic fundamentals. a. Explain basic electronic theory. b. Explain semiconductor fundamentals. (CSLO 2,3)
5. (Application Level) Connect a buck-and-boost transformer to a single-phase circuit so that it will first be in the boost mode and then in the buck mode. Record the voltage increase and decrease for each configuration. (CSLO 3)
6. (Application Level) Check and adjust a thermostat, including the heat anticipator setting and indicator adjustment. (CSLO 2)
7. (Analysis Level) Develop an estimate for a given work activity. (CSLO 2,4)

Course Requisites

ELT130 - Computer Upgrades and Operating Systems I

General

Division
Skilled Trades & Technology Division

Course Description
Apply previous A+ and Networking experience to actually upgrade computers and configure operating systems by doing hands-on projects in a lab situated class. May take 2 times for credit.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Demonstrate an understanding of power supply function, including components, safety and appropriate specifications. 2. Demonstrate an understanding of basic computer assembly, including appropriate component identification, and toolkit organization. 3. Review and discuss the computer case components and types. 4. Demonstrate an understanding of motherboard types, components, functions and configurations. 5. Demonstrate an understanding of RAM function and operation, and how to add memory to the motherboard. 6. Demonstrate an in-depth understanding of correct and safe installation of hard drive, floppy and CD-ROM drives, including proper procedures, safety precautions and equipment. 7. Demonstrate an understanding of video card functions, including components, and appropriate specifications. 8. Demonstrate an understanding of DOS, its interface components, basic elements, and the process for installing and configuring DOS. 9. Demonstrate an understanding of Windows 98 desktop, its basic elements, and the process for managing the desktop. 10. Demonstrate an understanding of Windows NT workstation desktop, its basic elements, and the process for managing the desktop. 11. Demonstrate an understanding of Windows XP desktop, its basic elements, and the process for managing the desktop. 12. Demonstrate an understanding of Windows 2000 professional desktop, its basic elements, and the process.

EMS100 - CPR for Professionals

General

Division
Emergency Medical Services Division

Course Description
CPR skills needed to assist victims of all ages, including ventilation with a barrier device, a bag-mask device and oxygen, use of an automated external defibrillator (AED, and relief of foreign-body airway obstruction (FBAO). Intended for participants who provide health care to patients in a wide variety of settings, including in-hospital and out-of-hospital. Designed for certified or non-certified, licensed or non-licensed healthcare professionals. May be taken four times for credit. Recommended: Students should recertify in CPR every two years to maintain certification/license as an EMT, Paramedic, Nurse or MD.

Total Number Of Credits:
0.5

Lecture Credits
0.5

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the need for high quality CPR. 2. (Application Level) Demonstrate the procedures to manage an obstructed airway in conscious patients. 3. (Application Level) Demonstrate the procedures to manage an adult, child or infant in cardiac arrest. 4. (Comprehension Level) Explain the steps to manage patients in respiratory and cardiac arrest. 5. (Application Level) Utilize the proper procedures to perform two-person CPR using American Heart Association guidelines. 6. (Application Level) Utilize the proper procedures to perform one rescuer CPR utilizing the American Heart Association guidelines.

EMS101 - First Care

General

Division
Emergency Medical Services Division

Course Description
A course to train a lay person to provide care for patients suffering sudden illness or injury. Focus is on providing immediate care until EMS personnel arrive. Successful students fulfill OSHA, specific business or industry job requirements. May take 2 times for credit.

Total Number Of Credits:
0.5

Lecture Credits
0.5

MSLOs

Measurable Student Learning Outcomes
1. Define the components of the Emergency Medical Services (EMS) system . 2. Define and describe the role and responsibility of the first care provider. 3. List and safely use medical equipment, basic tools, and supplies used by the first care provider. 4. Perform cardiopulmonary resuscitation (CPR). 5. Identify and perform physical assessment and primary treatment needed to protect the provider and the patient in a variety of emergency situations.

EMS110 - Introduction to Emergency Medical Services

General

Division
Emergency Medical Services Division

Course Description
This course provides an introduction to the roles, responsibilities, and scope of practice of the Emergency Medical Responder (EMR) within the EMS, and emphasizes protecting the well-being of the EMR. Instruction is provided in medical/legal/ethical and cultural issues, communication techniques, anatomy, physiology, and pathophysiology of the human body, procedures for maintaining open airways and oxygenation, and resuscitation. Treatment of basic emergencies are covered in the course (e.g. CPR, bleeding, and shock).

Total Number Of Credits:
2.5

Lecture Credits
2

Lab Credits
2

MSLOs

Measurable Student Learning Outcomes
1. Engage in group discussions that compare EMS systems from at least two different countries or cultural contexts and reflect on how these systems contribute to public health and safety. (CSLO #1)
2. Participate in culturally diverse discussions and scenarios using appropriate medical terminology, reflecting an understanding of how diverse populations may require different communication approaches in emergency settings. (CSLO #1)
3. Learning about the history, structure, and roles of the EMS system, and its importance to public health and safety. (CSLO #2)
4. Applying medical terminology in class discussions and pass an exam that includes medical terminology used by EMTs to communicate patient injuries and describe care given in the emergency setting. (CSLO #2)
5. Demonstrate an understanding of safety principles and legal and ethical behaviors expected of EMS professionals. (CSLO #3)
6. Achieve a passing score on the anatomy and physiology sections on how the body responds to various illnesses and injuries. (CSLO #2)
7. Understanding the role of an EMT in the health care system, and the credentials required for the position. (CSLO #2)
8. Pass the AHA Basic Life Support (BLS) certification exam and demonstrate proficiency in CPR techniques during practical skills testing. (CSLO #3, #4)

EMS123 - Emergency Medical Responder

General

Division
Emergency Medical Services Division

Course Description
The primary focus of the Emergency Medical Responder is to initiate immediate lifesaving care to critical patients who access the emergency medical services. You will possess the basic knowledge and skills necessary to provide lifesaving interventions while awaiting for additional emergency medical services (EMS) response to assist higher level personnel at the scene and during transport. Emergency Medical Responders function as part of a comprehensive EMS response, under medical oversight. Emergency Medical Responders perform basic intervention with minimal equipment. Prerequisite or corequisite: EMS100 or current proof of AHA Basic Life Support or ASHI Professional Rescuer Card.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the components of the Emergency Medical Systems (EMS). 2. (Knowledge Level) Describe the role and responsibilities of the Emergency Medical Responder (EMR). 3. (Application Level) Operate and safely use medical equipment, basic tools, and supplies used by the EMR. 4. (Comprehension Level) Identify and describe the structures of the human body. 5. (Application Level) Perform cardiopulmonary resuscitation. 6. (Comprehension Level) Identify the steps in assessment for head and spinal injuries and in caring for facial, throat, and chest injuries. 7. (Knowledge Level) Define the limitations and actions at a suspected hazardous materials incident. 8. (Evaluation Level) Determine how to ensure a scene is safe for the EMR, team members, and victims at an accident site. 9. (Analysis Level) Determine and explain how to safely access victims trapped in vehicles. 10. (Application Level) Identify and demonstrate physical assessment and treatment needed to protect the provider and patient in a variety of emergency situations. 11. (Analysis Level) Recognize and manage life threats based on assessment findings for an acutely injured patient while waiting for additional emergency medical response. 12. (Analysis Level) Recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings, and manage the emergency while waiting for additional emergency response.

Course Requisites

EMS125 - Emergency Medical Technician

General

Division
Emergency Medical Services Division

Course Description
Coursework follows the current EMT-Basic National Standard Curriculum and Arizona State Department of Health Services EMS Division State statutes. Emphasis is on cognitive, affective, and psychomotor objectives. This is a State-approved program with a medical director and is updated to State standards as required by the ADHS. Prerequisites: EMS110; students must show proof of a 10th-grade reading level as required by ADHS - proof of reading proficiency can be verified by completion of ENG101, SAT Evidence-Based Reading and Writing score of 480 or greater, ACT score of 22 or greater in reading, or a score of 80% or more on the Reading Comprehension section of the HESI exam; students are required to complete a criminal background check, health and drug screening, and show proof of health insurance; student must have vaccinations required by our clinical partners to include TB Skin test within the last 6 months, MMR, Tetanus, and Diphtheria within the last 5 years.

Total Number Of Credits:
9

Lecture Credits
7.5

Lab Credits
4.5

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Recognize the nature and seriousness of the patient's condition or extent of injuries to assess requirements for emergency medical care. (CSLO 3, 4)
2. (Evaluating Level) Administer appropriate emergency medical care based on assessment findings of the patient's condition. (CSLO 3, 4)
3. (Applying Level) Lift, move, position and otherwise handle the patient to minimize discomfort and prevent further injury. (CLSO 2, 3)
4. (Applying Level) Perform safely and effectively the expectations of the job description. (CSLO 3)
Objectives above are as defined by EMT-Basic: National Standard Curriculum Instructor's Course Guide
5. (Creating Level) Students will be able to demonstrate appropriate solutions to ethical situations in the prehospital setting. (CSLO 1, 2, 4)
6. (Applying Level) Students will be able to demonstrate their ability to perform an appropriate primary/initial assessment of the ill or injured patient in the prehospital setting. (CSLO 2, 4)

Course Requisites

EMS125A - Basic EMT Psychomotor Evaluation

General

Division
Emergency Medical Services Division

Course Description
This course is for candidates wishing to complete the psychomotor examination required by the state and the National Registry of EMT's to obtain Certification. The psychomotor examination consists of five skills. Each skill is designed to approximate the out-of-hospital setting by presenting realistic situations that the EMR can expect to see. Each candidate is tested individually in each skill and is responsible for communicating with the patients or bystanders. The candidate should pass or fail based solely on his/her actions and decisions. Prerequisites: BLS Provider CPR Certification from the American Heart Association; EMS110 or Equivalent; and EMS125.

Total Number Of Credits:
0.5

Lab Credits
2

MSLOs

Measurable Student Learning Outcomes
The candidate will demonstrate the ability to correctly perform a thorough physical assessment and "voice treatment" or demonstrate proficiency in treating all conditions and injuries discovered. This station is designed to test your effective and efficient management of a multi-systems trauma scenario.

1. (Applying Level) The candidate will demonstrate the ability to correctly perform a thorough physical assessment. (CSLO 1,2,3,4)
2. (Applying Level) The candidate must demonstrate the ability to rapidly, safely, and effectively administer a defibrillatory shock. (CSLO 1,2,3)
3. (Applying Level) The candidate will demonstrate the proper technique for:
a. application of the extrication collar,
b. log roll onto a longboard,
c. secure the patient to the longboard. (CSLO 1,2,3)
4. (Applying Level) The candidate will demonstrate the ability to adequately ventilate an airway manikin using a bag-valve mask device. (CSLO 1,2,3)
5. (Applying Level) Demonstrate how to properly immobilize an isolated shoulder injury by applying a sling and swathe. (CSLO 1,2,3)
6. (Applying Level) Demonstrate control of bleeding by direct pressure, elevation and pressure point and treat of a patient exhibiting signs and symptoms of hypoperfusion. (CSLO 1,2,3)
7. (Remembering Level) The candidate will demonstrate the ability to correctly state the preconditions to measure the appropriate size of and insert an oropharyngeal airway. (CSLO 1,2,3)
8. (Remembering Level) The candidate will demonstrate the ability to correctly state the preconditions to measure the appropriate size of and insert the nasopharyngeal airway. (CSLO 1,2,3)
9. (Applying Level) The candidate will demonstrate the ability to correctly suction an oropharynx. (CSLO 1,2,3)

EMS190 - Pediatric Advanced Life Support

General

Division
Emergency Medical Services Division

Course Description
Pediatric Advanced Life Support (PALS) is a classroom, video-based, instructor-led course that uses a series of simulated pediatric emergencies to reinforce the important concepts of a systematic approach to pediatric assessment, basic life support, PALS treatment algorithms, effective resuscitation and team dynamics. The goal of the PALS course is to improve the quality of care provided to seriously ill or injured children, resulting in improved outcomes. Prerequisite: Advanced Life Support Provider (ALS)-AEMT, Paramedic, Nurse, or MD.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply pediatric assessment triangle in rapid assessment of ill and injured patients. (CSLO 2, 4)
2. (Knowledge Level) Describe components of Emergency Medical Services for Children (EMSC) and its role in injury prevention. (CSLO 1, 2)
3. (Application Level) Apply airway adjunct devices noting the percentage of oxygen delivered to patient. (CSLO 2)
4. (Application Level) Using basic and advanced techniques according to level of certification, demonstrate the removal of foreign body airway obstruction. (CSLO 2, 4)
5. (Application Level) Demonstrate techniques of intravenous (IV) and intraosseous access and IV monitoring to standard level of certification. (CSLO 2)
6. (Synthesis Level) Perform and document pediatric medical emergencies to include application of automated defibrillation for specific age groups. (CSLO 2, 4)
7. (Application Level) Apply the principles of the basic pediatric toxidromes. (CSLO 2)
8. (Synthesis Level) Perform and document care of pediatric trauma patient including identification of mechanism of injury, triage/transport decision, and spinal immobilization. (CSLO 2, 4)
9. (Knowledge Level) Recite approaches to managing and documenting a submersion event. (CSLO 2)
10. (Knowledge Level) Identify the characteristics of children with special needs. (CSLO 1, 2)
11. (Application Level) Initiate care, transport, and complete documentation for children who require specialized pediatric equipment and/or technological support. (CSLO 2, 4)
12. (Analysis Level) Identify signs and apply interview approach and care techniques in the instance of suspected child abuse and neglect, and explain resources, reporting and documentation of abuse. (CSLO 1, 3, 4)
13. (Knowledge Level) Identify the components of medical-legal considerations affecting the care of children including do-not-resuscitate orders, advanced directives, and consent issues. (CSLO 3)

Course Requisites

EMS190A - Pediatric Advanced Life Support Refresher

General

Division
Emergency Medical Services Division

Course Description
The Pediatric Advanced Life Support (PALS) recertification course is a classroom, video-based, instructor-led course that uses a series of simulated pediatric emergencies to reinforce the important concepts of a systematic approach to pediatric assessment, basic life support, PALS treatment algorithms, effective resuscitation and team dynamics. The goal of the PALS recertification course is to maintain certification which will improve the quality of care provided to seriously ill or injured children, resulting in improved outcomes. Prerequisite: Advanced Life Support Provider (ALS)-AEMT, Paramedic, Nurse, or MD & Previous PALS certification that has not expired by more than 1 month.

Total Number Of Credits:
0.5

Lab Credits
2

MSLOs

Measurable Student Learning Outcomes
1. Identify the scientific basis for PALS treatment recommendations based on the current science guidelines. CSLO #2

2. Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use. CSLO #3

3. Apply the BLS, Primary, and Secondary Assessment sequence for a systematic approach to the evaluation of pediatric emergencies. CSLO #3

4. Model effective communication as a member of a high-performance team. CSLO #1

5. Recognize the impact of team dynamics on overall team performance. CSLO #4

6. Recognize and perform early management of respiratory distress and failure in a pediatric patient. CSLO #4

7. Demonstrate adjunct techniques to support and assist with respiratory stability of a pediatric patient in respiratory distress or failure. CSLO #3

8. Recognize and perform early interventions for the treatment of shock. CSLO #4

9. Establish rapid vascular access to administer fluids and medications.

10. Differentiate between unstable and stable patients with arrhythmias. CSLO #4

11. Identify rhythms for which electrical therapy is indicated. CSLO #2

12. Demonstrate effective and safe use of manual defibrillator. CSLO #3

13. Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post-cardiac arrest care.

14. Demonstrate team member behaviors during the management of PALS core cases. CSLO #3

15. Participate in culturally diverse role-playing scenarios using American Heart Association materials to help the learner understand how diverse populations may require different communication approaches in emergency settings. CSLO #1

EMS191 - Neonatal Resuscitation Program

General

Division
Emergency Medical Services Division

Course Description
Didactic and psychomotor skill education and training in techniques of newborn resuscitation. Discussion in causes, prevention and management of mild to severe neonatal asphyxia are carefully explained. Prior to course completion, students must present the instructor with a Neonatal Resuscitation course completion certificate from the American Academy of Pediatrics. May take 2 times for credit. Prerequisite: Open to certified paramedics, registered nurses, respiratory therapists and physicians.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply Bag-Valve-Mask and ventilate a simulated patient. (CSLO 3) 2. (Application Level) Perform endotracheal intubation. (CSLO 3) 3. (Evaluation Level) Interpret ECG rhythms for newborns and treat any dysrhythmias. (CSLO 2,4) 4. (Synthesis Level) Treat neonatal life-threatening problems with selected medications carried in the Advanced Life Support personnel's drug box. (CSLO 2,4) 5. (Synthesis Level) Perform all the skills in the basic life support professional rescuer for newborns. (CSLO 3) 6. (Application Level) Identify and use the Inverted Pyramid of Neonatal Resuscitation to treat patients. (CSLO 2,3,4)

Course Requisites

EMS196 - EMT Internship

General

Division
Emergency Medical Services Division

Course Description
This course is an internship course designed for Central Arizona College (CAC) students who are not employed by a fire department or ambulance service and wish to advance from EMT to the Associate Degree Paramedic Program. It is an extension of EMS125 that provides a learning experience for applying the knowledge gained in the classroom. Prerequisites: Current Arizona EMT certification or EMS125 and EMS125A.

Total Number Of Credits:
3

Internship Credits
3

MSLOs

Measurable Student Learning Outcomes
Upon successful completion of this course, students will be able to:

To prepare Emergency Medical Technicians to understand the competencies needed to be entry-level Paramedics in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains with or without exit points at the Advanced Emergency Medical Technician and/or Emergency Medical Technician, and/or Emergency Medical Responder levels.

Exhibit proficiency in technical skills required of emergency medical care and transportation of critical and emergent patients;

Demonstrate professional attitudes and ethical behaviors consistent with the expectations of the profession, area employers, and the local medical community;

Demonstrate knowledge in areas outlined in the National Registry of Emergency Medical Technician cognitive and psychomotor examinations for an entry level EMT.

EMS200 - Basic EMT Refresher

General

Division
Emergency Medical Services Division

Course Description
The EMT Refresher course incorporates the standards as adopted by the State of Arizona, DHS-BEMS Division and the US Department of Transportation's National Highway Traffic Safety Administration 1994 and 1996 revisions. Prepares the student for State recertification and NREMT reregistration. May be taken twice for credit. Prerequisites: Current Basic EMT and CPR certifications.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the use of physician medical direction to select appropriate care facilities for patients. 2. (Evaluation Level) Assess scene safety and the need for additional resources. 3. (Evaluation Level) Assess mechanism of injury and/or nature of illness. 4. (Application Level) Collect a history, compile and provide initial patient assessment and care based on findings. 5. (Synthesis Level) Demonstrate a rapid trauma assessment and plan care based on the assessment of a medical and trauma patient. 6. (Application) Utilize a basic airway adjunct to ventilate a patient with a bag valve mask. 7. (Comprehend) Understand the importance of CO2 monitoring.

Course Requisites

EMS201 - Basic EMT Renewal Challenge

General

Division
Emergency Medical Services Division

Course Description
Designed to support the Arizona Department of Health Services (A-DHS) Bureau of Emergency Medical Services (B-EMS) recertification requirements for Emergency Medical Technician Basic (EMTB) according to the U.S. Department of Transportation (DOT) EMT-Basic National Curriculum and the Arizona EMT Basic Refresher Curriculum Guidelines. Does not meet National Registry of EMT (NREMT) refresher requirements for EMTs. Prerequisite: Basic EMT and CPR certifications

Total Number Of Credits:
0.5

Lecture Credits
0.5

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate methods of body substance isolation (BSI) practices in accordance with the Occupational Health and Safety Administration (OSHA) standards, with specific attention to safety issues; identifying equipment concerns and personal protective equipment and clothing. 2. (Evaluation Level) Evaluate and perform initial and ongoing patient assessment techniques, compile detailed patient history for conscious and unresponsive patients. 3. (Evaluation Level) Evaluate and successfully perform airway management skills on adult and pediatric victims. 4. (Evaluation Level) Compare and contrast indications, contraindications, and side effects for nitroglycerin, subcutaneous epinephrine, small volume nebulizers (SVN), metered dose inhalers (MDI), activated charcoal, aspirin, and glucose. 5. (Analysis Level) Identify, examine and describe the types, operation, and drugs used with the analgesic pumps, and EMT basic interventions and the steps in monitoring intravenous (IV) lines. 6. (Application Level) Demonstrate complete basic life support skills testing for adult, pediatric, and infant victims by performing five (5) required and one (1) random practical skill based on the National Registry of EMT (NREMT) requirements.

Course Requisites

EMS208 - Intermediate EMT

General

Division
Emergency Medical Services Division

Course Description
Meets the U.S. Department of Transportation and AZ Department of Health Services Office of Emergency Medical Services requirements for EMT-Advanced. Provides advanced knowledge and skills related to hypoperfusion states, respiratory arrest or insufficiency, seizure states, cardiovascular emergencies, unconscious states of undetermined etiology, head injuries with altered levels of consciousness and chest trauma. Current EMT certification for one year required. Comprehensive written, oral and practical evaluations on basic EMT skills. Prerequisites: Valid EMT certification; HCP CPR; DHS Requirements.

Total Number Of Credits:
11

Lecture Credits
7

Lab Credits
12

Other Credit Information
285 Hours total

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Describe the scope of the duties of the advanced emergency medical technician. 2. (Analysis Level) Identify and relate the signs and symptoms of the patient's presenting problem to the physician and/or preceptor in a comprehensive and orderly fashion. 3. (Synthesis Level) Prepare and discuss the report regarding treatment and the response of patients to the physician and/or preceptor. 4. (Synthesis Level) Perform biotelemetry and telephone communications with medical direction. 5. (Application Level) Apply core knowledge to processes of critical thinking to provide a differential diagnosis and treatment of illnesses and injuries. 6. (Application Level) Demonstrate knowledge and use of protocol, standards and guidelines related to patient care. 7. (Application Level) Demonstrate effective communications skills with team members, patients, others at a scene and with hospital personnel. 8. (Analysis Level) Recognize and apply the procedures of identifying and treating shock. 9. (Comprehension Level) Identify medications administered and explain possible side effects or complications. 10. (Synthesis Level) Identify, treat, and document infiltration and discontinuing intravenous (IV) lines. 11. (Synthesis Level) Perform the functions of a team leader in a variety of pre-hospital emergency situations. 12. (Application Level) Obtain and document blood samples taken from patients requiring the procedure. 13. (Analysis Level) Identify specific arrhythmias and relate patient implications and anticipated treatment modalities. 14. (Synthesis Level) Identify and treat in any age group the following emergencies: a. respiratory and cardiovascular b. central nervous system c. soft tissue injuries and musculoskeletal injuries d. medical, obstetric and gynecologic e. behavioral 15. (Synthesis Level) Identify, access, and compile a resource list of community agencies.

Course Requisites

EMS236 - Pharmacology in an Emergency Setting

General

Division
Emergency Medical Services Division

Course Description
Designed for the Emergency Medical Technician dealing with the administration of emergency medications in the field as outlined in current paramedic legislation. In depth coverage of medications enumerated in the algorithms of patient care as defined by the American Heart Association (AHA), Advanced Cardiac Life Support (ACLS). Coverage of medications that interact or interfere with the AHA ACLS algorithms. Prerequisite: EMS125.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the State and Federal regulations applied to the medications given in a clinical and prehospital setting. 2. (Knowledge Level) Identify the basic forms and routes of administrations for medications. 3. (Application Level) Relate the function of the body systems in normal perfusion, fluid and electrolyte balance, and acid-base balance. 4. (Analysis Level) Examine and explain the pathophysiology of shock and its effect on perfusion and pharmacokinetics. 5. (Knowledge Level) List medications by generic and trade names and the indications, contradictions, side-effects, and mechanism of action of drugs included in Arizona Department of Health Services approved paramedic drug box. 6. (Knowledge Level) List the medications used to treat respiratory, metabolic, endocrine, neurologic, obstetrical, gynecologic, cardiovascular, and renal disorders. 7. (Application Level) Identify and report the medications used in the treatment of a patient with a cardiac emergency according to the most current American Heart Association (AHA) Advanced Cardiac Life Support (ACLS) guidelines. 8. (Analysis Level) Identify and examine the signs and symptoms of illicit drug use and abuse. 9. (Analysis Level) Identify and outline the medications used in the treatment of a patient with a drug overdose. 10. (Application Level) Calculate drug dosages and intravenous infusion rates for any given medication.

Course Requisites

EMS240 - Advanced Cardiac Life Support

General

Division
Emergency Medical Services Division

Course Description
Didactic and psychomotor skills training and validation in techniques of Advanced Cardiac Life Support (ACLS) according to the Current Standards and Guidelines of the American Heart Association (AHA). Includes endotracheal intubation, ECG arrhythmia recognition, synchronized, unsynchronized and automated defibrillation, cardiovascular pharmacology, and electronic pacemaker. Designed for all health-care related professionals, clinical, and prehospital. Course may be repeated for recertification. Prerequisites: Current American Red Cross or American Heart Association (AHA) Basic Life Support Healthcare Provider validation, or National Safety Council Green Cross Professional Rescuer, or division chair consent.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the concepts of the Chain-of-Survival according to American Heart Association Standards and Guidelines. (CSLO 2)
2. (Knowledge Level) List the etiology of sudden cardiac death. (CSLO 2)
3. (Application Level) Demonstrate one- and two-person Cardiopulmonary Resuscitation (CPR) techniques in basic life support for the adult and child, obstructed airway maneuvers for conscious and unconscious adult, child and infant, and CPR for infant victims. (CSLO 2, 4)
4. (Application Level) Demonstrate advanced life support skills to include endotracheal intubation. (CSLO 2, 4)
5. (Application Level) Demonstrate at least 90% of the steps in the universal algorithm for adult emergency cardiac care. (CSLO 2, 4)
6. (Application Level) Demonstrate at least 90% of the steps in the algorithm for early management of patients with chest pain, signs, and symptoms of myocardial infarction. (CSLO 2)
7. (Evaluation Level) Identify types of dysrhythmias and predict the mechanical pharmacologic, and electrical interventions. (CSLO 2, 4)
8. (Analysis Level) Identify indicators of, techniques used, and complications related to peripheral and central venous access. (CSLO 2, 4)
9. (Synthesis Level) Choose the appropriate use and dose considering the indications, contraindications, actions, side effects, for the following drugs: oxygen, morphine, nitroglycerin, atropine, isoproterenol, lidocaine, procainamide, beryllium, calcium chloride, furosemide, adenosine, verapamil, magnesium sulfate, propranolol, dopamine, dobutamine, and nitroprusside. (CSLO 2)
10. (Application Level) Demonstrate transcutaneous pacing, defibrillation, synchronized cardioversion, and automated defibrillation. (CSLO 2, 4)
11. (Analysis Level) Illustrate special resuscitation situations to include stroke, traumatic cardiac arrest, shock, congestive heart failure, near-drowning, and hypothermia. (CSLO 2, 4)
12. (Application Level) Articulate the medical-legal aspects of advanced cardiac life support to include advanced directives, do-not-resuscitate orders, discontinuation of life support measures, and concepts of skills validations. (CSLO 3)

Course Requisites

EMS241 - Adv Cardiac Life Supp Refresh

General

Division
Emergency Medical Services Division

Course Description
Designed for all levels of emergency medical technicians, nurses, physicians, and physicians' assistants to assure maintenance of didactic and psychomotor skill training in techniques of Advanced Cardiac Life Support (ACLS) according to the 2005 Standards and Guidelines of the American Heart Association. Course includes endotracheal intubation, ECG arrhythmia recognition, synchronized and unsynchronized and automated defibrillation, cardiovascular pharmacology and electric pacemaker. Prerequisites: Current CPR provider level and current AHA ACLS provider level.

Total Number Of Credits:
0.5

Lecture Credits
0.5

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the concepts of the Chain of Survival according to American Heart Association Standards and Guidelines. 2. (Comprehension Level) List and describe the causes of sudden cardiac death. 3. (Application Level) Demonstrate one- and two-person Cardiopulmonary Resuscitation (CPR) techniques in the basic life support for adult and child, obstructed airway maneuvers for conscious and unconscious for adult, child and infant, and CPR for infant victims. 4. (Application Level) Correctly apply the face mask, nasal cannula, non-rebreathing mask, and bag-valve-mask devices, insert oral and nasal airway noting the percentage of oxygen delivered for each adjunct. 5. (Synthesis Level) Perform nasal and tracheal suction techniques and endotracheal intubation. 6. (Evaluation Level) Interpret the basic ECG arrhythmias. 7. (Analysis Level) Identify and relate at least 85% of the steps in the universal algorithm for adult emergency cardiac care, early management of patients with chest pain, signs, and symptoms of myocardial infarction. 8. (Analysis Level) Identify and differentiate the indications, contraindications, actions, side effects, uses and dosages of emergency cardiac drugs. 9. (Analysis Level) Examine and explain indications, techniques and complications for peripheral and central venous access. 10. (Analysis Level) Identify and illustrate transcutaneous pacing, defibrillation, synchronized and unsynchronized cardioversion. 11. (Analysis Level) Compare and describe special resuscitation situations to include stroke, traumatic cardiac arrest, shock, congestive heart failure, near drowning, and hypothermia.

Course Requisites

EMS242 - Adv Life Support Refresher

General

Division
Emergency Medical Services Division

Course Description
Advanced life support, including initial, focused, and continuing processes of assessment; identification and treatment of hypoperfusion states; field interventions; and drug analysis within the scope of the intermediate and advanced EMT and paramedic. Designed to meet requirements for EMT-Intermediate and EMT-Paramedic under guidelines of the US Department of Transportation (US DOT), National Registry of EMTs (NREMT) as recognized by the Arizona Department of Health Services (A-DHS) Bureau of Emergency Services (B-EMS) for recertification. May take 2 times for credit. Prerequisite: Paramedic or IEMT Certification.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the scope of the duties of the intermediate and advanced emergency medical technician and paramedic. 2. (Analysis Level) Examine signs and symptoms of patients with a communicable disease and outline the appropriate body substance isolation procedures. 3. (Analysis Level) Analyze and explain the initial, focused, and continuing processes of assessment, medical history, vital signs, communications, and documentation. 4. (Application Level) Apply the procedures of identifying and treating hypoperfusion states including intravenous (IV), intraosseous (IO), and central line fluid therapy. 5. (Analysis Level) Examine and explain the actions, indications, contraindications, precautions, side effects, and dosages of the drugs included in the current Arizona Department of Health Services, Bureau of Emergency Services approved prehospital drug box. 6. (Evaluation Level) Given a patient scenario while preserving personal safety and well being, select and justify the appropriate field interventions for the following scenarios: a. Body system b. Obstetrical emergencies c. Neonatal and pediatric emergencies d. Behavioral emergencies.

Course Requisites

EMS245 - Prehospital Trauma Mgt/PHTLS

General

Division
Emergency Medical Services Division

Course Description
Designed to instruct pre-hospital care personnel in the critical skills necessary to manage the trauma victim and the emergency scene through the Incident Command System (ICS). Enhances basic emergency medical technology (EMT) skills by focusing on emergency care interventions including victim assessment, initial treatment, resuscitative techniques, victim stabilization, transportation of the victim to an emergency care facility and documentation. Prerequisite: EMS125 or Basic EMT.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine and explain kinematics of trauma relative to vehicular mechanisms of injury and other types of trauma. (CSLO 2)
2. (Synthesis Level) Identify and model emergency medical scene management skills to include size-up, multi-victim situations, hazardous materials and integration of local Emergency Medical Services (EMS) standard operating procedures and/or the Incident Command System (ICS) to selected victim scenarios. (CSLO 2, 4)
3. (Synthesis Level) Determine appropriate care management of trauma victim, including initial assessment, vital signs, rapid trauma assessment, stabilization, and select emergency transportation criteria, communication and operation related to trauma level and documentation of care. (CSLO 2, 4)
4. (Analysis Level) Differentiate and illustrate trauma victim assessment, airway management, control of hemorrhage/hypovolemia, cervical spine immobilization and splinting according to local EMS protocols, the DOT Basic EMT curriculum and the ICS. (CSLO 2, 4)
5. (Analysis Level) Relate the physiology of shock and its relationship to management of the trauma victim. (CSLO 2)
6. (Analysis Level) Identify, propose and illustrate care management for the multi-system trauma victim to include head, spinal, chest, abdominal, pelvic, extremity, and soft tissue injuries. (CSLO 2, 4)
7. (Analysis Level) Identify the classification and depths of burn injuries and differentiate care management of the burn victim. (CSLO 2, 4)
8. (Analysis Level) Identify and distinguish care management of the pediatric, pregnant, geriatric, diabetic, altered level of consciousness (ALOC), and crisis trauma victims. (CSLO 2, 4)
9. (Analysis Level) Identify and contrast ICS emergency scene management, extrication, assessment, care management, transportation, and documentation of the trauma victim in selected EMS scenarios. (CSLO 2, 3, 4)

Course Requisites

EMS255 - Instructional Strategies for EMT Instructors

General

Division
Emergency Medical Services Division

Course Description
Participative course to prepare all levels of EMT and/or nurses as instructors in EMT programs; includes writing objectives, preparing class and course schedules, reviewing AZDHS Rules and Regulations. Prerequisite: AZ-DHS EMT, IEMT, CEP Certification or RN with two years of experience in ER nursing.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) List the components required in any level Emergency Medical Technology (EMT) course according to standards set by the United States Department of Transportation (US DOT) and the Arizona Department of Health Services office of Emergency Medical Services (A-DHS O-EMS) and the National Registry of Emergency Medical Technician (NREMT). 2. (Comprehension Level) Define and describe the concepts of adult learning as they relate to students in EMT courses. 3. (Synthesis Level) Apply teaching principles to the design of lecture objectives, course syllabi, and lesson plans. 4. (Synthesis Level) Design a lecture outline to include resource material. 5. (Application Level) Demonstrate proper use of all EMT equipment. 6. (Synthesis Level) Design teaching methods for EMT skills to include airway management, administrating oxygen, immobilization techniques, and application of pneumatic antishock garment (PASG). 7. (Synthesis Level) Design a matrix or rubric for student evaluation. 8. (Synthesis Level) Generate the documentation required for the American Heart Association (AHA), the A-DHS O-EMS, and NREMT.

Course Requisites

EMS272A - Advanced Emergency Medical Technology/Paramedic, Module I

General

Division
Emergency Medical Services Division

Course Description
The first advanced course in the series for Emergency Medical Technicians explores the acute critical differences in physiology, pathophysiology and clinical symptoms as they pertain to pre-hospital emergency care. Course emphasizes developing diagnostic and advanced emergency treatment skills necessary to care for the acutely ill and seriously injured. Students are required to have a criminal background check, health and drug screening, and health insurance. Prerequisite: Certified EMT with one year of experience or approval of the program director; FSC129 or proof of attendance in 8 hours of training that meets OSHA First responder operations level training, 29 CFR 1910.120(q)(6)(ii); current proof of American Heart Association Basic Life Support Certification, entrance assessment; ability to obtain a DPS background clearance card for clinical sites; vaccination record: TB Skin Test within last 6 months, MMR, Tetanus and Diphtheria within the last 5 years; instructor consent. Corequisite: BIO160 or BIO201 and BIO202.

Total Number Of Credits:
13.5

Lecture Credits
13.5

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) List and describe the roles and responsibilities of the advanced Emergency Medical Technician (paramedic). (CSLO 2)
2. (Comprehension Level) List and explain the actions, indications, contraindications, precautions, side effects and dosages of the drugs included in the current Arizona Department of Health Services approved paramedic drug box. (CSLO 2)
3. (Application Level) Demonstrate how to administer parenteral medications. (CSLO 3)
4. (Application Level) Identify and demonstrate appropriate treatment pertaining to recording infiltration and discontinuing intravenous (IV) lines. (CSLO 3)
5. (Application Level) Demonstrate how to obtain and record blood samples on patients. (CSLO 3)
6. (Comprehension Level) Explain how to classify and discuss the paramedic's role in patient care situations as defined by the US Department of Transportation. (CSLO 2)
7. (Comprehension Level) Explain the components of the Well-Being of a Paramedic. (CSLO 2)
8. (Comprehension Level) Identify and explain the objectives under injury prevention for the patient and the caregiver. (CSLO 1)
9. (Comprehension Level) Identify and describe common components of medico-legal issues involving the paramedic and the Standard of Care. (CSLO 1)
10. (Comprehension Level) Identify and explain ethical dilemmas that may occur related to paramedic care of patients. (CSLO 1, 3)
11. (Analysis Level) Analyze the human systems including anatomy and physiology as they relate to paramedicine. (CSLO 2, 4)
12. (Comprehension Level) Explain the general principles of pathophysiology. (CSLO 2)
13. (Analysis Level) Outline and explain the objectives in therapeutic communications with patients. (CSLO 2, 4)
14. (Comprehension Level) Explain the mechanics of respiration. (CSLO 2)
15. (Evaluation Level) Critique and describe the elements of airway management and ventilation in patients. (CSLO 2, 4)
16. (Application Level) Intubate patients and perform successful ventilation, both advanced and basic forms. (CSLO 3)
17. (Comprehension Level) Explain how to treat all types of respiratory compromised patients through effective treatment modalities authorized by the Department of Health Services (DHS) and the National Registry of EMTs-Basic and Paramedic. (CSLO 2, 4)

Course Requisites

EMS272B - Advanced Emergency Medical Technology/Paramedic, Module II

General

Division
Emergency Medical Services Division

Course Description
The second advanced course in the series for Emergency Medical Technicians explores acute critical differences in physiology, pathophysiology, and clinical symptoms as they pertain to pre-hospital emergency care. Course emphasizes developing diagnostic and advanced emergency treatment skills necessary to care for the acutely ill and seriously injured. Topics include: drawing and recording blood, intubation, parenteral medications, dosage and side effects, injury prevention, standards of care, and effective communication techniques. Prerequisite: EMS272A. Corequisite: EMS272D.

Total Number Of Credits:
8.5

Lecture Credits
8

Lab Credits
2

Other Credit Information
Total 150 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Describe and outline the roles and responsibilities of the Advanced Emergency Medical Technician (paramedic). (CSLO 2)
2. (Analysis Level) Analyze the actions, indications, contraindications, precautions, side effects, and dosages of the drugs included in the current Arizona Department of Health Services approved paramedic drug box. (CSLO 2, 4)
3. (Application Level) Administer parenteral medications. (CSLO 3)
4. (Synthesis Level) Identify, treat, and record infiltration and discontinuing intravenous (IV) lines. Provide rationale to patient and medical personnel to support treatment. (CSLO 3)
5. (Application Level) Draw blood samples from a variety of patients and record them per medical record standards. (CSLO 3)
6. (Analysis Level) Discuss the paramedic's roles in a patient care situation as defined by the US Department of Transportation. (CSLO 2)
7. (Evaluation Level) Compare and contrast the components of the well-being of a paramedic and how to maintain a healthy, balanced life. (CSLO 2, 7)
8. (Analysis Level) Outline best practices for injury prevention of both the patient and the caregiver, based on case studies. (CSLO 1)
9. (Evaluation Level) Distinguish and interpret the components of medico-legal issues involving the paramedic and the Standard of Care. (CSLO 1, 4)
10. (Analysis Level) Identify ethical dilemmas that may occur related to paramedic care of patient(s) and examine and relate techniques for managing those issues. (CSLO 1, 3, 4)
11. (Analysis Level) Analyze the features of the human system, including anatomy and physiology, related to paramedicine. (CSLO 2)
12. (Evaluation Level) Compare and contrast the general principles of pathophysiology to determine care required. (CSLO 2, 4)
13. (Synthesis Level) Outline and discuss the objectives in therapeutic communications with patients. Create and practice scripts for common scenarios. (CSLO 2, 3)
14. (Evaluation Level) Define and discuss the mechanics of respiration and demonstrate knowledge by applying those skills to assess a patient's respiration levels. (CSLO 2, 4)
15. (Evaluation Level) Critique and describe the elements of airway management and ventilation in all classes of humans. (CSLO 2, 4)
16. (Synthesis Level) Successfully intubate all classes of humans, and perform successful ventilation, both advanced and basic forms. (CSLO 3)
17. (Synthesis Level) Define and treat all respiratory compromise through effective treatment modalities authorized by the Department of Health Services (DHS) and the National Registry of EMTs-Basic and Paramedic. (CSLO 2, 4)

Course Requisites

EMS272C - Advanced Emergency Medical Technology/Paramedic, Module III

General

Division
Emergency Medical Services Division

Course Description
Provides the emergency medical technician with advanced knowledge about the acute critical differences in physiology, pathophysiology, and clinical symptoms, as they pertain to pre-hospital emergency care. Emphasis is on developing diagnostic and advanced emergency treatment skills necessary to care for the acutely ill and seriously injured. Prerequisite: EMS272B. Corequisite: EMS272E.

Total Number Of Credits:
8.5

Lecture Credits
8

Lab Credits
2

Other Credit Information
Total 150 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Operate within the prescribed roles and responsibilities of the advanced emergency medical technician (paramedic). (CSLO 1,2,3)
2. (Analysis Level) Analyze the actions, indications, contraindications, precautions, side effects, and dosages of the drugs included in the current Arizona Department of Health Services approved paramedic drug box. (CSLO 1,2)
3. (Analysis Level) Administer parenteral medications and determine effects of mixing various medications. (CSLO 1,2,3,4)
4. (Synthesis Level) Treat patients and record infiltration and discontinuing intravenous (IV) lines as well as identify possible complications resulting from infiltrating incorrectly or discontinuing IV lines prematurely. (CSLO 1,2,3,4)
5. (Synthesis Level) Draw and record blood samples on any patient requiring the procedure. (CSLO 1,2,3)
6. (Analysis Level) Identify and examine the paramedic's role in a variety of patient care situations as defined by the U.S. Department of Transportation. (CSLO 1,2)
7. (Evaluation Level) Compare and contrast the components of the Well-Being of a Paramedic. (CSLO 1,2,4)
8. (Comprehension Level) Define the objectives listed under injury prevention for the patient and the caregiver for a variety of cases. (CSLO 1,2)
9. (Evaluation Level) Distinguish and interpret the components of medico-legal issues involving the paramedic and the Standard of Care. (CSLO 1,2,4)
10. (Comprehension Level) Identify ethical dilemmas that may occur related to paramedic care of patient(s). (CSLO 1,2,3)
11. (Analysis Level) Analyze the importance of human systems to include anatomy and physiology as they relate to paramedicine. (CSLO 1,2,4)
12. (Evaluation Level) Compare and contrast the general and advanced principles of pathophysiology. (CSLO 1,2,4)
13. (Synthesis Level) Create scripts to discuss immediate care needed, therapeutic objectives available, and typical follow-up medical care with all types of patients and their families. (CSLO 1,2,3)
14. (Evaluation Level) Assess, define, and discuss the mechanics of respiration. (CSLO 1,2,4)
15. (Evaluation Level) Critique and describe the elements of airway management and ventilation in all classes of humans. (CSLO 1,2,4)
16. (Synthesis Level) Successfully intubate all classes of humans, and perform successful ventilation, both advanced and basic forms. (CSLO 1,2,3)
17. (Application Level) Treat all respiratory compromise through effective treatment modalities authorized by Dept. of Health Services (DHS) and National Registry of EMTs-Basic and Paramedic. (CSLO 1,2,4)

Course Requisites

EMS272D - Advanced Emergency Medical Technology/Paramedic, Practicum I

General

Division
Emergency Medical Services Division

Course Description
Hands-on application of EMS skills and knowledge in a supervised, pre-hospital emergency setting, with an emphasis on demonstrating diagnostic and advanced emergency treatment skills to care for acutely ill and seriously injured patients. Competences covered include further development of diagnostic and advanced emergency treatment skills, professional communications with patients, their families, hospital and fire personnel, and improved speed and accuracy of delivery of lifesaving patient analysis and intervention care procedures.. Prerequisite: EMS272A, Corequisite: EMS272B.

Total Number Of Credits:
6

Practicum Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the roles and responsibilities of the advanced emergency medical technician (paramedic) in relation to hospital personnel and fire science personnel.
2. (Synthesis Level) Following analysis, develop a treatment plan under the direction of professionals in the field, including determining the actions, indications, contraindications, precautions, side effects, and dosages of various drugs.
3. (Analysis Level) Administer parenteral medications, analyze results and side effects, and identify various treatment plans.
4. (Analysis Level) Identify, treat and record infiltration and discontinuing intravenous (IV) lines and identify various ways to improve.
5. (Analysis Level) Obtain, record, and analyze blood samples from patients.
6. (Synthesis Level) Based on practicum experiences and case studies, identify and discuss the paramedic's role in a patient care situation per the U.S. Department of Transportation's guidelines.
7. (Synthesis Level) Create a self-care plan to achieve a high level of competency, alertness, and a balanced lifestyle.
8. (Synthesis Level) Collaborate with the patient and caregiver to establish injury prevention goals and strategies.
9. (Evaluation Level) Distinguish and interpret the components of medico-legal issues involving the paramedic and the Standard of Care.
10. (Evaluation Level) Justify a patient care action based on an informed, research-based decision, including common ethical dilemmas faced by paramedics.
11. (Analysis Level) Diagnose a patient by analyzing the human system.
12. (Analysis Level) Analyze the general principles of pathophysiology based on case studies.
13. (Synthesis Level) Create and implement an effective therapeutic communication plan with a variety of patients.
14. (Evaluation Level) Assess, define and discuss the mechanics of respiration and determine necessary and appropriate care for a variety of patients.
15. (Evaluation Level) Demonstrate and critique the elements of airway management and ventilation in all classes of humans.
16. (Application Level) Intubate all classes of humans, including advanced ventilation techniques. 17. (Synthesis Level) Effectively treat patients with all types of compromised respiratory systems as recommended by the Department of Health Services (DHS) and the National Registry of EMTs-Basic and Paramedic.
18. (Synthesis Level) Consistently demonstrate safe, effective, responsible, collaborative, professional behaviors.

Course Requisites

EMS272E - Advanced Emergency Medical Technology/Paramedic, Practicum II

General

Division
Emergency Medical Services Division

Course Description
Second semester practicum providing continued hands-on application of EMS skills and knowledge within a supervised, pre-hospital emergency setting, including patients with diverse physiology, pathophysiology and clinical symptoms. Emphasis is on demonstrating diagnostic and advanced emergency treatment skills to care for acutely ill and seriously injured patients. Prerequisite: EMS272B. Corequisite: EMS272C.

Total Number Of Credits:
6

Lab Credits
18

Practicum Credits
6

Other Credit Information
270 Hours total

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze the roles and responsibilities of the advanced emergency medical technician (paramedic) in relation to hospital personnel and fire science personnel. (CSLO 1,2)
2. (Synthesis Level) Develop a treatment plan and implement that plan under the direction of professionals in the field, including determining the actions, indications, contraindications, precautions, side effects, and dosages of various drugs. (CSLO 2,4)
3. (Synthesis Level) Administer parenteral medications, analyze results and side effects, and determine a treatment plan. (CSLO 2,3,4)
4. (Evaluation Level) Identify, treat and record infiltration and discontinuing intravenous (IV) lines and identify ways to improve accuracy, timing, and processes. (CSLO 2,3,4)
5. (Analysis Level) Obtain, record, and analyze blood samples from patients. (CSLO 2,3,4)
6. (Synthesis Level) Based on practicum experiences and case studies, identify and discuss the paramedic's role in a patient care situation per the U.S. Department of Transportation's guidelines. (CSLO 2)
7. (Synthesis Level) Create and implement a self-care plan to achieve a high level of competency, alertness, and a balanced lifestyle. (CSLO 2,3,4)
8. (Synthesis Level) Collaborate with the patient and caregiver to establish injury prevention goals and strategies. (CSLO 1,3,4)
9. (Evaluation Level) Distinguish and interpret the components of medico-legal issues involving the paramedic and the Standard of Care. (CSLO 2)
10. (Evaluation Level) Justify a patient care action based on an informed, research-based decision, including common ethical dilemmas faced by paramedics. (CSLO 1,2,3,4)
11. (Analysis Level) Diagnose a patient by analyzing the human system. (CSLO 2,4)
12. (Analysis Level) Analyze the general principles of pathophysiology based on case studies. (CSLO 2,4)
13. (Synthesis Level) Create and implement an effective therapeutic communication plan with a variety of patients. (CSLO 1,2,4)
14. (Evaluation Level) Assess, define and discuss the mechanics of respiration and determine necessary and appropriate care for a variety of patients. (CSLO 1,2,4)
15. (Evaluation Level) Demonstrate and critique the elements of airway management and ventilation in all classes of humans. (CSLO 1,2,4)
16. (Application Level) Intubate all classes of humans, including advanced ventilation techniques. (CSLO 1,3)
17. (Application Level) Effectively treat patients with all types of compromised respiratory systems as recommended by the Department of Health Services (DHS) and the National Registry of EMTs-Basic and Paramedic. (CSLO 2,4)
18. (Synthesis Level) Consistently demonstrate safe, effective, responsible, collaborative, professional behaviors. (CSLO 3)

Course Requisites

EMS275 - CCEMPT (Critical Care Emergency Medical Transport Program)

General

Division
Emergency Medical Services Division

Course Description
Critical Care Emergency Medical Transport Program (CCEMTP) is designed to prepare paramedics and nurses to function as members of a critical care transport team. Students will gain an understanding of the special needs of critical patients during transport, become familiar with the purpose and mechanisms of hospital procedures and equipment, and develop skills to maintain the stability of hospital equipment and procedures during transport.
Prerequisite(s): One-year experience as a registered nurse, certified paramedic, or respiratory therapist; current certifications in CPR, trauma (BTLS or PHTLS), PALS or PEPP, and ACLS.

Total Number Of Credits:
5.5

Lecture Credits
5

Lab Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the concepts and components of critical care transport.
2. (Application Level) Apply essential legal principles and medico-legal aspects of critical care transport.
3. (Evaluation Level) Correctly interpret laboratory data when applied to case scenarios.
4. (Analysis Level) Define and relate appropriate treatment for shock, multi-systems organ failure, and communicable diseases within the specific scope of practice.
5. (Analysis Level) Diagnose and relate appropriate treatment for complications of respiratory emergencies.
6. (Comprehension Level) Describe procedures in hemodynamic management and identify complications within the specific scope of practice.
7. (Application Level) Summarize appropriate treatment for patient and determine the appropriate use of cardiac monitoring devices for the patient according to the resulting diagnosis.
8. (Evaluation Level) Assess patient status and select pharmacological agents according to the diagnosis.
9. (Application Level) Determine the correct care for patients who have gastrointestinal, renal, and hemodialysis needs.
10. (Analysis Level) Identify 90% of the major components of a neurological assessment and outline an appropriate treatment.
11. (Synthesis Level) Identify complications that arise in critical patients during ground and/or air transport and determine alternate pathways and treatment modalities to resolve complications.
12. (Analysis Level) Identify and outline appropriate treatment when transporting pediatrics and OB/GYN patients.

ENG090 - Introduction to Composition I

General

Division
Literary Arts & Language Division

Course Description
No description.

Total Number Of Credits:
3

ENG090A - English Comp I for ELL

General

Division
Literary Arts & Language Division

Course Description
No description.

Total Number Of Credits:
3

ENG100 - Introduction to Composition II

General

Division
Literary Arts & Language Division

Course Description
An introduction to academic writing with an emphasis on generating ideas, expressing those ideas in essay form, and using one's writings to organize content, identify punctuation, grammar, and spelling errors and to create effective strategies for their correction. Recommended: ENR 090 or appropriate placement tool recommendation.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Write appropriately for different occasions, audiences, purposes and tone (i.e. letter writing, telling a story, expository prose, etc.). (CSLOs 2,3,4)
2. (Application Level) Apply appropriate structure in writing (ie: introduction, thesis, topic sentences, body paragraphs, transitions and conclusion). (CSLO 2)
3. (Synthesis Level) Compose essays or other texts developed around a central idea or thesis. (CSLO 2,3)
4. (Synthesis Level) Create texts that use examples and details and follow a logical progression of ideas appropriate to the assignment. (CSLO 2,3,4)
5. (Application Level) Demonstrate an understanding of plagiarism and apply strategies to avoid it. (CSLO 2)
6. (Application Level) Demonstrate the writing process (prewriting, organizing, drafting, revision and editing). (CSLO 2,3)
7. (Analysis Level) Demonstrate an ability to read critically and analyze student or teacher selected texts. (CSLO 3,4)
8. (Synthesis Level) Give, accept, and use critical feedback to revise texts. (CSLO 3,4)
9. (Application Level) Use a designated MLA format correctly. (CSLO 2)
10. (Application Level) Recognize and edit mechanical and grammatical errors. (CSLO 2,3)

Course Requisites

ENG101 - College Composition I

General

Division
Literary Arts & Language Division

Course Description
Advancement of ability to analyze and write academic, college-level essays with an emphasis on developing ideas and using a process of writing, revising and editing to create organized, coherent, fully articulated essays that reflect the conventions of English grammar, mechanics and usage. Recommended: RDG100; ENG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use writing for learning, thinking, and communicating to solve problems, draw logical conclusions, and create innovative ideas. (CSLO #4)
2. (Evaluation Level) Identify and evaluate the main idea, major points, and supporting details in a text, film, image, or presentation. (CSLOs #2, 4)
3. (Evaluation Level) Identify and evaluate the author's rhetorical choices in a text, film, image, or presentation. (CSLO #2)
4. (Evaluation Level) Differentiate between credible and non-credible sources and select appropriate sources for the writing task. (CSLOs #2, 4)
5. (Analysis Level) Identify multiple viewpoints pertaining to a given topic and engage in verbal or written discussion of those viewpoints. (CSLO #1)
6. (Application Level) Recognize writing as a recursive process of inventing, planning, drafting, revising, and editing, and employ these strategies in written work. (CSLO #3)
7. (Evaluation Level) Collaborate with instructor and peers to evaluate written work and incorporate feedback into one's writing. (CSLO #3)
8. (Application Level) Learn to recognize and adapt content, form, style, and tone to the audience, purpose, context, and requirements of a composition assignment. (CSLO #3)
9. (Application Level) Organize one's writing logically using a thesis statement and other organizational strategies such as topic sentences, transitions, and/or specific introductory and conclusion techniques to create cohesive, clear writing. (CSLO #4)
10. (Synthesis Level) Integrate research into written work. (CSLO #2)
11. (Application Level) Define plagiarism and avoid plagiarism in written work and oral presentations through proper quoting, paraphrasing, and summarizing. (CSLOs #1, 3)
12. (Application Level) Use an appropriate system of documentation in written work, such as MLA, APA, or Chicago Style. (CSLOs #2, 3)
13. (Application Level) Employ the conventions of standard written English and grammar, language usage, punctuation, word choice, and style. (CSLO #3)

Course Requisites

ENG102 - College Composition II

General

Division
Literary Arts & Language Division

Course Description
Emphasis on critical thinking, close reading, analysis, and advanced research skills through the development, writing, and revision of complex arguments.
Prerequisite: ENG101

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Students will be able to:
1.(Evaluation Level) Summarize, analyze, and evaluate complex written, oral, and visual arguments. (CSLO 2,4)
2.(Evaluation Level) Identify and evaluate rhetorical choices in a text, film, image, or presentation. (CSLO 2,4)
3.(Evaluation Level) Identify and evaluate persuasive strategies including logical, ethical, and emotional appeals in written, oral, and visual media. (CSLO 1,2,4)
4.(Knowledge Level) Define and identify examples of logical fallacies and avoid them. (CSLO 2,4)
5.(Application Level) Use appropriate logical, ethical, and emotional appeals and adapt language to a specific audience to be persuasive. (CSLO 1,4)
6.(Application Level) Use advanced academic research strategies to locate credible sources. (CSLO 2,3)
7.(Synthesis Level) Incorporate research material into written work and oral presentations without plagiarizing through proper quoting, paraphrasing, and summarizing. (CSLO 2,3)
8.(Application Level) Use an appropriate academic system of documentation proficiently. (CSLO 2)
9.(Evaluation Level) Collaborate with instructor and peers to evaluate written work and incorporate feedback into one's writing. (CSLO 2,3,4)
10. (Application Level) Employ the conventions of standard written English and grammar, language usage, punctuation, word choice, and style. (CSLO 2,3)

Course Requisites

ENG102H - College Composition II Honors

General

Division
Literary Arts & Language Division

Course Description
Emphasis on critical thinking, close reading, analysis, and advanced research skills through the development, writing, and revision of complex arguments. Honors section involves deeper critical reflection and analysis, especially on culturally relevant social topics. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Evaluating Level) Summarize, analyze, and evaluate complex written, oral, and visual arguments. (CSLO 2,4)
2.(Evaluating Level) Identify and evaluate rhetorical choices in a text, film, image, or presentation. (CSLO 2,4)
3.(Evaluating Level) Identify and evaluate persuasive strategies including logical, ethical, and emotional appeals in written, oral, and visual media. (CSLO 1,2,4)
4.(Remembering Level) Define and identify examples of logical fallacies and avoid them. (CSLO 2,4)
5.(Applying Level) Use appropriate logical, ethical, and emotional appeals and adapt language to a specific audience to be persuasive. (CSLO 1,4)
6.(Applying Level) Use advanced academic research strategies to locate credible sources. (CSLO 2,3)
7.(Creating Level) Incorporate research material into written work and oral presentations without plagiarizing through proper quoting, paraphrasing, and summarizing. (CSLO 2,3)
8.(Applying Level) Use an appropriate academic system of documentation proficiently. (CSLO 2)
9.(Evaluating Level) Collaborate with instructor and peers to evaluate written work and incorporate feedback into one's writing. (CSLO 2,3,4)
10. (Applying Level) Employ the conventions of standard written English and grammar, language usage, punctuation, word choice, and style. (CSLO 2,3)

ENG121 - Applied Technical Writing

General

Division
Literary Arts & Language Division

Course Description
Business, professional and technical writing styles including syntax and document design necessary in the production of letters, reports, resumes and other forms of business communication. Recommended: ENR 090 or appropriate placement tool recommendation.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop professional rhetoric and style of business writing to clearly, accurately and concisely state the purpose of a written work and effectively organize content. (CSLO 2)
2. (Application Level) Produce written texts including business letters, memos, reports, and proposals or other documents as determined by the instructor which are dedicated to achieving a single purpose (persuade, inform, sell, direct, etc.) and demonstrate an understanding of and sensitivity to audience needs by varying tone, content and organizational style while adhering to the conventions of standard, edited English. (CSLOs 2, 3)
3. (Analysis Level) Analyze a given writing situation in order to correctly identify when to use memos, letters, faxes, E-mails, and reports for business and technical communication. (CSLOs 2, 4)
4. (Evaluation Level) Recognize the ethical, social, and professional constraints of audience, style, and content for writing situations between managers or co-workers and colleagues of an organization, or between an organization and the public. (CSLOs 1, 3, 4)
5. (Synthesis Level) Develop document design skills in both print, multimedia and electronic documents. (CSLO 2)
6. (Application Level) Create effective, well designed cover letters and resumes that are error free, adopt persuasive techniques, are logically organized, and follow standard business writing conventions. (CSLO 3)
7. (Application Level) Produce well organized, concise written instructions for a given project or procedure. (CSLOs 3, 4)
8. (Synthesis Level) Transform discrete pieces of information into effective and coherent reports, memos and letters. (CSLOs 2, 4)
9. (Synthesis Level) Effectively create and enhance written documents using word processing features such as cut and paste; tables, charts or other visual aids; document design; spell-check, and other tools as applicable. (CSLO 2)
10. (Synthesis Level) Work effectively, cooperatively, and exhibit professional conduct on individual and group projects and interactions with the instructor. (CSLOs 1, 3)
11. (Synthesis Level) Develop documents and written texts through a process of prewriting, drafting, revision, editing, peer review and instructor feedback that meet academic or professional standards. (CSLOs 2, 3)

Course Requisites

ENG200 - Introduction to Creative Writing

General

Division
Literary Arts & Language Division

Course Description
An introduction to the craft of writing the literary forms of creative nonfiction, poetry, and fiction, emphasizing readings, writing exercises, and the composition of original, short literary creative nonfiction, poetry, and fiction for a literary audience. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the unique characteristics of literary poetry, short fiction, and creative nonfiction. (CSLO 2) 2. (Comprehension Level) Identify and describe literary concepts and techniques, such as characterization, imagery, voice, setting, and storytelling. (CSLO 2) 3. (Analysis Level) Analyze and discuss published examples of literary creative nonfiction, fiction, and poetry. (CSLO 4) 4. (Application Level) Employ the writing process to make improvements in poetry, short fiction, and creative nonfiction pieces. (CSLO 2) 5. (Evaluation Level) Critique and assess other students' written work to provide constructive suggestions for improvement. (CSLO 1, 2, 3, & 4) 6. (Synthesis Level) Compose short, original works of literary poetry, short fiction, and creative nonfiction. (CSLO 2 & 4)

Course Requisites

ENG210 - Intro to Fiction Writing

General

Division
Literary Arts & Language Division

Course Description
An introduction to the craft of fiction writing taught through writing exercises and the writing of original short fiction, emphasizing readings in literary/ contemporary fiction. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and discuss published examples of literary/contemporary fiction. (CSLO 2,4) 2. (Comprehension Level) Identify and describe the unique characteristics of non-genre character-driven literary fiction. (CSLO 2) 3. (Analysis Level) Identify and analyze literary concepts and techniques, such as characterization, imagery, voice, setting, point of view, narration and description. (CSLO 2,4) 4. (Application Level) Employ the writing process in crafting short fiction pieces. (CSLO 2,3,&4) 5. (Analysis Level) Critique and assess other students' written work to provide constructive suggestions for improvement. (CSLO 2,4) 6. (Synthesis Level) Compose original works of literary short fiction. (CSLO 2,3,&4)

Course Requisites

ENG090FA22 - Introduction to Composition I

General

Division
Literary Arts & Language Division

Course Description
No description.

Total Number Of Credits:
3

ENGBC001 - English 90/100 Boot Camp

General

Division
Literary Arts & Language Division

Course Description
This discretionary English course is designed to increase the number of students who are prepared to take and to succeed in ENG 101. The Writing Academy (English Boot Camp) is an alternative for students who need to complete English 90/100 or for students wanting a writing refresher course emphasizing college-level academic writing.

Total Number Of Credits:
0

MSLOs

Measurable Student Learning Outcomes
Students will be able to: 1. (Synthesis Level) Recognize and revise punctuation, mechanical, grammatical, and spelling errors. (CSLO 2,3) 2. (Application Level) Use the writing process, including inventing, planning, drafting, developing, revising, and editing. (CSLO 2,3) 3. (Application Level) Demonstrate audience awareness and logical structure in writing. (CSLO 2,4) 4. (Application Level) Write clear and fluid sentences. (CSLO 2,3) 5. (Synthesis Level) Respond appropriately to various writing situations and prompts. (CSLO 2,4) 6. (Application Level) Demonstrate the ability to write well developed paragraphs governed by a topic sentence and short essays governed by a thesis statement. (CSLO 2,3,4) 7. (Synthesis Level) Revise sentences and paragraphs to create unified, cohesive texts. (CSLO 2,3) 8. (Evaluation Level) Participate in and revise texts based on self editing and/or verbal or written peer editing. (CSLO 2,3,4) 9. (Analysis Level) Recognize the relationship between reading and writing and respond appropriately to short reading assignments. (CSLO 2,4)

ENGBC002 - Writing Academy

General

Division
Literary Arts & Language Division

Course Description
This course will help you gain further instruction in English grammar basics, paragraph development, essay writing, and will help you understand differences in expectations between high school and college level writing.

Total Number Of Credits:
0

MSLOs

Measurable Student Learning Outcomes
Students will be able to: 1. (Synthesis Level) Recognize and revise punctuation, mechanical, grammatical, and spelling errors. (CSLO 2,3) 2. (Application Level) Use the writing process, including inventing, planning, drafting, developing, revising, and editing. (CSLO 2,3) 3. (Application Level) Demonstrate audience awareness and logical structure in writing. (CSLO 2,4) 4. (Application Level) Write clear and fluid sentences. (CSLO 2,3) 5. (Synthesis Level) Respond appropriately to various writing situations and prompts. (CSLO 2,4) 6. (Application Level) Demonstrate the ability to write well developed paragraphs governed by a topic sentence and short essays governed by a thesis statement. (CSLO 2,3,4) 7. (Synthesis Level) Revise sentences and paragraphs to create unified, cohesive texts. (CSLO 2,3) 8. (Evaluation Level) Participate in and revise texts based on self editing and/or verbal or written peer editing. (CSLO 2,3,4) 9. (Analysis Level) Recognize the relationship between reading and writing and respond appropriately to short reading assignments. (CSLO 2,4)

ENR090 - English Reading Integration

General

Division
Literary Arts & Language Division

Course Description
This course will increase reading comprehension, reading fluency, and college-level vocabulary while introducing students to the writing process. Emphasis will be on identifying the topic, main idea, and details in reading passages then using this knowledge for idea generation, development, and organization in writing. In addition, students will work on the development of grammar and punctuation skills and consider how reading and writing are intertwined. Recommended: Appropriate placement recommendation.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Identify topics, main ideas, and supporting details in reading passages. (CSLO 2)
2. (Applying Level) Apply reading strategies to improve comprehension, vocabulary awareness, reading fluency and accuracy. (CSLO 2,3)
4. (Creating Level) Write grammatically correct sentences and be able to recognize and revise grammatical, punctuation, and spelling errors. (CSLO 2,3)
5. (Applying Level) Use a writing process (i.e.: inventing, planning, drafting, revising, and editing). (CSLO 2,4)
6. (Applying Level) Demonstrate audience awareness, purpose, and tone when reading and writing. (CSLO 3,4)
7. (Creating Level) Respond appropriately to various writing situations and prompts through appropriate written discourse. (CSLO 2,3,4)
8. (Applying Level) Demonstrate the ability to write well-developed and logically organized paragraphs, summaries, and short essays. (CSLO 2,3,4)
9. (Creating Level) Create documents using proper college level conventions and (MLA format). (CSLO 3)
10. (Analyzing Level) Recognize and avoid plagiarism. (CSLO 2,3,4)
11. (Applying Level) Recognize the relationship between reading and writing and respond appropriately. (CSLO 2,3,4)
12. (Applying Level) Demonstrate the ability to use appropriate study and organization skills, computer technology, credible online sources, and support and library resources. (CSLO 2,3)
13. (Applying Level) Demonstrate awareness of figurative language, analogies, and their purpose. (CSLOs 2,4)

ENV100 - Introduction to Sustainability

General

Division
Science & Engineering Division

Course Description
Introduction to the field of sustainability and exploration of the interaction between human and natural global systems in the context of environmental, economic, and social/societal sustainability. Framework for analyzing and investigating the global challenges such as land use change, competition for water and other natural resources, social justice issues, renewable energy concerns, and other global crises.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Define sustainability.
2. Summarize the major concepts of sustainability including underlying principles and methods of study.
3. Describe sustainability concerns with diminishing resources.
4. Describe land sustainability challenges.
5. Explain land management strategies.
6.Compare and contrast ocean sustainability issues.
7. Explain ocean sustainability strategies.
8. Differentiate between various types of energy.
9. Compare and contrast sustainability issues concerning oil and mineral reserves.
10. Describe sustainability issues concerning freshwater and climate.
11. Explain the role of humanity in sustainability.
12. Analyze the impact of globalization on sustainability.
13. Analyze the connections between economy, society and the environment.
14. Compare and contrast sustainable development with economic growth.
15. Describe challenges of the built environment in the sustainability process.
16. Examine issues, challenges and responses at global levels of sustainability.

ENV101 - Environmental Science

General

Division
Science & Engineering Division

Course Description
The systematic, scientific study of the environment and the effects of human activities on the environment. Field trips may be required at student's expense. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

Other Credit Information
Total 90 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the concepts of interdependence between organisms and discuss why biodiversity is essential for a healthy environment. (CSLO 1, 2 & 4)
2. (Comprehension Level) Summarize environmental system concepts including biogeochemical cycles and energy flows. (CSLO 2 & 4)
3. (Analysis Level) Examine and discuss strategies of environmental conservation, including parks, nature preserves, wilderness areas, and restoration projects. (CSLO 1, 2 & 4)
4. (Analysis Level) Examine and discuss the concepts of environmental policy, environmental law, citizen science, and sustainability. (CSLO 1, 2, 3 & 4)
5. (Analysis Level) Apply knowledge and skills to examine environmental issues associated with the following resources: air, water, geologic, and energy. (CSLO 2 & 4)
6. (Application Level) Apply the concepts of environmental health, bioremediation, and toxicology to discuss environmental problems such as pollution, disease, and overpopulation. (CSLO 1, 2, 3 & 4)
7. (Evaluation Level) Recommend ways to eliminate and/or reduce the generation of solid and hazardous wastes and other types of pollution. (CSLO 1, 2, 3 & 4)
8. (Analysis Level) Analyze environmental information and data, including that collected during field work laboratories, using statistics, critical thinking, and the scientific method. (CSLO 2 & 4)
9. (Synthesis Level) Analyze data and write laboratory and other reports as part of a scientific inquiry. (CLSO 2, 3 & 4)
10. (Evaluation Level) Describe and appraise the effects of human activities and culture on the environment. (CSLO 1 & 2, 4)
11. (Analysis Level) Research and describe innovative ways to improve the environmental, social, and economic sustainability of local systems. (CSLO 1, 2, 3 & 4)
12. (Analysis Level) Analyze the pros and cons to proposed solutions to major environmental issues. (CSLO 1, 2, 4)

Course Requisites

ENV110 - Sustainable World

General

Division
Science & Engineering Division

Course Description
Sustainable World explores the fundamental question of how human and natural systems interact. Through the lens of sustainability, evaluations will be made as to the overall health of these systems and the implications of that status for the future. This course will examine real world issues while critically evaluating options for solutions and collaborating with peers to create a more sustainable future for everyone.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Describe and recognize what is meant by a sustainability and ‘wicked’ problems;
2. Outline a general approach to framing and collaboratively solving sustainability problems.
3. Be more aware of your own personal perspectives on sustainability and what role you might play as a ‘change agent’ in a societal sustainability transformation.
4. Explain the biogeochemical cycles (carbon, nitrogen, sulfur and phosphorous) that are most relevant to sustainability;
5. Describe the water cycle and its relevance to sustainability;
6. Explain energy flow and relate it to current issues in sustainability;
7. Outline the basic concepts of ecosystem science, such as ecosystem structure and function, evolution and population dynamics;
8. Define and give examples of ecosystem services;
9. Outline the state of the world’s renewable and non-renewable resources;
10. Discuss the role of human values, aesthetics, preferences and patterns of consumption in understanding and making decisions about sustainability;
11. Discuss the relationships among poverty, inequality and security, and understand the concept of environmental justice;
12. Describe how social and political institutions (local to global) affect sustainability;
13. Discuss the current and potential role of business and economics in creating a sustainable future;
14. Evaluate the interconnectedness of ecological, economic and social systems within the context of specific cases;
15. Demonstrate effective interpersonal communication and presentation skills

ENV111 - Sustainable Cities & Societies

General

Division
Science & Engineering Division

Course Description
Introduces technological, social, and cultural principles and innovations for cities under the notion of sustainability and sustainable development within the global, regional, and local contexts. Covers the environmental, economic, and structural issues of contemporary cities and their consequences on the natural and built communities. Evaluates how citizens can engage with their communities to enhance sustainable development on multiple levels of society.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1: Explain the role of cities within global sustainability challenges.
2: Define key sustainability concepts and summarize the history of global urbanization and sustainability.
3: Explain environmental and social justice issues in cities.
4: Describe urban sustainable development strategies and policies.
5: Identify urban vulnerabilities, shortcomings, and potential solutions.
6: Explain the role of cities within the Water-Energy-Food Nexus.
7: Connect local sustainability and individual behavior to global issues.

ESE344 - Introduction to IEPs: Behavior, Transition Planning, and Field Experience

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course offers an introduction to the development of Individualized Education Programs (IEPs) for students with exceptionalities. It provides an overview of the legal requirements and essential components of IEPs, including present levels of performance, annual goals, special education services, and progress monitoring. The course also covers the crucial aspects of transition planning, helping students develop comprehensive transition plans to support the post-school success of individuals with exceptionalities.

This course includes 15 hours of practicum in special education with mild to moderate disabilities. Through the field experience portion of the course, students will gain hands-on experience in creating an IEP, along with Behavior Intervention Plans (BIPs) and learn how teachers design and implement effective specialized instruction while under the supervision of a certified teacher.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Remember) Students will describe the legal requirements and components of an Individualized Education Program (IEP) in accordance with state requirements. (CEC 6) (ISTE 7) (InTASC 6) (CSLO 1, 2, 4)
2. (Understand) Students will understand how evaluation reports and data assist in the development of an IEP to provide meaningful, challenging, and inclusive learning experiences for individuals with exceptionalities in a legally compliant way. (CEC 1) (ISTE 1) (InTASC 1) (CSLO 1, 2, 3, 4)
3. (Apply) Students will create safe, inclusive, culturally responsive learning environments to engage individuals with exceptionalities in meaningful learning activities and social interactions. (CEC 2) (ISTE 2) (InTASC 2) (CSLO 1, 4)
4. (Analyze) Students will understand how functional relationships and individual differences can be used to respond to the social-emotional needs of individuals requiring positive behavioral supports. (CEC 1) (ISTE 1) (InTASC 3) (CSLO 1, 4)
5. (Apply) Students will use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities in the least restrictive environment. (CEC 3) (ISTE 3) (InTASC 3) (CSLO 1, 2, 4)
6. (Evaluate) Students will develop their understanding of individual differences, diversity, and student/family preferences focused on transition planning for students with exceptionalities. (CEC 1) (ISTE 1) (InTASC 1) (CSLO 1, 2, 3, 4)
7. (Evaluate) Students will use their understanding of development and individual differences to respond to the specialized learning needs of individuals with exceptionalities. (CEC 1) (ISTE 1) (InTASC 1) (CSLO 1, 4)
8. (Analyze) Students will describe and gather multiple methods of assessment and data sources used in making educational decisions. (CEC 4) (ISTE 4) (InTASC 4) (CSLO 1, 2, 3, 4)
9. Analyze) Students will engage in collaborative planning and decision-making to create inclusive and supportive learning environments for students with exceptionalities. (CEC 2) (ISTE 7) (InTASC 2) (CSLO 1, 2, 3, 4)
10. (Create) Students will apply communication strategies to foster teamwork and partnership among educators, parents, and other stakeholders. (CEC 7) (ISTE 7) (InTASC 7) (CSLO 3, 4)

ESE345 - Introduction to Speech and Language Disorders in the Classroom

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course provides an overview of speech and language disorders commonly encountered in the classroom. Aspiring teachers will learn about the characteristics, causes, and educational implications of these disorders. The course will also cover strategies for identifying and supporting students with speech and language disorders, including assistive technology to promote inclusive education.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Identify and describe various types of speech and language disorders commonly encountered in the classroom. (InTASC 1) (CEC 1) (ISTE1) (CSLO 1, 2, 3)
2. (Understanding Level) Demonstrate an understanding of the causes and characteristics of speech and language disorders. (InTASC 4) (CEC 1) (ISTE 2) (CSLO 2)
3. (Analysis Level) Analyze the impact of speech and language disorders on students' academic performance and social interactions. (InTASC 2) (CEC 2) (ISTE 5) (CSLO 2, 4)
4. (Evaluating Level) Evaluate how speech and language disorders affect classroom behavior and participation. (InTASC 3) (CEC 2) (ISTE 5) (CSLO 1, 2, 3, 4)
5. (Application Level) Develop skills to assess and identify students with speech and language disorders using appropriate tools and techniques. (InTASC 6) (CEC 4) (ISTE 7) (CSLO 2, 4)
6. (Creating Level) Create and implement intervention plans to support students with speech and language disorders in the classroom. (InTASC 7) (CEC 5) (ISTE 6) (CSLO 1, 2, 4)
7. (Application Level) Apply evidence-based strategies to accommodate and support students with speech and language disorders. (InTASC 8) (CEC 5) (ISTE 5) (CSLO 1, 2, 4)
8. (Creating Level) Design inclusive lesson plans that address the needs of students with speech and language disorders inclusive of students who utilize assistive technologies. (InTASC 7) (CEC 5) (ISTE 5) (CSLO 1, 2, 4)
9. (Application Level) Demonstrate effective collaboration with speech-language pathologists, special education professionals, and parents to support students with speech and language disorders. (InTASC 9, 10) (CEC 6) (CSLO 3)
10. (Evaluating Level) Advocate for the needs and rights of students with speech and language disorders within the school community. (InTASC 9) (CEC 6) (ISTE 2) (CSLO 3)
11. (Knowledge Level) Engage in continuous professional development to stay informed about the latest research and best practices in the field of speech and language disorders including assistive technologies available to support students. (InTASC 9) (CEC 6) (ISTE 1) (CSLO 2, 3)
12. (Evaluating Level) Reflect on the teaching practice and make necessary adjustments to better support students with speech and language disorders. (InTASC 9) (CEC 6) (ISTE 1) (CSLO 2, 3)

ESE346 - Legal Aspects and Ethical Practice in Special Education

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course provides an in-depth exploration of special education law and ethical practice. Students will gain a comprehensive understanding of the legal frameworks, ethical principles, and assessment procedures that guide the provision of special education services within the school. The course emphasizes the application of these concepts in real-world educational settings to ensure compliance and promote positive outcomes for students with exceptionalities. Prerequisites: EDU221, EDU222.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Understand the key legal frameworks governing special education. (CEC Standard 1: Learner Development and Individual Learning Differences) (CSLO 1, 3)
2. (Applying Level) Apply ethical principles in decision-making processes related to special education. (CEC Standard 6: Professional Learning and Ethical Practice) (CSLO 3, 4)
3. (Analyzing Level) Analyze case studies to identify legal and ethical issues in special education. (CEC Standard 4: Assessment) (CSLO 1, 2)
4. (Creating Level) Develop strategies to ensure compliance with special education laws and ethical standards. (CEC Standard 5: Instructional Planning and Strategies) (CSLO 2, 3)
5. (Applying Level) Collaborate with stakeholders to advocate for the rights and needs of students with disabilities. (CEC Standard 7: Collaboration) (CSLO 1, 3)

ESE347 - Foundations of Instruction - Mild to Moderate Disabilities

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course provides foundational knowledge and essential skills for teaching students with mild to moderate disabilities in K-12 settings. Through a combination of key concepts, instructional strategies, and assessment methods, educators will be equipped to support diverse learners effectively in alignment with initial preparatory specialty standards in the field of special education.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyze) Identify and analyze historical and contemporary strategies employed by various racial and ethnic groups to navigate and resist systemic racism and evaluate the effectiveness of these strategies in promoting social justice, community resilience, and individual empowerment (CEC 2.1) (InTASC 2) (ISTE 1) (CSLO 1)
2. (Understand) Define and explain the various characteristics of students with mild to moderate disabilities, including cognitive, academic, social, and behavioral needs. (CEC 1) (InTASC 1) (ISTE 1) (CSLO 1)
3. (Understand) Describe the role and responsibilities of special educators in K-12 settings. (CEC 1) (InTASC 1) (ISTE 1) (CSLO 3)
4. (Apply) Design learning environments and encourage active participation in individual and group activities in a culturally responsive manner. (CEC 2) (InTASC 3) (ISTE 3) (CSLO 1, 4)
5. (Analyze) Identify academic and behavioral supports needed for integration into various program placements including general education classrooms. (CEC 2, 3) (InTASC 2, 3) (ISTE 2) (CSLO 2, 4)
6. (Understand) Identify and describe evidence-based instructional strategies for teaching students with mild to moderate disabilities including Universal Design for Learning (UDL). (CEC 1, 5) (InTASC 1, 4) (ISTE 4) (CSLO 1, 3)
7. (Apply) Conduct and interpret informal academic and behavioral assessments to identify student strengths and needs and also inform instruction. (CEC 4) (InTASC 6) (ISTE 6) (CSLO 2, 4)
8. (Apply) Develop, implement, and apply data-driven and evidence-based interventions for academic and behavioral needs of students with mild to moderate disabilities. (CEC 4) (InTASC 6) (ISTE 6) (CSLO 2, 4)
9. (Understand) Understand roles and responsibilities of the paraeducator related to instruction, intervention, and direct services of students with mild to moderate disabilities. (CEC 5) (InTASC 4) (ISTE 4) (CSLO 3)
10. (Apply) Structure, direct, and support the activities for students, paraeducators, and related services in ways that enhance independence of students in their learning. (CEC 2) (InTASC 2) (ISTE 3) (CSLO 3, 4)
11. (Create) Design and implement lesson plans incorporating UDL principles and strategies to promote student engagement and motivation in learning activities. (CEC 5) (InTASC 7) (ISTE 4) (CSLO 2)
12. (Apply) Use technology to support instruction and student learning including augmentative and assistive communication strategies. (CEC 5) (InTASC 6) (ISTE 5) (CSLO 2, 4)
13. (Apply) Collaborate and consult with interdisciplinary teams including general education teachers, families, and caregivers to support student needs and culturally responsive inclusive practices. (CEC 7) (InTASC 10) (ISTE 10) (CSLO 3)
14. (Understand) Understand and navigate student transition planning across educational settings including requirements for transition services to include post school outcomes. (CEC 6) (InTASC 2) (ISTE 2) (CSLO 3)
15. (Apply) Model techniques and coach others in the use of instructional methods including accommodation and modification of learning environments to support access to curriculum. (CEC 7) (InTASC 4) (ISTE 7) (CSLO 1, 3)
16. (Understand) Understand and navigate the legal and ethical considerations in the special education including IEPs and student rights. (CEC 7) (InTASC 9) (ISTE 9) (CSLO 1, 3)

ESE348 - Methods of Instruction - Mild to Moderate Disabilities

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course is designed to provide special education teachers with the knowledge and skills necessary to develop and implement effective individualized education programs (IEPs) for students with mild to moderate disabilities in K-12 settings. This course covers essential components of IEP development including compliance with state regulations and Council for Exceptional Children (CEC) standards. The course will address high school transition planning, behavior intervention plans, accommodations and modifications, specially designed instruction, and Least Restrictive Environment (LRE) to ensure that all students receive a tailored and effective educational experience.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Create) Design and develop IEPs that meet the legal requirements of state regulations and CEC standards, integrating all necessary components, including present levels of performance, measurable annual goals, and specific and specially designed instruction. (CEC 1, 2, 3, 4, 5, 6, 7) (InTASC 7) (ISTE 7) (CSLO 1, 2, 3, 4)

2. (Create) Create detailed high school transition plans to ensure successful post-school outcomes for students including students, families, and other stakeholders to develop meaningful transition goals. (CEC 6) (InTASC 2) (ISTE 1) (CSLO 3)

3. (Create) Design Behavior Intervention Plans that address students' behavioral needs based on data and the evaluation of intervention strategies. (CEC 2, 5) (InTASC 3) (ISTE 5) (CSLO 1, 4)

4. (Apply) Identify and implement appropriate accommodations and modifications to support students in instruction and assessment within a variety of settings based on student needs. (CEC 2, 4, 5) (InTASC 2) (ISTE 5) (CSLO 1, 2, 3, 4)

5. (Analyze) Conduct and analyze assessment data to inform IEP development and instruction planning for stakeholders. (CEC 4) (InTASC 6) (ISTE 6) (CSLO 3, 4)

6. (Apply) Ensure IEPs are compliant with all relevant laws and ethical standards. (CEC 6) (InTASC 9) (ISTE 7) (CSLO 1, 3)

7. (Apply) Communicate effectively with general education teachers, related service providers, families, and caregivers to develop, present, and implement IEPs. (CEC 7) (InTASC 10) (ISTE 4) (CSLO 1, 3)

8. (Apply) Use digital tools for data collection, progress monitoring, and collaboration. (CEC 5, 7) (InTASC 8) (ISTE 6) (CSLO 4)

9. (Apply) Develop and manage schedules and roles for the effective use of paraeducators assigned to a program. (CEC 7) (InTASC 10) (ISTE 4) (CSLO 3)

ESE349 - Diagnosis and Assessment of Mild to Moderate Disabilities

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course provides special education teachers with the knowledge and skills necessary for their role in the assessment and diagnosis of students with mild to moderate disabilities. Emphasizing compliance with the Individuals with Disabilities Education Act (IDEA) regulations, the course covers various assessment tools, techniques, and data interpretation methods used in multi-disciplinary team reports. Special education teachers will learn how their role contributes to the effective assessment of students for the purpose of identifying student needs, developing Individualized Education Programs (IEPs), and monitoring progress based on assessment conclusions and recommendations. The course aligns with the Council for Exceptional Children (CEC) Initial Preparation Standards.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Apply) Explain and apply the IDEA regulations for the evaluation and assessment of students with disabilities. (CEC 6) (InTASC 9) (ISTE 7) (CSLO 1, 2, 3, 4)
2. (Understand) Identify how etiology and sensory impairments impact an individual's learning and experience. (InTASC 1) (CEC 1.2 IGC1 K5) (ISTE 2, 5) (CSLO 1)
3. (Analyze) Analyze and describe the cognitive, academic, social, and behavioral characteristics typically associated with mild to moderate disabilities. (CEC 1) (InTASC 1, 2) (ISTE 1) (CSLO 1, 4)
4. (Understand) Explain and describe the role of the special educator in the prereferral process for students with academic, behavioral, and language barriers and the impact on the special education process. (CEC 4) (InTASC 6) (ISTE 5) (CSLO 3)
5. (Analyze) Analyze and demonstrate effective strategies for cross-cultural communication with students, families, and caregivers from various cultural and linguistic backgrounds. (CEC 6) (InTASC 2) (ISTE 7) (CSLO 1, 3)
6. (Evaluate) Evaluate the influence of cultural perspectives on relationships during the evaluation process. (CEC 7) (InTASC 9) (ISTE 4) (CSLO 1)
7. (Evaluate) Analyze and interpret formal and informal classroom-based assessments used for general education progress monitoring to summarize a student’s strengths and weaknesses within the general education curriculum. (CEC 1) (InTASC 6) (ISTE 7) (CSLO 1, 4)
8. (Apply) Assist in gathering and administering formal and informal assessment tools to evaluate the academic, social, and behavioral needs of students with mild to moderate disabilities. (CEC 4) (InTASC 6) (ISTE 6) (CSLO 1, 3)
9. (Analyze) Interpret assessment results in making data-driven decisions with the multi-disciplinary team for the purpose of informing instruction and IEP development in the Least Restrictive Environment (LRE). (CEC 1) (InTASC 6) (ISTE 7) (CSLO 1, 2, 3, 4)
10. (Evaluate) Ensure IEPS are aligned with assessment findings and address all identified student needs including areas where specially designed instruction is needed. (CEC 5) (InTASC 7) (ISTE 7) (CSLO 1, 2, 3, 4)
11. (Apply) Work effectively with general education teachers, related service providers, families, and caregivers to share assessment results and develop comprehensive support plans. (CEC 7) (InTASC 10) (ISTE 4) (CSLO 1, 3)
12. (Apply) Integrate digital tools and technologies in the assessment process to enhance student participation in the assessment process, data collection, analysis, and reporting. (CEC 5, 7) (InTASC 6) (ISTE 6) (CSLO 2, 4)

ESE390A - Field Experience in Special Education (Grades K-8), Teacher in Residence

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course includes a 45-hour field experience in grades K-8 for aspiring special education teachers with hands-on experience under the direct supervision of a certified special education teacher. The course is designed to fulfill the requirements for experiences in grade levels covered by licensure as a special education teacher in the Teacher in Residence (TIR) emphasis. This practicum bridges theoretical knowledge and practical application across real-world classroom contexts and is appropriate for candidates teaching in grades 9-12 to provide K-8 special education field experience.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain different types of transmission routes for infectious diseases, including direct and indirect contact, droplet, airborne, vector-borne, and common vehicle transmission. (InTASC 1) (CEC 2.3, ISCI 2 S16) *(CSLO 1)*
2. (Understanding Level) Demonstrate understanding and application of universal precautions, such as hand hygiene, use of personal protective equipment (PPE), and proper sanitation practices, to maintain a safe and healthy educational environment. (InTASC 1, 9) (CEC 2) *(CSLO 1)*
3. (Application Level) Demonstrate the ability to provide effective guidance and direction to paraeducators, tutors, and volunteers. (InTASC 10) (CEC 6.6, ISCI 6 S4) (ISTE 2) (CSLOs 1, 2, 3, 4)
4. (Application Level) Develop and enhance teaching skills specifically tailored for students with diverse learning needs and cultural values within K-8 settings. (InTASC 2) (CEC 1) (ISTE 7) *(CSLOs 1, 2)*
5. (Understanding Level) Gain hands-on experience in classroom management, lesson planning, and instructional strategies appropriate for K-8 settings. (InTASC 3, 7) (CEC 2, 5) (ISTE 2) *(CSLOs 2, 4)*
6. (Application Level) Foster a deeper understanding of individual education plans (IEPs) and their implementation across various settings and grade levels. (InTASC 1) (CEC 1, 6) (ISTE 4) *(CSLOs 1, 2, 3, 4)*
7. (Evaluation Level) Develop professional and ethical approaches used in special education to understand cultural and environmental and socio-economic perspectives influencing the relationships among families, schools and communities. (InTASC 9, 10) (CEC 6) (ISTE 2) *(CSLOs 1, 3)*
8. (Analysis Level) Engage in structured observations and actively participate in daily classroom activities, gaining insights into effective teaching strategies, progress monitoring, and classroom dynamics across contexts. (InTASC 8) (CEC 2) (ISTE 3) *(CSLOs 1, 2, 3, 4)*
9. (Creating Level) Design and deliver instructional plans that cater to the unique needs of students with disabilities, incorporating differentiated instruction and evidence-based practices. (InTASC 7, 8) (CEC 5) (ISTE 6) *(CSLOs 1, 2, 3, 4)* (Arizona Academic Standards K-8)
10. (Evaluation Level) Assist in the assessment and evaluation of students' progress, learning to administer and interpret various assessment tools including the collection of behavioral data. (InTASC 6) (CEC 4) (ISTE 5) *(CSLO 3)*
11. (Analysis Level) Reflect on personal teaching practices through regular feedback sessions with the supervising teacher, focusing on continuous improvement and adherence to CEC standards. (InTASC 9) (CEC 6) (ISTE 1) *(CSLO 3)*
12. (Creating Level) Demonstrate competence in creating inclusive and supportive learning environments across contexts in K-8 classrooms. (InTASC 3) (CEC 2) (ISTE 6) *(CSLOs 1, 2, 3, 4)*
13. (Analysis Level) Reflect on the use of effective approaches for developing and implementing instructional strategies for students with exceptionalities across settings by involving students and families in setting instructional goals and monitoring progress. (InTASC 8) (CEC 5, ISCI 5 S2) (ISTE 6) *(CSLOs 1, 2, 3, 4)*
14. (Understanding Level) Understand legal and ethical considerations in special education across settings and age levels. (InTASC 9) (CEC 6) (ISTE 2) *(CSLO 3)*
15. (Evaluation Level) Reflect on and articulate personal growth and professional development as a future special education teacher. (InTASC 9) (CEC 6) (ISTE 1) *(CSLO 3)*
16. (Application Level) Develop the knowledge and skills necessary to facilitate smooth transitions for students with disabilities across different educational settings including grade levels, schools, and from school to post-secondary environments. (InTASC 1) (CEC 2, 5) (ISTE 1) *(CSLOs 1, 2, 3, 4)*

ESE390B - Field Experience in Special Education (Grades 9-12), Teacher in Residence

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) course includes a 45-hour field experience in grades 9-12 for aspiring special education teachers with hands-on experience under the direct supervision of a certified special education teacher. The course is designed to fulfill the requirements for experiences in grade levels covered by licensure as a special education teacher in the Teacher in Residence (TIR) emphasis. This practicum bridges theoretical knowledge and practical application across real-world classroom contexts and is appropriate for candidates teaching in grades K-8 to provide 9-12 special education field experience.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain different types of transmission routes for infectious diseases, including direct and indirect contact, droplet, airborne, vector-borne, and common vehicle transmission. (InTASC 1) (CEC 2.3, ISCI 2 S16) *(CSLO 1)*
2. (Understanding Level) Demonstrate understanding and application of universal precautions, such as hand hygiene, use of personal protective equipment (PPE), and proper sanitation practices, to maintain a safe and healthy educational environment. (InTASC 1, 9) (CEC 2) *(CSLO 1)*
3. (Application Level) Demonstrate the ability to provide effective guidance and direction to paraeducators, tutors, and volunteers. (InTASC 10) (CEC 6.6, ISCI 6 S4) (ISTE 2) *(CSLOs 1, 2, 3, 4)*
4. (Application Level) Develop and enhance teaching skills specifically tailored for students with diverse learning needs and cultural values within grades 9-12 settings. (InTASC 2) (CEC 1) (ISTE 7) *(CSLOs 1, 2)*
5. (Understanding Level) Gain hands-on experience in classroom management, lesson planning, and instructional strategies appropriate for grades 9-12 settings. (InTASC 3, 7) (CEC 2, 5) (ISTE 2) *(CSLOs 2, 4)*
6. (Application Level) Foster a deeper understanding of individual education plans (IEPs) and their implementation across various settings and grade levels. (InTASC 1) (CEC 1, 6) (ISTE 4) *(CSLOs 1, 2, 3, 4)*
7. (Evaluation Level) Develop professional and ethical approaches used in special education to understand cultural and environmental and socio-economic perspectives influencing the relationships among families, schools and communities. (InTASC 9, 10) (CEC 6) (ISTE 2) *(CSLOs 1, 3)*
8. (Analysis Level) Engage in structured observations and actively participate in daily classroom activities, gaining insights into effective teaching strategies, progress monitoring, and classroom dynamics across contexts. (InTASC 8) (CEC 2) (ISTE 3) *(CSLOs 1, 2, 3, 4)*
9. (Creation Level) Design and deliver instructional plans that cater to the unique needs of students with disabilities, incorporating differentiated instruction and evidence-based practices. (InTASC 7, 8) (CEC 5) (ISTE 6) *(CSLOs 1, 2, 3, 4)* (Arizona Academic Standards 9-12)
10. (Evaluation Level) Assist in the assessment and evaluation of students' progress, learning to administer and interpret various assessment tools including the collection of behavioral data. (InTASC 6) (CEC 4) (ISTE 5) *(CSLO 3)*
11. (Analysis Level) Reflect on personal teaching practices through regular feedback sessions with the supervising teacher, focusing on continuous improvement and adherence to CEC standards. (InTASC 9) (CEC 6) (ISTE 1) *(CSLO 3)*
12. (Creation Level) Demonstrate competence in creating inclusive and supportive learning environments across contexts in grades 9-12 classrooms. (InTASC 3) (CEC 2) (ISTE 6) *(CSLOs 1, 2, 3, 4)*
13. (Analysis Level) Reflect on the use of effective approaches for developing and implementing instructional strategies for students with exceptionalities across settings by involving students and families in setting instructional goals and monitoring progress. (InTASC 8) (CEC 5, ISCI 5 S2) (ISTE 6) *(CSLOs 1, 2, 3, 4)*
14. (Understanding Level) Understand legal and ethical considerations in special education across settings and age levels. (InTASC 9) (CEC 6) (ISTE 2) *(CSLO 3)*
15. (Evaluation Level) Reflect on and articulate personal growth and professional development as a future special education teacher. (InTASC 9) (CEC 6) (ISTE 1) *(CSLO 3)*
16. (Application Level) Develop the knowledge and skills necessary to facilitate smooth transitions for students with disabilities across different educational settings including grade levels, schools, and from school to post-secondary environments. (InTASC 1) (CEC 2, 5) (ISTE 1) *(CSLOs 1, 2, 3, 4)*

ESE480A - Student Teaching Alternative: Mild to Moderate Special Education K-8, TIR

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) capstone course provides student teachers with the opportunity to apply the knowledge and skills gained throughout their special education program in a real-world grades K-8 classroom setting. Candidates in ESE480A are in the Alternative Teacher in Residence (TIR) program and are serving on a teaching contract in a special education K-8 setting. With support from an on-site certified special education teacher and the ESE480A instructor, student teachers will engage in the practical implementation of instructional strategies, assessment techniques, classroom management, and collaboration practices aligned with the Council for Exceptional Children CEC Initial Preparation Standards. This immersive experience is designed to prepare student teachers for a successful career in special education, supporting students with mild to moderate disabilities. Prerequisites: Baccalaureate Degree and formal acceptance to the Central Arizona College state approved Post-Baccalaureate Special Education program and capstone readiness approval are required before enrolling in this course. Prior to ESE480A, students will complete ESE390B to include 45 hours of field experience under the auspice of a special education mentor teacher in grades 9-12. Students will enroll in this course the final 12 weeks of the program, completing 12 weeks of student teaching in grades K-8. This is the capstone experience required by the post baccalaureate program and must be completed to be eligible for Institutional Recommendation for state teaching certification.

Total Number Of Credits:
8

Lecture Credits
2

Internship Credits
11

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate understanding and application of universal precautions, such as hand hygiene, use of personal protective equipment (PPE), and proper sanitation practices, to maintain a safe and healthy educational environment. (InTASC 1, 9) (CEC 2) *(CSLO 1)*
2. (Creating Level) Develop and implement comprehensive individualized programs in conjunction with student and family input and other team members. (InTASC 1) (CEC 5, ISCI 5 S1) (ISTE 2, 4) *(CSLOs 1, 2, 3, 4)*
3. (Application Level) Demonstrate the ability to provide effective guidance and direction to paraeducators, tutors, and volunteers. (InTASC 10) (CEC 6.6 ISCI 6 S4) (ISTE 2) *(CSLOs 1, 2, 3, 4)*
4. (Creating Level) Develop and implement lesson plans that are responsive to the diverse learning needs of students with mild to moderate disabilities. (InTASC 7) (CEC 5) (ISTE 5) (Arizona Academic Standards K-8) *(CSLOs 1, 2)*
5. (Application Level) Apply evidence based instructional practices, including Universal Design for Learning UDL and differentiated instruction. (InTASC 8) (CEC 5) (ISTE 6) *(CSLOs 1, 2)*
6. (Analysis Level) Analyze assessment data to identify a student's academic and behavioral strengths and needs and adjust instruction accordingly. (InTASC 6) (CEC 4) (ISTE 7) *(CSLOs 1, 2, 3, 4)*
7. (Application Level) Work effectively with general education teachers, related service providers, families, and caregivers to support student learning. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
8. (Application Level) Engage in collaborative problem solving and co-teaching practices to enhance educational outcomes. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
9. (Creating Level) Create and maintain a positive, inclusive classroom environment that promotes student engagement and positive behavior. (InTASC 3) (CEC 2) (ISTE 5) *(CSLO 1)*
10. (Application Level) Implement effective classroom management techniques to support the social and emotional development of students. (InTASC 3) (CEC 2) (ISTE 6) *(CSLOs 1, 4)*
11. (Application Level) Demonstrate professionalism and adherence to ethical standards in all interactions with students, colleagues, and families. (InTASC 9) (CEC 6) (ISTE 7) *(CSLOs 1, 3)*
12. (Evaluation Level) Reflect on teaching practices to identify areas for professional growth and development. (InTASC 9) (CEC 6) (ISTE 5) *(CSLO 3)*
13. (Understanding Level) Recognize and respond to the unique cognitive, academic, social, and behavioral characteristics of students with mild to moderate disabilities. (InTASC 1) (CEC 1) (ISTE 1) *(CSLOs 1, 4)*
14. (Application Level) Utilize technology for data collection, progress monitoring, collaboration, and support of student learning. (InTASC 8) (CEC 5, 7) (ISTE 6) *(CSLOs 1, 2, 3, 4)*

ESE480B - Student Teaching Traditional: Mild to Moderate Special Education K-8

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) capstone course provides student teachers with the opportunity to apply the knowledge and skills gained throughout their special education program in a real-world K-8 classroom setting. Under the supervision of a certified special education teacher, student teachers will engage in the practical implementation of instructional strategies, assessment techniques, classroom management, and collaboration practices aligned with the Council for Exceptional Children CEC Initial Preparation Standards. This immersive experience is designed to prepare student teachers for a successful career in special education, supporting students with mild to moderate disabilities.
Prerequisite(s): Baccalaureate Degree and formal acceptance to the Central Arizona College state approved Post-Baccalaureate Special Education Program and capstone readiness approval are required before enrolling in this course. Students will enroll in this course the final 12 weeks of the program, completing 6 weeks of student teaching in grades K-8 (ESE480B) and 6 weeks of student teaching in grades 9-12 (ESE490B). Students will be placed in a K-8 classroom under the auspice of a mentor teacher. This is the capstone experience required by the post baccalaureate program and must be completed to be eligible for Institutional Recommendation for state teaching certification.

Total Number Of Credits:
4

Lecture Credits
1

Internship Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate understanding and application of universal precautions, such as hand hygiene, use of personal protective equipment (PPE), and proper sanitation practices, to maintain a safe and healthy educational environment. (InTASC 1, 9) (CEC 2) *(CSLO 1)*
2. (Creating Level) Develop and implement comprehensive individualized programs in conjunction with student and family input and other team members. (InTASC 1) (CEC 5, ISCI 5 S1) (ISTE 2, 4) *(CSLOs 1, 2, 3, 4)*
3. (Application Level) Demonstrate the ability to provide effective guidance and direction to paraeducators, tutors, and volunteers. (InTASC 10) (CEC 6.6 ISCI 6 S4) (ISTE 2) *(CSLOs 1, 2, 3, 4)*
4. (Creating Level) Develop and implement lesson plans that are responsive to the diverse learning needs of students with mild to moderate disabilities. (InTASC 7) (CEC 5) (ISTE 5) (Arizona Academic Standards K-8) *(CSLOs 1, 2)*
5. (Application Level) Apply evidence based instructional practices, including Universal Design for Learning UDL and differentiated instruction. (InTASC 8) (CEC 5) (ISTE 6) *(CSLOs 1, 2)*
6. (Analysis Level) Analyze assessment data to identify a student's academic and behavioral strengths and needs and adjust instruction accordingly. (InTASC 6) (CEC 4) (ISTE 7) *(CSLOs 1, 2, 3, 4)*
7. (Application Level) Work effectively with general education teachers, related service providers, families, and caregivers to support student learning. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
8. (Application Level) Engage in collaborative problem solving and co-teaching practices to enhance educational outcomes. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
9. (Creating Level) Create and maintain a positive, inclusive classroom environment that promotes student engagement and positive behavior. (InTASC 3) (CEC 2) (ISTE 5) *(CSLO 1)*
10. (Application Level) Implement effective classroom management techniques to support the social and emotional development of students. (InTASC 3) (CEC 2) (ISTE 6) *(CSLOs 1, 4)*
11. (Application Level) Demonstrate professionalism and adherence to ethical standards in all interactions with students, colleagues, and families. (InTASC 9) (CEC 6) (ISTE 7) *(CSLOs 1, 3)*
12. (Evaluation Level) Reflect on teaching practices to identify areas for professional growth and development. (InTASC 9) (CEC 6) (ISTE 5) *(CSLO 3)*
13. (Understanding Level) Recognize and respond to the unique cognitive, academic, social, and behavioral characteristics of students with mild to moderate disabilities. (InTASC 1) (CEC 1) (ISTE 1) *(CSLOs 1, 4)*
14. (Application Level) Utilize technology for data collection, progress monitoring, collaboration, and support of student learning. (InTASC 8) (CEC 5, 7) (ISTE 6) *(CSLOs 1, 2, 3, 4)*

ESE490A - Student Teaching Alternative: Mild to Moderate Special Education 9-12, TIR

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) capstone course provides student teachers with the opportunity to apply the knowledge and skills gained throughout their special education program in a real-world grades 9-12 classroom setting. Candidates in ESE490A are in the Alternative Teacher in Residence (TIR) program and are serving on a teaching contract in a special education 9-12 setting. With support from an on-site certified special education teacher and the ESE490A instructor, student teachers will engage in the practical implementation of instructional strategies, assessment techniques, classroom management, and collaboration practices aligned with the Council for Exceptional Children CEC Initial Preparation Standards. This immersive experience is designed to prepare student teachers for a successful career in special education, supporting students with mild to moderate disabilities. Prerequisites: Baccalaureate Degree and formal acceptance to the Central Arizona College state approved Post-Baccalaureate Special Education program and capstone readiness approval are required before enrolling in this course. Prior to ESE490A, students will complete ESE390A to include 45 hours of field experience under the auspice of a special education mentor teacher in grades K-8. Students will enroll in this course the final 12 weeks of the program, completing 12 weeks of student teaching in grades 9-12. This is the capstone experience required by the post baccalaureate program and must be completed to be eligible for Institutional Recommendation for state teaching certification.

Total Number Of Credits:
8

Lecture Credits
2

Internship Credits
11

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate understanding and application of universal precautions, such as hand hygiene, use of personal protective equipment (PPE), and proper sanitation practices, to maintain a safe and healthy educational environment. (InTASC 1, 9) (CEC 2) *(CSLO 1)*
2. (Creating Level) Develop and implement comprehensive individualized programs in conjunction with student and family input and other team members. (InTASC 1) (CEC 5, ISCI 5 S1) (ISTE 2, 4) *(CSLO 1, 2, 3, 4)*
3. (Application Level) Demonstrate the ability to provide effective guidance and direction to paraeducators, tutors, and volunteers. (InTASC 10) (CEC 6.6 ISCI 6 S4) (ISTE 2) *(CSLO 1, 2, 3, 4)*
4. (Creating Level) Develop and implement lesson plans that are responsive to the diverse learning needs of students with mild to moderate disabilities. (InTASC 7) (CEC 5) (ISTE 5) (Arizona Academic Standards 9-12) *(CSLO 1, 2)*
5. (Application Level) Apply evidence based instructional practices, including Universal Design for Learning (UDL) and differentiated instruction. (InTASC 8) (CEC 5) (ISTE 6) *(CSLO 1, 2)*
6. (Analysis Level) Analyze assessment data to identify a student's academic and behavioral strengths and needs and adjust instruction accordingly. (InTASC 6) (CEC 4) (ISTE 7) *(CSLO 1, 2, 3, 4)*
7. (Application Level) Work effectively with general education teachers, related service providers, families, and caregivers to support student learning. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
8. (Application Level) Engage in collaborative problem solving and co-teaching practices to enhance educational outcomes for students. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
9. (Creating Level) Create and maintain a positive, inclusive classroom environment that promotes student engagement and positive behavior. (InTASC 3) (CEC 2) (ISTE 5) *(CSLO 1)*
10. (Application Level) Implement effective classroom management techniques to support the social and emotional development of students. (InTASC 3) (CEC 2) (ISTE 6) *(CSLO 1, 4)*
11. (Application Level) Demonstrate professionalism and adherence to ethical standards in all interactions with students, colleagues, and families. (InTASC 9) (CEC 6) (ISTE 7) *(CSLO 1, 3)*
12. (Evaluation Level) Reflect on teaching practices to identify areas for professional growth and development. (InTASC 9) (CEC 6) (ISTE 5) *(CSLO 3)*
13. (Understanding Level) Recognize and respond to the unique cognitive, academic, social, and behavioral characteristics of students with mild to moderate disabilities. (InTASC 1) (CEC 1) (ISTE 1) *(CSLO 1, 4)*
14. (Application Level) Utilize technology for data collection, progress monitoring, collaboration, and support of student learning. (InTASC 8) (CEC 5, 7) (ISTE 6) *(CSLO 1, 2, 3, 4)*

Specialty area MSLOs for high school learners:

1. (Creating Level) Design and implement transition plans that include career development and align with student interests and goals. (InTASC 7) (CEC 6) (ISTE 4) *(CSLO 1, 3)*
2. (Analysis Level) Use assessments to identify students' career interests and potential pathways for an appropriate course of study. (InTASC 6) (CEC 4) (ISTE 7) *(CSLO 1)*
3. (Creating Level) Create and deliver career focused instructional activities that align with student strengths, preferences, and interests. (InTASC 7) (CEC 5) (ISTE 5) *(CSLO 1, 2, 3, 4)*
4. (Application Level) Implement activities that promote self-determination and self-advocacy skills in students. (InTASC 3) (CEC 2) (ISTE 6) *(CSLO 1, 4)*
5. (Application Level) Support students in exploring various career options and preparing for post-secondary options. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 1, 3)*
6. (Application Level) Work effectively and collaborate with vocational rehabilitation services and other agencies to support student transition to the workforce. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 1, 3)*

ESE490B - Student Teaching Traditional: Mild to Moderate Special Education 9-12

General

Division
Teacher Education Division

Course Description
This ESE (Education Special Education) capstone course provides student teachers with the opportunity to apply the knowledge and skills gained throughout their special education program in a real-world grades 9-12 classroom setting. Under the supervision of a certified special education teacher, this course ensures that student teachers are well prepared to meet the diverse needs of students with mild to moderate disabilities, fostering an inclusive, collaborative, and effective learning environment with a special emphasis on high school transition planning and career development. This immersive experience is designed to prepare student teachers for a successful career in special education, supporting students with mild to moderate disabilities at the secondary level.
Prerequisite(s): Baccalaureate Degree and formal acceptance to the Central Arizona College state approved Post-Baccalaureate Special Education Program and capstone readiness approval are required before enrolling in this course. Students will enroll in this course the final 12 weeks of the program, completing 6 weeks of student teaching in grades K-8 (ESE480B) and 6 weeks of student teaching in grades 9-12 (ESE490B). Students will be placed in a grades 9-12 classroom under the auspice of a mentor teacher. This is the capstone experience required by the post baccalaureate program and must be completed to be eligible for Institutional Recommendation for state teaching certification.

Total Number Of Credits:
4

Lecture Credits
1

Internship Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate understanding and application of universal precautions, such as hand hygiene, use of personal protective equipment (PPE), and proper sanitation practices, to maintain a safe and healthy educational environment. (InTASC 1, 9) (CEC 2) *(CSLO 1)*
2. (Creating Level) Develop and implement comprehensive individualized programs in conjunction with student and family input and other team members. (InTASC 1) (CEC 5, ISCI 5 S1) (ISTE 2, 4) *(CSLOs 1, 2, 3, 4)*
3. (Application Level) Demonstrate the ability to provide effective guidance and direction to paraeducators, tutors, and volunteers. (InTASC 10) (CEC 6.6 ISCI 6 S4) (ISTE 2) *(CSLOs 1, 2, 3, 4)*
4. (Creating Level) Develop and implement lesson plans that are responsive to the diverse learning needs of students with mild to moderate disabilities. (InTASC 7) (CEC 5) (ISTE 5) (Arizona Academic Standards 9-12) *(CSLOs 1, 2)*
5. (Application Level) Apply evidence based instructional practices, including Universal Design for Learning (UDL) and differentiated instruction. (InTASC 8) (CEC 5) (ISTE 6) *(CSLOs 1, 2)*
6. (Analysis Level) Analyze assessment data to identify a student's academic and behavioral strengths and needs and adjust instruction accordingly. (InTASC 6) (CEC 4) (ISTE 7) *(CSLOs 1, 2, 3, 4)*
7. (Application Level) Work effectively with general education teachers, related service providers, families, and caregivers to support student learning. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
8. (Application Level) Engage in collaborative problem solving and co-teaching practices to enhance educational outcomes for students. (InTASC 10) (CEC 7) (ISTE 4) *(CSLO 3)*
9. (Creating Level) Create and maintain a positive, inclusive classroom environment that promotes student engagement and positive behavior. (InTASC 3) (CEC 2) (ISTE 5) *(CSLO 1)*
10. (Application Level) Implement effective classroom management techniques to support the social and emotional development of students. (InTASC 3) (CEC 2) (ISTE 6) *(CSLOs 1, 4)*
11. (Application Level) Demonstrate professionalism and adherence to ethical standards in all interactions with students, colleagues, and families. (InTASC 9) (CEC 6) (ISTE 7) *(CSLOs 1, 3)*
12. (Evaluating Level) Reflect on teaching practices to identify areas for professional growth and development. (InTASC 9) (CEC 6) (ISTE 5) *(CSLO 3)*
13. (Understanding Level) Recognize and respond to the unique cognitive, academic, social, and behavioral characteristics of students with mild to moderate disabilities. (InTASC 1) (CEC 1) (ISTE 1) *(CSLOs 1, 4)*
14. (Application Level) Utilize technology for data collection, progress monitoring, collaboration, and support of student learning. (InTASC 8) (CEC 5, 7) (ISTE 6) *(CSLOs 1, 2, 3, 4)*

Specialty area MSLOs for high school learners:

1. (Creating Level) Design and implement transition plans that include career development and align with student interests and goals. (InTASC 7) (CEC 6) (ISTE 4) *(CSLOs 1, 3)*
2. (Analysis Level) Use assessments to identify students' career interests and potential pathways for an appropriate course of study. (InTASC 6) (CEC 4) (ISTE 7) *(CSLO 1)*
3. (Creating Level) Create and deliver career focused instructional activities that align with student strengths, preferences, and interests. (InTASC 7) (CEC 5) (ISTE 5) *(CSLOs 1, 2, 3, 4)*
4. (Application Level) Implement activities that promote self-determination and self-advocacy skills in students. (InTASC 3) (CEC 2) (ISTE 6) *(CSLOs 1, 4)*
5. (Application Level) Support students in exploring various career options and preparing for post-secondary options. (InTASC 10) (CEC 7) (ISTE 4) *(CSLOs 1, 3)*
6. (Application Level) Work effectively and collaborate with vocational rehabilitation services and other agencies to support student transition to the workforce. (InTASC 10) (CEC 7) (ISTE 4) *(CSLOs 1, 3)*

ESL089SP22 - ESL Multi Level Studies

General

Division
Adult Basic Education Division

Course Description
English language listening, speaking, reading and writing skill development, levels of Beginning Literacy - ELAA V. Learners are assessed upon entry to determine English skill levels and placed in the appropriate learning level. The course content varies according to skills that align to the six levels and standards of the Arizona Department of Education Adult Education Standards for English Language Acquisition for Adults (ELAA). Learners progress at their own pace and may repeat the course to continue in the next level as they progress toward completion of all six ELAA levels. Students may continue taking ESL/ELAA courses as long as they demonstrate an appropriate level of improvement, based on assessment scores. If a student does not improve and maintain that level of improvement after six sessions, he/she will not be permitted to continue to register for ESL/ELAA classes. Prerequisite: Pretest to determine existing skill level.

Total Number Of Credits:
0

MSLOs

Measurable Student Learning Outcomes
Upon completion of the course, students will be able to do the following at one of the six levels:

1. (Application Level) Apply the writing process and conventions of English grammar and usage rules to a variety of writing tasks.
2. (Comprehension Level) In English, orally summarize and/or interpret a variety of written texts.
3. (Comprehension Level) Demonstrate understanding of English by following written and oral instructions of varying complexity.
4. (Comprehension Level) Express personal information with varying degrees of detail.
5. (Application Level) Read and interpret a variety of functional and informational texts.
6. (Analysis Level) Interpret social discourse in multiple contexts.

EST130 - Foundations of Aesthetics I

General

Division
Aesthetician Program

Course Description
Foundations of Aesthetics I provides an essential introduction to the field of aesthetics, focusing on core principles and practices. Students will learn about infection control, career opportunities, and fundamental life skills necessary for success in the industry. The course covers practical skills in hair removal, facial treatments, and the use of various facial machines, alongside key concepts in professional image and communication. Additionally, students will explore the basics of electricity as applied to esthetics equipment and gain insights into the world of makeup. Corequisites: EST 140 & EST160.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding) Demonstrate knowledge of infection control principles and practices to ensure a safe and hygienic environment for clients. (CSLO: 1, 2)
2. (Understanding) Identify key historical milestones in the field of esthetics and explore various career paths available to estheticians. (CSLO: 3, 4)
3. (Applying) Develop essential life skills to enhance personal and professional growth in the esthetics industry. (CSLO: 2, 3)
4. (Understanding) Understand the importance of maintaining a professional image and learn strategies to project professionalism in the workplace. (CSLO: 2, 4)
5. (Applying) Improve communication skills to effectively interact with clients and colleagues. (CSLO: 1, 3)
6. (Creating) Gain practical knowledge and skills in various hair removal techniques. (CSLO: 1, 2)
7. (Applying) Learn the operation and application of different facial machines used in Aesthetics treatments. (CSLO: 1, 2)
8. (Understanding) Understand the fundamental concepts of electricity and their application in Aesthetics equipment. (CSLO: 1, 2)
9. (Understanding) Demonstrate proficiency in performing basic facial treatments. (CSLO: 1, 2)
10. (Creating) Explore various makeup techniques and their application in Aesthetics. (CSLO: 1, 4)

EST140 - Practical Skin Care Lab I

General

Division
Aesthetician Program

Course Description
Clinical Lab provides hands-on experience in applying the knowledge and skills acquired in EST130 and EST160. Students will perform a range of Aesthetic treatments, including facial procedures and hair removal techniques, under supervision to meet required clinic hours. This course emphasizes the practical application of infection control, professional image maintenance, and effective communication while working directly with clients. Corequisites: EST130 & EST160.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding) Demonstrate knowledge of infection control principles and practices to ensure a safe and hygienic environment for clients. (CSLO: 1, 2)
2. (Applying) Identify key historical milestones in the field of esthetics and explore various career paths available to estheticians. (CSLO: 3, 4)
3. (Creating) Develop essential life skills to enhance personal and professional growth in the esthetics industry. (CSLO: 2, 3)
4. (Understanding) Understand the importance of maintaining a professional image and learn strategies to project professionalism in the workplace. (CSLO: 2, 4)
5. (Creating) Improve communication skills to effectively interact with clients and colleagues. (CSLO: 1, 3)
6. (Creating) Gain practical knowledge and skills in various hair removal techniques. (CSLO: 1, 2)
7. (Creating) Learn the operation and application of different facial machines used in Aesthetics treatments. (CSLO: 1, 2)
8. (Understanding) Understand the fundamental concepts of electricity and their application in Aesthetics equipment. (CSLO: 1, 2)
9. (Applying) Demonstrate proficiency in performing basic facial treatments. (CSLO: 1, 2)
10. (Creating) Explore various makeup techniques and their application in Aesthetics. (CSLO: 1, 4)

EST160 - Foundations of Aesthetics II

General

Division
Aesthetician Program

Course Description
Foundations of Aesthetics II delves deeper into the science and practice of Aesthetics, focusing on advanced facial treatments and skin analysis. Students will learn to design optimal treatment environments, utilize facial machines, understand skin physiology, and address skin diseases and disorders. Additionally, the course covers the role of nutrition in skin health and introduces advanced treatments such as scrubs and chemical peels. Corequisites: EST130 & EST140.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding) Demonstrate advanced proficiency in performing a range of facial treatments, addressing various skin types and conditions. (CSLO: 1, 2)
2. (Analyzing) Analyze skin types and conditions to develop effective treatment plans for clients. (CSLO: 1, 3)
3. (Creating) Design and maintain an optimal treatment room environment to enhance client comfort and treatment efficacy. (CSLO: 2, 4)
4. (Applying) Utilize and maintain various facial machines, understanding their functions and benefits in esthetic treatments. (CSLO: 1, 2)
5. (Applying) Apply the principles of electricity in the use of Aesthetic equipment. (CSLO: 1, 2)
6. (Understanding) Understand the structure and functions of the skin, enabling informed and effective treatments. (CSLO: 1, 3)
7. (Applying) Identify and manage various skin diseases and disorders, ensuring safe and appropriate treatment approaches. (CSLO: 1, 3)
8. (Remembering) Recognize the role of nutrition in skin health and advise clients on dietary choices that support their skin care goals. (CSLO: 3, 4)
9. (Applying) Master advanced Aesthetic treatments, including scrubs and chemical peels, to address more complex skin care needs. (CSLO: 1, 2)

EST230 - Advanced Aesthetics I

General

Division
Aesthetician Program

Course Description
Advanced Aesthetics I explores advanced techniques and concepts in aesthetics, focusing on the integration of nutrition, anatomy, and chemistry into aesthetic practices. Students will gain expertise in makeup application, including color theory, and master dermaplaning procedures. This course also covers essential skills for state board preparation, including kit packing and makeup application standards. Prerequisites: EST130, EST140, & EST160. Corequisites: EST240 & EST260.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding) Understand the role of nutrition in maintaining skin health and apply dietary knowledge to enhance client skin care regimens. (CSLO: 3, 4)
2. (Understanding) Explain the fundamental concepts of anatomy and physiology as they relate to esthetic treatments and skin health. (CSLO: 1, 2)
3. (Application) Apply color theory principles and advanced makeup techniques, including lash band application, to achieve various esthetic looks. (CSLO: 1, 4)
4. (Understanding) Understand basic chemical principles and their applications in esthetic products and treatments. (CSLO: 1, 2)
5. (Understanding) Demonstrate the ability to pack a state board kit correctly and apply makeup according to state board standards for examination purposes. (CSLO: 1, 2)
6. (Applying) Perform lash extension techniques with precision, adhering to best practices for application and client safety. (CSLO: 1, 2)
7. (Applying) Execute dermaplaning procedures effectively, ensuring safe and accurate exfoliation for improved skin texture and appearance. (CSLO: 1, 2)

EST240 - Advanced Practical Skin Care Lab I

General

Division
Aesthetician Program

Course Description
Advanced Practical Skin Care Lab is a hands-on course where students apply the advanced knowledge and skills acquired in EST230 and EST260. Under supervision, students perform a variety of aesthetic services on the public, including advanced treatments and makeup applications. This course emphasizes practical experience, client interaction, and the integration of advanced techniques to meet required clinic hours, preparing students for successful careers in the aesthetics industry. Prerequisites: EST130, EST140, & EST160. Corequisites: EST230 & EST260.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing) Assess clients' dietary habits and recommend nutrition plans to improve and maintain skin health. (CSLO: 3, 4)
2. (Analyzing) Analyze clients' anatomical and physiological features to tailor Aesthetic treatments effectively. (CSLO: 1, 2)
3. (Creating) Create advanced makeup looks using color theory principles and execute lash band applications to achieve desired esthetic results. (CSLO: 1, 4)
4. (Application) Apply chemical principles to select and use esthetic products and treatments appropriately. (CSLO: 1, 2)
5. (Understanding) Demonstrate proficiency in packing a state board kit and apply makeup according to state board standards in practical exams. (CSLO: 1, 2)
6. (Applying) Perform lash extension techniques with a high degree of precision, ensuring client safety and satisfaction. (CSLO: 1, 2)
7. (Applying) Execute dermaplaning procedures accurately, enhancing clients' skin texture and appearance through safe exfoliation. (CSLO: 1, 2)
8. (Evaluating) Evaluate and recommend appropriate skin care products based on their ingredients and effects for individual client needs. (CSLO: 1, 3)
9. (Applying) Perform advanced esthetic treatments, including microdermabrasion, ultrasonic therapy, and micro-needling, with proficiency and adherence to safety protocols. (CSLO: 1, 2)
10. (Creating) Develop comprehensive career plans, including goal setting, resume building, and interview preparation, to successfully enter the Aesthetics industry. (CSLO: 2, 4)

EST260 - Advanced Aesthetics II

General

Division
Aesthetician Program

Course Description
Advanced Aesthetics II course equips students with the knowledge and skills to evaluate skincare products, perform specialized treatments such as microdermabrasion and micro-needling, and develop proficiency in state board practical skills. Students will also learn business management fundamentals, career planning, and effective sales techniques, preparing them for success in the aesthetics industry. Through hands-on practice and a comprehensive final exam, students will synthesize their learning to meet state licensure requirements and pursue professional opportunities with confidence. Prerequisites: EST130, EST140, & EST160. Corequisites: EST230 & EST240.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating) Evaluate different skin care products, understanding their ingredients and effects to make informed recommendations to clients. (CSLO: 1, 3)
2. (Applying) Perform advanced esthetic treatments such as microdermabrasion, ultrasonic therapy, and micro-needling with proficiency and safety. (CSLO: 1, 2)
3. (Creating) Develop a comprehensive career plan, including setting goals, creating a resume, and preparing for job interviews in the esthetics industry. (CSLO: 2, 4)
4. (Understanding) Understand the fundamentals of running a successful skin care business, including management, operations, and client relations. (CSLO: 3, 4)
5. (Applying) Master sales techniques to effectively market and sell esthetic products and services to clients. (CSLO: 1, 3)
6. (Understanding) Demonstrate the ability to pack a state board kit and perform practical esthetic skills to meet state board examination requirements. (CSLO: 1, 2)
7. (Remembering) Synthesize knowledge and skills from the entire esthetics program to successfully complete a comprehensive final exam. (CSLO: 1, 2)

FSC106 - Introduction to Emergency Services

General

Division
Fire Science Division

Course Description
An overview of fire protection and emergency services delivery at the local and national levels, including: career opportunities in fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; fire service laws and regulations; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; and an introduction to The National Incident Management Systems.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe and discuss the components of the history and philosophy of the modern day fire service. (CSLO #2)
2. (Analysis Level) Explain the basic components of fire as a chemical reaction, the major phases of fire, and examine the main factors that influence fire spread and fire behavior. (CSLOs #2, 4)
3. (Analysis Level) Differentiate between fire service training and education; fire protection certificate program and a fire service degree program; and explain the value of education in the fire service. (CSLOs #2, 3)
4. (Comprehension Level) List and describe the major organizations that provide emergency response service and illustrate how they interrelate. (CSLOs #1, 2)
5. (Knowledge Level) Identify fire protection and emergency-service careers in both the public and in the private sector. (CSLOs #2, 3)
6. (Comprehension Level) Summarize the role of national, state and local support organizations in fire protection and emergency services. (CSLO #2)
7. (Comprehension Level) Describe and discuss the scope, purpose, and organizational structure of fire and emergency services. (CSLO #2)
8. (Knowledge Level) Describe the common types of fire and emergency service facilities, equipment, and apparatus. (CSLO #2)
9. (Evaluation Level) Compare and contrast effective management concepts at the local and regional level for various emergency situations. (CSLOs #2, 4)
10. (Comprehension Level) Identify and explain the components of fire prevention including code enforcement, public information, and public and private fire protection systems. (CSLOs #1, 2)
11. (Analysis Level) Recognize the components of career preparation and goal setting. (CSLO #3)
12. (Comprehension Level) Describe the importance of wellness and fitness as it relates to emergency services. (CSLO #3)

FSC108 - Fundamentals of Fire Prevention

General

Division
Fire Science Division

Course Description
Organization and function of a fire prevention bureau including familiarization with state and local laws and ordinances, codes and principles of fire prevention, the inspector's job, and public relations. Fundamentals of fire prevention. Includes techniques, procedures, regulations, and enforcement. Also includes discussion of hazards in ordinary and special occupancies. Field trips and lectures from industry also included.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define the national fire problem and role of fire prevention. (CSLOs #1, 2)
2. (Comprehension Level) Describe the need, responsibilities, and importance of fire prevention organizations and associations. (CSLOs #1, 2)
3. (Comprehension Level) Explain the components of an inspection and the enforcement steps that are utilized. (CSLOs #2, 4)
4. (Comprehension Level) Describe governmental division of authority having jurisdiction relating to fire prevention laws, rules, regulations, and codes and identify those relevant to fire prevention. (CSLOs #2, 4)
5. (Comprehension Level) Explain the difference between laws, regulations, and standards, and cite examples of each. (CSLOs #2, 4)
6. (Comprehension Level) Describe the main structural components of building construction and their relationship to fire safety. (CSLOs #2, 4)
7. (Comprehension Level) Describe the components and utilization of the various types of fire extinguishment, protection, and alarm systems. (CSLO #2)
8. (Comprehension Level) Summarize the basic steps necessary for the investigation of fires. (CSLOs #2, 4)
9. (Comprehension Level) Explain the major public education activities and their objectives. (CSLOs #1, 2)
10. (Comprehension Level) Describe the components of a fire prevention record and reporting system. (CSLOs #2, 3)
11. (Comprehension Level) Identify, define and describe the terminology and chemistry of fire as pertaining to fire hazards. (CSLO #2)
12. (Comprehension Level) Explain the requirements, need and purpose for fire cause determination and investigation. (CSLOs #2, 4)
13. (Comprehension Level) Define and describe the equipment and systems for private fire protection. (CSLO #2)
14. (Application Level) Identify, describe and demonstrate knowledge of and procedures for processing all necessary inspection records and reports. (CSLOs #2, 3)
15. (Application Level) Describe and demonstrate correct procedures for the conduct of inspections and surveys by fire companies. (CSLOs #2, 3)
16. (Comprehension Level) Define and describe the regulations and acceptable installation, maintenance and transportation of storage tanks for flammable and combustible liquids. (CSLOs #2, 4)
17. (Application level) Conduct a field test of interior finishes. (CSLOs #2, 4)
18. (Knowledge level) Define the functions of a fire prevention bureau. (CSLO #2)
19. (Comprehension Level) Describe inspection practices and procedures. (CSLO #2)
20. (Comprehension Level) Identify and describe the standards for professional qualifications for Fire Marshal, Plans Examiner, Fire Inspector, Fire and Life Safety Educator, and Fire Investigator. (CSLOs #2, 3)
21. (Knowledge Level) List opportunities in professional development for fire prevention personnel. (CSLO #3)
22. (Comprehension Level) Describe the history and philosophy of fire prevention. (CSLOs #1, 2)

FSC109 - Fire Protection Systems

General

Division
Fire Science Division

Course Description
This course provides a comprehensive and concise overview of the design and operation of the various types of fire protection systems, including fire alarm and detection systems, automatic fire sprinkler systems, special hazard fire protection systems, smoke control and management systems, and security and emergency response systems. Prerequisite: FSC140.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the benefits of fire protection systems in various types of structures. (CSLOs #2, 4)
2. (Comprehension Level) Describe the basic elements of a public water supply system including sources, distribution networks, piping and hydrants. (CSLO #2)
3. (Evaluation Level) Assess why water is a commonly used extinguishing agent. (CSLOs #2, 4)
4. (Comprehension Level) Identify and explain the different types and components of sprinkler, standpipe and foam systems. (CSLO #2)
5. (Comprehension Level) Review and summarize residential and commercial sprinkler legislation. (CSLOs #1, 2)
6. (Comprehension Level) Identify and explain the different types of non-water-based fire suppression systems. (CSLO #2)
7. (Analysis Level) Research and differentiate the basic components of a fire alarm system. (CSLOs #2, 4)
8. (Comprehension Level) Identify the different types of detectors and explain how they detect fire. (CSLO #2)
9. (Comprehension Level) Describe the hazards of smoke and list the four factors that can influence smoke movement in a building. (CSLOs #2, 4)
10. (Comprehension Level) Discuss the appropriate application of fire protection systems. (CSLOs #2, 4)
11. (Evaluation Level) Explain and critique the operation and appropriate application for the different types of portable fire protections systems. (CSLOs #2, 4)

Course Requisites

FSC110 - Fire and Emergency Services Safety and Survival

General

Division
Fire Science Division

Course Description
Introduction to the basic principles and history related to the 16 National Fire Fighter Life Safety Initiatives, focusing on the need for cultural and behavior change throughout the emergency services. Encompasses three of the latest trends with the fire service (as it relates to college education): following the FESHE guidelines, a greater emphasis on the application of risk management, and online courses.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Define and describe the need for a cultural and behavioral change within the emergency services relating to safety, incorporating leadership, supervision, accountability and personal responsibility.
2. (Evaluation Level) Explain the need for enhancements of personal and organizational accountability for health and safety.
3. (Knowledge Level) Define how the concepts of risk management affect strategic and tactical decision making.
4. (Evaluation Level) Describe and evaluate circumstances that might constitute an unsafe act.
5. (Evaluation Level) Explain the concept of empowering all emergency services personnel to stop unsafe acts.
6. (Evaluation Level) Validate the need for national training standards as they correlate to professional development inclusive of qualifications, certifications and re-certifications.
7. (Evaluation Level) Defend the need for annual medical evaluations and the establishment of physical fitness criteria for emergency services personnel throughout their careers.
8. (Evaluation Level) Explain the vital role of local departments in national research and data collection systems.
9. (Analysis Level) Illustrate how technological advancements can produce higher levels of emergency services safety and survival.
10. (Evaluation Level) Explain the importance of investigating all near-misses, injuries, and fatalities.
11. (Comprehension Level) Discuss how incorporating the lessons learned from investigations can support cultural change throughout the emergency services.
12. (Comprehension Level) Describe how obtaining grants can support safety and survival initiatives.
13. (Synthesis Level) Formulate an awareness of how adopting standardized policies for responding to emergency scenes can minimize near-misses, injuries and deaths.
14. (Evaluation Level) Explain how the increase in violent incidents impacts safety for emergency services personnel when responding to emergency scenes.
15. (Knowledge Level) Recognize the need for counseling and psychological support for emergency services personnel and their families, as well as identify access to local resources and services.
16. (Comprehension Level) Describe the importance of public education as a critical component of life safety programs.
17. (Synthesis Level) Discuss the importance of fire sprinklers and code enforcement.
18. (Evaluation Level) Explain the importance of safety in the design of apparatus and equipment.

FSC111 - Emergency Driver Operator

General

Division
Fire Science Division

Course Description
Emergency vehicle operator training including the problems facing operators; the personal qualities of emergency vehicle operator candidates; legal responsibilities of operators; and physical forces involved in driving an emergency vehicle. Prerequisites: FSC117; FSC118; and Program Director Consent.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the problems facing the operators of emergency vehicles. (CSLO #2)
2. (Application Level) Define and demonstrate the skills and attributes required of a candidate for operating an emergency vehicle. (CSLO #3)
3. (Comprehension Level) Explain the legal responsibilities of the emergency vehicle operator. (CSLO #1)
4. (Knowledge Level) Identify the physical forces involved in the operation of an emergency vehicle. (CSLO #2)
5. (Knowledge Level) Describe preventative vehicle maintenance and maintenance record programs. (CSLO #2)
6. (Application Level) Explain and demonstrate the necessity for standard operating procedures. (CSLOs #3, 4)
7. (Knowledge Level) Identify the state and local laws that govern the operation of an emergency vehicle. (CSLOs #1, 2)
8. (Comprehension Level) List and describe the responsibilities and characteristics of the safe emergency vehicle operator. (CSLOs #1, 2)
9. (Comprehension Level) Define and exemplify defensive driving. (CSLOs #2, 4)
10. (Application Level) Demonstrate procedures and adjustments required to start up the emergency vehicle. (CSLO #3)
11. (Application Level) Drive the obstacle course and obtain a passing score based on driving ability. (CSLO #3)
12. (Application Level) Drive the emergency vehicle on the road and obtain a passing score based on maneuvers and verbalization. (CSLO #3)
13. (Application Level) Identify and correctly operate foam equipment and foam systems. (CSLOs #2, 4)
14. (Application Level) Troubleshoot common problems during pumping and driving operations. (CSLOs #2, 4)

Course Requisites

FSC117 - Fire Apparatus and Equipment

General

Division
Fire Science Division

Course Description
Principles of care, maintenance and operation of fire apparatus and pumps. Course includes pump construction and accessories, pumping techniques, power development and transmission. Driving, troubleshooting and producing effective fire streams are emphasized. Prerequisite: FSC 140 or Director approval.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the evolution of fire apparatus and cite the pumper classifications currently in use in the fire service. (CSLO #2)
2. (Comprehension Level) Describe the types of pumps used on fire apparatus and explain the basic theory of pumping. (CSLO #2)
3. (Application Level) Pump a fire apparatus following the proper procedures. (CSLOs #3, 4)
4. (Comprehension Level) Cite the pump accessories provided on fire apparatus and discuss the function of each. (CSLO #2)
5. (Evaluation Level) Explain the relationship between static pressure, residual pressure and cavitation. (CSLOs #2, 4)
6. (Comprehension Level) Discuss the types of serial apparatus including the functions and method of operating each. (CSLO #2)
7. (Comprehension Level) Describe safe driving procedures for driving fire apparatus and identify common causes of accidents. (CSLOs #1, 3)

Course Requisites

FSC118 - Fire Hydraulics

General

Division
Fire Science Division

Course Description
Review of basic mathematics, hydraulic laws and formulas as applied to the fire service. Application of formulas and calculations to hydraulic problems, water supply variables and discharge requirements for pumps. Recommended: Completion of FSC117 prior to enrolling.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Solve mathematical problems involving basic mathematics, fractions, decimals and square roots. (CSLOs #3, 4)
2. (Evaluation Level) Interpret the principles and characteristics of water and pressure as they relate to fire streams. (CSLOs #2, 4)
3. (Comprehension Level) Explain pounds per square inch and the formula for computing friction loss. (CSLO #2)
4. (Comprehension Level) Explain the types of fire streams and the general uses of each. (CSLO #2)
5. (Comprehension Level) Explain nozzle pressure and compute related hydraulics problems. (CSLO #2)
6. (Comprehension Level) Explain gallons per minute and computer-related hydraulics problems. (CSLO #2)
7. (Application Level) Compute hydraulics problems relating to friction loss in various sizes of hose and types of appliances. (CSLOs #3, 4)
8. (Evaluation Level) Interpret the rules of thumb for fire-ground hydraulics. (CSLO #4)
9. (Comprehension Level) Explain the relationship between residual and static pressure. (CSLO #2)
10. (Comprehension Level) Explain engine pressure and compute related hydraulic problems. (CSLOs #2, 3, 4)
11. (Synthesis Level) Summarize water supply and explain related hydraulic formulas. (CSLOs #2, 4)

Course Requisites

FSC119 - Fire Service Ethics

General

Division
Fire Science Division

Course Description
Explore the ethical and moral obligations of fire service professionals who deal with the quality of internal and external customer service.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define ethics and ethical behavior as they relate to the fire service. (CSLOs #1, 3)
2. (Analysis Level) Analyze various codes and standards which affect the fire service, based on case scenarios. (CSLOs #2, 4)
3. (Comprehension Level) Identify and explain the fire departments' organizational structure and line of authority. (CSLO #2)
4. (Comprehension Level) Identify and explain the foundation of ethics as it applies to firefighter duties and liabilities. (CSLOs #1, 3)
5. (Analysis Level) Examine and discuss equal employment opportunity, discrimination, and required accommodations in the work place. (CSLOs #1, 3)
6. (Evaluation Level) Interpret and explain the intent of Federal laws such as the American Disabilities Act, the Family Medical Leave Act, labor and employment laws, and how they relate to the fire service. (CSLOs #1, 2, 4)
7. (Synthesis Level) Create a plan to optimize your physical health, mental health and wellness by analyzing your current condition and identifying your recourses/ support groups to achieve your goal. (CSLOs #3, 4)
8. (Evaluation Level) Evaluate incident case scenarios to identify the best possible outcome as guided by National Safety Standards. (CSLOs #2, 4)

FSC126 - Urban Technical Rescue:Rope

General

Division
Fire Science Division

Course Description
The basic uses of rope rescue equipment to the standards of the State of Arizona for Rope 1. Students must be employed/a member of public safety. Director approval required. Students sponsored by agencies are required to provide their own equipment. Prerequisite: Director approval required.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Describe and differentiate the types of rope and rope systems as they apply to field application in low angle (0 degree to 90 degree) evacuations. 2. (Comprehension Level) Describe and list the different types of hardware and software such as rescue rope, prusiks, webbings harnesses and accessory cord. 3. (Application Level) Demonstrate correct knot tying as required by the National Fire Protection Association (NFPA) for rope rescue. 4. (Comprehension Level) Describe mechanical advantage systems. 5. (Synthesis Level) Describe and perform patient packaging in a rope rescue scenario. 6. (Comprehension Level) Describe different types of terrain that will involve the use of rope rescue techniques.

Course Requisites

FSC129 - Haz-Mat Awareness/Operations

General

Division
Fire Science Division

Course Description
Hazardous Materials First Responder Operations and Confined Space Operations basic skills in accordance with the National Fire Protection Agency Association, including: 1) basic methods of recognition and identification based on the chemical and physical properties of hazardous materials; 2) basic safety procedures when utilizing specific types of protective clothing and equipment; and 3) basic tactical information relating to scene management. Students who wish to test for International Certification must pass the Awareness Level Exam prior to taking the Operations Level Exam.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Describe how various common fire alarm situations involve hazardous materials and develop plans to manage each scenario. (CSLO 2 & 4)
2. (Comprehension Level) Explain why the ability to recognize potential hazards, identify hazards, and to deploy a management plan are important to first responders. (CSLO 2, 3 & 4)
3. (Synthesis Level) Explain how the location of an incident may indicate the type and quantity of hazards present and create hazard management plans. (CSLO 2 & 4)
4. (Analysis Level) Identify, describe, and analyze the short-term and long-term toxic effects that may result from exposure to biological and industrial hazards. (CSLO 2 & 4)
5. (Synthesis Level) Explain why medical surveillance is important to first responders, discuss the requirements for medical surveillance under the applicable OSHA and EPA standards, and create a plan. (CSLO 2 & 4)
6. (Synthesis Level) Use the four basic clues for identifying hazardous materials to include the Department of Transportation (DOT) system placarding, labeling, and the hazards presented; and identify the (National Fire Prevention Association) NFPA 704 marking system; and create plans to minimize or mitigate these hazards during an incident. (CSLO 2, 3 & 4)
7. (Evaluation Level) Identify highway cargo tanks, pressure and non-pressure tanks, and rail tank cars by shape to assess types of hazardous commodities carried in each, then create a plan of action to contain a spill, fire, or airborne threat. (CSLO 2 & 4)
8. (Application Level) Locate and use resources to further identify hazardous materials. (CSLO 2 & 4)
9. (Knowledge Level) Define vapor density, flash point, lower- and upper-explosive limits, specific gravity, solubility, and vapor pressure. (CSLO 2 & 4)
10. (Comprehension Level) Explain the limitations of structural firefighting gear and self-contained breathing apparatus (SCBA) and the types of respiratory equipment needed for each hazardous materials incident operation. (CSLO 2 & 4)
11. (Evaluation Level) Explain the importance of scene management at a hazardous materials incident and create and critique plans with an emphasis on the common components of an incident management system. (CSLO 2, 3 & 4)
12. (Knowledge Level) Define hot, warm, and cold zones and list the areas or functions that might be found within each zone. (CSLO 2 & 4)
13. (Comprehension level) Describe the first responder's initial responsibilities upon arriving at a hazardous materials incident. (CSLO 1, 2 & 4)

Course Requisites

FSC130 - Fitness for Firefighters/CPAT

General

Division
Fire Science Division

Course Description
Skills and abilities required for entry level position in the fire service including physical ability and stamina. Opportunity to take the International Association of Fire Fighters (IAFF) Candidate Physical Ability Test (CPAT) at the end of the course. May take 2 times for credit. S/U option available.

Total Number Of Credits:
1.5

Lecture Credits
1.5

MSLOs

Measurable Student Learning Outcomes
1. Explain the physical demands of firefighting. 2. Identify the five components of physical fitness. 3. Explain the five basic exercise principles. 4. Identify and explain the four main concepts of cardiopulmonary endurance. 5. Describe the basics of strength training. 6. Identify the mental aspects of performance. 7. Explain the events and purpose of the Candidate Physical Ability Test (CPAT).

FSC134 - Fitness and Conditioning for Firefighters

General

Division
Fire Science Division

Course Description
Overview of all aspects of fitness for current and prospective firefighters, including physical fitness and workout techniques as they apply to performing specific firefighting tasks. Students should be in good physical condition and have no existing health conditions which may preclude them from fully participating in the course. Corequisite: FSC140.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the physical requirements for performing basic firefighting tasks. (CSLO 2, 4)
2. (Comprehension Level) Explain the relationship of proper nutrition to total fitness. (CSLO 2, 3, 4)
3. (Comprehension Level) Explain the impact of protective clothing on the physical performance of firefighters. (CSLO 2, 4)
4. (Comprehension Level) Explain the physical aspects of well-being and conditioning. (CSLO 2, 3, 4)
5. (Application Level) Demonstrate proper exercise techniques for specific conditioning programs.
6. (Comprehension Level) Explain the relationship between training and effective physical performance. (CSLO 2, 3, 4)
7. (Application Level) Perform specific manipulative firefighter tasks. (CSLO 2, 3)
8. (Analysis Level) Explain the relationship between firefighter fitness evaluations and the physical agility pre-employment tests. (CSLO 2, 4)
9. (Evaluation Level) Contrast and compare firefighter health and fitness to performance, productivity, and quality of life in the workplace. (CSLO 2, 4)

Course Requisites

FSC140 - Firefighter I and II

General

Division
Fire Science Division

Course Description
Introductory fire science primarily targeting the fire department recruit. Includes firefighting skills, equipment, and administrative policies, fire department operations, personnel policies, and International Fire Service Accreditation Congress Practical Skills Testing. Prerequisite: FSC134. Corequisite: FSC129.

Total Number Of Credits:
10

Lecture Credits
8

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine and relate the organization, services provided, and dispatch policies of the fire department. (CSLO 2,3,4)
2. (Comprehension Level) Describe the theory of fire behavior, phases of fire, classes of fires, and the methods of fire control. (CSLO 2,4)
3. (Comprehension Level) Describe the importance of firefighter safety on the fireground and in the fire station, and explain what constitutes protective clothing. (CSLO 2,4)
4. (Application Level) Use proper rope inspection procedure and tie the standard knots and hitches used by the fire department. (CSLO 2,3,4)
5. (Comprehension Level) Describe the components of a water supply system, and demonstrate the proper method of operating a fire hydrant and using foam. (CSLO 2,3,4)
6. (Analysis Level) Research and differentiate between the types, functions, and maintenance of fire apparatus and equipment, including safe operation. (CSLO 2,3,4)
7. (Comprehension Level) Describe the principles of building construction, types of construction, and how building construction relates to firefighting operations. (CSLO 2,3,4)
8. (Synthesis Level) Use search and rescue techniques in a structure to remove a victim. (CSLO 2,3,4)
9. (Synthesis Level) Ventilate a structure using both horizontal and vertical techniques and the proper equipment. (CSLO 2,3,4)
10. (Comprehension Level) Explain the use and techniques of salvage and overhaul using salvage cover throws. (CSLO 2,3,4)
11. (Application Level) Explain and demonstrate overall tactical operations applied to a structural fire. (CSLO 2,3,4)
12. (Analysis Level) Describe the hazards that electricity poses to firefighters and cite specific electrical emergencies. (CSLO 2,3,4)
13. (Comprehension Level) Describe radiological hazards encountered by firefighters and the methods for monitoring exposure levels. (CSLO 2,3,4)
14. (Comprehension Level) Explain the importance of firefighters maintaining a high level of physical and mental fitness. (CSLO 2,3,4)
15. (Comprehension Level) Describe the function of fire prevention and investigation programs in the fire department. (CSLO 2,3,4)
16. (Comprehension Level) Describe various fire code violations. (CSLO 2,4)
17. (Comprehension Level) Describe the organization plan during a given incident, and explain the role of fire companies. (CSLO 2,4)
18. (Comprehension Level) Describe the four tactical priorities of a fireground incident. (CSLO 2,4)
19. (Comprehension Level) Describe fire department radio communications. (CSLO 2,4)
20. (Application Level) Describe the characteristics of the incident management system (IMS), and function in an assigned role within the IMS. (CSLO 2,4)
21. (Analysis Level) Describe the threat posed by terrorism, and be able to differentiate between chemical and biological agents/hazards. (CSLO 2,3,4)
22. (Comprehension Level) Identify physical properties of the three states of matter. (CSLO 2,4)
23. (Analysis Level) Categorize the components of fire. (CSLO 2,4)
24. (Evaluation Level) Explain and assess the physical and chemical properties of fire. (CSLO 2,3,4)
25. (Application Level) Describe and apply the process of burning. (CSLO 2,3,4)
26. (Knowledge Level) Define and use basic terms and concepts associated with the chemistry and dynamics of fire. (CSLO 2,3,4)
27. (Comprehension Level) Discuss various materials and their relationship to fires as fuel. (CSLO 2,4)
28. (Application Level) Demonstrate knowledge of the characteristics of water as a fire suppression agent. (CSLO 2,4)
29. (Application Level) Articulate the variety and uses of other suppression agents and strategies. (CSLO 2,4)
30. (Analysis Level) Compare other methods and techniques of fire extinguishments. (CSLO 2,3,4)

Course Requisites

FSC180 - Wildland Fire, Module 1

General

Division
Fire Science Division

Course Description
Designed for individuals with little or no experience in the wildland environment. Provides preparation for performing as a beginning-level wildland firefighter on an engine or hand crew. Instruction will provide an introduction to wildland fire prevention, fire behavior, suppression methods, equipment considerations, safety, and incident command. This course encompasses the National Wildfire Coordinating Group content: S-110, S130/S190, S133, S134 and L-180. NWCG Certificate will be awarded after successful completion of the course and examination.

General Information:
1. Student is responsible for obtaining text book package from the SPC-CAC book store.
2. On the first day of class, CAC provides the course tools and equipment.
3. Students are required to complete instructor- facilitated homework assignments that include the successful completion of online independent study courses.

FEMA Website: http://training.fema.gov/IS/NIMS.asp
Courses: National Incident Management System NIMS:
IS-100.b - (ICS 100) Introduction to Incident Command Systems.
IS-700.a - National Incident Management Systems (NIMS), An Introduction.
IS-200.b - (ISC 200) ICS for Single Resource and initial Action Incidents.

URL NWCG Website: http://www.nwcg.gov/

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe local and interagency relationships in the Arizona Wildland Firefighting system and roles for wildland fire suppression. (CSLOs #1, 2)
2. (Evaluation Level) Compare and contrast the environmental factors of Wildland Fire that affect the start and spread of wildfire. (CSLOs #2, 4)
3. (Synthesis Level) Complete requirements for fire reporting, record keeping and complete Arizona Wildland Fire reports. (CSLO #3)
4. (Comprehension Level) List and explain the components of the Incident Command System. (CSLO #2)
5. (Evaluation Level) Compare and contrast the impact of the combustion process and fuel characteristics on wildland fires. (CSLOs #2, 4)
6. (Analysis Level) Classify the relationship of topography, weather, time of day, and fuels on fire behavior and suppression. (CSLOs #2, 4)
7. (Application Level) Identify, define, and use common wildland fire terminology. (CSLO #2)
8. (Evaluation Level) Relate and justify the requirements of initial attack, direct basic tactical operations, and fire line construction. (CSLOs #3, 4)
9. (Synthesis Level) Outline and develop a physical fitness plan that meets the standards for Wildland Firefighters. (CSLO #3)
10. (Application Level) Explain what the LCES (Lookouts, Communications, Escape Routes and Safety Zones) system is, how it relates to the Standard Firefighting Orders, and demonstrate LCES in the Wildland environment. (CSLOs #3, 4)

FSC181 - NWCG Adv Firefighter Trng S131

General

Division
Fire Science Division

Course Description
Advanced firefighter training. National Wildfire Coordinating Group standardized course. Satisfactory/Unsatisfactory grading option is available. Prerequisite: FSC180.

Total Number Of Credits:
0.5

Lecture Credits
0.5

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the appropriate information during fire suppression activities.
2. (Application Level) Demonstrate how to incorporate and maintain open lines of communication with all appropriate fire suppression personnel.
3. (Application Level) Show the ability to make informed decisions.
4. (Application Level) Apply Lookouts, Communications, Escape Routes and Safety Zones (LCS) to fireline tactics.
5. (Analysis Level) Analyze the steps required to properly size up a fire situation and determine appropriate tactics.
6. (Application Level) Demonstrate how to successfully read a map and use it during the map-reading demonstration in class.

Course Requisites

FSC182 - NWCG Portable Pumps S211

General

Division
Fire Science Division

Course Description
Combined self-paced/field exercise format providing training for a portable water pump operator per National Wildfire Coordinating Group (NWCG standardized course.) Satisfactory/Unsatisfactory grading option available. Prerequisite: FSC 180 or Director approval.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify various types of portable pumps, equipment, and hose lays.
2. (Analysis Level) Compare the two types of hose lays and select proper method providing greatest advantage and benefit.
3. (Synthesis Level) Plan and construct various methods of using water to control wildfires.
4. (Analysis Level) Analyze and perform necessary maintenance on portable pumps.

Course Requisites

FSC183 - NWCG Wildland Power Saws S212

General

Division
Fire Science Division

Course Description
Skill course designed to instruct prospective chain saw operators in the requirements of the wildfire powersaw operator position, per National Wildfire Coordinating Group (NWCG standardized course). Satisfactory/Unsatisfactory grading option available. Prerequisite: FSC 180 or director approval.

Total Number Of Credits:
1.5

Lecture Credits
1.5

MSLOs

Measurable Student Learning Outcomes
1. (Analysis level) Troubleshoot problems with an inoperable saw and perform the necessary maintenance and/or routine repair to make the saw operable. 2. (Application level) Size up designated area, clear ground work area and limb trees to head height. 3. (Application level) Size up and cut and remove a strip of brush to near ground level. 4. (Application level) Size up, cut and remove all slash. 5. (Application level) Size up, clear the work area, limb and buck a downed tree. 6. (Application level) Size up, prepare the area and fell a tree.

Course Requisites

FSC185 - NWCG Basic Incident Comd Sys

General

Division
Fire Science Division

Course Description
Designed to introduce Wildland Firefighters to the principles of the Incident Command System (ICS) associated with incident-related performance in wildfires. This course is part one in a series of seven to meet the requirements to obtain NWCG certification for Engine Boss, per National Wildfire Coordinating Group (NWCG standardized course). Satisfactory/Unsatisfactory grading option available. Prerequisite: FSC180.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the principle features of the ICS. 2. (Comprehension Level) Describe how the ICS is used to meet the organizational needs of both large and small incidents. 3. (Comprehension Level) Identify and explain the Five Primary Functions of the ICS. 4. (Analysis Level) Describe and analyze management by objectives, unity and chain of command, transfer of command, unified command, span of control, and organizational flexibility. 5. (Synthesis Level) Examine and describe common terminology, personnel accountability, integrated communications, resource management, and how to develop an incident action plan, and develop a plan for implementation. 6. (Analysis Level) Analyze and explain how the ICS develops at an incident, how it expands, contracts and transfers command. 7. (Evaluation Level) Evaluate and explain how facilities work at different stages and bases. 8. (Analysis Level) Analyze types of resources and explain how to use them.

Course Requisites

FSC186 - NWCG Crew Boss (Single Resource) S230

General

Division
Fire Science Division

Course Description
Instruction to produce student proficiency in the performance of all duties associated with the single resource crew boss, which includes preparation, mobilization, assignment, tactics and safety, demobilization at Wildfires. This course is required to obtain the NWCG Engine Boss qualification. National Wildfire Coordinating Group standardized course. Prerequisite: NWCG S131 or FSC181.

Total Number Of Credits:
1.5

Lecture Credits
1.5

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify hazards, risks and determine how to mitigate them on various incidents.
2. (Application Level) Describe tactics that are appropriate to various wildland fire situations and implement them through the chain of command.
3. (Application Level) Implement crew boss responsibilities to and during mobilization, on the incident and during demobilization.

Course Requisites

FSC187 - NWCG Engine Boss (Single Resource) S-231

General

Division
Fire Science Division

Course Description
Skill course required for Engine Boss, to produce student proficiency associated with the single resource engine boss. This course is one part of seven for the requirements to obtain NWCG certification for Engine Boss, per National Wildfire Coordinating Group (NWCG standardized course). Prerequisite: NWCG S-131 or FSC181.

Total Number Of Credits:
0.5

Lecture Credits
0.5

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify and demonstrate the tasks of the engine boss (single resource) in making tactical decisions to safely suppress a wildfire.
2. (Knowledge Level) Identify the importance of knowing the capabilities and limitations of the engine, and of the crew.
3. (Comprehension Level) Describe the procedures necessary to maintain engine inventory.
4. (Knowledge Level) Identify key sources of information to complete the tactical assignment.
5. (Comprehension Level) Identify the four fuel groups and describe expected fire behavior in each.
6. (Application Level) Describe size-up elements in a fire situation, determine tactics necessary to attack the fire.
7. (Application Level) Develop alternative methods to accomplish tasks.
8. (Analysis Level) Recognize the wildland/urban interface watch out conditions or situations.
9. (Knowledge Level) Identify personnel safety concerns in wildland/urban interface fires.

Course Requisites

FSC188 - NWCG Ignition Operation, S-234

General

Division
Fire Science Division

Course Description
Combined classroom/field exercise providing an entry-level training in the functional roles and responsibilities connected with firing operations at wildfire situations. This course is one part of seven for the requirements to obtain NWCG certification for Engine Boss. National Wildfire Coordinating Group standardized course. Prerequisite: NWCG S-290 or FSC191.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the roles and responsibilities of the single resource boss. 2. (Analysis Level) Outline and describe the roles and responsibilities of the firing and prescribed fire ignition specialist for planning, execution, safety, training, and coordination of an on-incident burn operation. 3. (Knowledge Level) Identify resources needed to successfully conduct an ignition operation for a wildland fire or prescribed fire. 4. (Synthesis Level) Develop an ignition plan demonstrating the knowledge of fire behavior, fire techniques, holding and hazard.

Course Requisites

FSC189 - NWCG Interagency Incident Business Management, S-260/S-261

General

Division
Fire Science Division

Course Description
Instruction and delivery will meet the general training needs of all positions for which an understanding of interagency incident business management is required. This course is a requirement to obtain National Wildfire Coordinating Group (NWCG) certification for Engine Boss. This Course is also a requirement for the completion of the CAC Wildland Certificate.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate and explain the incident business management practices concerning the use of human resources, recruitment, payroll, and injury compensation.
2. (Analysis Level) Analyze the application of business management involving procurement, personnel and equipment timekeeping, cooperative agreements, accident/claims, and investigations.
3. (Application Level) Utilize and coordinate the incident business management functions as they relate to multi-agency coordination to include state and federal agencies.
4. (Synthesis Level) Organize the financial coordination of property management, acquisition of supplies, equipment, and services from appropriate sources.

FSC190 - NWCG Basic Air Ops

General

Division
Fire Science Division

Course Description
Basic firefighter air operations, including aircraft types and capabilities, aviation management and safety for flying in and working with agency aircraft, tactical and logistical uses of aircraft and requirements for helicopter take-off and landing areas. This course is required to obtain National Wildfire Coordinating Group (NWCG) certification for Engine Boss and required for Wildland Firefighter I Certificate completion. Satisfactory/Unsatisfactory grading option available. Prerequisites: FSC181 or NWCG S-131.

Total Number Of Credits:
1.5

Lecture Credits
1.5

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate the Incident Command System (ICS) criteria for typing aircraft and the safety procedures to be followed while flying in or working with agency aircraft.
2. (Analysis Level) Analyze pilot and aircraft certification procedures and the importance of flight planning and flight following.
3. (Evaluation Level) Evaluate safety procedures to be followed by ground personnel during water and retardant drops.
4. (Analysis Level) Examine and explain standard target description techniques for directing pilots and indicators of effective water and retardant drops.
5. (Evaluation Level) Evaluate the specifications and safety requirements for locating and constructing helispots.

Course Requisites

FSC191 - Intermediate Wildland Fire Behavior

General

Division
Fire Science Division

Course Description
Preparation for prospective supervisors to undertake safe and effective fire management operations. This course is required to obtain National Wildfire Coordinating Group (NWCG) Certification for Engine Boss and required for the CAC Wildland Firefighter I Certificate. Satisfactory/Unsatisfactory grading option available. Prerequisites: FSC180 or NWCG 130/190.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate the environment, topographic, and fuel factors which influence the behavior of wildland fire.
2. (Comprehension Level) Describe the causes of extreme fire behavior, such as spotting, crowning, fire whirls, plume dominated, and wind-driven fires.
3. (Evaluation Level) Assess fireline data, fire behavior estimations, and identify areas where fire suppression limitations exist.

Course Requisites

FSC192 - Initial Attack Incident Commander

General

Division
Fire Science Division

Course Description
Incident commander focuses on six instructional units: Foundation Skills; Intelligence Gathering and Documentation; Sizing Up the Incident; Developing a Plan of Action; Post-fire Activities; Evaluating Incident Objectives and Managing the Incident. Discussion and exercise format culminate in unit tests and performance based evaluations. Prerequisite: FSC180.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate effective foundational skills, including leadership, risk management, and communications at the ICT4 level.
2. (Synthesis Level) Gather and document essential information about the incident.
3. (Synthesis Level) Size up the incident to develop a plan of action.
4. (Synthesis Level) Manage the incident through effective leadership.
5. (Evaluation Level) Evaluate the plan of action and make adjustments to the plan when necessary.
6. (Synthesis Level) Conduct post fire activities based on evaluation of the scene.

Course Requisites

FSC193 - NWCG L280 Followership to Leadership

General

Division
Fire Science Division

Course Description
A self-assessment opportunity for individuals preparing to step into a leadership role while working through a series of problem solving events in small teams. Training includes: leadership values and principles, transition challenges for new leaders, situational leadership, team cohesion factors, ethical decision-making and after action review techniques. Prerequisite: FSC180.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Explain, demonstrate, evaluate and justify the fundamentals of leadership principles.
2. (Evaluation Level) Assess individual traits and motivations for entering into a leadership role.
3. (Evaluation Level) Evaluate and explain leadership values and principles.
4. (Analysis Level) Identify, analyze and explain the components of transition challenges for new leaders.
5. (Analysis Level) Identify, analyze and explain the components of situational leadership and team cohesion.
6. (Evaluation Level) Evaluate the circumstances, make ethical decisions and justify them to supervisors.
7. (Application Level) Use action review techniques to justify strategic decisions.

Course Requisites

FSC202 - Supervisory Training for Firefighters

General

Division
Fire Science Division

Course Description
Administrative and personnel methods applied to fire safety, department organization and personnel management. Includes fire service planning and relationships with other city departments.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss leadership and the theories of motivation as they relate to supervisory practices. 2. (Analysis Level) Examine and relate the disciplinary process and the disciplinary tools available to supervisors. 3. (Analysis Level) Identify and compare the guidelines and methods available to make managing and planning more effective. 4. (Comprehension Level) Summarize the functions and importance of organization. 5. (Analysis Level) Examine and differentiate between major problems that serve as barriers to effective communication. 6. (Synthesis Level) Develop plans for the major areas of management that require evaluation by fire service managers.

FSC203 - Fire Ops Wildland Urb Interface

General

Division
Fire Science Division

Course Description
Designed for structural and wildland firefighters who make tactical decisions when confronting wildland fire that threatens life, property, and improvements in the wildland/urban interface. This course fulfills the requirements for S215 NWCG. Prerequisite: FSC181.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate the need for situational awareness, size-up, initial strategies for incident action planning, structure triage, and structure protection tactics.
2. (Evaluation Level) Evaluate the need for an incident action plan assessment and follow-up, public relations needs, and firefighter safety in the interface.
3. (Evaluation Level) Size-up the potential situation, order and deploy the necessary resources.
4. (Application Level) Apply safe and effective strategies and tactics to minimize the threat to life and property.
5. (Synthesis Level) Use skills and knowledge to size-up and create an action plan to address a wildland/urban interface fire incident.

Course Requisites

FSC204 - Firefight Tactics & Strategy

General

Division
Fire Science Division

Course Description
Methodical approaches for coordinating personnel, equipment and apparatus on an emergency incident with emphasis on building construction, firefighter safety and the functions of command. Commander preparation and application of concepts involved in the development and deployment of on-scene strategic or tactical plans, while utilizing simulation exercises. Prerequisite: FSC140.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Critique the development of information management and situational evaluation as it relates to the critical incident factors. (CSLOs #2, 4)
2. (Evaluation Level) Evaluate the importance of incident communications and the characteristics of a command presence. (CSLOs #3, 4)
3. (Analysis Level) Analyze the functions of resource management that are appropriate to the different levels of an emergency incident. (CSLOs #2, 4)
4. (Analysis Level) Analyze the methodical approach used by the Incident Commander to gather information during the initial size-up of an emergency incident. Apply the information during the development of an incident action plan. (CSLOs #2, 4)
5. (Analysis Level) Categorize the organizational levels and functional responsibilities of the National Incident Management System (NIMS). Review the significance of multi-agency coordination at the local and national levels. (CSLOs #1, 2)
6. (Evaluation Level) Explain the process that will determine the effectiveness of the emergency incidents tactical objectives. (CSLOs #2, 4)
7. (Analysis Level) Categorize the types of building construction and tactical considerations that will be considered during an incident, according to the National Fire Protection Association. (CSLOs #2, 4)
8. (Application Level) Demonstrate the role and assume the responsibilities of the Incident Commander at a simulated emergency incident, following local procedures and national standards.(CSLOs #3, 4)

Course Requisites

FSC205 - Command Strategies for Major Emergencies

General

Division
Fire Science Division

Course Description
Methods of managing major emergency incidents to include major wildland fires, complex hazardous materials incidents and multi-casualty medical incidents. Management of incidents with multi agency coordination and the incorporation of federal, state and local resources while utilizing simulated exercises. May take 2 times for credit. Prerequisite: FSC204 or equivalent course.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and define the main functions within the National Incident Management System (NIMS) and how they interrelate during an incident. 2. (Analysis Level) Analyze the roles and responsibilities of the Incident Commander at a simulated major emergency. 3. (Knowledge Level) Identify the critical areas of managing a major emergency when several agencies are involved. 4. (Synthesis Level) Develop the organizational structure used by Incident Commanders for all levels of expanding the incident. 5. (Synthesis Level) Develop the organizational structures used by Incident Commanders when dealing with major medical incidents. 6. (Synthesis Level) Develop the organizational structures used by Incident Commanders when dealing with hazardous materials incidents. 7. (Synthesis Level) Develop the organizational structures used by Incident Commanders when dealing with Wildland Fire situations. 8. (Comprehension Level) Describe the management of incidents requiring the commitment of resources based on transitional situations, the interactions involved with multi-agency coordination and the incorporation of federal, state and local resources. 9. (Analysis Level) Examine and explain the geographical sections and branches related to the ICS for major emergencies. 10. (Synthesis Level) Perform the role and assume the responsibilities of the Incident Commander at a simulated major emergency incident, following local procedures and national standards.

Course Requisites

FSC206 - Fire Department Health & Safety Officer

General

Division
Fire Science Division

Course Description
Preparation for Public Safety members to become Health and Safety Officers within their Fire Department or organization, including requirements to manage Fire Agency Occupational Health and Safety Programs, both emergency and non-emergency incidents. Prerequisites: FSC140 and FSC204.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Review the history of the fire department safety officer position and the key elements of the Incident Command System (ICS) that affect the duties and responsibilities of the Incident Safety Officer (ISO). (CSLO #2)
2. (Evaluation Level) Analyze and critique the Health and Safety officer responsibilities during emergency and non-emergency incidents. (CSLOs #2, 4)
3. (Evaluation Level) Design, explain and evaluate the classic risk management model and the importance of recognizing low-frequency/high-risk incidents. (CSLOs #2, 4)
4. (Analysis Level) Analyze firefighter fatalities and injuries, the organizational impact and how to determine the key risk factors. (CSLOs #2, 4)
5. (Synthesis Level) Discuss the effect of regulations, standards and policies while working as a HSO/ISO. (CSLOs #2, 4)
6. (Comprehension Level) Review the importance of a comprehensive wellness and physical fitness program. (CSLO #3)
7. (Evaluation Level) Analyze the components of a fire or Emergency Medical Services Occupational Safety and Health Program. (CSLOs #2, 4)
8. (Analysis) Review and analyze the components of a program for the selection, care and maintenance of protective clothing and equipment. (CSLOs #2, 4)
9. (Evaluation) Examine how trend analysis and post incident analysis contribute to the Occupational Safety and Health Program. (CSLOs #2, 4)
10. (Analysis Level) Explain the components of the safety procedures within the Incident Action Plan (IAP). (CSLOs #2, 4)
11. (Evaluation Level) Evaluate a situation and prepare an outline of a Standard Operating Procedure (SOP) related to the improvement of safety and communications. (CSLOs #3, 4)
12. (Synthesis Level) Analyze and apply appropriate risk management strategies to emergency operations, per case studies. (CSLOs #2, 4)

Course Requisites

FSC208 - Building Construction for the Fire Service

General

Division
Fire Science Division

Course Description
Actions necessary to provide for the safety of firefighters operating on the fireground. Effects that fire and heat may have on various types of building construction resulting in the loss of structural integrity. Includes signs and symptoms of structural damage. Prerequisites: FSC140 or current firefighter.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and differentiate the responsibilities of personnel operating on the fire-ground relating to firefighter safety. (CSLOs #3, 4)
2. (Comprehension Level) Identify and summarize the criteria used in developing protective clothing standards for firefighting equipment. (CSLOs #2, 4)
3. (Analysis Level) Compare the reaction to heat and fire of various types of construction including wood, ordinary, concrete and high rise. (CSLOs #2, 4)
4. (Analysis Level) Identify and examine methods of detection and extinguishment relating to concealed space fires in structures. (CSLOs #2, 4)
5. (Evaluation Level) Evaluate the relationship between tactical assignments and the level of risk for firefighting personnel when developing strategy. (CSLOs #3, 4)
6.(Analysis Level) Compare the different types of construction designs (past and present) and the impact on firefighting techniques. (CSLOs #2, 4)
7. (Analysis level) Examine the inherent dangers involved in structural collapse. (CSLOs #2, 4)
8. (Comprehension Level) Describe Building Construction as it relates to firefighter safety, building codes, fire prevention, code inspection, firefighting strategy, and tactics. (CSLOs #2, 4)
9. (Analysis Level) Classify major types of building construction in accordance with a local/model building code. (CSLOs #2, 4)
10. (Analysis Level) Analyze the hazards and tactical considerations associated with the various types of building construction. (CSLOs #2, 4)
11. (Evaluation Level) Identify and assess the different loads and stresses that are placed on a building and their interrelationships. (CSLOs #2, 4)
12. (Comprehension Level) Identify the function of each principle structural component in typical building design. (CSLO #2)
13. (Analysis Level) Differentiate between fire resistance, flame spread, and describe the testing procedures used to establish ratings for each. (CSLOs #2, 4)
14. (Analysis Level) Classify occupancy designations of the building code. (CSLOs #2, 4)
15. (Comprehension Level) Identify the indicators of potential structural failure as they relate to firefighter safety. (CSLOs #3, 4)
16. (Comprehension Level) Identify the role of GIS as it relates to building construction. (CSLOs #2, 4)

Course Requisites

FSC209 - Fire Origin, Cause & Determination

General

Division
Fire Science Division

Course Description
Methods of determining points of fire origin, path of travel, and fire cause. Includes recognizing and preserving evidence, interviewing witnesses, arson laws, types of arson fires, court testimony, reports, and records. Prerequisite: FSC 140 or Director approval.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) List the main elements that determine fire behavior and define heat transfer. 2. (Analysis Level) Differentiate the classifications of building construction as they relate to fire investigators. 3. (Analysis Level) Distinguish between point of origin and fire cause. 4. (Analysis Level) Identify the primary causes of accidental fires and incendiary fires. 5. (Analysis Level) Analyze the methods of photography and sketching commonly used by fire investigators. 6. (Synthesis Level) Reconstruct the proper methods of investigating and documenting a structural fire. 7. (Analysis Level) Analyze the primary considerations in investigating electrical, wildland, vehicle, and fatal fires. 8. (Evaluation Level) Compare and contrast the differences between an interview and an interrogation and the proper procedures for conducting each. 9. (Synthesis Level) Categorize methods of evidence collection and storage and the uses of forensic laboratories for fire investigations. 10. (Analysis Level) Identify the basic rules of evidence and other major legal aspects of arson prosecution. 11. (Analysis Level) Contrast the types of investigative reports and explain the content of each.

Course Requisites

FSC220 - Fire Officer Leadership

General

Division
Fire Science Division

Course Description
Supervisory capabilities which includes leadership skills and management styles. Also includes stress management, communication and motivational skills, and roles of the company officer. The course addresses ethics, use and abuse of power at the company officer level, creativity in the fire service environment, and management of the multiple roles of the company officer. This course is required for IFSAC certification as a Fire Officer I. Prerequisite: FSC202 and student must be employed as a member of public safety.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and examine traits demonstrated by successful fire service leaders. (CSLOs #3, 4)
2. (Evaluation Level) Evaluate the effects of motivation on confidence and communication between an officer and his men. (CSLOs #3, 4)
3. (Analysis Level) Apply the Keirsey Temperament Sorter to analyze character and temperament types. (CSLOs #3, 4)
4. (Analysis Level) Identify and compare fire service leadership styles. (CSLOs #3, 4)
5. (Evaluation Level) Interpret the Managerial Grid Theory and apply its principles to fire service management. (CSLOs #2, 4)
6. (Evaluation Level) Define stress and assess the causes of stressful situations. (CSLO #3)
7. (Application Level) Demonstrate relaxation and stress reduction techniques. (CSLO #3)
8. (Analysis Level) Identify and relate effective communicators. (CSLOs #3, 4)
9. (Analysis Level) Recognize poor listening habits and develop effective listening skills. (CSLOs #3, 4)
10. (Evaluation Level) Assess motivational needs of differing types of individuals. (CSLOs #3, 4)
11. (Analysis Level) List and illustrate various methods used to motivate individuals. (CSLOs #3, 4)
12. (Synthesis Level) Describe important traits and relate the role of the company officer. (CSLO #3)
13. (Evaluation Level) Evaluate personnel problems, performance factors and standards. (CSLOs #3, 4)

Course Requisites

FSC221 - Fundamentals Fire Prevention

General

Division
Fire Science Division

Course Description
No description.

Total Number Of Credits:
3

FSC223 - Intro to Fire Suppression

General

Division
Fire Science Division

Course Description
No description.

Total Number Of Credits:
3

FSC226 - Firefighter Tactics & Strategy

General

Division
Fire Science Division

Course Description
No description.

Total Number Of Credits:
3

FSC227 - Firefighter Safety & Bld Const

General

Division
Fire Science Division

Course Description
No description.

Total Number Of Credits:
3

FSC230 - Supervsry Trng for Firefighter

General

Division
Fire Science Division

Course Description
No description.

Total Number Of Credits:
3

FSC231 - Command Strategies-Major Emerg

General

Division
Fire Science Division

Course Description
No description.

Total Number Of Credits:
4

FSC238 - Vehicular Extrication and Victim Stabilization

General

Division
Fire Science Division

Course Description
Participative course designed for the Emergency Medical Technicians (EMT). Incorporates new knowledge and skills necessary to access, extricate, and care for victims of crash incidents. Provides exposure to scene management, including size-up, disentanglement, victim stabilization for single and multi-victim situations, hazardous materials incidents, integration of local emergency medical services (EMS) for patient assessment and management, and standard operating procedures to selected victim scenarios. Prerequisite: Basic EMT certification or equivalent; nurse with emergency department; permission of EMS Department.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Identify, apply and provide emergency assessment and care to victims of single- or multi-vehicle crash incidents. 2. (Evaluation Level) Manage a situation that poses a threat to a rescuer, victim and/or bystander(s). 3. (Application Level) Utilize proper protective clothing and safety equipment during all procedures. 4. (Application Level) Demonstrate how to access a patient separated by adverse terrain, water, mountains, or structural damage. 5. (Analysis Level) Differentiate between gaining access and disentanglement. 6. (Synthesis Level) Deduce and perform the easiest appropriate entry technique to victims entangled in a wrecked vehicle as rapidly as possible. 7. (Analysis Level) Differentiate and relate disentanglement methods to remove a victim from a wrecked automobile using extrication tools. 8. (Evaluation Level) Protect, lift, carry and immobilize the victim during all procedures. 9. (Analysis Level) Analyze and demonstrate victim care, immobilization and stabilization skills according to local EMS protocols and the national and state Basic EMT curriculum.

Course Requisites

FSC250 - Ladder Company Officer

General

Division
Fire Science Division

Course Description
Overview of all aspects of ladder company operations including activities, expectations, and responsibilities required of the ladder captain. Designed for the company officer who aspires to the role of ladder company officer.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the job description, roles, and responsibilities of the ladder company officer. 2. (Analysis Level) Outline the communications processes among the ladder company officer, the crew, and the battalion chief. 3. (Application Level) Relate the importance of safety in all aspects of the ladder company officer's daily duties. 4. (Application level) Relate the importance of scheduling for the ladder company. 5. (Evaluation Level) Evaluate the issues involving physical resources as they specifically affect the ladder company officer's responsibilities. 6. (Application Level) Describe the ladder company officer's responsibilities on the fire ground. 7. (Analysis Level) Examine and prioritize the non-critical but essential tasks affecting the ladder company. 8. (Analysis level) Research and relate the types of training activities in which a ladder company must participate. 9. (Evaluation Level) Explain the history and justify the importance of interpersonal skills required of a ladder company officer for internal and external relations.

FSC252 - Engine Company Officer

General

Division
Fire Science Division

Course Description
Overview of all aspects of engine company operations including the activities and responsibilities performed by the captain as well as mechanisms for developing a personal supervisory style. Designed for the aspiring company officer or anyone having the opportunity for the role of a company officer. Prerequisite: Firefighter, either volunteer or paid.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline the job description, roles, and responsibilities of the engine company officer. 2. (Analysis Level) Examine and relate the communications processes among the company officer, the crew, and the battalion chief. 3. (Evaluation Level) Identify and interpret the importance of safety in all aspects of the company officer's daily duties. 4. (Application Level) Identify and report on the importance of scheduling for the fire company. 5. (Evaluation Level) Assess the issues involving physical resources as they affect the company officer's responsibilities. 6. (Evaluation Level) Identify and interpret the company officer's responsibilities on the fire ground. 7. (Analysis Level) Identify and prioritize the non-critical but essential tasks affecting the company. 8. (Application Level) Determine and inform on the types of training activities in which a company must participate. 9. (Evaluation Level) Explain the history and evaluate the importance of interpersonal skills required of a company officer for internal and external relations.

Course Requisites

FSC255 - Fire Instructor I

General

Division
Fire Science Division

Course Description
Designed to train firefighters and emergency services instructors to teach a fire related class with basic instructional knowledge and from a prepared lesson plan. This course meets the requirements set forth in the National Fire Protection Association (NFPA) 1041 standard. Prerequisites: FSC140 or Program Director consent.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define the roles and responsibilities of the fire service instructor I. (CSLO #2)
2. (Evaluation Level) Compare and contrast the five roles of the fire service instructor. (CSLOs #2, 3)
3. (Synthesis Level) Prepare training records and report forms and submit those forms in accordance with NFPA procedures. (CSLO #3)
4. (Analysis Level) Outline the components of creating lesson plans in the fire service. (CSLOs #2, 4)
5. (Synthesis Level) Develop course materials so that the lesson plan, all materials, resources, and equipment needed to deliver the lesson are obtained. (CSLOs #2, 4)
6. (Evaluation Level) Evaluate instructional materials so that elements of the lesson plan, learning environment, and resources that need adaptation are identified. (CSLOs #2, 4)
7. (Synthesis Level) Prepare the classroom, lab or outdoor learning environment so that lighting, distractions, climate control or weather, noise control, seating, audio-visual equipment, teaching aids, and safety are considered. (CSLO #3
8. (Application Level) Use prepared lessons so that the methods indicated in the plan are used and the stated objectives or learning outcomes are achieved. (CSLOs #2, 4)

Course Requisites

FSC256 - Fire/Emerg Service Instrctr II

General

Division
Fire Science Division

Course Description
Knowledge for the Student/Instructor to develop, modify, and recognize lesson plan types and formats; create lesson plans, develop guidelines for the use of audiovisual equipment; organize and plan the supervisory/administrative components of instruction. S/U grading option available. Prerequisite: FSC255.

Total Number Of Credits:
1.5

Lecture Credits
1.5

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define the roles and responsibilities of the fire service instructor II. 2. (Evaluation Level) Compare and contrast the five roles of the fire service instructor. 3. (Analysis Level) Differentiate the various guidelines for writing learning objectives. 4. (Synthesis Level) Formulate a budget based on training goals, agency budget policy and resources that meets identified training goals. 5. (Evaluation Level) Evaluate and interpret student evaluation instruments to support instruction and the evaluation of test results.

Course Requisites

FSC140SU23 - Firefighter I and II

General

Division
No Department

Course Description
Introductory fire science primarily targeting the fire department recruit. Includes firefighting skills, equipment, and administrative policies, fire department operations, personnel policies, and International Fire Service Accreditation Congress Practical Skills Testing. Prerequisites: EMS100; EMS125, FSC129, FSC134, and Program Director approval.

Total Number Of Credits:
11

Lecture Credits
10

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine and relate the organization, services provided, and dispatch policies of the fire department. (CSLO 2,3,4) 2. (Comprehension Level) Describe the theory of fire behavior, phases of fire, classes of fires, and the methods of fire control. (CSLO 2,4) 3. (Comprehension Level) Describe the importance of firefighter safety on the fireground and in the fire station, and explain what constitutes protective clothing. (CSLO 2,4) 4. (Application Level) Use proper rope inspection procedure and tie the standard knots and hitches used by the fire department. (CSLO 2,3,4) 5. (Comprehension Level) Describe the components of a water supply system, and demonstrate the proper method of operating a fire hydrant and using foam. (CSLO 2,3,4) 6. (Analysis Level) Research and differentiate between the types, functions, and maintenance of fire apparatus and equipment, including safe operation. (CSLO 2,3,4) 7. (Comprehension Level) Describe the principles of building construction, types of construction, and how building construction relates to firefighting operations. (CSLO 2,3,4) 8. (Synthesis Level) Use search and rescue techniques in a structure to remove a victim. (CSLO 2,3,4) 9. (Synthesis Level) Ventilate a structure using both horizontal and vertical techniques and the proper equipment. (CSLO 2,3,4) 10. (Comprehension Level) Explain the use and techniques of salvage and overhaul using salvage cover throws. (CSLO 2,3,4) 11. (Application Level) Explain and demonstrate overall tactical operations applied to a structural fire. (CSLO 2,3,4) 12. (Analysis Level) Describe the hazards that electricity poses to firefighters and cite specific electrical emergencies. (CSLO 2,3,4) 13. (Comprehension Level) Describe radiological hazards encountered by firefighters and the methods for monitoring exposure levels. (CSLO 2,3,4) 14. (Comprehension Level) Explain the importance of firefighters maintaining a high level of physical and mental fitness. (CSLO 2,3,4) 15. (Comprehension Level) Describe the function of fire prevention and investigation programs in the fire department. (CSLO 2,3,4) 16. (Comprehension Level) Describe various fire code violations. (CSLO 2,4) 17. (Comprehension Level) Describe the organization plan during a given incident, and explain the role of fire companies. (CSLO 2,4) 18. (Comprehension Level) Describe the four tactical priorities of a fireground incident. (CSLO 2,4) 20. (Comprehension Level) Describe fire department radio communications. (CSLO 2,4) 21. (Application Level) Describe the characteristics of the incident management system (IMS), and function in an assigned role within the IMS. (CSLO 2,4) 22. (Analysis Level) Describe the threat posed by terrorism, and be able to differentiate between chemical and biological agents/hazards. (CSLO 2,3,4) 23. (Comprehension Level) Identify physical properties of the three states of matter. (CSLO 2,4) 24. (Analysis Level) Categorize the components of fire. (CSLO 2,4) 25. (Evaluation Level) Explain and assess the physical and chemical properties of fire. (CSLO 2,3,4) 26. (Application Level) Describe and apply the process of burning. (CSLO 2,3,4) 27. (Knowledge Level) Define and use basic terms and concepts associated with the chemistry and dynamics of fire. (CSLO 2,3,4) 28. (Comprehension Level) Discuss various materials and their relationship to fires as fuel. (CSLO 2,4) 29. (Application Level) Demonstrate knowledge of the characteristics of water as a fire suppression agent. (CSLO 2,4) 30. (Application Level) Articulate the variety and uses of other suppression agents and strategies. (CSLO 2,4) 31. (Analysis Level) Compare other methods and techniques of fire extinguishments. (CSLO 2,3,4)

GEO101 - Introduction to Cultural and Historical Geography

General

Division
Social & Behavioral Sciences Division

Course Description
Historical and contemporary spatial variations among cultural groups and spatial functioning of society. Illustrations from a variety of cultures showing how culture is constructed, contested, and contextualized. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss key themes in cultural/historical geography. 2. (Application Level) Demonstrate map-reading skills. 3. (Application Level) Demonstrate ability to understand and use charts and graphs used in cultural/historical geography. 4. (Analysis Level) Compare and contrast the cultural/historical geographies of independent states of the world. 5. (Analysis Level) Identify, discuss, and analyze concepts and issues in cultural/ historical geography, including ethnic, race, and gender issues.

Course Requisites

GEO111 - Introduction to Physical Geography

General

Division
Social & Behavioral Sciences Division

Course Description
Spatial and functional relationships among climates, landforms, soils, water and plants. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use the metric system and identify conversion factors between metric and standard measurements. 2. (Comprehension Level) Describe the face and form of the Earth. 3. (Knowledge Level) Identify Earth's place in the solar system. 4. (Application Level) Locate places on the Earth using geographic gridding systems. 5. (Knowledge Level) Identify map projections and explain their purpose. 6. (Evaluation Level) Read and interpret topographic maps using map symbols. 7. (Comprehension Level) Explain the relationship between the earth and the sun in regards to the length of days, seasons, time and solar energy. 8. (Application Level) Make time zone calculations. 9. (Comprehension Level) Identify and explain basic landform types and the basic geologic theory behind their development. 10. (Comprehension Level) Describe the classification of minerals and rocks, and identify common rocks. 11. (Comprehension Level) Describe geologic hazards such as floodplains, mass wasting zones and volcanic areas. 12. (Comprehension Level) Describe the basic weather elements. 13. (Evaluation Level) List the basic weather controls, and evaluate the effects these controls have on the weather elements. 14. (Application Level) Display on a map the geographic pattern of temperature, pressure, wind, precipitation and storms. 15. (Comprehension Level) Describe the major storm types. 16. (Comprehension Level) Explain the climatic controls. 17. (Comprehension Level) Describe the classification of world climates. 18. (Application Level) Display the world climate patterns on a world map. 19. (Application Level) Display the world vegetation on a world map, and describe the relationship between climate and vegetation. 20. (Comprehension Level) Describe soil problems. 21. (Knowledge Level) Identify the relationship between climate and soils.

Course Requisites

GLG101 - Physical Geology

General

Division
Science & Engineering Division

SUN
1101

Course Description
Basic principles of geology. Earth's minerals and rocks, external and internal processes, energy resources, and planetary geology. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Review the steps of the scientific method and describe the basic principles upon which the science of geology is based. (CSLO 2)
2. (Comprehension Level) Describe the historical development of modern geologic thought. (CSLO 2)
3. (Analysis Level) After physically examining various mineral samples, determine a variety of physical properties of minerals, including hardness, cleavage, luster and streak. Using this information, identify the minerals. (CSLO 2, 4)
4. (Evaluation Level) After physically examining common igneous, sedimentary and metamorphic rocks, determine their mineral composition and texture. Using this information, identify the samples and write a brief explanation of how these rocks formed. (CSLO 2, 4)
5. (Application Level) Demonstrate skill in using topographic maps by determining latitude, longitude and elevation for given locations. Also, determine distances between locations and identify all major map features. (CSLO 3)
6. (Analysis Level) Explain the differences between relative and absolute geologic dates and be able to determine relative dates from a block diagram. Identify the major portions of the geologic time scale and explain how this great expanse of time was divided into smaller periods. (CSLO 2, 4)
7. (Evaluation Level) Using geologic maps, determine rock types and ages. Also determine the strike and dips of the beds, and identify different geologic structures. (CSLO 3, 4)
8. (Evaluation Level) Demonstrate the use of stereo glasses to see 3D images of geologic features shown on air photos. Use this skill to interpret the geology. (CSLO 3)
9. (Knowledge Level) Demonstrate knowledge of all of the major physical features of the Earth, including those of the deep interior, continents and ocean basins. (CSLO 2)
10. (Evaluation Level) Summarize the basic components of the hydrologic and tectonic systems. Describe the sources of energy that drive these systems and the Earth features produced by their operation over long periods of geologic time. Compare these systems to those operating on other planets. (CSLO 2, 4)
11. (Synthesis Level) Summarize the major geologic hazards faced by humans and how they can avoid them. (CSLO 1)
12. (Synthesis Level) List the major mineral and energy resources used by humans and describe their geologic occurrence. (CSLO 1)
13. (Synthesis Level) Describe some of the basic relationships that exist between humans and the Earth upon which they live. Show how the choices they will make are related to some of the dangers they will face in the future. (CSLO 1)

Course Requisites

GLG102 - Historical Geology

General

Division
Science & Engineering Division

Course Description
Rocks, fossils, organic evolution, geologic time, plate tectonics, earth's origin, and the major time periods of earth history. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the historical development of modern geologic thought and the scientific method. (CSLO 2)
2. (Evaluation Level) Explain the Principle of Uniformitarianism and contrast it to other ideas like Catastrophism and Creationism. (CSLO 1, 4)
3. (Comprehension Level) Explain the basic natural laws and principles upon which the science of geology is based. (CSLO 2)
4. (Analysis Level) Identify a select group of common minerals after determining their physical properties. (CSLO 2, 4)
5. (Analysis Level) Identify a select group of igneous, sedimentary, and metamorphic rocks after determining their mineral composition and texture. Then briefly explain how these rocks formed. (CSLO 2, 4)
6. (Analysis Level) Identify a select group of common fossils and describe their methods of preservation. (CSLO 2)
7. (Evaluation Level) Demonstrate skill in using topographic and geologic maps along with air and space photos to make geologic interpretations. Using geologic maps, determine rock types and ages. Also determine the strike and dips of the beds, and identify different geologic structures. Use this skill to interpret the local geology and describe the geologic history of the map area. (CSLO 3, 4)
8. (Synthesis Level) Demonstrate knowledge of the major physical features of the Earth, including the Earth's internal structure, features of continents, ocean basins, and those produced by the tectonic and hydrologic systems. Also, describe the sources of energy that drive these systems and the Earth features produced by their operation over long periods of geologic time. (CSLO 2)
9. (Analysis Level) Explain the differences between relative and absolute geologic dates and be able to determine relative dates from a block diagram. Identify the major portions of the geologic time scale and explain how this great expanse of time was divided into smaller periods and how absolute dates were determined for these periods. (CSLO 4)
10. (Synthesis Level) Describe some of the current theories regarding the origin of the Earth. (CSLO 2)
11. (Synthesis Level) List the major advances in the chronological development of life upon the Earth and relate these to the major periods of the Geologic Time Scale and the theory of organic evolution.
12. (Synthesis Level) List the major geologic events in the development of the Earth's surface and explain their occurrence using the theory of plate tectonics. (CSLO 2, 4)
13. (Synthesis Level) Describe the fossil evidence for prehistoric humans and relate this evidence to the origin of humans. (CSLO 1)

Course Requisites

GLG110 - Geologic Hazards and Disasters

General

Division
Science & Engineering Division

Course Description
Geological studies as they apply to interactions between humans and the Earth, including geologic processes and hazards, resources, and global change. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) List all of the steps of the scientific method and briefly describe the importance of the geologic environment to humans. 2. (Comprehension Level) Describe the basic materials and features of the Earth and the systems that bring about geologic change. 3. (Analysis Level) Identify a select group of common minerals along with various igneous, sedimentary and metamorphic rock samples. 4. (Comprehension Level) Demonstrate knowledge of all major physical features of the Earth, including the Earth's internal structure, features of continents, ocean basins, and those produced by the tectonic and hydrologic systems. Explain the energy sources driving these systems and the Earth features produced by their operation over geologic time. 5. (Synthesis Level) Discuss the principles of surface water and ground water flow and the various sources of water pollution. 6. (Evaluation Level) List and evaluate major geologic hazards and explain ways humans can avoid their harmful effects. Locate geologic hazards and resources on topographic and geologic maps. 7. (Evaluation Level) Discuss various energy sources including their uses, origins, environmental effects, advantages and disadvantages, and future abundance. 8. (Evaluation Level) Using maps, air photos, and satellite images, explain the major geologic resources used by humans and the geologic conditions that produce them. Explain the geologic origin of different mineral deposits and the environmental costs associated with mining them. Identify common ore minerals. 9. (Synthesis Level) Describe the dangers and responsibilities facing humanity as we continue to use Earth's finite geologic resources while the population continues to increase. 10. (Synthesis Level) Explain the current theories and uncertainties regarding global climate change. 11. (Evaluation Level) Research an environmental geology topic. Consider differing points of view, and present conclusions based on careful evaluation of the available materials.

Course Requisites

HCC103 - Introduction to Medical Terminology

General

Division
Health Information Management Program

Course Description
Introduction to medical terminology and abbreviations used in healthcare. Topics include the origins of selected medical terms and abbreviations related to body system structures, functions and diseases as well as building and analyzing terms using basic word parts. Recommended: RDG100.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Recognize selected medical abbreviations for the assigned body systems and specialties. 2. (Comprehension Level) Name and describe the anatomy, physiology, and location of major organs and parts of each assigned body system, all the structures of the blood, lymphatic, and immune system, musculoskeletal, skin, and sense organs: the eye and ear and endocrine systems. 3. (Analysis Level) Identify, define, and analyze medical terminology using word analysis tools, including dividing the medical words into their parts, defining each part, and analyzing basic combining forms, suffixes and prefixes.

Course Requisites

HCC112 - Therapeutic Communication

General

Division
Health Information Management Program

Course Description
Develop interpersonal communication skills and the ability to communicate with multi-cultural clients, embracing complementary and alternative therapies, and with clients of varying ages and circumstances, as well as with health peers and professionals. This course will include the study of basic principles of psychology and development stages of the life cycle while emphasizing integrative medicine. Focus includes recognizing that life factors such as heredity, culture, economics, life experience, spiritual and moral values, and role models do influence one's personal communication skills and behavior. Also covered is utilizing appropriate strategies to communicate therapeutically and respond optimally when interacting with clients encountered in the healthcare setting. Prerequisite: RDG100.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate communication skills, including basic verbal and nonverbal communications such as body language, gestures/ mannerisms, facial expressions, posture, personal space, and position. Explain and show the basic components that are vital to establishing a therapeutic relationship with others. (CSLO 1,2,3,4) 2. (Comprehension Level) Describe basic principles of psychology that explain human behavior and the developmental stages of the life cycle. Theories of Human Growth and Development, Ivan Pavlov's, BF Skinner's behavioral learning theories, Freud's psycho stages of development, Piaget's stages of cognitive development, Maslow's hierarchy of needs, Kohlberg's stages of moral development, Erikson's stages of psycho-social development. (CSLO 2) 3. (Analysis Level) Compare and contrast theories of human behavior, including: Maslow's Hierarchy of human needs, Pavlov's conditioned reflex theory, Freud's concept of the subconscious mind and the ego, Freud's theories of life and death instincts, and BF Skinner's behavioral learning theories. Identify the helping interview as a critical component of a therapeutic relationship. (CSLO 1,2,3) 4. (Comprehension Level) Explain hereditary, cultural and other factors influencing personal communication and behavior, including psychological defense mechanisms and discuss the use of Complementary and Alternative Medicine (CAM). (CSLO 1,2) 5. (Analysis Level) Compare and contrast the age related therapeutic responses across the span of life. (CSLO 2) 6. (Knowledge Level) Define healthcare modalities and describe stress theories by Claude Bernard, Walter B. Cannon, and Hans Selye. Define the terms stress and stressor(s). (CSLO 2) 7. (Comprehension Level) Describe problems associated with addiction, abuse, discrimination, and the role of counseling in prevention, intervention and management of lifelong addictions; breaking the cycle of abuse and eradicating discrimination in the workplace. (CSLO 1,2,3,4) 8. (Analysis Level) Differentiate between different types of depression. Examine criteria used to evaluate suicide potential. Determine the therapeutic response to depressed and suicidal clients. (CSLO 1,2,3,4) 9. (Knowledge Level) Identify and describe interdisciplinary communications, including the advantages and disadvantages of each department. Identify and describe illness types and their effects. (CSLO 2) 10. (Analysis Level) Describe and analyze stages of death and dying and the grief process. Discuss Dr. Elisabeth K?bler-Ross's five stages of grief and dying. Describe Dr. George L. Engel's three processes for working through grief. (CSLO 1,2,3,4) 11. (Analysis level) Analyze professional issues, including ethics and legal concerns in medical settings and develop strategies for managing these issues. (CSLO 2,4) 12. (Comprehension Level) Explain professional application and the qualities needed for being in a "helping profession." (CSLO 2,3) 13. (Evaluation Level) Assess, compare, defend, and criticize: Real world case studies and video cases. (CSLO 2,4) 14. (Synthesis Level) Develop skills necessary for an effective helping interview. Plan the correct therapeutic response after reviewing case studies and video cases. Develop a therapeutic response to clients with life altering illness. (CSLO 1,2,3,4)

Course Requisites

HCC162 - Basic Pharmacology for Health Occupations

General

Division
Health Information Management Program

Course Description
Introduction to drug sources, uses, and classifications including purpose, side effects, cautions, interactions, and patient education. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss safety and drug regulations that specifically relate to FDA and DEA, healthcare workers and the law. (CSLO 2) 2. (Analysis Level) Identify drug names and references including classification of drugs' actions, generic and trade names and list the side effects. (CSLO 2) 3. (Analysis Level) Recognize sources and bodily effects of drugs including pharmacokinetics, absorption, distribution, metabolism, excretion of drugs and unexpected responses to drugs. (CSLO 2) 4. (Synthesis Level) Formulate precise medication preparations including space age drug forms, standard drug forms and supplies. (CSLO 2) 5. (Application Level) Show medical abbreviations and systems of measurement including units of measurement. (CSLO 2) 6. (Synthesis Level) Perform safe dosage preparations including basic calculations, ratio and proportions, pediatric and geriatric dosage and prevention of medication errors. (CSLO 2) 7. (Comprehension Level) Summarize professional responsibilities and principles of drug administration including medication errors and principles of administration. (CSLO 2) 8. (Analysis Level) Compare and contrast the difference between administration of drugs by gastrointestinal and parenteral routes. (CSLO 2) 9. (Comprehension Level) Explain poison control including poisoning by ingestion and inhalation, external poisoning of skin or eyes, poisoning by sting and snakebite and people at risk. (CSLO 2) 10. (Analysis Level) Analyze assigned drugs from the current yearly most frequently prescribed drugs list, analyze assigned drugs for purpose, classification, side effects, common dosage, route of administration and precautions. (CSLO 4) 11. (Application Level) Determine the patient education necessary for each drug classification including purpose, dosage, cautions with interactions and potential side effects. (CSLO 2)

Course Requisites

HEO100 - Intro to Heavy Equip Operation

General

Division
Skilled Trades & Technology Division

Course Description
Basic Heavy Equipment operation knowledge and experience, including theory, safety and operation of various types of equipment used in the industry as well as workplace ethics, time management, and teamwork. Prerequisites: Current and valid driver license or instructor consent.

Total Number Of Credits:
5

Lecture Credits
1

Lab Credits
12

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe various pieces of heavy equipment.
2. (Application Level) Demonstrate knowledge of all safety rules when operating, loading, moving, and working on all pieces of heavy equipment.
3. (Comprehension Level) Explain how to safely and accurately use each piece of heavy equipment following the manufacturer's operating manual standards for safe operation, including machinery operation safety, operator safety and proximity safety.
4. (Application Level) Explain and demonstrate understanding of workplace rules and ethics, including completing the job assigned in a safe and courteous manner, working as a team member, adhering to established work ethics, and demonstrating good time management skills and self-control.
5. (Evaluation Level) Assess the requirements of a specific job and job site then select the appropriate equipment, determine the preparation and sequence of equipment to be used, and demonstrate safe and accurate use of each piece of heavy equipment.
6. (Synthesis Level) In a safe and professional manner perform preventive maintenance of heavy construction equipment. (CSLO#2)

Course Requisites

HEO118 - Forklifts, Rigging and Hoisting Training

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to basic heavy equipment operation knowledge and experience, including working with heavy equipment in a safe and responsible manner, operating various types of forklifts used in the industry, and demonstration of rigging & hoisting safety techniques. Hands-on experiences includes lifting, transporting, and placing various types of loads.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of work safety, punctuality, and a team approach to develop and present class projects. (CSLO 3) 2. (Application Level) Use proper start-up and shut-down procedures for heavy equipment, including forklifts and other heavy equipment. 3. (Synthesis Level) Execute basic maneuvers and operations with various types of forklifts. 4. (Evaluation Level) Interpret a forklift load chart. 5. (Evaluation Level) Select and inspect appropriate slings, hardware, and lifting equipment. 6. (Application Level) Demonstrate proper techniques for connecting hitches. (CSLO 2) 7. (Application Level) Demonstrate proper use of all hand signals according to ASME B30.2 and B30.5 8. (Evaluation Level) Inspect a load for lifting. (CSLO 4)

HEO121 - Heavy Equipment Operations Core

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the use of heavy equipment with emphasis on safety, preventive maintenance, and grade stake interpretation. Prerequisite: Valid driver's license. Must have program director approval. Must be declared as Heavy Equipment Operator major.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate knowledge of all safety rules when using, loading, moving, and working on all pieces of heavy equipment.
2. (Application Level) List the steps for a complete walk-around inspection for each piece of equipment and perform pre- and post-operating equipment inspections on a variety of equipment in a safe/efficient manner.
3. (Evaluation Level) Interpret and explain a diesel-related dilemma using effective critical thinking processes to problem solve. (CSLO 4)
4. (Evaluation Level) Assemble a builder's level and evaluate the reading including determining the height of three different points on the ground with the builder's level and rod; and locate three points on the ground in a previously staked plot.
5. (Analysis Level) Examine the condition of equipment during walk-around inspections, identify needed repairs or routine maintenance jobs, and maintain records of maintenance. Record hours from an hour meter or equipment log on each piece of equipment used.
6. (Analysis Level) Analyze and explain the process to repair various malfunctions of heavy equipment and concisely report problems.(CSLO 4)
7. (Application Level) Demonstrate knowledge of all safety rules when using, loading, moving, and working on/around all pieces of heavy equipment.
8. (Evaluation Level) Assess the requirements of a given job and choose the appropriate equipment.
9. (Application Level) Demonstrate the ability to work cooperatively with a team in completing a given task/job.
10. (Comprehension Level) Describe correct methods to load and unload water from a water truck and to engage PTO to unload water from a water truck.

Course Requisites

HEO122 - Heavy Equipment Operations I

General

Division
Skilled Trades & Technology Division

Course Description
Expanded operation of heavy equipment to include interpreting blueprints, staking, and estimating costs, using technology to conduct research, and constructing more complex projects. Prerequisites: HEO121 and a valid driver's license.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of work safety, punctuality, and a team approach to develop and present class projects. (CSLO 3)
2. (Application Level) Use proper start-up and shut-down procedures for heavy equipment including motor graders, wheel loaders, tractor-mounted backhoe, trucks, crawler tractors, scrapers, and other heavy equipment.
3. (Synthesis Level) Construct a project using given plans, directions, and equipment.
4. (Evaluation Level) Interpret blueprints and physically stake a job accordingly.
5. (Synthesis Level) Create estimated and actual cost reports for a given job.
6. (Knowledge Level) Read for comprehension detailed equipment manuals, technical support materials, and career-related information. (CSLO 2)
7. (Application Level) Apply math/science computational concepts and principals to everyday living and to a career choice. (CSLO 4)

Course Requisites

HEO127 - Heavy Equipment Reconditioning

General

Division
Skilled Trades & Technology Division

Course Description
Fundamentals of heavy equipment reconditioning and preventive maintenance procedures. Prerequisite: Valid driver license.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) List, locate, and explain safety rules to follow during the maintenance of heavy equipment. (CSLO 2&3)
2. (Application Level) Apply tool safety rules and safe operating practices using safety equipment important to mechanics in the repair and reconditioning of heavy equipment. (CSLO 2 &3)
3. (Synthesis Level) Employ safe lifting and blocking techniques during repair of heavy equipment, including cross-blocking a piece of heavy equipment, and list ten safety rules for repairing tires and demonstrate the removal, repair and replacement of one tire on a piece of heavy equipment. (CSLO 2,3,4)
4. (Synthesis Level) List pre-start inspection steps for heavy equipment and perform pre-start inspections on five machines, including the correct jump start procedures for 12V and 24V electrical systems; identify the correct voltage of different pieces of heavy equipment; and perform correct jump starting of a 12V and a 24V piece of equipment. (CSLO 2,3,4)
5. (Synthesis Level) List a general post-start inspection for heavy equipment and perform post-operative inspections on five different pieces of heavy equipment. (CSLO 2&3)
6. (Evaluation Level) Diagnose malfunctions of at least three systems in various pieces of heavy equipment, then correctly repair steering, hydraulic, and brake component systems on heavy equipment, including: 1) listing and explaining three types of braking systems on heavy equipment and identifying the type of braking system on various pieces of heavy equipment; 2) explaining the interaction of pressure, volume and horsepower in a hydraulic system; 3) explaining a Jake Brake retarder used on a highway truck; and 4) explaining an exhaust system retarder used on a highway truck. (CSLO 2,3,4)
7. (Synthesis Level) Explain operation of two types of retarders. (CSLO 2&3)
8. (Comprehension Level) List and explain various safety precautions that should be considered while performing preventive maintenance on heavy equipment.
9. (Evaluation Level) Justify why preventive maintenance is important to the longevity of heavy equipment.
10. (Application Level) Demonstrate the procedures to perform daily preventive maintenance on various types of heavy equipment.

HEO128 - Diesel Equipment Service and Repair

General

Division
Skilled Trades & Technology Division

Course Description
Service and repair of diesel and heavy equipment.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Safely crib or block a piece of machinery. (CSLO 2,3)
2. (Application Level) Safely start, move, and park various pieces of heavy equipment. (CSLO 2,3)
3. (Comprehension Level) Explain the power flow through a crawler-type tractor. (CSLO 2)
4. (Application Level) Demonstrate the procedures for servicing various pieces of equipment, including replacing a drive shaft, wiring, and a clutch. (CSLO 2)
5. (Application Level) Properly adjust a twin disc truck clutch. (CSLO 2)
6. (Evaluation Level) Diagnose lighting, cranking, and charging electrical circuits faults. (CSLO 2)
7. (Comprehension Level) Explain the process of diagnosing a frame and suspension system problem on heavy equipment and a heavy duty truck. (CSLO 2)
8. (Application Level) Complete a drive line repair on a piece of heavy equipment. (CSLO 2)
9. (Application Level) Demonstrate the proper procedure related to the start up and shut down of heavy equipment. (CSLO 2)
10. (Application Level) Demonstrate the ability to perform an industry standard 250 hour preventive maintenance procedure on at least one piece of heavy equipment. (CSLO 2)
11. (Application Level) Demonstrate the ability to recover and record the maintenance history on heavy equipment. (CSLO 2)

HEO130 - Rigging, Trenching, and Foundations

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to basic heavy equipment operation knowledge and experience, including working with heavy equipment in a safe and responsible manner, operating various types of forklifts used in the industry, and demonstration of rigging & hoisting safety techniques. Hands-on experiences include lifting, transporting, and placing various types of loads.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe working in and around excavations, particularly in preparing building foundations.
2. (Comprehension Level) Explain types and bearing capacities of soils; procedures used in shoring, shielding, and sloping trenches and excavations; trenching safety requirements, including recognition of unsafe conditions; and mitigation of groundwater and rock when excavating foundations.
3. (Analysis Level) Compare and explain the selection and uses of different types of reinforcing materials. Outline requirements for bending, cutting, splicing, and tying reinforcing steel and the placement of steel in footings and foundations, walls, columns, and beams and girders. (CSLO 4)
4. (Analysis Level) Compare and discuss: basic site layout safety, tools, and methods; layout and construction of deep and shallow foundations; types of foundation forms; layout and formation of slabs-on-grade; and forms used for curbing and paving. (CSLO 2)

HEO221 - Heavy Equipment Operations II

General

Division
Skilled Trades & Technology Division

Course Description
Advanced instruction and application of heavy equipment operation comprehensive skills, knowledge, and abilities. Prerequisites: HEO122 and valid driver's license.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application level) Demonstrate safe work practices while operating, servicing, and repairing heavy equipment. (CSLO 2)
2. (Comprehension Level) Explain the importance of good listening, requesting clarification for total comprehension, and accurately carrying out both verbal and written instructions. (CSLO 2)
3. (Comprehension Level) Explain rim pull-speed layout as related to heavy equipment.
4. (Analysis Level) Examine and explain the principles of approximating volumes of material that are related to moving, processing, and completing various construction projects. (CSLO 2)
5. (Analysis Level) Select the proper and most efficient piece of equipment to be used for a given project.
6. (Application Level) Demonstrate journeyman entry-level skills on various pieces of equipment.
7. (Application Level) Safely operate various types of heavy equipment to exacting specifications. (CSLO 2)

HEO222 - Heavy Equipment Operations III

General

Division
Skilled Trades & Technology Division

Course Description
Heavy Equipment Operator capstone construction project and introduction to job seeking techniques. Recommended: RDG100. Prerequisites: HEO122 or consent of instructor and valid driver's license.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Design a three-dimensional earth object blue print.
2. (Evaluation Level) Interpret documents used for the layout and construction of projects as related to shaping of earth, aggregates, and other such materials. (CSLO 1)
3. (Analysis Level) Examine and explain a highway plan with a profile sheet and cross-section sheet.
4. (Application Level) Demonstrate surveying and layout of construction projects related to earth moving. (CSLO 2)
5. (Synthesis Level) Construct streets or lot sites using the proper pieces of heavy equipment and a contour map.
6. (Application Level) Record manpower and machine data used to analyze equipment cast and efficiency as applied to a construction project. (CSLO 3)
7. (Synthesis Level) Develop a resume focusing on the principles of applying for an operator position in the heavy equipment operator field. (CSLO 3)

HEO223 - Commercial Driver License Prep

General

Division
Skilled Trades & Technology Division

Course Description
Preparation for taking the Arizona Department of Motor Vehicle's written examination, the pre-trip vehicle inspection procedures, vehicle maneuvering control skills, and on-road driving test. Prerequisite: HEO121.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Identify, explain, and evaluate the various requirements and restrictions of the CDL. 2. (Application Level) Identify, explain and demonstrate the appropriate maintenance procedures and safety processes related to the connecting, hauling and checking of double and triple trailer systems. 3. (Application Level) Identify, explain, and demonstrate the appropriate maintenance procedures and safety processes related to the tankers, including water tankers and fuel tankers. 4. (Application Level) Identify, explain, and demonstrate the appropriate maintenance procedures and safety processes related to the movement of hazardous materials and the signage necessary to haul hazardous materials. 5. (Evaluation Level) Complete a pre-operation check of a truck with air brakes, following the guidelines of the Arizona Commercial Drivers License Manual, then critique your performance. 6. (Evaluation Level) Complete the truck-trailer combination maneuvering tests incorporating all areas of safety, control and security necessary for approved transit, then critique your performance. 7. (Synthesis Level) Demonstrate all the skills necessary for the driving, shifting, control, traffic awareness and safety techniques for operation of a commercial vehicle in various conditions. 8. (Application Level) Discuss and demonstrate the appropriate maintenance procedures and safety processes related to the review and operation of air brake systems.

Course Requisites

HEO225 - Preventive Maintenance

General

Division
Skilled Trades & Technology Division

Course Description
The development of skills necessary to identify, prevent and repair mechanical problems as related to the maintenance of heavy earth moving equipment. Prerequisite: Current and valid driver license required.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) List and explain various safety precautions that should be considered while performing preventive maintenance on heavy equipment.
2. (Evaluation Level) Justify why preventive maintenance is important to the longevity of heavy equipment.
3. (Application Level) Demonstrate the procedures to perform daily preventive maintenance on various types of heavy equipment.
4. (Application Level) Demonstrate the proper procedure related to the start-up and shut down of heavy equipment.
5. (Application Level) Demonstrate the ability to perform an industry standard 250-hour preventive maintenance procedure on at least one piece of heavy equipment.
6. (Application Level) Demonstrate the ability to recover and record the maintenance history on heavy equipment.

Course Requisites

HEO12117 - Heavy Equipment Operations Core

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the use of heavy equipment with emphasis on safety, preventive maintenance, and grade stake interpretation. Prerequisite: valid driver's license. Must have program director approval. Must be declared as Heavy Equipment Operator major.

Total Number Of Credits:
5

HEO22117 - Heavy Equipment Operations II

General

Division
Skilled Trades & Technology Division

Course Description
Advanced instruction and application of heavy equipment operation comprehensive skills, knowledge, and abilities. Prerequisites: HEO122 and valid driver's license.

Total Number Of Credits:
5

HIM115 - Introduction to Health Information Management

General

Division
Health Information Management Program

Course Description
Introduction of fundamental concepts of health information management with an emphasis on healthcare delivery systems across the continuum of care focusing on payment methodologies, external standards, state and federal regulations, and initiatives governing health information. Healthcare professionals and disciplines will be examined along with ethical standards of practice. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.1. Describe health care organizations from the perspective of key stakeholders.
I.3. Identify policies and strategies to achieve data integrity.
I.4. Determine compliance of health record content within the health organization.
I.5. Explain the use of classification systems, clinical vocabularies, and nomenclatures.

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2, 4)
II.1. Apply privacy strategies to health information.
II.2. Apply security strategies to health information.
II.3. Identify compliance requirements throughout the health information life cycle.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.
III.5. Describe research methodologies used in health care.
III.6. Describe the concepts of managing data.
III.7. Summarize standards for the exchange of health information.

Domain IV. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.2. Describe components of revenue cycle management and clinical documentation improvement.
IV.3. Summarize regulatory requirements and reimbursement methodologies.

Domain V. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.1. Apply legal processes impacting health information.
V.3. Identify the components of risk management related to health information management.
V.4. Identify the impact of policy on health care.

Domain VI. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
VI.1. Demonstrate fundamental leadership skills.
VI.2. Identify the impact of organizational change.
VI.3. Identify human resource strategies for organizational best practices.
VI.4. Utilize data-driven performance improvement techniques for decision making.
VI.6. Examine behaviors that embrace cultural diversity.
VI.7. Assess ethical standards of practice.
VI.8. Describe consumer engagement activities.
VI.9. Identify processes of workforce training for health care organizations

Course Requisites

HIM121 - Legal Aspects of Health Info

General

Division
Health Information Management Program

Course Description
Principles of healthcare law and ethics including legal terminology, liability theories, evidence, patient consent, risk management, quality improvement, compliance, and requirements affecting the privacy, security, control, and disclosure of health information. Prerequisite: HIM115.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4) I.1. Describe health care organizations from the perspective of key stakeholders.
I.3. Identify policies and strategies to achieve data integrity.

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2, 4)
II.1. Apply privacy strategies to health information.
II.2. Apply security strategies to health information.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.2. Utilize technologies for health information management.
III.7. Summarize standards for the exchange of health information.

Domain V. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.1. Apply legal processes impacting health information.
V.2. Demonstrate compliance with external forces.
V.3. Identify the components of risk management related to health information management. V.4. Identify the impact of policy on health care.

Domain VI. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4) VI.7. Assess ethical standards of practice.
VI.9. Identify processes of workforce training for health care organizations.

Course Requisites

HIM131 - Introduction to Insurance and Insurance Billing I

General

Division
Health Information Management Program

Course Description
Introductory course to insurance systems, billing processes, clinical vocabularies, ethical and legal issues and computer applications used to complete these processes. Prerequisite: RDG100. Offered every fall and spring.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and research the background and importance of accurate insurance claims submission, coding, and billing, educational requirements for a job as an insurance billing specialist and a coder to include areas of specialization and the associations for credential attainment, principles of documentation, the contents of a medical record, required content of a physician note and basic documentation rules as well as contract management and A/R. 2. (Analysis Level) Analyze issues related to patient confidentiality, privacy, security as well as other legal issues related to coding and billing. Differentiate types of claims submissions, claim rejections, claim appeals and claim processes for reimbursement. 3. (Application Level) Demonstrate the ability to complete the CMS 1500 (08-05) claim form for federal, state, and private payer insurance contracts. 4. (Application Level) Perform oral and written communication collection techniques using common software applications in the execution of work processes. 5. (Analysis Level) Identify, research and explain issues related to manage care health plans, Medicare, Medicaid, TRICARE, Blue Cross, Private Insurance, Private Pay, CHAMPVA, Worker's Compensation, Disability and Medical Funds. 6. (Comprehension Level) Explain and discuss issues and processes related to prospective payment systems.

Course Requisites

HIM138 - ICD Coding

General

Division
Health Information Management Program

Course Description
Development of fundamental coding techniques using the current International Classification of Diseases Clinical Modification (ICD-CM). Emphasis is placed on specificity and the application of professional standards in the assignment of codes to diagnoses and procedures adhering to coding guidelines. In addition, the study of clinical classification systems, terminologies and vocabularies will be covered. Prerequisites: HIM115 and HCC116.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.3. Identify policies and strategies to achieve data integrity.
I.5. Explain the use of classification systems, clinical vocabularies, and nomenclatures.

Domain II. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.2. Utilize technologies for health information management.

Domain III. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.1. Validate assignment of diagnostic and procedural codes and groupings in accordance with official guidelines.
IV.1.Determine diagnosis and procedure codes and groupings according to official guidelines (RM)

Domain IV. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.2. Demonstrate compliance with external forces.

Domain V. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
VI.7. Assess ethical standards of practice.

Course Requisites

HIM158 - CPT Coding

General

Division
Health Information Management Program

Course Description
Fundamental coding techniques using the Current Procedural Terminology (CPT) and the Healthcare Common Procedure Coding System (HCPCS) coding classifications, and providing hands-on practical skills for student learning adhering to coding guidelines. Prerequisite: HIM138.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.5. Explain the use of classification systems, clinical vocabularies, and nomenclatures.

Domain II. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.2. Utilize technologies for health information management.

Domain III. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.1. Validate assignment of diagnostic and procedural codes and groupings
in accordance with official guidelines.
IV.2. Describe components of revenue cycle management and clinical documentation improvement.
IV.3. Summarize regulatory requirements and reimbursement methodologies.
IV.1. Determine diagnosis and procedure codes and groupings according to official guidelines (RM)
IV.3. Evaluate compliance with regulatory requirements and reimbursement methodologies (RM)

HIM160 - Healthcare Data Management

General

Division
Health Information Management Program

Course Description
Review of clinical documentation and functions of the health record for various clinical settings. In addition, primary and secondary data sources, accreditation and regulations, and best practices for documentation impacting the continuum of care within the U.S. healthcare delivery systems are covered. Prerequisite: HIM115, HIM121 and HIM138.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.1. Describe health care organizations from the perspective of key stakeholders.
I.2. Apply policies, regulations, and standards to the management of information.
I.4. Determine compliance of health record content within the health organization.

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2,4)
II.1. Apply privacy strategies to health information.
II.2. Apply security strategies to health information.
II.3. Identify compliance requirements throughout the health information life cycle.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.6. Describe the concepts of managing data.
III.7. Summarize standards for the exchange of health information.

Domain V. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.1. Apply legal processes impacting health information.
V.2. Demonstrate compliance with external forces.
V.3. Identify the components of risk management related to health information management.
V.4. Identify the impact of policy on health care.

Course Requisites

HIM200 - Introduction to Revenue Cycle Management

General

Division
Health Information Management Program

Course Description
Principles of reimbursement and health insurance relating to private, state, and government programs, and managed care contracting within the U.S. healthcare payment systems are evaluated. Emphasis is placed on payment methodologies and systems within the revenue cycle management. Corequisite HIM158.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.1. Describe health care organizations from the perspective of key stakeholders.
I.4. Determine compliance of health record content within the health organization.
I.5. Explain the use of classification systems, clinical vocabularies, and nomenclatures.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.5. Describe research methodologies used in health care.

Domain IV. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.1. Validate assignment of diagnostic and procedural codes and groupings
in accordance with official guidelines.
IV.2. Describe components of revenue cycle management and clinical documentation improvement.
IV.3. Summarize regulatory requirements and reimbursement methodologies.

HIM210 - Leadership, Supervision and Quality

General

Division
Health Information Management Program

Course Description
Comprehensive introduction to the theory, practice, and management of performance and quality improvement processes in healthcare organizations. Overview of leadership for HIM professionals. Prerequisite: HIM205.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.1. Describe health care organizations from the perspective of key stakeholders.
I.2. Apply policies, regulations, and standards to the management of information.
I.3. Identify policies and strategies to achieve data integrity.

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2, 4)
II.3. Identify compliance requirements throughout the health information life cycle.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.1. Apply health informatics concepts to the management of health information.
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.
III.6. Describe the concepts of managing data.

Domain IV. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
IV.2. Demonstrate compliance with external forces.
IV.3. Identify the components of risk management related to health information management.
IV.4. Identify the impact of policy on health care.

Domain V. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
V.1. Demonstrate fundamental leadership skills.
V.2. Identify the impact of organizational change.
V.3. Identify human resource strategies for organizational best practices.
V.4. Utilize data-driven performance improvement techniques for decision making.
V.5. Utilize financial management processes.
V.6. Examine behaviors that embrace cultural diversity.
V.7. Assess ethical standards of practice.
V.8. Describe consumer engagement activities.
V.9. Identify processes of workforce training for health care organizations.

HIM215 - Health Information Systems

General

Division
Health Information Management Program

Course Description
Application of analysis, design, evaluation, selection, acquisition, and utilization of health information systems in healthcare organizations. Additional topics include guidance on interoperability, optimization, and enterprise content management while addressing a broader range of health technologies. Corequisite: HIM205.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.1. Describe health care organizations from the perspective of key stakeholders.
I.3. Identify policies and strategies to achieve data integrity.
I.6. Describe components of data dictionaries and data sets.

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2, 4)
II.2. Apply security strategies to health information.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.1. Apply health informatics concepts to the management of health information.
III.2. Utilize technologies for health information management.
III.4. Report health care data through graphical representations.
III.5. Describe research methodologies used in health care.
III.6. Describe the concepts of managing data.
III.7. Summarize standards for the exchange of health information.

HIM220 - Advanced Revenue Management

General

Division
Health Information Management Program

Course Description
Continued study in advanced revenue cycle concepts utilizing all coding methodologies while following official guidelines, evaluating processes and regulatory requirements. Prerequisites: HIM158 and HIM205.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.5. Explain the use of classification systems, clinical vocabularies, and nomenclatures.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.
III.5. Describe research methodologies used in health care.
III.6. Describe the concepts of managing data.

Domain IV. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.1. Validate assignment of diagnostic and procedural codes and groupings in accordance with official guidelines.
IV.3. Summarize regulatory requirements and reimbursement methodologies.
IV.1. Determine diagnosis and procedure codes and groupings according to official guidelines (RM)
IV.2. Evaluate revenue cycle processes (RM)
IV.3. Evaluate compliance with regulatory requirements and reimbursement methodologies (RM)

Domain V. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.1. Apply legal processes impacting health information.

Domain VI. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
VI.5. Utilize financial management processes.

Course Requisites

HIM230 - Advanced Data Management

General

Division
Health Information Management Program

Course Description
Continued study of advanced health information data management by evaluating data sets, utilizing databases and understanding standards related to compliance, governance, and health information exchange standards. Prerequisites: HIM160 and HIM205.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.6. Describe components of data dictionaries and data sets.
I.6. Evaluate data dictionaries and data sets for compliance with governance standards (DM).

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2, 4)
II.2. Apply security strategies to health information.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.1. Apply health informatics concepts to the management of health information.
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.
III.5. Describe research methodologies used in health care.
III.6. Describe the concepts of managing data.
III.7. Summarize standards for the exchange of health information.
III.6. Manage data within a database system (DM).
III.7. Identify standards for exchange of health information (DM).

Domain VI. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
VI.4. Utilize data-driven performance improvement techniques for decision making.

Course Requisites

HIM296 - Health Information Management Practicum

General

Division
Health Information Management Program

Course Description
Through professional practice, students will apply knowledge and skills obtained in the Health Information Management program with a healthcare organization affiliate and through professional development experiences; requires a minimum of 180 hours. This practicum course may be a hybrid of online and in-person hours and requires extensive healthcare facility driven clearance requirements. Prerequisites: All program requirements completed prior to enrollment in HIM296 and HIM Director written consent.

Total Number Of Credits:
4

Practicum Credits
4

MSLOs

Measurable Student Learning Outcomes
Domain I. (Synthesis Level) Data Structure, Content, and Information Governance (CSLO 2,4)
I.2. Apply policies, regulations, and standards to the management of information.
I.3. Identify policies and strategies to achieve data integrity.
I.4. Determine compliance of health record content within the health organization.

Domain II. (Application Level) Information Protection: Access, Use, Disclosure, Privacy, and Security (CSLO 1,2, 4)
II.1. Apply privacy strategies to health information.
II.2. Apply security strategies to health information.
II.3. Identify compliance requirements throughout the health information life cycle.

Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.1. Apply health informatics concepts to the management of health information.
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.

Domain IV. (Synthesis Level) Revenue Cycle Management (CSLO 2,4)
IV.2. Describe components of revenue cycle management and clinical documentation improvement.

Domain V. (Synthesis Level) Health Law and Compliance (CSLO 2,3,4)
V.2. Demonstrate compliance with external forces.
V.3. Identify the components of risk management related to health information management.
V.4. Identify the impact of policy on health care.

Domain VI. (Synthesis Level) Organizational Management and Leadership (CSLO 1,2,3,4)
VI.1. Demonstrate fundamental leadership skills.
VI.2. Identify the impact of organizational change.
VI.3. Identify human resource strategies for organizational best practices.
VI.4. Utilize data-driven performance improvement techniques for decision making.
VI.5. Utilize financial management processes.
VI.6. Examine behaviors that embrace cultural diversity.
VI.7. Assess ethical standards of practice.
VI.8. Describe consumer engagement activities.
VI.9. Identify processes of workforce training for health care organizations.

HIM115SU23 - Health Information Management I

General

Division
Health Information Management Program

Course Description
No description.

Total Number Of Credits:
2

HIM117FA21 - Health Information Management II

General

Division
Health Information Management Program

Course Description
No description.

Total Number Of Credits:
3

HIM205FA23 - Healthcare Statistics and Research

General

Division
Health Information Management Program

Course Description
General principles of healthcare statistics with emphasis in hospital statistics. Students are required to utilize formulas and perform calculations. Prerequisites: MAT118 or higher and HIM160.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Domain III. (Analysis Level) Informatics, Analytics, and Data Use (CSLO 2,4)
III.2. Utilize technologies for health information management.
III.3. Calculate statistics for health care operations.
III.4. Report health care data through graphical representations.
III.5. Describe research methodologies used in health care.
III.6. Describe the concepts of managing data.

Course Requisites

HIS101 - United States History I

General

Division
Social & Behavioral Sciences Division

Course Description
A survey of the significant phases of the history of the United States from pre-European contact to the Civil War and Reconstruction, stressing the political, military, social, and economic development of the new republic. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Correlate the events of the past associated with specific political and military events, with the appropriate historical figures and the correct historical era within the timeframe of pre-1492 through approximately 1877. (CSLO 2)
2. (Analysis Level) Analyze the contributions of individuals or groups to significant historical movements, events and/or trends as they relate to social, religious, cultural, minority and gender-related dynamics of the period. (CSLO 1, 2, 4)
3. (Synthesis Level) Describe and infer the impact of past events on current society by interpreting, comparing, contrasting or criticizing different explanations and evaluations of key historical events and persons in the United States from pre-1492 to 1877. (CSLO 1, 2, 4)
4. (Application Level) Articulate and demonstrate the point of view of an individual or group (dissimilar from one's own identity) in a given historical setting, in the United States from pre-1492 through 1877. (CSLO 1, 4)

Course Requisites

HIS102 - United States History II

General

Division
Social & Behavioral Sciences Division

Course Description
A survey of United States history after Reconstruction to the present, emphasizing the origins and development of the problems confronting a great industrialized world power and the issues arising from the two world wars. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the events and trends of the past associated with specific political, cultural, social, religious, and military events or individuals. 2. (Analysis Level) Analyze the contributions of individuals or groups to significant historical movements, events and/or trends as they relate to social, religious, cultural, minority and gender-related dynamics of the period. 3. (Synthesis Level) Describe and infer the impact of past events on current society by interpreting, comparing, contrasting or criticizing different explanations and evaluations of key historical events and persons. 4. (Application Level) Demonstrate the point of view of an individual or group (dissimilar from one's own identity) in a given historical setting. 5. (Comprehension Level) Explain the interrelatedness of past events in different countries, regions, and locales with those in the U.S. 6. (Analysis Level) Compare and contrast the impact of past events on the society of the time by analyzing historical movements, events and trends as they relate to social, religious, cultural, and political dynamics of the period.

Course Requisites

HIS103 - History of Western Civilization I

General

Division
Social & Behavioral Sciences Division

Course Description
Western world development from its beginnings to the early 18th century, centered on the cultural, scientific, religious and political contributions of the great western civilizations. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the events and trends of the past associated with specific political, cultural, social, religious, and military events or individuals. (CSLO 2)
2. (Analysis Level) Analyze the contributions of individuals or groups to significant historical movements, events and/or trends as they relate to social, religious, cultural, minority and gender-related dynamics of the period. (CSLO 1, 2, 4)
3. (Evaluation Level) Describe and infer the impact of past events on current society by interpreting, comparing, contrasting or criticizing different explanations and evaluations of key historical events and persons. (CSLO 3, 4)
4. (Application Level) Demonstrate the point of view of an individual or group (dissimilar from one's own identity) in a given historical setting. (CSLO 1, 3)
5. (Comprehension Level) Explain the interrelatedness of past events in different countries, regions, and locales. (CSLO 2, 3)
6. (Evaluation Level) Compare and contrast the impact of past events on the society of the time by analyzing historical movements, events and trends as they relate to social, religious, cultural, and political dynamics of the period. (CSLO 1, 2, 4)

Course Requisites

HIS104 - History of Western Civilization II

General

Division
Social & Behavioral Sciences Division

Course Description
Western world development from early 18th century to modern day, stressing its cultural, intellectual, military and political conflicts and contributions. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify events of the past associated with specific political and military events, with the appropriate historical figures and the correct historical era within the timeframe of the 1700s to present (CSLO 2).
2. (Evaluation Level) Compare and contrast the impact of past events on the society of the time by analyzing the contributions of individuals or groups (CSLO 2, 4).
3. (Analysis Level) Analyze the impact of past events on the society significant to historical movements, events and/or trends as they relate to social, religious, cultural, minority and gender-related dynamics of the period (CSLO 1, 2, 4).
4. (Evaluation Level) Describe and infer the impact of past events on current society by interpreting, comparing, contrasting or criticizing different explanations and evaluations of key historical events and persons in western civilizations from 1700s to the present time (CSLO 3, 4).
5. (Synthesis Level) Articulate and demonstrate the valuing point of view of an individual or group (dissimilar from one's own identity), in western civilizations from 1700s to the present in a given historical setting through the use of selected creative devices (CSLO 1, 2, 3).

HIS105 - Arizona History

General

Division
Social & Behavioral Sciences Division

Course Description
Survey of Arizona history from prehistoric and modern day Native American experience, Spanish Colonial exploration through the Mexican Republic, and American territorial years through statehood to the present. This includes the development and evolution of state governments and the contributions of the cultural, religious, and ethnic groups making up Arizona culture. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify events of the past associated with specific political and military events connecting them to appropriate historical figures and to the correct historical time frame of the 15th century to the present. (CSLO 1, 2, 4)
2. (Evaluation Level) Compare and contrast the impact of past events on the society of the time by analyzing the contributions of individuals or groups to significant historical movements, events, and/or trends as they relate to social, religious, cultural, minority, gender-related, or political dynamics of the period. (CSLO 1, 2, 4)
3. (Evaluation Level) Describe the impact of past events on the current society by interpreting, comparing, contrasting, and criticizing different explanations and evaluations of key historical or political events and persons in Arizona from the 15th century to the present. (CSLO 1, 2, 4)
4. (Application Level) Articulate and demonstrate the valuing point of view of the individual or group (dissimilar from ones own identity) in Arizona from the 15th century to the present in specific historical settings. (CSLO 1, 2, 4)
5. (Evaluation Level) Using appropriate historical research methodology, critically analyze, evaluate and separate historic fact from fiction as portrayed in popular media. (CSLO 1, 2, 4)

Course Requisites

HIS106 - Mexican-American History

General

Division
Social & Behavioral Sciences Division

Course Description
Examination of the origins and development of Mexican-American peoples and their contributions to the cultural, social, economic and historical development of the United States. Emphasis on social, economic and political trends from the Mexican American War to the present. Recommended: RDG100. Corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Compare and contrast the world views of the indigenous peoples of Mesoamerica with those of the Spanish conquistadors. 2. (Comprehension Level) Identify the events of the past associated with the development of distinctively unique Mexican-American communities. 3. (Comprehension Level) Describe and discuss the events leading up to the Mexican American War and the impact of the war on those of Mexican descent living in the American Southwest. 4. (Synthesis Level) Discuss the economic, social, cultural and political contributions of Mexican-American women to the development, preservation and expansion of Mexican-American families and societies and to the development of the Southwest and the United States as a whole. 5. (Analysis Level) Analyze the economic, social and political contributions of Mexican-Americans to the development of the Southwest and the United States as a whole. 6. (Analysis Level) Analyze current issues impacting Mexican-Americans and examine the strategies utilized in their on-going quest to achieve cultural, religious, socioeconomic and political freedom in the United States today.

Course Requisites

HIS107 - African-American History I

General

Division
Social & Behavioral Sciences Division

Course Description
A survey of African-American life and history in the United States from 1619-1865. Emphasizes how enslaved Africans lived, worked, socialized and defined themselves in antebellum America, as they developed and sustained a new cultural community that was an amalgamation of African-American community and familial values and traditions. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the events of the past associated with the development of a distinctively unique African-American community in the New World. 2. (Knowledge Level) Define West African social, political and religious institutions and recognize the preservation and maintenance of African beliefs, customs, and traditions in African-American communities. 3. (Comprehension Level) Indicate the countries involved in the Atlantic Slave Trade as well as the various cash crops and labor systems of plantations in the British West Indies and British North America. 4. (Comprehension Level) Describe the racialization of servitude and the development of chattel slavery in the American South. 5. (Comprehension Level) Discuss the resistance tactics African Americans used to protest their unfree status from capture to emancipation.

Course Requisites

HIS108 - Eastern Civilization-Beginnings to 1850

General

Division
Social & Behavioral Sciences Division

Course Description
An examination of the characteristics and development of civilizations, religions, and philosophies of the Middle East, Far East, and Southeast Asia from ancient times to the mid-nineteenth century. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the principal geographic features, countries and capitals of the Middle East, Far East, and Southeast Asia. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 2. (Evaluation Level) Compare and contrast the traditional and religious world views characterizing Asian civilizations and contrast these with personal/Western outlook. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 3. (Comprehension Level) Describe the general social, historical, political, and economic characteristics of the Middle East, Far East, and Southeast Asian countries. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 4. (Analysis Level) Examine the interaction between indigenous populations and foreign invaders and the impact this interaction had on their cultures and civilizations. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 5. (Comprehension Level) Identify the role of trade in the Middle East, Far East, and Southeast Asia and its import on the various societies. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 6. (Analysis Level) Examine the development of a centralized imperial system in China. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 7. (Analysis Level) Examine the development and expansion of the Islamic faith. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 8.(Analysis Level) Examine and explain the expansion of Islamic power in the ancient Asian cultures. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills)

Course Requisites

HIS201 - Women in United States History

General

Division
Social & Behavioral Sciences Division

Course Description
The history of women in American society from colonial times to the present with an emphasis on female leadership, social movements, race, ethnicity, social class, work and religion, and the changing definitions of women's roles. Recommended: RDG100. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Compare and contrast the basic outlines of the lives of Native American, European and African women in general at the beginning of the 17th century. 2. (Comprehension Level) Describe the legal, social and religious position of women in America from European settlement to the American Revolution. 3. (Analysis Level) Discuss the involvement in and analyze the impact of the American Revolution on women's lives. 4. (Synthesis Level) Explain the development and expansion of Victorian thought in America and its consequences for women in the 1800s. 5. (Analysis Level) Analyze the effect of the development of slavery on slave women, wives of non-slaveholding Southerners, and wives of slaveholders in the South. 6. (Comprehension Level) Identify the prominent personalities involved in the political and social reform movements of the 19th century, including the abolitionist and women's rights movements and describe women's roles in these reform efforts. 7. (Analysis Level) Examine the impact of technology and the Industrial Revolution on the lives of women in America, including immigrant and minority women, focusing on women's employment issues. 8. (Comprehension Level) Discuss the ramifications of westward movement on the women moving west and the Mexicans and Native Americans already settled there. 9. (Analysis Level) Examine the significance of the major issues of the early 20th century, including birth control, suffrage, employment, education, changing sexual mores, the Depression, two World Wars, and the Rosie the Riveter and June Cleaver roles for women. 10. (Evaluation Level) Evaluate the impact of Betty Friedan's 'The Feminine Mystique' and the role of the Civil Rights Movement of the 1960s on the creation of the Women's Rights Movement, the sexual revolution and feminism of the 1960s and 1970s. 11. (Comprehension Level) Discuss the social changes of the 1980s, 1990s, and early 2000s including the issues of women's work and the conservative backlash. 12. (Comprehension Level) Identify and explain the current status of women's issues.

Course Requisites

HIS208 - Eastern Civilization-1850 to Modern Times

General

Division
Social & Behavioral Sciences Division

Course Description
An examination of the characteristics and development of civilizations, religions, and philosophies of the Middle East, Far East and Southeast Asia from the mid-nineteenth century to modern times. Recommended: RDG100. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Identify and describe the principle geographic features, countries and capitals of Asia on a map. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 2.(Evaluation Level) Compare and contrast the traditional and religious world views characterizing Asian civilizations and also contrast these with a personal/modern Western outlook. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 3.(Comprehension Level) Describe the general social, historical, political and economic characteristics of the mid-nineteenth century to modern Middle East, Far East and Southeast Asian countries. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 4.(Analysis Level) Examine the development of China, India, and Japan from the mid-nineteenth century to modern times and the impact of geography on their civilizations. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 5.(Comprehension Level) Discuss the interaction between indigenous populations and foreign invaders and the impact this interaction has had on their modern cultures and civilizations. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 6.(Comprehension Level) Discuss the various religious beliefs and their impact on modern civilizations of the Middle East, Far East and Southeast Asia. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 7.(Comprehension Level) Discuss and identify the role of trade in the Middle East, Far East and Southeast Asia and its importance on the various societies from the mid-nineteenth century to modern times. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 8.(Analysis Level) Examine the decline of a centralized imperial system in China and the challenges of internal rebellion and external invasion to the social order. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 9.(Comprehension Level) Identify and describe the collapse of the military structure of Japan and its impact on modern civilization. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 10.(Comprehension Level) Identify and describe the isolationist tendencies of the Middle East, Far East and Southeast Asian countries and the impact of government and society. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 11.(Analysis Level) Examine the presence of Islam in the Middle East, Far East and Southeast Asia. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 12.(Comprehension Level) Explain the peculiar characteristics of the Far East and Southern Asian cultures presented in a world context. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills) 13.(Analysis Level) Examine and explain the rise of the national movements in Asia and identify the main figures and events which influenced the form of the national movement. (1. Cultural and Civic Engagement, 2. Integrative Knowledge and 4. Reasoning Skills)

Course Requisites

HIS104SU22 - History of Western Civilization II

General

Division
Social & Behavioral Sciences Division

Course Description
Western world development from early 18th century to modern day, stressing its cultural, intellectual, military and political conflicts and contributions. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify events of the past associated with specific political and military events, with the appropriate historical figures and the correct historical era within the timeframe of the 1700s to present (CSLO 2). 2. (Evaluation Level) Compare and contrast the impact of past events on the society of the time by analyzing the contributions of individuals or groups (CSLO 2, 4). 3. (Analysis Level) Analyze the impact of past events on the society significant to historical movements, events and/or trends as they relate to social, religious, cultural, minority and gender-related dynamics of the period (CSLO 1, 2, 4). 4. (Evaluation Level) Describe and infer the impact of past events on current society by interpreting, comparing, contrasting or criticizing different explanations and evaluations of key historical events and persons in western civilizations from 1700s to the present time (CSLO 3, 4). 5. (Synthesis Level) Articulate and demonstrate the valuing point of view of an individual or group (dissimilar from one's own identity), in western civilizations from 1700s to the present in a given historical setting through the use of selected creative devices (CSLO 1, 2, 3).

Course Requisites

HMC210 - Classical Mythology and Western Art

General

Division
Literary Arts & Language Division

Course Description
A survey of the major Greek and Roman myths and their influence on Western culture. Emphasis on works of past and contemporary art and architecture which were inspired by these myths. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the formal properties of artistic and literary works and explain the inter-relationship between literature and art. (CSLO #2) 2. (Comprehension Level) Identify and discuss major artistic representations of classical myths and legends. (CSLO #2) 3. (Analysis Level) Examine the concept of myth and distinguish the major divinities and their stories. (CSLO #2) 4. (Analysis Level) Recognize influences of ethnicity, race, and gender on the creative process. (CSLO #1) 5. (Analysis Level) Identify and examine the ideas and values of an era and culture as exemplified in literature and art. (CSLO #1 and #2) 6. (Evaluation Level) Compare and contrast the ways in which ancient and modern artists have portrayed the classical gods and goddesses and their stories through the visual arts. (CSLO #4) 7. (Synthesis Level) Create a project focusing on artistic expressions in art, architecture, or literature influenced by classical myths and their relevance to one's own life and society at large. (CSLO #4) 8. (Analysis Level) Identify and analyze social, political, philosophical, economic, historical and religious influences on the art and literature studied. (CSLO #4) 9. (Evaluation Level) Evaluate the effects of classical mythology on Western culture and artistic expression. (CSLO #4) 10. (Evaluation Level) Compare and contrast literary works of ancient Greek and Roman writers. (CSLO #4)

Course Requisites

HMC250 - Humanities in the Western World I

General

Division
Literary Arts & Language Division

Course Description
The culture, ideas and values of western civilization with an emphasis on the intellectual and artistic achievements in art, architecture, music, literature and/or philosophy up to 1400. Recommended: For sophomores; RDG100; ENG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify major works of art, music, literature and philosophy up to 1400. (CSLO #2) 2. (Comprehension Level) Describe the elements of art, music and literature as related to their importance to the arts in all styles up to 1400. (CSLO #2) 3. (Comprehension Level) Examine the main characteristics of art, music, literature and philosophy distinctive of each stylistic period up to 1400. (CSLO #4) 4. (Evaluation Level) Explain the inter-relationships among art, literature, music, philosophy and culture. (CSLO #2) 5. (Analysis Level) Identify the ideas and values of an era and culture as exemplified in a work of art, music, literature or philosophy. ((CSLO #1 and #2) 6. (Evaluation Level) Compare and contrast works of art, music and/or literature using external criteria. (CSLO #4) 7. (Analysis Level) Analyze diverse perspectives in our universal search for meaning through major works in the arts, music, literature and philosophy. (CSLO #1) 8. (Evaluation Level) Create a project focusing on artistic expression in art, architecture, music, literature and/or philosophy and their relevance to one's own life and society at large. (CSLO #4) 9. (Comprehension Level) Identify common or culturally specific themes in the arts. (CSLO #1 and #2) 10. (Analysis Level) Examine influences of ethnicity, race, and gender on the creative process. (CSLO #1 and #2) 11. (Evaluation Level) Examine the interconnectedness of socio-economic, religious, political, scientific, and creative events and processes over time and between geographic areas. (CSLO #4)

Course Requisites

HMC251 - Humanities in the Western World II

General

Division
Literary Arts & Language Division

Course Description
The culture, ideas and values of western civilization with an emphasis on the intellectual and artistic achievements in art, architecture, music, literature and philosophy from 1400 to 1800. Recommended: Sophomore status; RDG100; ENG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify major works of art, music, literature and philosophy from 1400 to 1800. (CSLO #2) 2. (Comprehension Level) Describe the elements of art, music and literature as related to their importance to the arts in all styles from 1400 to 1800. (CSLO #2) 3. (Comprehension Level) Examine the main characteristics of art, music, literature and philosophy distinctive of each stylistic period from 1400 to 1800. (CSLO #2) 4. (Evaluation Level) Explain the inter-relationships among art, literature, music, philosophy and culture. (CSLO #4) 5. (Analysis Level) Identify the ideas and values of an era and culture as exemplified in a work of art, music, literature or philosophy. (CSLO #1 and #2) 6. (Evaluation Level) Compare and contrast works of art, music and/or literature using external criteria. (CSLO #4) 7. (Analysis Level) Analyze diverse perspectives in our universal search for meaning through major works in the arts, music, literature and philosophy. (CSLO #1) 8. (Evaluation Level) Create a project focusing on artistic expression in art, architecture, music, literature and/or philosophy and their relevance to one's own life and society at large. (CSLO #4) 9. (Comprehension Level) Identify common or culturally specific themes in the arts. (CSLO #1 and #2) 10. (Analysis Level) Examine influences of ethnicity, race, and gender on the creative process. (CSLO #1 and #2) 11. (Evaluation Level) Examine the interconnectedness of socio-economic, religious, political, scientific, and creative events and processes over time and between geographic areas. (CSLO #4)

Course Requisites

HMS100 - Introduction to Social Behavioral Science

General

Division
Social & Behavioral Sciences Division

Course Description
Concepts and issues in the social sciences are explored through such sources as primary documents, articles, biographies, ethnographies, postings by social science organizations on social media, and visual media.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Define and explain terms and concepts in the social behavioral sciences, such as the concept of civil society. 2. (Comprehension Level) Discuss assumptions made in the social behavioral sciences regarding the social world. 3. (Evaluation Level) Evaluate approaches and research methods in the social sciences to understand humanity. 4. (Evaluation Level) Compare and contrast theories of social behavioral sciences. 5. (Application Level) Apply concepts in the social sciences to societal issues. 6. (Application Level) Make applications to one's own life, such as how one can use knowledge of one's previously hidden biases to mitigate the effect of such in interactions with others.

HRM100 - Introduction to Hospitality

General

Division
Business & Computer Technology Division

Course Description
An introduction to the hospitality industry and career exploration of the hotel, restaurant, culinary arts, recreation, tourism, and related industries. RDG100 is recommended.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension level) Explain the historical development of the hotel, restaurant, recreation, tourism, and travel industries.
2. (Comprehension level) Describe the importance of guest service and the hospitality spirit.
3. (Analysis level) Compare and contrast lodging, foodservice, travel, tourism, attractions, recreation, and gaming establishments.
4. (Analysis level) Outline the major organizational areas within hotels and restaurants.
5. (Comprehension level) Describe marketing applications for individual and group travel within the hospitality industry.
6. (Analysis level) Analyze management concepts within the hospitality industry.
7. (Evaluation level) Compare leadership and supervisory concepts within the hospitality industry. 8. (Evaluation Level) Compare and contrast careers within the hospitality industry by completing a career exploration project.

HRM101 - Facilities Management

General

Division
Business & Computer Technology Division

Course Description
The principles of property/facilities management with focus on lodging and food service operations. Concepts of the physical plant and engineering systems are introduced. Environment and energy conservation issues are discussed. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify roles played by hospitality facilities managers in controlling operating costs.
2. (Comprehension Level) Describe sustainability and its role in the overall business strategy of a hospitality operation.
3. (Comprehension Level) Describe how to reduce occupational injury rates through plant design and employee training.
4. (Comprehension Level) Discuss goals for effective and efficient facilities maintenance.
5. (Comprehension Level) Summarize the hotel development process.
6. (Analysis Level) Examine the concept development/project planning team process for foodservice facility layout.
7. (Analysis Level) Outline structural systems such as water and wastewater systems, components of electrical systems, HVAC systems and the effects on guest comfort, advantages and disadvantages of various lighting schemes, interior and exterior facilities, landscaping grounds, building roof, exterior, and foundation structures.
8. (Analysis Level) Contrast facility issues related to laundry systems, telecommunications systems and management issues related to standard hotel equipment & food service equipment. 9. (Analysis Level) Examine typical reasons for renovating a hotel, summarize the life cycle of a hotel and various types of renovations.

Course Requisites

HRM102 - Management of Guest Services

General

Division
Business & Computer Technology Division

Course Description
Front office procedures from the reservations process to check-out, including customer service, account settlement, revenue management, interoffice communication and human resource supervision. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the spirit of total hospitality and aspire to exceed guest expectations.
2. (Comprehension Level) Identify safe and positive relations with employees, guests, and other hotel departments.
3. (Application Level) Demonstrate and describe skills in making guestroom reservations; receiving guests at registration; assigning rooms; maintaining guestroom department records; and settling guestroom accounts at checkout.
4. (Application Level) Implement revenue (yield) management procedures to maximize guest room revenue.
5. (Evaluation Level) Compare and contrast leadership and human resource management principles to front office management.
6. (Synthesis Level) Organize the staffing of the front office departments.
7. (Analysis Level) Analyze Rooms Division data and practice manual night audit operations.

Course Requisites

HRM103 - Managing Foodservice Operation

General

Division
Business & Computer Technology Division

Course Description
The principles of commercial food service operations with a systemic concept to operations approach. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the spirit of total hospitality and aspire to exceed guest expectations.
2. (Comprehension Level) Describe the elements of a food service equipment plan.
3. (Comprehension Level) Describe procedures and issues involved with purchasing, receiving, storing, issuing, and controlling food service operation supplies and equipment.
4. (Analysis Level) Classify menus by market attraction, feasibility, implementation challenges, and profitability.
5. (Analysis Level) Deconstruct safeguards for safety, risk management, and sanitation within food service operations.
6. (Analysis Level) Examine food service costs controls and purchasing methods.
7. (Synthesis Level) Develop marketing strategies for a food service establishment.
8. (Evaluation Level) Assess the elements of a food service business plan and a human resource plan.
9. (Evaluation Level) Evaluate the elements of a food service feasibility study and proposals for creating and financing food service establishments.

Course Requisites

HRM145 - Convention and Meeting Management

General

Division
Business & Computer Technology Division

Course Description
This course offers an introduction to organizing special convention and meeting events from concept through completion, including planning, coordination, marketing, financing and risk management. Additionally, this course includes an overview of the critical stages and functions involved in staging and managing special events, including conferences, entertainment, expositions, sporting or specialty events. Prerequisite: RDG100. Offered every fall.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the scope of conferences, conventions, entertainment, expositions, sporting-events and the trade-show industry in terms of types of meetings and emerging meeting facilities.
2. (Comprehension Level) Distinguish the steps in developing a marketing plan including the interactive role of the sales department with other departments, the advertising strategy and reaching the association, corporate and other target markets.
3. (Comprehension Level) Describe the functions of key trade show personnel and the elements of exposition planning.
4. (Application Level) Demonstrate the proper steps in making a personal sales call.
5. (Analysis Level) Analyze the financial management elements of a contract or letter of agreement and the typical procedures for billing groups and conducting a post-convention review.
6. (Synthesis Level) Plan and coordinate functions of hotel services to promote successful meetings.

Course Requisites

HRM252 - Managing Hospitality Human Resources

General

Division
Business & Computer Technology Division

Course Description
This course provides an overview of U.S. employment and workplace law requirements, including strategies for hiring and training used in restaurant or lodging operations. Prerequisite: RDG100. Offered every spring.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss major U.S. employment and workplace laws including EEOC, EEO, ADA, OSHA, labor issues and affirmative action.
2. (Comprehension Level) Explain the importance of job analysis and design and use select tools when screening applicants for the recruitment and selection process.
3. (Evaluation Level) Evaluate methods for forecasting labor demands to identify the advantages and disadvantages of internal and external recruiting, and the functions of a computer-based Human Resource Information System (HRIS).
4. (Comprehension Level) Describe the purpose of employee orientation programs and training cycles.
5. (Analysis Level) Examine the functions of performance appraisals and commonly used methods of employee evaluation, compensation issues, employee benefits, incentive programs, employee assistance programs and wellness programs.
6. (Analysis Level) Outline typical grievance procedures and the hospitality industry's turnover problem to identify the causes, costs and methods for reducing turnover.
7. (Synthesis Level) Summarize approaches to employee discipline and the proper use of discipline and termination in a hospitality organization.
8. (Evaluation Level) Describe the importance of union management relations and identify the differences between union and nonunion organizations.
9. (Evaluation Level) Summarize ethical issues in business, including assessing ethical behavior and current ethical issues.

Course Requisites

HVA121 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level I

General

Division
Skilled Trades & Technology Division

Course Description
This introductory course provides foundational knowledge and hands-on skills in the Heating, Ventilation, Air-Conditioning, and Refrigeration (HVACR) industry, based on the National Center for Construction Education and Research (NCCER) Level 1, 6th Edition curriculum. It is designed for entry-level students and apprentices seeking a career in residential or commercial HVACR systems.
Students will gain a comprehensive understanding of basic HVACR theory, tools, materials, and safety procedures. Key topics include workplace safety, introduction to HVACR systems, trade mathematics, hand and power tools, basic electricity, refrigeration principles, and system components. Emphasis is placed on industry-standard practices, hands-on skills development, and preparation for advanced levels of training. Corequisites: BCT100; BCT150.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Measurable observable behaviors, demonstrating professionalism, collaboration, and respect. Focuses on collaboration within HVACR projects and work environments, while emphasizing on ethical practices and social awareness. (CSLO #1)
2. (Application Level) Upon successful completion of the HVACR Level I course, students will be able to identify, explain, and apply fundamental HVACR concepts, including safety procedures, refrigeration cycle components, basic electricity, and system installation practices—by combining information from multiple modules to diagnose common HVACR system issues and recommend appropriate corrective actions. CSLO #2
3. (Remembering Level) Students will be able to recognize and explain HVACR components and systems, apply knowledge in hands-on tasks like wiring a basic circuit or performing system maintenance, and integrate safety, theory, and technical skills to evaluate real-world problems and propose solutions, demonstrating critical thinking across broad and specialized HVACR knowledge areas. (CSLO#2)
4. (Understanding Level) Upon successful completion of the HVACR Level I course, students will be able to demonstrate personal and professional workplace behaviors, including punctuality, teamwork, effective communication, and adherence to safety and ethical standards. Students will be able to arrive consistently on time and prepared for training sessions and job assignments. CSLO #3
5. (Application Level) Upon successful completion of the HVACR Level I course, students will be able to identify HVACR system problems by analyzing symptoms, gathering relevant data, and referencing technical documentation (e.g., wiring diagrams, specifications, and equipment manuals). Apply logical reasoning to troubleshoot basic HVACR electrical and mechanical system malfunctions, using systematic diagnostic processes. CSLO #4
6. (Creating Level) Upon successful completion of the HVACR Level I course, students will develop basic system modifications or improvements, such as recommending alternative components or configurations that enhance system performance or meet updated codes. Interpret technical information (e.g., pressure-temperature charts, airflow readings, voltage/current measurements) to support sound conclusions and decisions. CSLO #4

HVA122 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level II

General

Division
Skilled Trades & Technology Division

Course Description
HVACR Level II is a continuation of foundational training in the heating, ventilation, air conditioning, and refrigeration trade. This course builds on the principles covered in Level I and deepens students' understanding of mechanical systems, components, and safety practices. The curriculum, developed by the National Center for Construction Education and Research (NCCER), emphasizes hands-on skills, troubleshooting techniques, and system analysis to prepare learners for more advanced work in residential, commercial, and light industrial settings.
Students will engage with real-world HVACR scenarios through classroom instruction, lab activities, and performance tasks. This level introduces advanced topics such as alternating current, compressors, refrigeration components, and basic installation techniques. Upon successful completion, students will be equipped with mid-level technical competencies and will be prepared to continue to Level III training or entry-level technician roles under supervision. Key areas: alternating current theory, compressors, refrigerants and oils, leak detection, evacuation, recovery, and cleaning, metering devices, heat pumps, basic maintenance, ait distribution systems, piping and tubing, sheet metal duct systems, and fiberglass and fabric duct systems. Corequisites: HVA121; BCT100; BCT150.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Upon successful completion of the HVACR Level II course, students will be able to apply appropriate communication strategies when working with coworkers and clients. CSLO #3
2. (Application Level) Upon successful completion of the HVACR Level II course, students will be able to identify, comprehend, apply, and synthesize interpret wiring diagrams, system schematics, to identify system components and their functions in both residential and commercial HVACR systems. Apply thermodynamic principles and refrigerant cycle theory to evaluate system performance and identify deviations from expected operation. CSLO #2
3. (Application Level) Diagnose multi-component HVACR system issues by integrating knowledge of electrical, mechanical, and airflow systems using digital tools and instrumentation. Demonstrate integrated problem-solving by performing complex service tasks, such as retrofitting equipment or balancing air distribution, with minimal supervision. (CSLO#2)
4. (Understanding Level) Upon completion of the HVACR Level II course, students will be able to: Demonstrate effective communication, teamwork, time management, and ethical behavior in simulated and real-world HVACR workplace environments, as measured by performance assessments, instructor observation, and employer feedback. Key components: communication, teamwork, time management, and professionalism. (CSLO#3)
5. (Application Level) Upon successful completion of the HVACR Level II course, students will be able to apply logical reasoning and analytical skills to diagnose HVACR system issues and propose effective solutions using appropriate tools and industry standards. (CSLO #4)
6. (Application Level) Upon successful completion of the HVACR Level II course, students will be able to Apply deductive reasoning to isolate faulty components in refrigeration cycles, electrical systems, or airflow circuits. (CSLO#4)

HVA221 - Heating, Ventilation, Air-Conditioning & Refrigeration Level III

General

Division
Skilled Trades & Technology Division

Course Description
HVACR Level III builds upon the skills and knowledge developed in Levels I and II, introducing advanced principles and systems in the heating, ventilation, air conditioning, and refrigeration industry. This course is designed to further develop a technician's understanding of HVACR systems with a focus on troubleshooting, system design, advanced electrical systems, commercial applications, and specialized equipment. Key content areas include: Refrigerants and oil management, compressors, metering devices, systems charging and evacuation, airside systems, electrical troubleshooting, commercial hydronic systems, heat pumps, indoor air quality and air filtration, building automation systems, systems design and equipment selection, codes, standards, and safety. Prerequisites: BCT100; BCT150; HVA121; HVA122. Corequisite: HVA222.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Upon successful completion of the HVACR Level III course. Students will be able to Demonstrate effective communication and teamwork with peers from diverse backgrounds during lab and fieldwork. Engage in discussions or reflections on how HVACR practices affect local and global communities. (CSLO#1)
2. (Application Level) Upon successful completion of the HVACR Level III course, students will be able to: Identify key facts, concepts, theories, and practices relevant to heating, ventilation, air conditioning, and refrigeration. Apply integrated knowledge to diagnose and solve complex HVACR system problems. (CSLO#2)
3. (Understanding Level) Upon successful completion of the HVACR Level III course, students will be able to demonstrate personal and professional skills necessary for employment and career growth in the HVACR industry, including effective communication, workplace ethics, time management, customer service, and professional conduct. CSLO #3
4. (Application Level) Upon successful completion of the HVACR Level III program, students will be able to: Apply logical reasoning to determine probable causes of equipment failure or inefficiency. Propose and justify a repair or maintenance solution using manufacturer specifications and HVACR principles. Compare multiple solution options and select the most efficient and cost-effective approach. (CSLO #4)

HVA222 - Heating, Ventilation, Air-Conditioning, & Refrigeration Level IV

General

Division
Skilled Trades & Technology Division

Course Description
Level IV elevates your expertise with advanced technical and leadership skills: Specialized knowledge in hydronics, psychrometric, airside systems. Hands-on mastery of startup/shutdown procedures, system balancing, and water treatment. Exposure to building management systems (BMS), commercial refrigeration, design planning, and crew leadership. Prepares learners for HVAC Excellence certification and field-application proficiency. Prerequisites: BCT100; BCT150; HVA121; HVA122. Corequisite: HVA221.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Upon successful completion of the HVACR Level IV program, students will be able to: Identify, interpret, apply, and integrate advanced HVACR concepts and practices—including system design, energy efficiency, system commissioning, and troubleshooting—to diagnose and resolve complex HVACR system challenges across residential, commercial, and industrial contexts. (CSLO#2)
2. (Understanding Level) Upon completion of the HVACR Level IV course, learners will be able to demonstrate effective personal and professional skills by: Communicating clearly and professionally with colleagues, supervisors, and clients in both oral and written formats. Exhibiting punctuality, reliability, and ethical behavior consistent with industry standards. Managing time efficiently to meet project deadlines and workplace expectations. (CSLO#3)
3. (Evaluating Level) Upon successful completion of the HVACR Level IV course, students will be able to: Inquire and analyze complex HVACR system problems by collecting and evaluating relevant data, draw logical conclusions regarding system diagnostics and maintenance needs, and develop innovative solutions to troubleshoot and optimize HVACR equipment performance. (CSLO#4)

IRW130 - Structural Steel Erection I

General

Division
Skilled Trades & Technology Division

Course Description
the basic foundations of iron work including proper safety procedures, setting up and using safety tie off points, navigating and walking steel in an elevated position, basic rigging of structural members, making structural connections such as plumbing of columns and aligning members, using a transit properly, and finalizing structural connection fit-up including high strength bolting and complete joint penetration welding. Prerequisite: Fundamentals of Arc Welding Certificate, or prior learning equivalent credit, or documented industry experience, or instructor consent..

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate safe and correct elevated tie off points, proper wear and use of a full body harness, and general safety practices in the steel construction industry. (CLSO 2,3)
2. (Application Level) Describe or demonstrate basic rigging of structural members and explain how to make structural connections including plumbing of columns and aligning members. (CSLO 2,3,4)
3. (Application Level) Demonstrate the proper use and application of a transit, a level, measuring devices, and tools of the trade. (CSLO 3,4)
4. (Synthesis Level) Finalize the structural connection fit-up, including high strength bolting and complete penetration welded joints.

Course Requisites

LIT101 - Introduction to Literature

General

Division
Literary Arts & Language Division

Course Description
Introduction to literary analysis of various genres, literary devices, and production and reception of literature by various audiences. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify various genres of literature, such as fiction, poetry, and drama. 2. (Analysis Level) Give detailed examples of elements (plot, character, theme, structure, etc.) that are unique to specific genres of literature. 3. (Analysis Level) Give detailed examples of elements (plot, character, theme, structure, etc.) that are common to specific genres of literature. 4. (Analysis Level) Indicate specific changes in cultural values that have influenced changes in the literary canon of any given time period. (CSLO 1 & 2) 5. (Analysis Level) Identify common or culturally specific themes in literature by writers of different races, genders and ethnic backgrounds. (CSLO 1) 6. (Application Level) Demonstrate reasonable interpretations of literary texts or other forms of media and support those interpretations with evidence; evidence/ references should be cited appropriately. (CSLO 2) 7. (Application Level) Demonstrate understanding of literature's relevance to one's own life and society at large. (CSLO 1) 8. (Synthesis Level) Compose formal literary critiques that exhibit competency in academic writing. (CSLO 3)

Course Requisites

LIT201 - American Literature I

General

Division
Literary Arts & Language Division

Course Description
Survey of a diverse range of American literary works from the American Colonial Period through the Civil War, emphasizing literary history, criticism, and socio-cultural and historical contexts. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Accurately identify the defining features of the major literary movements, genres, and authors of this time period. (CSLO 2)
2. (Analysis Level) Analyze and interpret, using correct literary terminology, the structural and aesthetic features of works from this time period. (CSLO 2)
3. (Comprehension Level) Identify the impact of key social, economic, political and psychological dynamics on the literature of this time period. (CSLO 1)
4. (Analysis Level) Explain how gender, race and ethnicity helped shape various perspectives of both the American experience and its relationship to the world at large. (CSLO 1)
5. (Analysis Level) Analyze how a pluralistic culture (European, Native American, African-American, etc.) impacted individual works of American literature. (CSLO 1, 2)
6. (Evaluation Level) Assess the impact of pluralism on the early American literary canon. (CSLO 1, 2)
7. (Evaluation Level) Compare and contrast literary works both within and across genres, authors, and literary movements. (CSLO 2, 4)
8. (Evaluation Level) Evaluate a literary work's relevance to one's contemporary life. (CSLO 3)
9. (Synthesis Level) Compose thesis driven written discourse that demonstrates the effective gathering, interpretation, and evaluation of textual evidence and research. (CSLO 2)
10. (Synthesis Level) Compose at least 3500 words of written discourse that exhibits competency in composing and revising skills, the conventions of standard English, and the ability to follow an assigned documentation or style guide. (CSLO 4)

Course Requisites

LIT202 - American Literature II

General

Division
Literary Arts & Language Division

Course Description
Survey of a diverse range of American literary works from the Civil War to modern times, emphasizing literary history, criticism, and socio-cultural and historical contexts. Prerequisite: ENG101; Corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Accurately identify the defining features of the major literary movements, genres, and authors of this time period. CSLO 2 2. (Analysis Level) Analyze and interpret, using correct literary terminology, the structural and aesthetic features of works from this time period. CSLO 2 3. (Comprehension Level) Identify the impact of key social, economic, political and psychological dynamics on the literature of this time period. CSLO 1 4. (Analysis Level) Explain how gender, race and ethnicity helped shape various perspectives of both the American experience and its relationship to the world at large. CSLO 1 5. (Analysis Level) Analyze how a pluralistic culture (European, Native American, African-American, etc.) impacted individual works of American literature. CSLO 1, 2 6. (Evaluation Level) Assess the impact of pluralism on the later American literary canon. CSLO 1, 2 7. (Evaluation Level) Compare and contrast literary works both within and across genres, authors, and literary movements. CSLO 2, 4 8. (Evaluation Level) Evaluate a literary work's relevance to one's contemporary life. CSLO 3 9. (Synthesis Level) Compose thesis driven written discourse that demonstrates the effective gathering, interpretation, and evaluation of textual evidence and research. CSLO 2 10. (Synthesis Level) Compose at least 3500 words of written discourse that exhibits competency in composing and revising skills, the conventions of standard English, and the ability to follow an assigned documentation or style guide. CSLO 4

Course Requisites

LIT203 - English Literature I

General

Division
Literary Arts & Language Division

Course Description
Major English literary works from Middle Ages to 1800. Recommended: RDG100. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and analyze social, political, philosophical, economic, historical and religious influences on the literature of the period.
2. (Analysis Level) Identify and analyze characteristics of major literary movements: Middle Ages, 16th century, 17th century, Restoration, and 18th century.
3. (Analysis Level) Identify and analyze characteristics of major literary genres written during the period.
4. (Analysis Level) Analyze the works of individual authors and identify characteristics of these works with regard to content and form.
5. (Synthesis Level) Examine and explain the evolution of British Literature over one or more time periods.
6. (Analysis Level) Compare themes or features of literary works to other English art-forms.
7. (Evaluation Level) Evaluate a literary work's relevance to one's contemporary life.
8. (Synthesis Level) Compose thesis driven written discourse that demonstrates the effective gathering, interpretation, and evaluation of textual evidence and research.
9. (Synthesis Level) Compose at least 5,000 words of written discourse that exhibits competency in composing and revising skills, the conventions of standard English, and the ability to follow an assigned documentation or style guide.

Course Requisites

LIT204 - English Literature II

General

Division
Literary Arts & Language Division

Course Description
Major English literary works from the Romantic period to the Modern period. Prerequisite: ENG101. Corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and analyze social, political, philosophical, economic, historical and religious influences on the literature of the period. 2. (Analysis Level) Identify and analyze characteristics of major literary movements: Romantic, Victorian, Modern and Contemporary. 3. (Analysis Level) Identify and analyze characteristics of major literary genres written during the period. 4. (Analysis Level) Analyze the works of individual authors and identify characteristics of these works with regard to content and form. 5. (Synthesis Level) Examine and explain the evolution of British Literature over one or more time periods. 6. (Analysis Level) Compare themes or features of literary works to other English art-forms. 7. (Evaluation Level) Evaluate a literary work's relevance to one's contemporary life. 8. (Synthesis Level) Compose thesis driven written discourse that demonstrates the effective gathering, interpretation, and evaluation of textual evidence and research. 9. (Application Level) Compose at least 5,000 words of written discourse that exhibits competency in composing and revising skills, the conventions of standard English, and the ability to follow an assigned documentation or style guide.

Course Requisites

LIT205 - World Literature I

General

Division
Literary Arts & Language Division

Course Description
No description.

Total Number Of Credits:
3

LIT206 - World Literature

General

Division
Literary Arts & Language Division

Course Description
Introduction to literary works from diverse global cultures, focusing on illuminating both the universality and diversity of human experience. Recommended: RDG100. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Students will be able to: 1. (Knowledge Level) Identify specific literary characteristics used in each national literature and/or literary period, such as theme, plot, literary techniques, and characterization development. 2. (Analysis Level) Successfully explain the interdependent relationship between specific historical, social, political and religious events and the literature that either evolved from or influenced these events. 3. (Analysis/Evaluation) Identify and explain how certain national literatures affect the literatures of other countries, geographic regions, or populations. 4. (Analysis Level) Explain the similarities and differences between Western and global socio-cultural, and/or artistic, and/or political values presented in select examples of world literature. Competently describe the differences between the characters' experiences and one's own. 5. (Evaluation Level) Apply literary and cultural studies theories to the interpretation of literary works read in the course. 6. (Application Level) Explain similarities and differences between the events and themes described in literature from around the world and current political, social, and cultural situations. 7. (Synthesis Level) Conduct primary and/or secondary research, evaluate sources for credibility, and avoid plagiarism by following appropriate documentation standards. 8. (Synthesis Level) Write coherent, logical, well-organized, and well-supported responses to literary works that demonstrate critical interpretation and evaluation of textual evidence, follow appropriate documentation standards, and demonstrate successful command of the conventions of Standard English.

Course Requisites

LIT232 - African American Literature

General

Division
Literary Arts & Language Division

Course Description
Students will be introduced to and analyze the chief literary works produced by African Americans. Prerequisite: ENG101. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Accurately identify the defining features of the literary movements and genres written by and about African Americans. (CSLO 2) 2. (Analysis Level) Analyze and interpret, using correct literary terminology, the structural and aesthetic features of works created by African Americans. (CSLO 2) 3. (Comprehension Level) Identify the impact of key social, economic, political, and psychological dynamics on the literature created by African Americans. (CSLO 1) 4. (Analysis level) Examine the literary value and contributions of African American writers in relation to the American literary canon. (CSLO 1, 2) 5. (Analysis level) Explain how gender, race, and ethnicity helped shape various perspectives of both the African American experience and its relationship to the world at large. (CSLO 1) 6. (Evaluation level) Assess the impact of pluralism on African American literature. (CSLO 1, 2) 7. (Evaluation Level) Compare and contrast literary works both within and across genres, authors, and literary movements. (CSLO 2, 4) 8. (Analysis Level) Examine and apply current theories on racial, ethnic, and cultural identity to African American literature. (CSLO 1, 2, 4) 9. (Synthesis Level) Compose oral or written discourse that successfully explores, defines, and/or clarifies the relationship between current events and literary themes common to African American writing. (CSLO 1, 2, 3, 4) 10. (Evaluation Level) Evaluate a literary work's relevance to one's contemporary life. (CSLO 3) 11. (Synthesis Level) Compose thesis driven written discourse that demonstrates the effective gathering, interpretation, and evaluation of textual evidence and research. (CSLO 2) 12. (Synthesis Level) Compose at least 3500 words of written discourse that exhibits competency in composing and revising skills, the conventions of standard English, and the ability to follow an assigned documentation or style guide. (CSLO 4)

Course Requisites

LIT233 - Multiethnic Literature of the U.S.

General

Division
Literary Arts & Language Division

Course Description
Exploration of modern and contemporary literature in various genres from authors of multiethnic literature of the U.S. Examination of current social, cultural, economic, and political issues related to ethnicity and other intersections of identity within multiethnic literature of the U.S. Prerequisite: ENG101. Corequisite: ENG102 must be taken as a prerequisite or corequisite.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Examine and critically analyze texts, both fiction and non-fiction, written by and about ethnically minoritized individuals in the United States. (CSLO 1,4)
2. (Evaluating Level) Consider the literary contributions and reflect on the value of literature written by and about historically underrepresented individuals in the United States and how such literature relates to the American literary canon. (CSLO 1,2,4)
3. (Evaluating Level) Reflect on the role of form and genre in shaping meaning through application of literary theory. (CSLO 3,4)
4. (Creating Level) Integrate themes in literature with current social, cultural, or political situations. (CSLO 2,4)
5. (Understanding Level) Identify the socio-cultural, historical, political, and aesthetic bases of and contexts for multiethnic literary and artistic works. (CSLO 1,2)
6. (Understanding Level) Identify and apply current theories on racial, ethnic, and cultural identity. (CSLO 1,2)
7. (Understanding Level) Identify and differentiate literary depictions of ethnicity and culture within postcolonial, decolonial, and colonial contexts. (CSLO 1,2,4)
8. (Analyzing Level) Correlate the intersectionality present in multiethnic literature of the U.S by examining texts in conversation with multiple identity categories including race, gender, sexuality, ability, and class as expressed by and in texts. (CSLO 1,2,4)
9. (Analyzing Level) Compare and contrast the literary expressions of multiple authors within the genre of multiethnic literature of the U.S. (CSLO 1,4)
10. (Evaluating Level) Consider the ways ethnicity and culture shape an individual's identity and influence the community or society in which the individual lives. (CSLO 1,2,4)
11. (Creating Level) Develop critical historical consciousness through analysis of multiethnic literature of the U.S. (CSLO 1,2,4)
12. (Creating Level) Construct both formal and informal written discourse of no less than 3,500 words that constitutes at least 50% of the final course grade and demonstrates critical thinking about literary works while contributing to scholarly & public conversations about multiethnic literature of the U.S. (CSLO 1,3,4)
13. (Creating Level) Develop strategies for the revision of written discourse based on oral and written feedback from multiple sources (peers, writing tutor, and instructor). (CSLO 1,3)
14. (Creating Level) Compose formal written text(s) that exhibit competency in critical inquiry, scholarly research, and academic writing and comprise at least 50% of course work. (CSLO 3,4)

Course Requisites

LIT234 - US Latinx Literature & Culture

General

Division
Literary Arts & Language Division

Course Description
A multi-genre examination of United States Latinx authored literature from linguistic, cultural, global, and historical perspectives as well as theoretical approaches relevant to studying such literature. Recommended: RDG100. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe common themes of Latinx authored literature, i.e. immigration and border issues; colonialism; language, including bilingualism and code-switching; labor and urban concerns; education; politics; religion; gender; and cultural identity. Explain relevant historical and cultural contexts. 2. (Analysis Level) Distinguish the diverse Latinx cultures in the US; explain the linguistic and historical origin and significance of the terms Latinx, Hispanic, and Chicano/a; describe the political, social, and cultural implications of those terms. 3. (Application Level) Employ literary analysis vocabulary to further understand and explicate various works of literature. 4. (Analysis Level) Apply relevant theoretical and critical approaches to the analysis of works studied in the course. 5. (Evaluation Level) Compare and contrast the similarities and differences in the works of a variety of Latinx writers from different regions, relative to the particular influences of countries of origin. 6. (Analysis Level) Examine significant historical, geographical, sociological, cultural, linguistic, political, and economic factors that influence the production of Latinx literature. 7. (Synthesis Level) Compose clearly written discourse about select literary works that demonstrates the effective gathering, critical interpretation, and evaluation of textual evidence, theory, and commentary. 8. (Synthesis Level) Compose effective written discourse that demonstrates competency in research, composing, skills, and conventions in accordance with an assigned style guide. 9. (Evaluation Level) Compare and contrast the ideas and experiences present in assigned texts to a student's own life and/or contemporary socio-cultural issues and current events, locally, nationally, and globally. 10. (Evaluation Level) Evaluate the literary and cultural contributions of Latinxs to the American literary and cultural canon; assess transference from traditional cultural aspects.

Course Requisites

LIT256 - Science Fiction Literature and Film

General

Division
Literary Arts & Language Division

Course Description
A survey of science fiction literature and film as a narrative medium for social, political, and cultural commentary from the genre's early influences to the modern era. Prerequisite: ENG101. Corequisite: ENG102 must be taken as a prerequisite or a corequisite.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use conventional terms of literary analysis in the study and examination of literature and film. 2. (Knowledge Level) Identify literary conventions specific to the science fiction genre. 3. (Analysis Level) Analyze the historical development of the science fiction genre from the nineteenth century to the modern era. 4. (Analysis Level) Analyze the ways in which the social, political, philosophical, cultural, and historical contexts affect the creation of science fiction. 5. (Evaluation Level) Evaluate science fiction as social, cultural, and political commentary and analyze how given works of this genre influence culture and society. 6. (Evaluation Level) Evaluate a given work's relevance to one's contemporary life and current social, cultural, or political situations. 7. (Evaluation Level) Critique a given work from the science fiction genre using the criteria of audience, presentation, composition, and purpose. 8. (Evaluation Level) Evaluate and critique a variety of critical perspectives in relation to the students own assessment of a given work. 9. (Synthesis Level) Compose thesis-driven written discourse that demonstrates the effective gathering, interpretation, and evaluation of textual evidence and properly cited academic sources. 10. (Synthesis Level) Develop strategies for the revision of written discourse based on oral and written feedback from peers and the instructor. 11. (Synthesis Level) Compose at least 5,000 words of written discourse that exhibits competency in composing and revising skills, the conventions of Standard English, and the ability to follow an assigned documentation or style guide.

Course Requisites

LIT278 - Native American Literature and Culture

General

Division
Literary Arts & Language Division

Course Description
An introduction to literature written by and about Native peoples of the Americas, including myths, legends, the oral tradition, fiction, memoir, drama, and poetry. Recommended: RDG100. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe themes commonly found in works by Native Americans, i.e. tribal sovereignty, colonialism; language issues; urban Indian concerns, stereotyping, cultural appropriation, etc. 2. (Analysis Level) Examine cultural products using appropriate literary, cultural, historical, and/or theoretical terminology and textual support. 3. (Analysis Level) Analyze the history of group naming practices related to indigenous peoples of the Americas. 4. (Evaluation Level) Compare and contrast the influence of the oral tradition, native spiritual practices, and other cultural traditions on the content, theme, genre, and form of works produced by Native Americans. 5. (Analysis Level) Connect the portrayal of Native American culture by non-native writers to common tropes such as the noble savage, the vanishing Indian, the stoic Indian, the environmental guardian, spiritual warrior, etc. 6. (Synthesis Level) Formulate clearly written, well developed discourse about select literary works that exhibits competency in course concepts. 7. (Evaluation Level) Interpret and critique contemporary issues through a Native American perspective or world view. 8. (Evaluation Level) Assess the ways Native American literature and culture reflects, challenges, and contributes to the American literary and cultural canon.

Course Requisites

LIT291 - Children's Literature for Educators

General

Division
Literary Arts & Language Division

Course Description
Introduces, explores, and evaluates a wide array of classic and contemporary children's literature. Emphasis is on examination of criteria for selection and an evaluation of children's books, including culturally and socially diverse literature. Prerequisite: ENG101. Corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and compare/contrast various genres of children's literature and demonstrate competency in the use of standard literary terms (plot, setting, rhyme, figurative language, etc. (CSLOs 2, 3)
2. (Comprehension Level) Identify and describe distinct literary characteristics of literature, including techniques of illustration and format of children's books. (CSLOs 2)
3. (Synthesis Level) Employ various literary, cultural, and education theories to develop the criteria for evaluating children's literature and apply them to various texts. (CSLOs 1,3)
4. (Analysis Level) Examine and explain how various genres of children's literature can be used effectively in classroom contexts such as social and ecological justice and/or different stages of development and age levels. (CSLOs 2, 3)
5. (Comprehension Level) Identify and explain issues and trends in the history of children's literature and its use in educational contexts. (CSLOs 2, 3)
6. (Analysis Level) Develop an awareness of social, multicultural, historical contexts and global issues as they connect to literature for children and analyze the impact they have on the literary selections and teaching practices. (CSLOs 1,2)
7. (Evaluation Level) Compose written discourse, class presentations and/or discussions that indicate a process of reflection and critical thinking and the evaluation of scholarly commentary. (CSLOs 2, 3, 4)
8. (Synthesis Level) Compose effective written discourse of at least 5000 words that demonstrates competency in research strategies, including appropriate documentation standards, composing skills, and conventions of Standard English.(CSLOs 2, 3, 4)

Course Requisites

LMT100 - Introduction to Massage Therapy/Relaxation

General

Division
License Massage Therapy Program

Course Description
This foundational course offers a comprehensive introduction to the field of massage therapy. Students will explore the history and evolution of massage, along with its physiological and psychological benefits. Key topics include professional ethics and standards, hygiene and safety protocols, draping techniques, and an overview of contraindications. Hands-on instruction focuses on the core principles and techniques of Swedish massage. Students will learn and practice a full-body massage routine that incorporates all fundamental strokes, proper timing, and body mechanics. Upon completion, students will have the essential skills and understanding to perform a basic professional massage while adhering to industry standards for care and conduct. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Explain the history, ethics, boundaries, contraindications and benefits of massage therapy and compare and contrast its role in medicine today with historical applications. (CSLOs #1, 2)
2. (Application Level) Explain the anatomy and medical terminology associated with the body systems studied and describe how they relate to massage. (CSLO #2)
3. (Analysis Level) Describe and contrast the meaning and function of each of the strokes used with relaxation (Swedish) massage. (CSLOs #2, 4)
4. (Application Level) Demonstrate fundamentals of body mechanics while giving a massage. (CSLO#3)
5. (Application Level) Demonstrate a relaxation (Swedish) massage. (CSLO #3)
6. (Synthesis Level) Incorporate appropriate draping, hygiene, sanitation and safety for the patient during a massage and distinguish the theories behind each technique. (CSLOs #3, 4)

LMT101 - Practicum for Relaxation

General

Division
License Massage Therapy Program

Course Description
This practicum course provides students with 45 hours of supervised, hands-on experience in a professional spa clinic setting, offering relaxation-based Swedish massage to the public. Emphasis is placed on developing confidence, consistency, and professionalism while applying previously learned techniques in a real-world environment. Under instructor supervision, students will refine their massage routines, practice client interaction, and adhere to industry hygiene, safety, and ethical standards. Prerequisite: LMT100.

Total Number Of Credits:
1

Practicum Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the skills required for effective relaxation (Swedish) massages, and body mechanics, draping, hygiene, sanitation and client safety. (CSLO 2,3)
2. (Application Level) Apply record keeping system for clients. (CSLO 2,3,4)
3. (Application Level) Demonstrate professionalism as it relates to client and co-worker communications, ethical, legal and liability issues. (CSLO 2,3,4)

LMT102 - Introduction to Deep Tissue and Kinesiology Concepts

General

Division
License Massage Therapy Program

Course Description
This introduction to deep tissue massage delves into both structural and therapeutic techniques, with a special focus on the use of hot and cold therapies—such as hydrocollators and ice packs—to address common client ailments. Students will also learn how to incorporate targeted stretching techniques to enhance massage outcomes, along with a practical massage chair protocol designed for use at events and athletic competitions, both pre- and post-performance. Recommended: RDG100. Prerequisites: LMT100; LMT101.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine, demonstrate and explain the benefits, functions and theory of corporate chair massage in public settings, sports massage and rocking massage. (CSLOs #2, 3)
2. (Analysis Level) Examine, demonstrate and explain the benefits, functions and theory for range of motion and stretching exercises. (CSLOs #2, 3)
3. (Analysis Level) Examine, demonstrate and explain the function, theory and benefits of each of the bodywork strokes. (CSLOs #2, 3)
4. (Application Level) Demonstrate fundamentals of body mechanics while giving a massage. (CSLO #3)
5. (Analysis Level) Examine and explain the medical terminology and anatomy involved with joint movement and how it is affected by various massage movements. (CSLOs #2, 4)
6. (Synthesis Level) Incorporate appropriate draping, hygiene, sanitation, safety and professional decorum during a massage and distinguish the theories behind each technique. (CSLOs #3, 4)

LMT103 - Practicum: Introduction to Deep Tissue and Kinesiology Concepts

General

Division
License Massage Therapy Program

Course Description
This practicum course provides 45 hours of supervised, hands-on experience in a public spa clinic, focusing on therapeutic massage techniques. Building on the foundation of Swedish massage, students will integrate stretching and hot/cold therapies to address clients' specific needs within the session timeframe. Emphasis is placed on developing customized treatments that enhance relaxation while providing targeted therapeutic benefits.
Students will refine their communication, assessment, and technical skills under instructor supervision, while maintaining professional standards of safety, hygiene, and ethics. Prerequisites: LMT100; LMT101; LMT102.

Total Number Of Credits:
1

Practicum Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the skills for therapeutic massages including fundamentals of body mechanics, draping, hygiene, sanitation, and client safety. (CSLO 2,3,4)
2. (Application Level) Apply a record keeping system for clients. (CSLO 2,3,4)
3. (Application Level) Demonstrate professionalism as it relates to client and co-worker communications, ethical, legal, and liability issues. (CSLO 1,3,4)

LMT136 - Business Skills for Massage Therapy

General

Division
License Massage Therapy Program

Course Description
This course introduces students to a variety of career pathways within the massage therapy profession, including private practice, day and resort spas, chiropractic offices, and medical settings. It provides essential preparation for entering the workforce, covering topics such as professional ethics, résumé writing, and the differences between independent contracting and self-employment. Additional focus areas include basic accounting principles, insurance billing, preparation for state licensing exams, continuing education requirements, and other key components tailored for those beginning or advancing in the massage therapy field. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine, compare and describe career opportunities and types of practices available in massage therapy. (CSLOs #2, 3)
2. (Analysis Level) Identify and research various state and local ordinances and professional massage associations. (CSLOs #2, 3)
3. (Analysis Level) Examine and explain ethics that apply to massage and to owning and running a business. (CSLO #1, 3)
4. (Synthesis Level) Prepare a resume for entering the massage field. (CSLO #3)
5. (Synthesis Level) Design a marketing business plan for a massage therapy business. (CSLOs #3, 4)
6. (Application Level) Demonstrate basic bookkeeping skills. (CSLOs #3, 4)
7. (Synthesis Level) Prepare a typed client intake and consultation. (CSLO #3)
8. (Application Level) Describe elements of completing insurance forms and demonstrate completing an assigned insurance form. (CSLOs #3, 4)
9. (Analysis Level) Differentiate and examine areas of study to prepare for taking the National Certification Examination. (CSLOs #2, 3)

LMT154 - Complementary and Alternative Medicine

General

Division
License Massage Therapy Program

Course Description
Explore a fascinating overview of complementary and alternative healing modalities—from time-honored non-Western practices and naturopathy to herbal medicine, chiropractic care, therapeutic massage, mind-body techniques, and spiritual therapies. Discover how these diverse approaches work holistically to support wellness and balance in the body, mind, and spirit. Recommended: RDG100.

Total Number Of Credits:
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Describe and compare various healing and medicinal modalities including how they developed, the extent of their use today, and their strengths and weaknesses. (CSLOs #1, 2)
2. (Analysis Level) Research and contrast health care delivery systems in several countries including rankings for infant and maternal mortality rates, life expectancy and per capita cost. (CSLOs #1, 2)
3. (Analysis Level) Identify and illustrate cultural characteristics that have led to the development of various health care modalities including the influence of science, spirituality and economy on the development of their predominant health care modalities. (CSLOs #1, 2)
4. (Evaluation Level) Evaluate and explain the forces that have led to the development of conventional medicine in the United States today including historic, political and economic factors. (CSLOs #2, 4)
5. (Synthesis Level) Design and propose a treatment plan for helping to manage a common chronic ailment which responds well to lifestyle modification, offering suggestions for alternative treatment and lifestyle changes which could improve the condition. (CSLOs #2, 4)
6. (Analysis Level) Research and determine the role of massage in the delivery of complementary and alternative medicine and its contribution to the health of patients and to their understanding of and involvement in CAMs. (CSLOs #2, 3)

LMT160 - Applied Anatomy for Massage

General

Division
License Massage Therapy Program

Course Description
This course focuses on the study of bones, joints, and muscles, their anatomical locations, functions in providing structure and protection, and their roles in movement. Students develop palpation skills through hands-on practice, with direct application in concurrent massage coursework. To enhance learning, the course includes access to an extensive video library by Dr. Joseph Muscolino, featuring cadaver dissections and guided palpation instruction. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize the muscles of the body including their location, actions, origins and insertions. (CSLO #2)
2. (Application Level) Demonstrate palpation of muscles and define their actions, origins and insertions. (CSLOs #2, 3)
3. (Comprehension Level) Describe the anatomical features of the bones in the body. (CSLO #2)
4. (Application Level) Demonstrate and identify through palpation various bony parts on specific bones. (CSLOs #2, 3)
5. (Application Level) Utilize the various body planes of movement, directions and positions during massage. (CSLOs #2, 3)
6. (Comprehension Level) Summarize the types and function of joints. (CSLO #2)
7. (Analysis Level) Analyze the function and types of fascia and its effect on posture and pain. (CSLOs #2, 4)
8. (Comprehension Level) Explain the location and function of the blood supply, lymphatic drainage and innervations of major sites in the body. (CSLO #2)

LMT173 - Pathophysiology

General

Division
License Massage Therapy Program

Course Description
Pathological conditions and terminology, causes, incidence, signs, symptoms, diagnosis, treatment, and special considerations associated with the major diseases of the body systems and how they relate to Manual therapies and massage contraindications. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline disease awareness and infection control including general prevention of diseases, healthy life style and awareness and how infection is spread as well as prevention methods. (CSLO 4)

2. (Analysis Level) Differentiate the major organs, their locations, and functions for body systems. (CSLO 4)

3. (Synthesis Level) Explain major pathological terminology and conditions affecting body systems. (CSLO 2)

4. (Analysis Level) Assess the causes, incidence, signs, and symptoms of major pathological conditions.(CSLO 4)

5. (Application Level) Determine the treatments and special considerations associated with major diseases and conditions. (CSLO 2)

6. (Application Level) Report on preventive measures for major pathological conditions. (CSLO 2)

7. (Analysis Level) Identify the causes, incidence, prevention methods, signs, symptoms, and treatments of cancer for body systems. (CSLO 4)

8. (Synthesis Level) Summarize the major mental disorders, and generalize causes, incidence, signs, symptoms, and treatments with emphasis on early detection and prevention. (CSLO 2)

LMT200 - Special Populations Massage

General

Division
License Massage Therapy Program

Course Description
This course explores massage techniques tailored to individuals who cannot receive traditional face-down massage. Emphasis is placed on adapting methods for a variety of special populations, including prenatal clients, older adults, and individuals with medical conditions such as medication ports. Students will learn foundational protocols in Reflexology and basic lymphatic massage, while also developing skills in proper body mechanics, hygiene, safety, and client draping. The course emphasizes professional etiquette and compassionate care when working with diverse and medically sensitive populations. Prerequisites: LMT100; LMT101; LMT102; LMT103.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform massages for special populations including geriatric, pregnancy and lymphatic massage and differentiate when each massage is appropriate to apply. (CSLOs #2, 3, 4)
2. (Application Level) Demonstrate proper body mechanics while administering a massage. (CSLO #3)
3. (Synthesis Level) Incorporate appropriate draping, hygiene, sanitation and safety precautions during massages and distinguish the theories behind each technique. (CSLOs #3, 4)
4. (Analysis Level) Examine and explain the terminology and anatomy involved with each special population massage and how it is affected by massage. (CSLOs #2, 4)
5. (Analysis Level) Differentiate and describe the theory, benefits and precautions involved with each of the special population massages and determine when they are applicable. (CSLOs #2, 4)
6. (Evaluation Level) Describe the theory of reflexology and evaluate when it is appropriate to use. (CSLOs #2, 4)

LMT201 - Practicum: Special Populatons Massage

General

Division
License Massage Therapy Program

Course Description
This advanced practicum course offers 45 hours of supervised, hands-on experience in a public spa clinic setting, focusing on adapting massage techniques for clients who cannot receive traditional face-down treatments. Special emphasis is placed on side-lying massage techniques for specific populations, including pregnant clients, some geriatric individuals, and those with medical conditions requiring positional modifications. Students will learn proper bolstering using pillows and specialized pillowing systems to ensure client comfort, safety, and therapeutic effectiveness. The course emphasizes the integration of these adaptations into professional massage practice while maintaining high standards of ethics, hygiene, and client care. Prerequisites: LMT100; LMT101; LMT102; LMT103; LMT200.

Total Number Of Credits:
1

Practicum Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the skills required for effective massages for special populations. (CSLO 1,4)

2. (Application Level) Demonstrate fundamentals of proper body mechanics. (CSLO 2,4)

3. (Application Level) Demonstrate proper draping, hygiene, sanitation, and safety for the patient during a massage. (CSLO 1,2,3,4)

4. (Application Level) Apply professional communication skills with clients and co-workers. (CSLO 3,4)

5. (Application Level) Apply effective record keeping skills. (CSLO 2,3,4)

6. (Application Level) Demonstrate effective housekeeping practices to maintain the massage facility. (CSLO 1,3)

7. (Application Level) Apply professional responsibilities (ethical, legal and liability issues) while at the practicum. (CSLO 1,3,4)

LMT202 - Spa Massage

General

Division
License Massage Therapy Program

Course Description
This course provides students with a foundational understanding of popular spa treatments, including mud wraps, body scrubs, aromatherapy, hot stone, and Himalayan salt massages. Emphasis is placed on industry standards in hygiene, draping protocols, spa etiquette, and professional communication. Students also explore the business aspects of spa services, preparing them for real-world client interactions in a spa setting. Recommended: RDG100. Prerequisites: LMT100; LMT101; LMT102; LMT103; LMT200; LMT201.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine, demonstrate and explain the benefits, functions and theory of hot rock massage. (CSLOs #2, 3)
2. (Analysis Level) Examine, demonstrate and explain the benefits, functions and theory of therapeutic scrub treatments. (CSLOs #2, 3)
3. (Analysis Level) Examine, demonstrate and explain the benefits, functions and theory of therapeutic mud treatments. (CSLOs #2, 3)
4. (Analysis Level) Examine, demonstrate and explain the benefits, functions and theory of therapeutic wrap treatments. (CSLOs #2, 3)
5. (Comprehension Level) Describe the history, current uses and theories of spa technologies. (CSLO #2)
6. (Synthesis Level) Model and explain finishing touches used in spas and resorts. (CSLO #3)
7. (Evaluation Level) Demonstrate and justify hydrotherapy treatments for various therapeutic effects including assessment, contraindications and theories of these treatments. (CSLOs #2, 3, 4)

LMT203 - Practicum: Spa Massage

General

Division
License Massage Therapy Program

Course Description
This practicum offers 45 hours of supervised, hands-on experience in a public spa clinic, with a focus on spa-specific massage treatments such as body wraps, exfoliating scrubs, aromatherapy, Hot Stone, and Himalayan Salt Stone massages. Under the guidance of a licensed instructor, students apply and reinforce professional standards and techniques introduced in prior coursework.
To pass this course, students must earn a minimum grade of C. Students who fail will not be allowed to repeat the course. Those who withdraw may retake it only once with prior approval from the program director. Prerequisites: LMT100; LMT101; LMT102; LMT200; LMT201; LMT202.

Total Number Of Credits:
1

Practicum Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the skills required for effective massages for special populations. (CSLO 1,4)
2. (Application Level) Demonstrate fundamentals of proper body mechanics. (CSLO 2,4)
3. (Application Level) Demonstrate proper draping, hygiene, sanitation, and safety for the patient during a massage. (CSLO 1,2,3,4)
4. (Application Level) Apply professional communication skills with clients and co-workers. (CSLO 3,4)
5. (Application Level) Apply effective record keeping skills. (CSLO 2,3,4)
6. (Application Level) Demonstrate effective housekeeping practices to maintain the massage facility. (CSLO 1,3)
7. (Application Level) Apply professional responsibilities (ethical, legal and liability issues) while at the practicum. (CSLO 1,3,4)

LMT204 - Advanced Deep Tissue and Kinesiology Concepts

General

Division
License Massage Therapy Program

Course Description
This advanced deep tissue course focuses on muscle-specific and condition-specific massage techniques aimed at supporting the rehabilitative process. Students will learn to identify and address common trigger points and apply foundational Proprioceptive Neuromuscular Facilitation (PNF) techniques. The course emphasizes treatment strategies for conditions such as thoracic outlet syndrome, sciatica, low back pain, neck pain, and other common musculoskeletal issues frequently addressed through massage therapy. Recommended: RDG100. Prerequisites: LMT100; LMT101; LMT102; LMT103; LMT200; LMT201; LMT202; LMT203.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Define and evaluate various musculoskeletal conditions, including symptoms and causes. (CSLOs #2, 4)
2. (Analysis Level) Identify and analyze all structures involved in various musculoskeletal conditions. (CSLOs #2, 4)
3. (Evaluation Level) Evaluate condition and perform appropriate massage treatment for various conditions. (CSLOs #2, 3, 4)
4. (Synthesis Level) Chart client response to treatment. (CSLO #3)
5. (Synthesis Level) Design treatment plan for client based on intake form, interview, and follow-up assessment. (CSLOs #2, 3, 4)
6. (Evaluation Level) Assess the effectiveness of treatment. (CSLOs #3, 4)

LMT250 - Chiropractic Assistant Training

General

Division
License Massage Therapy Program

Course Description
This course is designed for massage therapy students and individuals training to become chiropractic assistants. It provides an introduction to fundamental chiropractic principles, the management of common health conditions, and professional standards of conduct in a clinical setting. Students will engage in hands-on training and receive an in-depth overview of physical and manual therapeutic procedures commonly used in chiropractic care. The course also examines the history and philosophy of acupuncture, with emphasis on supporting chiropractors who integrate acupuncture into their practice.
Attendance at both full-day Saturday workshops is mandatory for successful course completion.
Note: This is a hybrid course, delivered primarily online with two in-person Saturday sessions scheduled during the term. Dates for the in-person sessions will be announced in advance. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize chiropractic principles of practice. (CSLO #2)
2. (Analysis Level) Compare chiropractic management of common diseases with allopathic methods. (CSLOs #2, 4)
3. (Application Level) Demonstrate history taking procedures in a chiropractic medical facility. (CSLOs #3, 4)
4. (Comprehension Level) Explain record keeping required in a chiropractic medical facility. (CSLO #3)
5. (Synthesis Level) Specify and summarize professional standards of conduct for a chiropractic assistant. (CSLOs #1, 3)

MAT001BC - Math Foundations Boot Camp

General

Division
Mathematics Division

Course Description
Twenty hour math camp to better prepare students for the Next Gen Math Placement Test. The course will review math topics needed to perform well on the Next Gen test, as well as help to develop soft skills necessary for a college level math course such as note-taking, time management and test-taking skills.

Total Number Of Credits:
0

Other Credit Information
20 Hours of Lecture & Lab, typically over 4 days

MSLOs

Measurable Student Learning Outcomes
Increase Next Gen placement score. 1. (Application Level) Perform computations with integers and fractions. (CSLO 2) 2. (Application Level) Round numbers and estimate solutions to arithmetic problems. (CSLO 2,3,4) 3. (Application Level) Perform computations with decimal numbers. (CSLO 2,3) 4. (Application Level) Solve problems involving percentages. (CSLO 2,3) 5. (Analysis Level) Use mathematical concepts to solve word problems and applications. (CSLO 2,3,4) 6. (Application Level) Perform operations with real numbers. (CSLO 2,3) 7. (Application Level) Solve and graph linear equations, inequalities and systems. (CSLO 2) 8. (Application Level) Perform operations with polynomials. (CSLO 2,4) 9. (Application Level) Factor and solve quadratic equations. (CSLO 2,4)

MAT106 - Technical Math I

General

Division
Mathematics Division

Course Description
Review of basic operations of whole numbers, fractions, decimals, percents, and their application to the construction trade. Incorporates the use of tools to measure length and weight. Various mathematical conversions are studied along with practical applications. Also included is a study of basic geometry including perimeter, area, volume, and geometric constructions. This course allows students to pursue Industrial Technology and Skill Trades pathways in Automated Industrial Technology, Diesel Technology, Heavy Equipment Operator, Pipe Welding, and Structural Fabrication Welding. Exams are proctored.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Perform basic operations with whole numbers, fractions, decimals and percent. (CSLO #2)
2. (Application Level) Convert fractions to decimals to percent in any order. (CSLO #2)
3. (Synthesis Level) Use data represented in graphs to draw conclusions. (CSLO #2,4)
4. (Application Level) Solve applied percent problems involving mechanical efficiency, production waste, relative manufacturing error, and tolerance. (CSLO #2,4)
5. (Analysis Level) Set-up and solve proportion problems including direct proportion, similar figures, roof pitch, scale drawings, etc. (CSLO #2,4)
6. (Application Level) Solve applied inverse proportion problems involving gear ratios, lever arms, etc. (CSLO #2,4)
7. (Application Level) Convert measurements from U. S. Customary units to metric and vice versa for length, weight, volume, and temperature. Express converted quantities to a specified level of precision (e.g. to the nearest sixteenth inch). (CSLO #2)
8. (Application Level) Make measurements using rulers, calipers, and micrometers as well as using scales of the trade. (CSLO #2)
9. (Analysis Level) Recognize basic shapes used in the trade, identify angles, and find missing angle measures. (CSLO #2)
10. (Application Level) Apply basic geometric concepts to solve problems involving area, perimeter and volume. (CSLO #2,4)
11. (Application Level) Apply differing strategies to solve application problems both with and without a calculator. (CSLO #2,4)

Course Requisites

MAT118 - Essential Mathematics

General

Division
Mathematics Division

Course Description
A review of the basic skills of mathematics with emphasis on developing sound mathematical skills in arithmetic, algebra, geometry and problem-solving. Exams are proctored.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply technology to assist in solving mathematical applications involving linear equations, inequalities and systems of linear equations.(CSLO 2 & 4)
2. (Analysis Level) Apply the techniques of rounding to estimate the solutions to problems.(CSLO 2 & 4)
3. (Synthesis Level) Represent a given problem with an appropriate geometric figure (circle, rectangle, sphere, etc.), identify the appropriate quantity (perimeter, area, volume etc.) and apply the appropriate formula to solve the problem.(CSLO 2 & 4)
4. (Knowledge Level) Define when a relation is a function and discuss the domain and range relative to a function.(CSLO 2 & 4)
5. (Synthesis Level) Construct linear models and graphs given different representations of the function.(CSLO 2 & 4)
6. (Application Level) Solve systems of linear equations and systems of inequalities in two variables.(CSLO 2 & 4)
7. (Synthesis Level) Solve problems using the basic terms, meter, liter, gram, and demonstrate conversions, kilo, deci, milli, etc., within the Metric System, and perform conversions to and from the Metric System and the U.S. System for problems involving weight, length and volume.(CSLO 2 & 4)
8. (Application Level) Apply terms such as set, intersection, union, disjoint and empty to assist in solving inequalities.(CSLO 2 & 4)
9. (Application Level) Use measures of Mass and Temperature, such as gram and pound, and Celsius and Fahrenheit, in solving problems.(CSLO 2 & 4)
10. (Application Level) Define and use the basics of Problem Solving Techniques based on Polya's Four-Step Model.(CSLO 2 & 4)
11. (Application Level) Demonstrate the rules and uses of Exponents and Scientific Notation in solving problems.(CSLO 2 & 4)
12. (Analysis Level) Use Dimensional Analysis or unit ratios in solving applied problems.(CSLO 2 & 4)
13. (Application Level) Apply the principles of Direct and Inverse Variation in solving problems.(CSLO 2 & 4)

Course Requisites

MAT121 - Intermediate Algebra, Standard

General

Division
Mathematics Division

Course Description
Operations/properties of real numbers, exponents and complex numbers; factoring, solution/application of linear and quadratic equations; operations on rational and radical expressions. Exams are proctored. Recommended: RDG100. Prerequisite: Eligibility determined by placement process.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply the appropriate rules of addition, subtraction, multiplication, and division with polynomials, rational expressions, and radical expressions and express the answer in the simplest form. (CSLO 4)
2. (Application Level) Use various factoring techniques to completely factor polynomials, including GCF, grouping, factoring trinomials, difference of squares, and the sum and difference of cubes. (CSLO 4)
3. (Application Level) Identify if numbers are complex or real and add, subtract, multiply, and divide expressing answers in simplified standard complex form. (CSLO 4)
4. (Application Level) Solve quadratic equations and inequalities with complex solutions by factoring and applying the Zero Product Property, completing the square, quadratic formula and graphing while expressing the answer in simplified standard complex form.(CSLO 2,4)
5. (Application Level) Graph linear equations in two variables on the rectangular coordinate plane using point-slope form and slope intercept form to find the equation of the line when given the slope and y-intercept, the slope and a point, or two points on the line.(CSLO 4)
6. (Application Level) Solve systems of linear equations in two or three variables by graphing, substitution and elimination and identify the solution given the graph. (CSLO 2,4)
7. (Application Level) Solve and apply appropriate properties to find the solution to compound inequalities involving absolute value, quadratic expressions, and rational expressions. (CSLO 4)
8. (Comprehension Level) Demonstrate an understanding of exponential functions and their inverse relationship to logarithmic functions by conversion and graphing. (CSLO 2,4)

Course Requisites

MAT141 - College Mathematics, Standard

General

Division
Mathematics Division

SUN
1142

Course Description
General mathematics including personal finance, set theory, exponential growth and decay, probability, and statistics. Exams will be proctored. Recommended: MAT087; RDG100.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Utilize calculators (scientific and/or graphing) and available computer software to model, investigate, solve, and justify solutions to given problems. (CSLO 4)
2. (Analysis Level) Given a description of a set, express the set in set-builder notation; and given two or more sets, evaluate the union and intersection of the sets and represent the sets, intersection, and union in a Venn diagram. (CSLO 2)
3. (Application Level) Apply the concepts of counting, factorials, permutations, and combinations to calculate solutions to problems. (CSLO 2,4)
4. (Application Level) Use basic geometric figures (circle, square, rectangle, triangle) to model problems and apply the appropriate formula of measurement to find the missing quantity.(CSLO 2)
5. (Application Level) Calculate the odds of a specified event, apply the rules of probability to solve for the probability of specified events, determine dependent/independent events and evaluate the expected value of an event. (CSLO 4)
6. (Comprehension Level) Given a set of data, evaluate the mean, median, mode, range, variance, and standard deviation, and calculate z-scores of a normal data set to solve problems. (CSLO 2,3)
7. (Application Level) Apply concepts of simple and compound interest, amortization, and annuities to solve finance application problems. (CSLO 2,4)
8. (Application Level) Apply the rules of exponents and logarithms to solve exponential growth and decay problems. (CSLO 2)
9. (Application Level) Select appropriate sampling technique, describe the population whose properties are to be analyzed, organize and present data, write the equation of a regression line, and use a sample correlation coefficient to determine whether there is a correlation in the population. (CSLO 2,4)

Course Requisites

MAT151 - College Algebra, Standard

General

Division
Mathematics Division

Course Description
Accelerated algebra that includes the topics: equations, functions, transformations, linear and quadratic functions and inequalities, systems of linear equations and inequalities, exponential and logarithmic functions, polynomials, rational functions. Exams are proctored. Recommended: MAT097 or MAT121; RDG100.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify the characteristics of a function and its inverse. (CSLO 2,4)
2. (Application Level) Sketch the graphs of various types of functions including linear, quadratic, polynomial, rational, radical, exponential and logarithmic. (CSLO 2,4)
3. (Application Level) Solve application problems modeled with functions. (CSLO 1,2,4)
4. (Application Level) Solve exponential and logarithmic equations. (CSLO 1,2,4)
5. (Application Level) Perform the arithmetic operations on complex numbers, functions and composite functions. (CSLO 2,4)
6. (Application Level) Solve systems of linear and nonlinear equations. (CSLO 2,4)
7. (Application Level) Solve systems of linear and nonlinear inequalities. (CSLO 2,4)
8. (Application Level) Find the partial fraction decomposition. (CSLO 2,4)
9. (Knowledge Level) Identify the characteristics of conic sections. (CSLO 2,4)
10. (Application Level) Use technology to assist in solving problems. (CSLO 1,2,3,4)

Course Requisites

MAT162 - Applied Statistics

General

Division
Mathematics Division

Course Description
Graphical and quantitative description of data; binomial, normal and t distributions; one and two sample hypothesis tests and confidence intervals; simple linear regression and correlation. Exams are proctored. Recommended: MAT097 or MAT121 or higher; RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain simple statistical methods commonly used in reporting polling data and scientific research studies using correct statistical notation and appropriate language. (CSLO 1,2)
2. (Synthesis Level) Construct informative graphical and numerical summaries of data appropriate for the type of data and the context in which the data was collected. (CSLO 3,4)
3. (Evaluation Level) Interpret the meaning of graphical and numerical summaries of data in written terms appropriate to the context in which the data was collected. (CSLO 2,4)
4. (Analysis Level) Recognize and properly carry out parameter estimation and hypothesis testing procedures with and without the use of technology. (CSLO 2,3,4)
5. (Comprehension Level) Discuss the formalism of parameter estimation and hypothesis testing and how it relates to, supports and advances the scientific method. (CSLO 2,4)
6. (Analysis Level) Apply parameter estimation and hypothesis testing to solve problems utilizing appropriate statistical methods. (CSLO 2,4)
7. (Analysis Level) Recognize the limitations of statistical methods and discuss the appropriateness of use within a context. (CSLO 2,4)
8. (Application Level) Empirically and theoretically obtain the probability of an event. (CSLO 4)
9. (Application Level) Apply the normal distribution to calculate probability of event. (CSLO 2,4)
10. (Application Level) Apply the properties of the t-distribution, t-statistic, and degrees of freedom to construct confidence intervals. (CSLO 4)
11. (Analysis Level) Examine the relationship between two quantitative variables using the correlation coefficient and by computing the regression equation. (CSLO 2,4)
12. (Application Level) Perform chi-square tests of independence, homogeneity, and goodness of fit as appropriate. (CSLO 2,4)

Course Requisites

MAT182 - Trigonometry with Algebra Review

General

Division
Mathematics Division

Course Description
A comprehensive coverage of trigonometry and selected topics from college algebra for students intending to take calculus: measurements of angles, trigonometric functions, equations and graphs, inverse trigonometric functions, identities, polar coordinates, solutions of triangles, applications, complex numbers, DeMoivre's theorem, vectors, logarithms, exponential functions, partial fractions, conics, and sequences and series. Exams are proctored. Recommended: RDG100. Prerequisite: MAT151.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply trigonometric concepts to solve right and non-right triangles. (CSLO 2,4)
2. (Application Level) Solve applications involving circles and angles. (CSLO 4)
3. (Application Level) Graph trigonometric functions in polar and parametric forms and identify the period, amplitude, and shift of trigonometric functions. (CSLO 2)
4. (Application Level) Solve trigonometric equations using trigonometric identities and inverse functions. (CSLO 2,4)
5. (Application Level) Apply concepts of trigonometry to solve problems involving vectors. (CSLO 2,4)
6. (Synthesis Level) Convert complex numbers between rectangular and polar forms and find their products and quotients.(CSLO 2,4)
7. (Application Level) Graph equations of conic sections. (CSLO 2)
8. (Analysis Level) Decompose a rational expression into a sum of partial fractions. (CSLO 2,4)
9. (Application Level) Graph and solve logarithmic and exponential functions and equations using appropriate properties. (CSLO 2,4)
10. (Comprehension Level) Distinguish the difference between arithmetic and geometric sequences and use appropriate formulas to find specific terms. (CSLO 2,4)
11. (Evaluation Level) Evaluate the sum of finite and infinite series. (CSLO 2,4)
12. (Evaluation Level) Use technology to model, investigate, solve, and/or justify solutions to given problems. (CSLO 4)

Course Requisites

MAT187 - Pre-Calculus

General

Division
Mathematics Division

SUN
1187

Course Description
Polynomial, logarithmic, exponential functions, factoring and graphing techniques, angles and their measures, properties and graphs of trigonometric functions and equations, identities, vectors, solutions of triangles, applications, systems of equations and inequalities, partial fractions, conics, sequences and series. Exams are proctored. Recommended: RDG100. Prerequisite: MAT151.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes

1. (Application Level) Apply trigonometric concepts to solve right and non-right triangle problems using the law of sines & cosines. (CSLO 2,4)
2. (Application Level) Solve problems involving circles, including arc length, area of a sector and motion on a circular path.(CSLO 4)
3. (Application Level) Graph trigonometric functions in rectangular form.(CSLO 4)
4. (Application Level) Prove trigonometric identities and use trigonometric identities and inverse properties to solve trigonometric equations.(CSLO 2,4)
5. (Application Level) Use vectors to solve application problems. (CSLO 4)
6. (Application Level) Graph equations of conic sections and identify their main characteristics, such as the center, vertex/vertices, focus/foci, endpoints and asymptotes. (CSLO 4)
7. (Application Level) Perform partial fraction decomposition. (CSLO 4)
8. (Application Level) Solve and sketch polynomial, rational, logarithmic and exponential equations and functions using the appropriate properties. (CSLO 2,4)
9. (Application Level) Distinguish the difference between arithmetic and geometric sequences and apply appropriate formulas to find specific terms. (CSLO 2,4)
10. (Evaluation Level) Evaluate the sum of finite and infinite series. (CSLO 4)
11. (Evaluation Level) Use technology to model, solve, and justify answers.(CSLO 4)
12. (Analysis Level) Apply multiple techniques to solve quadratic equations and other equations reducible to quadratic form.(CSLO 2,4)
13. (Application Level) Combine polynomial, rational, and square root functions and find the domain of a composite function.(CSLO 2,4)

Course Requisites

MAT201 - Math for Elementary Teachers I - Number, Operations and Numerical Systems

General

Division
Mathematics Division

Course Description
An explanation of numbers, number systems, operations on numbers, and problem solving. The course is designed to meet the requirements for prospective elementary education teachers. Exams are proctored. Prerequisites: MAT141 or MAT151.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply basic set theory, patterns and inductive/deductive reasoning to solve problems. (CSLO 2,4)
2. (Application Level) Solve problems from a variety of contexts using a variety of strategies including technology.(CSLO 2,4)
3. (Application Level) Perform operations in non-base ten systems.(CSLO 2)
4. (Application Level) Solve problems of area, perimeter, volume, ratios and percent.(CSLO 2,4)
5. (Application Level) State, illustrate and apply number properties.(CSLO 2)
6. (Analysis Level) Analyze number patterns to solve problems and extend number patterns to algebraic reasoning.(CSLO 2,4)
7. (Application Level) Apply number systems to solve problems.(CSLO 2)
8. (Application Level) Apply various mental and concrete models for addition, subtraction, multiplication and division operations.(CSLO 2)
9. (Analysis Level) Analyze interconnections among mathematical operations.(CSLO 2,4)
10. (Application Level) Apply algebra concepts and processes including the real number system and proportional reasoning.(CSLO 2,4)

Course Requisites

MAT202 - Math for Elementary Teachers II - Geometry, Measurement and Visualization

General

Division
Mathematics Division

Course Description
Spatial visualization, measurement, geometry, proof, probability and data analysis using appropriate technologies and various strategies. Use physical models, technology and pattern-finding strategies to identify properties of and develop formulas for measuring two- and three-dimensional shapes. This course is designed to meet the requirements for prospective elementary education teachers. Exams are proctored. Prerequisites: MAT141 or MAT151.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze properties of two- and three-dimensional shapes.(CSLO 2,4)
2. (Synthesis Level) Develop geometric formulas for area, perimeter, circumference and volume.(CSLO 2,4)
3. (Application Level) Apply proportional reasoning, similarity and congruence to solve problems.(CSLO 2,4)
4. (Analysis Level) Apply the Pythagorean Theorem and analyze the Pythagorean Theorem proof.(CSLO 2,4)
5. (Synthesis Level) Create geometric constructions.(CSLO 2)
6. (Synthesis Level) Apply geometry transformations to figures using symmetry, reflections, translations, and rotations to formulate conjectures.(CSLO 2,4)
7. (Synthesis Level) Solve problems from a variety of contexts using various strategies including technology.(CSLO 2,4)
8. (Application Level) Conduct probability experiments using concrete models and technology and interpret the results.(CSLO 4)
9. (Application Level) Use counting principles such as permutations, combinations and factorials.(CSLO 2)
10. (Evaluation Level) Find and interpret measures of central tendency (mean/weighted mean, median, mode), variability (range, variance, standard deviation), and rank (quartiles, percentiles, z-scores, stanines).(CSLO 2,4)
11. (Analysis Level) Organize, create and interpret statistical graphs and charts including the normal distribution and identify patterns/trends.(CSLO 2,4)
12. (Analysis Level) Analyze levels of the VanHiele Theorem of geometric development.(CSLO 2,4)

Course Requisites

MAT211 - Brief Calculus, Standard

General

Division
Mathematics Division

Course Description
Foundations of differential and integral calculus, including applications to business and economics. Not open to students with credit in MAT 221 or MAT 231. Exams are proctored. Prerequisite: MAT151.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1.(Evaluation Level) Evaluate limits of various functions.
2.(Application Level) Implement rules of continuity.
3.(Evaluation Level) Evaluate derivatives of various functions using the product, quotient and chain rule, as well as the rule for exponential and logarithmic functions using technology when appropriate.
4.(Application Level) Apply rules for graphing algebraic functions using appropriate technology.
5.(Application Level) Solve application problems including marginal analysis using technology when appropriate.
6.(Application Level) Apply rules of integration to find the anti-derivative of various functions.
7.(Evaluation Level) Evaluate the definite integral of various functions using the Fundamental Theorem of Calculus and technology when appropriate.
8.(Application Level) Solve business/economics problems using the appropriate rules and/or methods.

Course Requisites

MAT212 - Brief Calculus, Accelerated

General

Division
Mathematics Division

Course Description
Foundations of differential and integral calculus including applications to business and economics. Not open to students with credit in MAT221 or MAT231. Prerequisite: MAT151

Total Number Of Credits:
3

MAT215 - Math for Business Analysis

General

Division
Mathematics Division

Course Description
A study of mathematics focused on solving business-related problems by applying the concepts of linear programming, optimization, statistics, probability and multivariable calculus. Exams are proctored. Prerequisite: MAT211 or MAT221.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Solve problems with functions of several variables. (#2, #4)

2. (Application Level) Solve business-related multivariable optimization problems, including linear programming problems, using technology when appropriate. (#1, #2, #3, #4)

3. (Synthesis Level) Analyze application optimization problem content and utilize the appropriate calculus-based method (i.e., Second Partials Test, Lagrange Multiplier, etc.) to determine the maximum profit, minimum cost, and optimal use of resources. (#1, #2, #3, #4)

4. (Application Level) Solve application problems using matrices and determinants focusing on business and/or economics problems. (#1, #2, #3, #4)

5. (Application Level) Utilize the principles of set theory, Venn diagrams, counting techniques and combinatorics to solve problems. (#2, #4)

6. (Synthesis Level) Derive solutions using probability concepts, including Bayes' Theorem. (#2, #4)

7. (Application Level) Identify data types and data distributions including discrete, continuous, binomial, and normal. Perform calculations, using z-scores (tables) or the 68-95-99.7 Rule appropriately, or apply appropriate calculus-based method to solve statistics problems. (#2, #4)

8. (Application Level) Utilize graphing calculators and available computer software to model, investigate, solve, and justify solutions to given problems. (#2, #3, #4)

9. (Application Level) Utilize the principles of the math of finance with simple/compound interest as well as future/present value of an annuity and amortization. (#1, #2, #3, #4)

Course Requisites

MAT221 - Analytical Geometry and Calculus I

General

Division
Mathematics Division

Course Description
An introduction to analytic geometry, limits, continuity, differential and integral calculus of single variable functions, and related applications. Exams are proctored.
Prerequisites: MAT187; OR MAT151 AND MAT182 OR or appropriate test score.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Define and evaluate limits algebraically, numerically, or graphically. (CSLO 2,4)
2. (Knowledge Level) Define various types of discontinuity. (CSLO 2)
3. (Evaluation Level) Use multiple methods to differentiate functions. (CSLO 2,4)
4. (Analysis Level) Use the concepts of calculus to graph a function. (CSLO 2,4)
5. (Application Level) Solve real-world applications using derivatives. (CSLO 4)
6. (Evaluation Level) Approximate the zeros of a function. (CSLO 4)
7. (Evaluation Level) Integrate functions. (CSLO 2,4)
8. (Evaluation Level) Define and evaluate definite integrals. (CSLO 2,4)
9. (Application Level) Solve applications using integral calculus. (CSLO 4)
10. (Application Level) Incorporate technology to support the problem-solving process. (CSLO 2)

Course Requisites

MAT231 - Analytical Geometry & Calculus II

General

Division
Mathematics Division

Course Description
Techniques of integration for both proper and improper integrals with applications of physics and social science, elements of analytical geometry, and the analysis sequences and series. Exams are proctored. Prerequisite: MAT221.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Determine the volume of a solid of revolution. (CSLO 2, 4)
2. (Evaluation Level) Apply appropriate rules of differentiation to find the derivative of various functions. (CSLO 2, 4)
3. (Evaluation Level) Apply various techniques of integration to find the proper and improper integrals. (CSLO 2, 4)
4. (Application level) Model real-life problems by applying integration. (CSLO 4)
5. (Evaluation Level) Apply various techniques to solve first-order differential equations. (CSLO 2, 4)
6. (Evaluation Level) Identify the convergence or divergence of sequences and series. (CSLO 2, 4)
7. (Evaluation Level) Develop a power series representation for elementary functions and estimate the series with a partial sum. (CSLO 2, 4)
8. (Evaluation Level) Analyze curves in the plane defined by parametric and polar equations. (CSLO 2, 4)
9. (Synthesis Level) Incorporate technology to support problem-solving processes. (CSLO 3, 4)

Course Requisites

MAT241 - Analytical Geometry and Calculus III

General

Division
Mathematics Division

Course Description
Multivariable calculus including vectors, vector-valued functions, partial differentiation, multiple integration, and an introduction to vector fields. Exams are proctored. Prerequisite: MAT231.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine the use of vectors in plane and in three-dimensional space. (CSLO 2, 4)
2. (Analysis Level) Describe and compare the motion of an object in the plane or space curve. (CSLO 2, 4)
3. (Analysis Level) Analyze the graphs of multivariable functions. (CSLO 2, 4)
4. (Application Level) Solve real- world applications using multivariable derivative. (CSLO 2, 4)
5. (Evaluation Level) Select multiple integrals to find characteristic attributes of multi-dimensional solids. (CSLO 2, 4)
6. (Evaluation Level) Interpret line and surface integrals. (CSLO 2, 4)
7. (Synthesis Level) Incorporate technology to support problem-solving processes. (CSLO 3, 4)

Course Requisites

MAT242 - Elementary Linear Algebra

General

Division
Mathematics Division

Course Description
Introduction to the theories and applications of Linear Algebra. Topics included are systems of linear equations, vectors and matrices, linear transformations, determinants, eigenvectors, eigenvalues, and orthogonality. Exams are proctored. Prerequisite: MAT221.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Solve systems of linear equations using multiple methods, including Gaussian elimination, Cramer's Rule, and matrix inversion. (CSLO 4) 2. (Application Level) Compute the transpose, determinant, and inverse of matrices for a given matrix. (CSLO 4) 3. (Knowledge Level) Define a homogeneous linear system of m equations with n unknowns and identify a sufficient condition for its nontrivial solution. (CSLO 2) 4. (Application Level) Calculate eigenvalues, eigenvectors and eigenspaces for matrices and linear transformations. (CSLO 4) 5. (Knowledge Level) Define the basic terminology of linear algebra in Euclidean spaces, including linear independence, spanning, basis, rank, nullity, subspace, and linear transformation. (CSLO 2) 6. (Knowledge Level) Find the kernel, rank, range and nullity of a linear transformation. (CSLO 4) 7. (Application Level) Solve application problems using the properties of linear mappings: image and kernel. (CSLO 4) 8. (Application Level) Use the Gram-Schmidt process to construct orthogonal and orthonormal bases. (CSLO 4) 9. (Application Level) Define subspaces in R-2 and R-3 and inner products; determine the dimension of a subspace and analyze the function that maps two vectors from a vector space to a scalar. (CSLO's 2,4) 10. (Synthesis Level) Construct the orthogonal diagonalization of a symmetric matrix. (CSLO 4)

Course Requisites

MAT275 - Modern Differential Equations

General

Division
Mathematics Division

Course Description
Designed for engineering students, this introduction to first and higher order ordinary differential equations with applications focuses on problem solving using MATLAB. Prerequisite: MAT231. Exams are proctored.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define various types of differential equations. (CSLO #2)
2. (Analysis Level) Apply various techniques to solve first-order differential equations. (CSLO # 2, 4)
3. (Synthesis Level) Determine the general solution of a higher-order differential equation. (CSLO # 2, 4)
4. (Synthesis Level) Model real-life problems using first and higher order differential equations. (CSLO # 2, 4)
5. (Analysis Level) Find the series solutions of linear second-order differential equations using the Frobenius method. (CSLO # 2, 4)
6. (Application Level) Solve systems of ordinary linear differential equations by differential operator, Laplace Transforms and/or matrix methods. (CSLO # 2, 4)
7. (Synthesis Level) Incorporate technology including MATLAB and graphing calculators to support problem-solving processes. (CSLO # 3)

Course Requisites

MAT087SP21 - Foundations I

General

Division
Mathematics Division

Course Description
Review of fundamental mathematical skills as a foundation for other mathematics courses. RDG091 is recommended. Exams are proctored.

Total Number Of Credits:
5

MAT087SP22 - Foundations I

General

Division
Mathematics Division

Course Description
Review of fundamental mathematical skills as a foundation for other mathematics courses. Exams are proctored. Recommended: RDG100.

Total Number Of Credits:
5

Lecture Credits
5

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Utilize a graphing calculator to solve and justify solutions to given problems.
2. (Application Level) Perform the basic operations with real numbers including the evaluation of factorials. (CSLO 2 & 4)
3. (Application Level) Apply the rules of ratios, proportions, and percents to solve word problems. (CSLO 2 & 4)
4. (Analysis level) Graph linear inequalities on a number line and express solution using set-builder and interval notation.
5. (Application Level) Demonstrate the appropriate use of the order of operations. (CSLO 2 & 4)
6. (Application Level) Apply methods of unit conversion in and between the metric and American systems to solve problems. (CSLO 2 & 4)
7. (Analysis Level) Calculate measures of central tendency (mean, median, mode). (CSLO 2 & 4)
8. (Analysis Level) Describe central tendencies, make conjectures and predictions, and create table, bar, circle, and line graphs based on the data set. (CSLO 2 & 4)
9. (Analysis Level) Apply different problem-solving strategies to application problems. (CSLO 2 & 4)
10. (Application Level) Use basic geometry concepts to solve problems involving perimeter, area, and volume of geometric figures. (CSLO 2 & 4)
11. (Application Level) Solve and apply simple linear equations. (CSLO 2 & 4)
12. (Evaluation Level) Evaluate problems involving scientific notation, including converting numbers expressed as scientific notation to standard notation and vice versa. (CSLO 2 & 4)
13. (Application Level) Construct linear models and graphs given multiple representations of the function and describe trends and predictions for a given data set. (CSLO 2 & 4)
14. (Comprehension Level) Describe the rate of change of a linear function. (CSLO 2 & 4)
15. (Application Level) Graph linear equations in the Cartesian coordinate plane. (CSLO 2 & 4)
16. (Application Level) Apply the laws of exponents, such as the product, quotient, and power rules, and integer exponents. (CSLO 2 & 4)
17. (Comprehension Level) Define what a function is in terms of its domain and range. (CSLO 2 & 4)

MAT097SP21 - Foundations II

General

Division
Mathematics Division

Course Description
Development of fundamental mathematical skills and concepts such as operations/properties of exponents and complex numbers; factoring; graphing functions; solution/application of linear, quadratic, and rational equations; operations on rational and radical expressions. Credit is allowed for only MAT097 or MAT121. Prerequisite: MAT 086 or higher or appropriate placement.

Total Number Of Credits:
5

MAT097SP22 - Foundations II

General

Division
Mathematics Division

Course Description
Development of fundamental mathematical skills and concepts such as operations/properties of exponents and complex numbers; factoring; graphing functions; solution/application of linear, quadratic, and rational equations; operations on rational and radical expressions. Credit is allowed for only MAT097 or MAT121. Exams are proctored. Recommended: RDG100.

Total Number Of Credits:
5

Lecture Credits
5

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply the appropriate rules of addition, subtraction, multiplication, and division with polynomials, rational expressions, radical expressions, and complex numbers. (CSLO 4)
2. (Application Level) Apply the laws of exponents to simplify problems involving the product and/or quotient of expressions with exponents and to express answers without any negative exponents. (CSLO 4)
3. (Evaluation Level) Evaluate problems involving scientific notation, including converting numbers expressed as scientific notation to standard notation and vice versa. (CSLO 4)
4. (Application Level) Apply variation formulas to set up and solve direct and inverse variation problems. (CSLO 4)
5. (Application Level) Determine the domain and the range of a relation. (CSLO 2)
6. (Application Level) Construct linear models and graphs given multiple representations of the function and describe trends and predictions for a given data set. (CSLO 2, 4)
7. (Comprehension Level) Describe the rate of change of a linear function. (CSLO 4)
8. (Application Level) Use various factoring techniques to completely factor polynomials, including GCF, grouping, factoring trinomials, the difference of squares, and the sum and difference of cubes. (CSLO 4)
9. (Application Level) Solve linear equations and related applications. (CSLO 2, 4)
10. (Application Level) Solve quadratic equations and inequalities with complex solutions by factoring and applying the Zero Product Property, completing the square, quadratic formula and graphing. (CSLO 2, 4)
11. (Application Level) Graph linear equations in two variables on the rectangular coordinate plane using point-slope form and slope-intercept form. (CSLO 2)
12. (Application Level) Find the equation of the line when given the slope and y-intercept, the slope and a point, or two points on the line. (CSLO 2, 4)
13. (Application Level) Solve systems of linear equations in two or three variables by graphing, substitution, and elimination and identify the solution given the graph. (CSLO 2, 4)
14. (Application Level) Solve and apply appropriate properties to find the solution to compound inequalities involving absolute value, quadratic expressions, and rational expressions.
(CSLO 2, 4)
15. (Comprehension Level) Demonstrate an understanding of exponential functions and their inverse relationship by converting between logarithmic and exponential forms and graphing. (CSLO 2, 4)

MATBC002 - Math Boot Camp

General

Division
Mathematics Division

Course Description
Twenty hour math camp to better prepare students for college level math. The course will review math topics needed to perform well in college math courses, as well as help to develop necessary soft skills such as note-taking, time management, and test-taking skills.

Total Number Of Credits:
0

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Perform computations with integers and fractions. (CSLO 2) 2. (Application Level) Round numbers and estimate solutions to arithmetic problems. (CSLO 2,3,4) 3. (Application Level) Perform computations with decimal numbers. (CSLO 2,3) 4. (Application Level) Solve problems involving percentages. (CSLO 2,3) 5. (Analysis Level) Use mathematical concepts to solve word problems and applications. (CSLO 2,3,4) 6. (Application Level) Perform operations with real numbers. (CSLO 2,3) 7. (Application Level) Solve and graph linear equations, inequalities and systems. (CSLO 2) 8. (Application Level) Perform operations with polynomials. (CSLO 2,4) 9. (Application Level) Factor and solve quadratic equations. (CSLO 2,4)

MDA116 - Medical Terminology

General

Division
Medical Assistant Program

Course Description
The study and application of medical terminology to all body systems and specialties in various healthcare settings, including anatomy, physiology, organs, blood structures, lymphatic and immune system, musculoskeletal, skin, sense organs, endocrine systems and others. Medical terms relevant to oncology, radiology and nuclear medicine, pharmacology and psychiatry will be covered. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify, define and analyze medical terminology using word analysis tools, including dividing the medical words into their parts, defining each part, and analyzing basic combining forms, suffixes and prefixes. (CSLOs #2, 4)

2. Apply medical terminology to the assigned body systems and specialties, including:

2a. (Knowledge Level) Identify, name and describe the anatomy, physiology and location of major organs and parts of each assigned body system, all the structures of the blood, lymphatic and immune system, musculoskeletal, skin, sense organs: the eye and ear and endocrine systems. (CSLO #2)

2b. (Comprehension Level) Define medical terms relevant to each assigned body system and specialty including cancer/oncology medicine, radiology and nuclear medicine, pharmacology and psychiatry. (CSLO #2)

2c. (Analysis Level) Identify and describe the major pathologic conditions, symptoms and treatments relevant to each assigned body system and specialty. (CSLOs #2, 4)

2d. (Knowledge Level) Describe important laboratory tests, clinical procedures and abbreviations pertaining to each assigned body system and specialty. (CSLO #2)

3. (Analysis Level) Analyze the medical terms in the Practical Applications Medical Report, answer questions about the report and engage in classroom discussions. (CSLOs #2, 3, 4)

MDA117 - Pathopharmacology for Health Occupations

General

Division
Medical Assistant Program

Course Description
The fundamentals of pathophysiology as they relate to pharmacology in a healthcare setting. Pathological conditions and terminology, causes, incidence, signs, symptoms, diagnosis treatment, and special considerations associated with the major diseases of the body systems studied. Students will demonstrate application of pathophysiological principles to pharmacologic therapy as it relates to drug sources, uses, and classifications including purpose, side effects, cautions, interactions, and patient education. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline disease awareness and infection control including general prevention of diseases, healthy life style and awareness, and how infection is spread as well as prevention methods. (CSLO 4)

2. (Analysis Level) Differentiate the major organs, their locations, and functions for body systems. (CSLO 4)

3. (Synthesis Level) Explain major pathological terminology and conditions affecting body systems. (CSLO 2)

4. (Analysis Level) Assess the causes, incidence, signs, and symptoms of major pathological conditions. (CSLO 4)

5. (Application Level) Determine the treatments and special considerations associated with major diseases and conditions. (CSLO 2)

6. (Application Level) Report on preventive measures for major pathological conditions. (CSLO 2)

7. (Analysis Level) Identify the causes, incidence, prevention methods, signs, symptoms, and treatments of cancer for body systems. (CSLO 4)

8. (Synthesis Level) Summarize the major mental disorders, and generalize causes, incidents, signs, symptoms, and treatments with emphasis on early detection and prevention. (CSLO 2)

9. (Comprehension Level) Discuss safety and drug regulations that specifically relate to FDA and DEA, healthcare workers, and the law. (CSLO 2)

10. (Analysis Level) Identify drug names and references including classification of drugs' actions, generic and trade names, and listing the side effects. (CSLO 2)

11. (Analysis Level) Recognize sources and bodily effects of drugs including pharmacokinetics, absorption, distribution, metabolism, excretions of drugs, and unexpected responses to drugs. (CSLO 2)

12. (Synthesis Level) Formulate precise medication preparations including space age drug forms, standard drug forms, and supplies. (CSLO 2)

13. (Application Level) Show medical abbreviations and systems of measurement including units of measurement. (CSLO 2)

14. (Synthesis Level) Perform safe dosage preparations including basic calculations, ratio and proportions, pediatric and geriatric dosage, and prevention of medication errors. (CSLO 2)

15. (Comprehension Level) Summarize professional responsibilities and principles of drug administration including medication errors and principles of administration. (CSLO 2)

16. (Analysis Level) Compare and contrast the differences between administration of drugs by gastrointestinal and parenteral routes. (CSLO 2)

17. (Comprehension Level) Explain poison control including poisoning by ingestion and inhalation, external poisoning of skin or eyes, poisoning by sting and snakebite, and people at risk. (CSLO 2)

18. (Analysis Level) Analyze assigned drugs from the current yearly most frequently prescribed drugs list, analyze assigned drugs for purpose, classification, side effects, common dosage, route of administration, and precautions. (CSLO 4)

19. (Application Level) Determine the patient education necessary for each drug classification including purpose, dosage, cautions with interactions, and potential side effects. (CSLO 2)

MDA131 - Introduction to Insurance and Insurance Billing I

General

Division
Medical Assistant Program

Course Description
Introductory course to insurance systems, billing processes, clinical vocabularies, ethical and legal issues and computer applications used to complete these processes. Needs Program Director approval. Prerequisite: Program Director approval.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and research the background and importance of accurate insurance claims submission, coding, and billing, educational requirements for a job as an insurance billing specialist and a coder to include areas of specialization and the associations for credential attainment, principles of documentation, the contents of a medical record, required content of a physician note and basic documentation rules as well as contract management and A/R. (CSLO 4)
2. (Analysis Level) Analyze issues related to patient confidentiality, privacy, security as well as other legal issues related to coding and billing. Differentiate types of claims submissions, claim rejections, claim appeals and claim processes for reimbursement. (CSLO 4)
3. (Application Level) Demonstrate the ability to complete the CMS 1500 (08-05) claim form for federal, state, and private payer insurance contracts. (CSLO2)
4. (Application Level) Perform oral and written communication collection techniques using common software applications in the execution of work processes. (CSLO 2)
5. (Analysis Level) Identify, research and explain issues related to manage care health plans, Medicare, Medicaid, TRICARE, Blue Cross, Private Insurance, Private Pay, CHAMPVA, Worker's Compensation, Disability and Medical Funds. (CSLO 4)
6. (Comprehension Level) Explain and discuss issues and processes related to prospective payment systems. (CSLO 2)

MDA139 - Fundamentals of Medical Assisting

General

Division
Medical Assistant Program

Course Description
Introduction to medical assisting, medical science history and practice, medical law and ethics, medical terminology, communication, office environment, telephone techniques, patient reception, patient education, mental health, and career assistance. Recommended: RDG100. Prerequisite: Instructor consent.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Upon completion of the course, the student will be able to demonstrate incorporating cognitive knowledge in performance of the psychomotor and affective domains in the following:

1. (Analysis Level) Analyze and apply the concepts of effective professional communication as used in the medical setting. (CSLO 4)

2. (Evaluation Level) Appraise current legal and ethical considerations appropriate to the administrative and clinical medical setting. (CSLO 3)

3. (Application Level) Use correct safety and emergency practices in the administrative and clinical medical setting. (CSLO 3, 4)

(*All of the learning outcomes listed are based on the Medical Assisting Education Review Board (MAERB) of the American Association of Medical Assistants (AAMA) Core Curriculum 2015 Plan for Medical Assistants.)

Course Requisites

MDA150 - Medical Assisting Skills I

General

Division
Medical Assistant Program

Course Description
Medical record, medical asepsis and the OSHA Standard, sterilization and disinfection, vital signs, the physical examinations, eye and ear assessment and procedures, nutrition, gynecologic, prenatal and pediatric examinations, geriatrics, and male reproductive health. Recommended: RDG100. Prerequisite: Instructor consent.

Total Number Of Credits:
7

Lecture Credits
4

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
Upon completion of the course, the student will be able to demonstrate incorporating cognitive knowledge in performance of the psychomotor and affective domains in the following:

1. (Application Level) Demonstrate entry-level clinical procedures.
2. (Application Level) Apply microbiology/infection control practices during medical procedures. (CSLO 2)
3. (Analysis Level) Analyze and apply the concepts of effective professional communication as used in the medical setting. (CSLO 4)
4. (Evaluation Level) Appraise current legal and ethical considerations appropriate to the clinical medical setting. (CSLO 3)
5. (Application Level) Use correct safety and emergency practices in the clinical medical setting.

MDA151 - Medical Assisting Skills II

General

Division
Medical Assistant Program

Course Description
Clinical Medical Assisting including: cardiopulmonary procedures, colon procedures, radiology and diagnostic imaging, introduction to the clinical laboratory, urinalysis, phlebotomy, hematology, blood chemistry and serology, microbiology, pharmacology, minor surgery , and assisting with medical emergencies and emergency preparedness. Recommended: RDG100. Prerequisite: Instructor consent.

Total Number Of Credits:
7

Lecture Credits
4

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate entry-level clinical procedures. (CSLO 3, 4)
2. (Application Level) Apply basic mathematics to medical procedures. (CSLO 2)
3. (Application Level) Apply microbiology/infection control practices during medical procedures. (CSLO 2)
4. (Analysis Level) Analyze and apply the concepts of effective professional communication as used in the medical setting. (CSLO 4)
5. (Evaluation Level) Appraise current legal implications and ethical considerations appropriate to the clinical medical setting. (CSLO 1, 3)
6. (Analysis Level) Recognize and use safety and emergency practices in the clinical medical setting. (CSLO 4)

MDA171 - Administrative Medical Procedures

General

Division
Medical Assistant Program

Course Description
Medical business practices, basic practice finances, managed care/insurance, healthcare law and ethics, and procedural and diagnostic coding. Recommended: RDG100. Prerequisite: Instructor consent.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Incorporate critical thinking based on cognitive knowledge in performance of psychomotor (skills) and affective (behavior) domains in the performance of the following:
A. (Application Level) Demonstrate basic medical business practices including administrative functions. (CSLO#2)
B. (Application Level) Apply basic practice finances. (CSLO# 3, 4)
C. (Application Level) Demonstrate managed care/insurance procedures. (CSLO#3)
D. (Application Level) Apply procedural and diagnostic coding. (CSLO# 3, 4)
E. (Analysis Level) Analyze medical law and ethics related to medical assisting.* (CSLO#4) (*All of the learning outcomes listed are based on the Medical Assisting Education Review Board (MAERB) of the American Association of Medical Assistants (AAMA) Core Curriculum 2015 Plan for Medical Assistants.)

Course Requisites

MDA174 - Medical Assistant Cert Practicum

General

Division
Medical Assistant Program

Course Description
Practical experience of 180 hours in a medical facility, under the supervision of a physician, where students apply clinical principles and procedures in a situation with actual patient contact. This course is required for the Medical Assistant Certificate. Prerequisite: Instructor consent.

Total Number Of Credits:
4

Practicum Credits
4

Other Credit Information
4 Pracitca total 180 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate entry-level clinical procedures, including handwashing, wrapping of items for autoclaving, sterile techniques, disposal of biohazardous materials, and practice of Standard Precautions.(CSLO 2)
2. (Application Level) Demonstrate specimen collection by performing venipuncture and capillary puncture, obtaining specimens for microbiological testing and instructing patients in collection of urine and fecal specimens. (CSLO 2)
3. (Application Level) Demonstrate diagnostic tests, including electrocardiography (EKG), respiratory testing and CLIA tests including: urinalysis, hematology, chemistry, immunology and microbiology testing. (CSLO 2)
4. (Application Level) Demonstrate professional patient care procedures to: perform telephone and in-patient screening; obtain vital signs and patient history; prepare patients for and assist with procedures, treatments and minor office surgery; prepare and administer oral and parenteral (excluding IV) medications; maintain medication and immunization records; and screen and follow-up test results. (CSLO 2)
5. (Application Level) Demonstrate professional communication skills by recognizing and responding to nonverbal and verbal communication and demonstrating proper telephone techniques. (CSLO 2)
6. (Application Level) Apply professional legal concepts appropriate in the medical setting, to include: identifying and responding to issues of confidentiality; performing within legal and ethical boundaries; establishing and maintaining medical records; documenting appropriately; and explaining federal and state health care legislation and regulations. (CSLO 2)
7. (Application Level) Instruct patients on general office policies, procedures, health maintenance and disease prevention, and community resources.(CSLO 2)
8. (Application Level) Implement routine maintenance of clinical equipment, including inventory scheme and quality control procedures of clinical equipment. (CSLO 2)

Course Requisites

MDA175 - Medical Assistant Degree Practicum

General

Division
Medical Assistant Program

Course Description
Supervised, unpaid practical experience of 180 hours in an ambulatory health care setting performing both administrative and clinical procedures. This course is required for the Medical Assistant AAS Degree. Students must receive a grade of C or better to pass this course. Students who fail will not be allowed to repeat this course. Students who withdraw with instructor's consent may retake this course only once with instructor consent. Prerequisites: Instructor consent; Mandatory requirements specific to MDA175 must be met before enrollment; All program courses must be successfully completed before enrolling in MDA175.

Total Number Of Credits:
4

Practicum Credits
4

Other Credit Information
4 Pracitca total 180 Hours

MSLOs

Measurable Student Learning Outcomes
Upon completion of the course, the student will demonstrate the following competencies under supervision in the medical setting:

1. Medical assisting clinical competencies including:
a. (Application Level) Demonstrate medical asepsis according to the OSHA Standards. (CSLO#2)
b. (Application Level) Demonstrate sterilization and disinfection techniques.
c. (Synthesis Level) Communicate effectively by considering the perspectives of patients during preparation and while assisting with the physical examination. (CSLO#1)
d. (Analysis Level) Recognize individual perspectives while performing eye and ear assessment and procedures.
e. (Analysis Level) Recognize individual perspectives while applying physical agents to promote tissue healing.
f. (Analysis Level) Recognize individual perspectives in preparing and assisting with gynecologic prenatal and pediatric examinations.
g. (Analysis Level) Recognize individual perspectives in preparing and assisting with minor office surgery.
h. (Analysis Level) Analyze and verify medication orders including preparation and administration of medications using appropriate math theories, principles, applications, and methods.
i. (Analysis Level) Analyze and perform electrocardiography using knowledge of the equipment and consideration of the patient.
j. (Analysis Level) Analyze, prepare, and administer a spirometer test using knowledge of the equipment and consideration of the patient.
k. (Analysis Level) Analyze, prepare, and assist with colon procedures using knowledge of the equipment and consideration of the patient.
l. (Synthesis Level) Communicate, instruct, and inform patients on necessary health care information considering complexity of cultures and perspectives of others. (CSLO#1)
m. (Synthesis Level) Communicate, instruct, and inform patients on necessary dietary and special dietary needs.
n. (Analysis Level) Analyze and perform urinalysis applying scientific concepts, principles, and methods.
o. (Analysis Level) Analyze and perform phlebotomy applying scientific concepts, principles, and methods.
p. (Analysis Level) Analyze and perform hematology, blood chemistry and serology, and microbiology tests applying scientific concepts, principles, and methods. (CSLO#2)

2. Medical assisting administrative competencies including:
a. (Analysis Level) Analyze and perform basic medical assisting clerical functions by assessing, evaluating, manipulating, and applying data effectively and ethically.
b. (Analysis Level) Analyze and perform bookkeeping procedures by accessing, evaluating, manipulating, and applying data effectively and ethically.
c. (Analysis Level) Analyze and process insurance claims and perform insurance procedural and diagnostic coding by accessing, evaluating, manipulating, and applying data effectively and ethically.

3. General Competencies including:
a. (Analysis Level) Analyze and demonstrate professional communications skills through effective oral and written communication considering cultural complexity and the perspective of others. (CSLO#3)
b. (Analysis Level) Analyze and demonstrate knowledge of confidentiality and legal concepts including personal integrity, considering the perspectives of others, and the larger community. (CSLO#3)
c. (Synthesis Level) Communicate patient instructions including considering the complexity of cultures, perspective of others, and using effective oral and listening communication skills.
d. (Analysis Level) Analyze and demonstrate medical setting operational functions including informational and technological literacy to access and evaluate information effectively and ethically. (CSLO#4)

Course Requisites

MET102 - Machine Processing, Theory and Application

General

Division
Skilled Trades & Technology Division

Course Description
Study and application of principles and theory of common metal removal processes including drilling, reaming, boring, milling, turning, and grinding. Cutting tool geometry and materials, cutting speeds and feeds, coolants, and precision measurement are covered. Prerequisites or corequisites: MET107 and MET109 or minimum score of 80% on related competency evaluation must be taken as a prerequisite or a corequisites.

Total Number Of Credits:
5

Lecture Credits
4

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Use safe work habits. (I) 2. (Application Level) Operate precision measuring equipment including rules, calipers, and micrometers, gage blocks, etc. (II) 3. (Application Level) Perform basic operations and set-ups on an engine lathe. (III, IX) 4. (Application Level) Apply cutting tool geometry, materials, and basic sharpening principles when sharpening drills and lathe tool bits. (IV, IX) 5. (Application Level) Apply basic speeds and feeds rules and formulas. (IX, X, XI) 6. (Application Level) Perform set-up and operations on the vertical and horizontal milling machines. (IV, X, XI) 7. (Application Level) Perform principles and applications of drilling and boring machines. (V, XII) 8. (Application Level) Perform set-up and operations on the cylindrical and surface grinder. (VI, XIV) 9. (Application Level) Identify basic principles and application of cutoff and sawing machines. (VII, XIII) 10. (Application Level) Perform basic operations of specific shop equipment including hand tools, belt sanding, arbor press, and indexing devices. (VIII) 11. (Synthesis Level) Complete the Operator Certification Checklist with instructor. (I - XIV)

Course Requisites

MET106 - Industrial Safety

General

Division
Skilled Trades & Technology Division

Course Description
Safety, health management and accident prevention in the industrial work environment are covered. Topics include the role of the Occupational Safety and Health Administration Act, (OSHA), materials handling, electrical safety, machine safety, first response to fire and medical emergencies, safety signs and color codes, recognition of safety and health hazards accident prevention, and managements responsibilities.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the five functions of the plant safety and health manager. (I) 2. (Comprehension Level) Describe the four concepts of hazard avoidance. (II) 3. (Knowledge Level) Define the impact of federal regulations on safety and health concerns in the work place. (III) 4. (Comprehension Level) Describe building and facility features, including floors and stairways, working surfaces, and structural egress paths, and the construction and maintenance of each from a safety and health standpoint. (IV) 5. (Comprehension Level) Describe safe handling and storage procedures for hazardous materials. (V) 6. (Application Level) Identify, describe, and demonstrate the emergency first aid treatment for common emergencies, including: choking, heart attack, electrical shock, burns, heat stroke and exhaustion, inhalation, amputation, bleeding, neck/head/back injuries and broken bones. (XV) 7. (Application Level) Demonstrate the correct procedures for safe mechanical and manual handling of various materials in varying weights and shapes and describe the correct rack, bulk, or palletized storage procedures for these materials. (VII) 8. (Comprehension Level) Describe the various steps required for machine and tool guarding, including: the point of operation, power transmission apparatus, saws, abrasive wheel machinery, pneumatic and hydraulic equipment and powered and non-powered hand tools. (VIII) 9. (Analysis Level) Recognize safety precautions for machine tool use. (IX) 10. (Knowledge Level) Identify safety devices and procedures to follow that will reduce the possibility of an electrical accident. (X) 11. (Knowledge Level) List ten observable conditions that could indicate the presence of health and safety hazards. (XI) 12. (Comprehension Level) Describe the meaning, uses, and purpose of various safety colors and signs, including: danger, caution, exit, electrical, noise, eye, moving vehicle, and radiation, biological, and chemical hazards. (XII) 13. (Comprehension Level) List and discuss the points that should be included in a fire prevention plan. (XIII) 14. (Knowledge Level) List the five generally accepted steps in accident prevention. (XIV) 15. (Comprehension Level) Describe CPR and First Aid procedures. (XV)

MET110 - Introduction to Quality Assurance

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to quality assurance, quality improvement and quality improvement tools including: Statistical Process Control (SPC) software and hardware applications. Related topics include: International Standards Organization Quality Standards (ISO9000)and Theory of Constraints (TOC). Writing technical papers with an oral presentation is included.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Identify the concepts of quality. 2. Compare and contrast quality assurance and quality control. 3. Identify and use graphical methods of quality improvement. 4. Identify and use basic statistical process control. 5. Identify and use basic descriptive statistics. 6. Identify and discuss major people in the world of quality. 7. Identify and discuss ISO9000 and its component parts (9001, 9002, 9003 and 9004). 8. Discuss Theory of Constraints and its use in manufacturing. 9. Give a ten-minute presentation on a related topic of quality.

MET115 - Employment Readiness

General

Division
Skilled Trades & Technology Division

Course Description
An interactive workplace environment will prepare students with soft skills necessary for employment. Skills included are positive work habits, communication skills, workplace effectiveness, and increased basic employability skill levels.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Compare personal interests, abilities, and values assessment scores to work environments for employability in various fields and contrast a minimum of two fields of work using online personal interests, abilities, and values assessment scores. 2. (Evaluation Level) Complete and interpret values of KeyTrain assessment for applied mathematics, locating information, and reading for information. 3. (Analysis Level) Examine appropriate, effective workplace interpersonal skills of communication styles, active listening, feedback, and teamwork approaches. 4. (Comprehension Level) Describe and discuss the importance of time management, problem solving, and business etiquette in the workplace. 5. (Evaluation Level) Evaluate personal skills for time management, problem solving, and business etiquette in the workplace. 6. (Knowledge Level) Identify various types of diversity in humankind. 7. (Comprehension Level) Explain and illustrate types of human diversity in the workplace. 8. (Application Level) Demonstrate appropriate diversity skills in the workplace.

MET124 - General Machine Technology

General

Division
Skilled Trades & Technology Division

Course Description
No description.

Total Number Of Credits:
3

MET127 - Manufacturing Process and Materials

General

Division
Skilled Trades & Technology Division

Course Description
Production processes, materials, techniques, systems and applications used in industry. Concepts, design, materials, processes, resources and systems of production management from manual, mechanized, automated and integrated stages are presented.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Explain manufacturing process. 2. Identify and discuss the most common materials and related science used in manufacturing. 3. Identify and explain the use of manufacturing standards per ANSI 14.5Y. 4. Use related reference resources. 5. Identify and explain the development of a part from concept through manufacture using an M.O.T. format. 6. Discuss the technological and economic aspects of a modern manufacturing industry as it relates to market share and employment opportunities. 7. Explain and discuss traditional and non-traditional manufacturing techniques. 8. Explain and define various systems of production and management. 9. Recognize, define and discuss various environmental and safety issues. 10. Discuss trends and economics of manufacturing.

MET131 - Lean Manufacturing

General

Division
Skilled Trades & Technology Division

Course Description
Lean manufacturing methodologies and application of a manufacturing organization are covered. Topics include identification of waste and application of cost to poor quality process within a manufacturing organization, lean manufacturing tools and implementation, and organizational buy-in.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe lean manufacturing methodologies used in manufacturing organizations. (I) 2. (Application Level) Apply strategies for organizational buy-in. (I-V) 3. (Application Level) Employ a lean manufacturing cell. (I-VII) 4. (Comprehension Level) Explain how lean is adapted to current manufacturing organizations. (II) 5. (Knowledge Level) Identify waste in a manufacturing organization. (III) 6. (Evaluation Level) Evaluate the cost of poor quality processes in a manufacturing organization. (IV) 7. (Application Level) Apply lean manufacturing tools in a manufacturing organization. (V)

MET150 - VB.NET for Engineering

General

Division
Skilled Trades & Technology Division

Course Description
Object Oriented Programming techniques in Visual Basic (VB.NET) used to control external peripherals such as motors, lights, and electromechanical equipment through the Universal Serial Bus (USB) port, including flowcharting, pseudocoding, coding, testing, and documenting programs in accordance with specifications. Recommendations: Any type of computer programming experience.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate flowcharting and pseudocoding techniques, per given applications. 2. (Analysis Level) Identify, describe, implement and analyze decision statements, strings, functions, and arrays. 3. (Comprehension Level) Describe the concept, usage and application of Data Link Libraries (DLL). 4. (Comprehension Level) Explain the methods of interfacing for specific communication applications. 5. (Synthesis Level) Create a VB.NET programming and hardware solution for a specific communication application. 6. (Comprehension Level) Explain how to interface peripherals to the Personal Computer (PC) ports using electrical specifications. 7. (Application Level) Develop VB.NET communication applications through the USB and serial port. 8. (Application Level) Document a VB.NET programming and hardware design plan. 9. (Evaluation Level) Evaluate the process for interfacing peripherals to the PC ports per electrical specifications.

MET206 - CNC Programming

General

Division
Skilled Trades & Technology Division

Course Description
CNC Programming of Word Address Language (G&M Code) for computer numerical control (CNC) machine tools are covered. Topics include 2, 3 and 4-Axis CNC Programming for CNC controlled machines, computer-based tool path verification, CNC controller tool path verification and CNC machine tool program verification. Also covered are the study of tooling, speeds, feeds and material removal as related to CNC machine tools and CNC controlled machines. Prerequisite: MET231 or machine shop experience or permission of Program Director.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the history, objectives and function of CNC controlled machines, and explain the advantages of CNC (I) 2. (Knowledge Level) Define the Cartesian Coordinate System, X, Y, Z axis nomenclature, incremental and absolute programming, including the ASCII (American Standard Code for Information Interchange) programming format for Word Address Language. (II) 3. (Synthesis Level) Write a CNC program to control CNC machine functions, multi-axis coordinate path and miscellaneous CNC machine functions. (III) 4. (Synthesis Level) Write, edit, save and retrieve a CNC program with an ASCII text editor. (IV) 5. (Application Level) Employ tool path verification with back plot software and CNC machine control verify mode. (IV) 6. (Synthesis Level) Use the multi-axis CNC machine to verify the CNC program. (V) 7. (Application Level) Prepare sequence of operation, determine necessary tooling, set tool length offset, and diameter offset variables to produce a CNC machined part from a dimensional annotated document. (VI) 8. (Application Level) Use linear and/or circular interpolation, apply a coordinate system, canned cycles, and miscellaneous functions, and all control variables to produce a CNC machined part from a dimensional annotated document. (VI)

MET207 - CNC Mill: Operator Training I

General

Division
Skilled Trades & Technology Division

Course Description
Computer Numerical Control (CNC) Mill qualified setup and functioning program. Topics include Mill operations, changing tool values, and replacing and qualifying tooling. CNC Mill operator training also includes machine controls, tooling and operations, and proper machine shop safety. Prerequisite: MET231 or permission of Program Director. Corequisite: MET206 or permission of Program Director.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of shop safety, housekeeping, and etiquette. (I) 2. (Application Level) Demonstrate control manipulation and variable mode use. (II, V, VIII) 3. (Application Level) Demonstrate CNC Machining Center operations and controllers. (II, VII) 4. (Application Level) Demonstrate the procedures for start-up, mode selection, and shut down of a CNC Machining Center. (III) 5. (Application Level) Demonstrate the use of basic CNC Machining Center tooling, and tool holders. (IV) 6. (Comprehension Level) Explain the differences of various workholding devices. (IV) 7. (Application Level) Demonstrate qualify tooling as necessary. (VI) 8. (Application Level) Demonstrate production use of a CNC Machining Center. (VII) 9. (Application Level) Demonstrate the use of shop measuring instruments to qualify a part. (IX) 10. (Comprehension Level) Explain the importance of machine maintenance, tooling, and coolant. (X) 11. (Application Level) Complete part numbers: 207.1, 207.2, 207.3, and 207.4. (XI)

Course Requisites

MET208 - CNC Lathe: Operator Training I

General

Division
Skilled Trades & Technology Division

Course Description
Computer Numerical Control (CNC) Lathe qualified setup and functioning program. Topics include operation of a lathe, changing tool values, and replacing and qualify tooling. CNC Lathe operator training also includes machine controls, tooling and operations and proper machine shop safety. Prerequisite: MET231 or permission of Program Director. Corequisite: MET206 or permission of Program Director.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of shop safety, housekeeping, and etiquette. (I) 2. (Comprehension Level) Explain the importance of machine maintenance, tooling, and coolant. (I, V) 3. (Application Level) Demonstrate the procedures for start-up-up, mode selection and shut down of a CNC Turning Center. (II) 4. (Application Level) Demonstrate operating CNC Turning Center operations and controllers. (III) 5. (Comprehension Level) Explain the differences of various workholding devices. (IV) 6. (Application Level) Demonstrate production use of a CNC Turning Center. (IV) 7. (Application Level) Demonstrate qualify tooling as necessary. (V) 8. (Application Level) Demonstrate the use of basic CNC Turning Center tooling and tool holders. (VI) 9. (Application Level) Demonstrate control manipulation, and variable mode use. (VI) 10. (Application Level) Demonstrate the use of shop measuring instruments to qualify a part. (VII) 11. (Application Level) Complete part numbers: 208.1, 208.2, 208.3, 20.4, and 208.5. (VIII)

Course Requisites

MET209 - CNC Mill: Operator Training II

General

Division
Skilled Trades & Technology Division

Course Description
Setup and operation of a computerized numerical control (CNC) mill and fourth axis rotary table. Computerized numerical control (CNC) machining center. Manufacturing operation instruction and functioning program. Changing tool values. Replacement and qualifying tooling. Advanced program editing including CANNED cycle use and manipulation. CNC mill operator training including advanced machine control manipulation communication techniques, and fixturing concepts. Proper machine shop safety. Prerequisite: (MET102, MET203, MET206, MET207) or Permission of Department or Division.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of shop safety, housekeeping, and etiquette. (I) 2. (Application Level) Demonstrate the procedure for setup and production of close tolerance parts on a CNC Machining Center. (II, IV) 3. (Application Level) Demonstrate change over of various work holding devices. (III, IV) 4. (Comprehension Level) Explain the importance of machine maintenance, tooling and coolant. (III) 5. (Application Level) Demonstrate the use of CNC Machining Center tooling and qualify tooling as necessary. (IV) 6. (Application Level) Demonstrate production use of a CNC Machining Center. (IV) 7. (Application Level) Demonstrate and explain setup time reduction techniques. (IV) 8. (Application Level) Demonstrate the operation and setup of fourth axis rotary table. (IV) 9. (Application Level) Demonstrate advanced editing and program manipulation. (V) 10. (Application Level) Demonstrate the use of shop measuring instruments to qualify a part. (VI) 11. (Application Level) Setup and run part numbers: 209.1, 209.2, 209.3, 209.4. (VII)

Course Requisites

MET210 - CNC Lathe: Operator Training 2

General

Division
Skilled Trades & Technology Division

Course Description
Setup and operation of a Computer Numerical Control (CNC) lathe and CNC Mill/Turn. Topics covered include manufacturing operation instructions and functioning program, changing tool values, and replacing and qualify tooling. Advanced CNC lathe topics include production tooling and coolants, live tooling (mill/turn), tail stock, bar pull/feed, advanced program editing, CANNED cycle use and manipulation, and set up time reduction. Proper machine shop safety is also covered. Prerequisites: (MET102, MET203, MET206, MET208) or permission of Department or Division Chair.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the importance of shop safety, housekeeping and etiquette. (I) 2. (Application Level) Demonstrate the procedure for setup and production of the close tolerance part on a CNC turning center, CNC Mill/Turn machine. (II) 3. (Application Level) Demonstrate the use of a CNC turning center tooling and qualify tooling as necessary. (III) 4. (Comprehension Level) Explain the importance of machine maintenance, tooling, and coolant. (III) 5. (Application Level) Demonstrate change over of work holding devices (chucking to collet closer). (IV) 6. (Application Level) Demonstrate production use of a CNC turning center utilizing bar feeders. (IV) 7. (Application Level) Demonstrate and explain setup time reduction techniques. (IV) 8. (Application Level) Demonstrate boring chuck jaws. (IV) 9. (Application Level) Demonstrate the use of a tailstock part support system. (IV) 10. (Application Level) Demonstrate machine control graphic programming. (V) 11. (Application Level) Demonstrate program manipulation and optimization utilizing CANNED cycles. (V) 12. (Application Level) Demonstrate advanced program editing. (VI) 13. (Application Level) Demonstrate the use of shop measuring instruments to qualify a part. (VII) 14. (Application Level) Setup and run part numbers: 210.1, 210.2, 210.3, 210.4, and 210.5. (VIII)

Course Requisites

MET215 - Measurement Systems and Machine Tool Math

General

Division
Skilled Trades & Technology Division

Course Description
Principles and applications of math concepts, blueprint reading, and quality assurance for manual machining. Math skills are specific to creating precision parts for industry applications, including prototyping and production. Recommended: A basic understanding of math.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Understand English and metric (SI) measurement systems and compute conversions between the two.(CSLO 2,3) 2. (Application Level) Demonstrate understanding of fractional and decimal math and conversions between fractions and decimals.(CSLO 2,3) 3. (Application Level) Demonstrate the ability to solve right triangles using sine, cosine, and tangent trignometric functions. (CSLO 2,3) 4. (Application Level) Demonstrate the ability to solve formulas and equations using algebra. (CSLO 2,3) 5. (Application Level) Demonstrate the ability to locate and identify points in a Cartesian coordinate system. (CSLO 2,3) 6. (Knowledge Level) Define quality assurance. (CSLO 2) 7. (Analysis Level) Examine the purpose of a process plan and describe its key points. (CSLO 2,3) 8. (Analysis Level) Examine the purpose of an inspection plan and describe its key points. (CSLO 2,3) 9. (Evaluation Level) Identify and interpret title block information. (CSLO 2,3) 10. (Knowledge Level) Identify line types and their uses. 11. (Knowledge Level) Identify isometric views. 12. (Knowledge Level) Identify basic geometric dimensioning and tolerance symbols.

MET216 - Properties of Materials

General

Division
Skilled Trades & Technology Division

Course Description
Study of manufacturing properties of materials, the behavior of materials under load, stress and strain and torsion and qualities of materials other than strength.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the process of extracting metals from ores and manufacturing products. (1) 2. (Knowledge Level) Identify and select ferrous and nonferrous metals. (II) 3. (Comprehension Level) List and describe the mechanical and physical properties of metals. (III) 4. (Comprehension Level) Describe crystalline structure of metals and iron carbon diagrams. (IV) 5. (Comprehension Level) Explain the operation of heat treating equipment to perform heat treating of materials. (V) 6. (Comprehension Level) Explain metallurgy of welds. (VI) 7. (Comprehension Level) Explain powder metallurgy and identify products using this process. (VII) 8. (Application Level) Demonstrate techniques of nondestructive testing. (VIII) 9. (Evaluation Level) Diagnose and evaluate service problems. (IX) 10. (Comprehension Level) List and describe various casting processes. (X) 11. (Comprehension Level) List and describe alternate materials, such as plastics, ceramics, wood and paper products. (XI)

MET219 - Adv Manufacturing Processes

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to the concepts of production systems management and control. Topics stressed include materials resource planning and basic production line controls, as well as robotics, conveyors, machine tools, and quality integration. Prerequisite: MET127.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain PLC Event Sequencing.(CSLO 2) 2. (Synthesis Level) Incorporate Panel View in a work-cell application.(CSLO 2,3) 3. (Application Level) Use Control Logix to control a work-cell.(CSLO 2,3) 4. (Knowledge Level) List machine safety controls.(CSLO 2) 5. (Synthesis Level) Develop a software program to control a robot in a work-cell applicatiin.(CSLO 2,3,4) 6. (Synthesis Level) Integrate a robot in a work-cell application. (CSLO 2,3,4) 7. (Knowledge Level) Select and present appropriate machining (metal cutting) and forming processes, including unconventional methods.(CSLO 2,3) 8. (Analysis Level) Measure and analyze the dynamic characteristics of the manufacturing equipment, i.e machine tools and machining systems.(CSLO 2,3) 9. (Evaluation Level) Interpret tolerances in engineering drawings and using this understanding plan and carry out measurements of given engineering components. (CSLO 2,3,4) 10. (Analysis Level) Provide suggestions for economic and sustainable manufacturing processes based on specific conditions. (CSLO 4) 11. (Synthesis Level) Independently plan, implement, document and present a research based assignment in manufacturing processes. (CSLO 2,3,4)

Course Requisites

MET224 - Sheet Metal Technology

General

Division
Skilled Trades & Technology Division

Course Description
No description.

Total Number Of Credits:
3

MET227 - Advanced Machine Tools

General

Division
Skilled Trades & Technology Division

Course Description
Advanced machining practices with an emphasis on application of machines and tool theory. Prerequisite: MET102.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
4

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and select the proper grade, shape, size, and holder for the application of carbide tooling. (I) 2. (Application Level) Select proper grinding and O.D., I.D., grinding set-ups and use the principles of tool sharpening and equipment use. (II) 3. (Application Level) Select and use appropriate indexing and rotary devices. (III) 4. (Analysis Level) Illustrate machine tool maintenance, safety and repair. (IV) 5. (Application Level) Demonstrate deburring methods and equipment. (V) 6. (Synthesis Level) Produce a finished product from prints while developing operation sheets, selection of machine set-up, and tooling. (VI)

Course Requisites

MET229 - Computer Aided Manufacturng II

General

Division
Skilled Trades & Technology Division

Course Description
No description.

Total Number Of Credits:
4

MET232 - Solids Modeling Solidworks

General

Division
Skilled Trades & Technology Division

Course Description
CAD modeling, solid part generation, assembly of parts, and working drawing creation. Applications of CAD/CAM in Computer Integrated Manufacturing.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Appropriately use CAD software to create parts of a model of a product. 2. (Synthesis Level) Accurately produce assemblies and sub-assemblies using CAD software. 3. (Synthesis Level) Create a system to efficiently save and retrieve CAD drawings. 4. (Synthesis Level) Accurately produce working drawings using CAD software.

MET233 - Materials and Metal Cutting

General

Division
Skilled Trades & Technology Division

Course Description
Principles and applications of layout, fixture design, characteristics of metals, drilling, taping, and cutting fluids for the manual machining program. This is an overview of all types of manual machining equipment and applications.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate understanding of benchwork drilling operations. (CSLO 2,3) 2. (Application Level) Demonstrate understanding of tap drill selection. (CSLO 2,3) 3. (Application Level) Identify various reamer types and demonstrate their use. (CSLO 2,3) 4. (Comprehension Level) Describe common types of cutting fluids and applications. (CSLO 2,3) 5. (Comprehension Level) Define and discuss common heat treatment processes. (CSLO 2,3) 6. (Comprehension Level) Define and discuss ferrous metals and alloys. (CSLO 2,3) 7. (Comprehension Level) Define and discuss nonferrous metals and alloys. (CSLO 2,3) 8. (Comprehension Level) Demonstrate understanding of the AISI//saE system of classification for steels. (CSLO 2,3) 9. (Comprehension Level) Demonstrate understanding of UNS classification of carbon and alloy steels. (CSLO 2,3) 10. (Analysis Level) Identify UNS designations for stainless steels, cast iron, and nonferrous alloys. (CSLO 2,3) 11. (Comprehension Level) Understand and explain fixture design basics. (CSLO 2,3) 12. (Comprehension Level) Define layout and explain its purpose. (CLSO 2,3) 13. (Application Level) Implement typical mathematical calculations required to perform layout. (CSLO 2,3)

MET234 - Drill Press Operations

General

Division
Skilled Trades & Technology Division

Course Description
Principles and application of metal removal using a drill press. Applications include proper workholding, drilling, reaming, tapping, counter boring, and counter sinking. Also covered are the application of material removal of different types of materials, including various metals and plastics.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify types of drill presses.(CSLO 2) 2. (Comprehension Level) Identify the major component of the drill press and describe their functions.(CSLO 2,3) 3. (Comprehension Level) Describe drill press safety procedures.(CSLO 2,3) 4. (Application Level) Define cutting speed and perform speed and feed calculations for hole making operations. (CSLO 2,3) 5. (Application Level) Demonstrate procedures for drilling operations. (CSLO 2,3) 6. (Application Level) Demonstrate procedures for reaming operations.(CSLO 2,3) 7. (Application Level) Demonstrate procedures for countersinking operations and calculate countersink feed depth.(CSLO 2,3) 8. (Application Level) Demonstrate procedures for boring operations.(CSLO 2,3) 9. (Application Level) Demonstrate procedures for tapping operations.(CSLO 2,3) 10. (Application Level) Explain and demonstrate work holding procedures. (CSLO 2,3)

MET235 - Vertical Mill Machining

General

Division
Skilled Trades & Technology Division

Course Description
Principles and applications of metal removal using a vertical mill. Applications include slot milling and cutting, squaring a block, angular milling, and pocket milling. Also covered are the application of material removal of different types of materials, including various metals and plastics.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and explain the components of a vertical milling machine. (CSLO 2,3) 2. (Comprehension Level) Explain the function of the components of a vertical milling machine. (CSLO 2,3) 3. (Comprehension Level) Identify and explain the use of various cutting tools used on the milling machine. (CSLO 2,3) 4. (Comprehension Level) Identify and explain the use of various tool holding devices used on the milling machine. (CSLO 2,3) 5. (Comprehension Level) Identify and explain the use of various work holding devices used on the milling machine. (CSLO 2,3) 6. (Analysis Level) Outline the purpose and process of tramming the milling machine head. (CSLO 2,3) 7. (Comprehension Level) Explain how to use an edge finder to establish a reference location. (CSLO 2,3) 8. (Synthesis Level) Anticipate and calculate speeds and feeds for milling operations. (CSLO 2,3) 9. (Application Level) Demonstrate the process of slot milling. (CSLO 2,3) 10. (Application Level) Demonstrate the process of squaring a block. (CSLO 2,3) 11. (Application Level) Demonstrate the process of angular milling. (CSLO 2,3) 12. (Application Level) Demonstrate the process of slotting with a slitting saw. (CSLO 2,3) 13. (Application Level) Demonstrate the process of pocket milling. (CSLO 2,3)

MET236 - Lathe Operations

General

Division
Skilled Trades & Technology Division

Course Description
Principles and applications of metal removal using an engine lathe. Applications include turning, knurling, grooving-cutoff, boring and threading. Also covered are the application of material removal of different types of materials, including various metals and plastics.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the principle operations of a lathe.(CSLO 2,3) 2. (Comprehension Level) Identify and explain the functions of the parts of a lathe. (CSLO 2,3) 3. (Comprehension Level) Explain the function of a three-jaw universal chuck. (CSLO 2,3) 4. (Application Level) Demonstrate the setup of a three-jaw universal chuck. (CSLO 2,3) 5. (Comprehension Level) Explain the function of a four jaw independent chuck. (CSLO 2,3) 6. (Application Level) Demonstrate the setup of a four jaw independent chuck. (CSLO 2,3) 7. (Comprehension Level) Identify and explain functions of various tool holding devices. (CSLO 2,3) 8. (Application Level) Demonstrate the use of various tool holding devices. (CSLO 2,3) 9. (Synthesis Level) Model the process of knurling. (CSLO 2,3) 10. (Synthesis Level) Perform the process of grooving and cutoff. (CSLO 2,3) 11. (Synthesis Level) Perform the process of boring. (CSLO 2,3) 12. (Synthesis Level) Perform the process of turning. (CSLO 2,3) 13. (Synthesis Level) Perform the process of threading. (CSLO 2,3) 14. (Synthesis Level) Perform taper turning. (CSLO 2,3)

MET240 - DeviceNet

General

Division
Skilled Trades & Technology Division

Course Description
This course focuses on DeviceNet concepts, communication protocol, programming and sensor configurations to meet industry standards in automation.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Research and identify the functional sections of a DeviceNet network.(CSLO 2) 2. (Synthesis Level) Develop a ladder logic program which will communicate with all peripherals and sensors.(CSLO 2,4) 3. (Synthesis Level) Analyze and create input/output interfacing solutions for various types of automation applications.(CSLO 2,4) 4. (Synthesis Level) Construct a DeviceNet Network.(CSLO 2) 5. (Synthesis Level) Configure a DeviceNet Scanner module.(CSLO 2) 6. (Evaluation Level) Identify and evaluate the steps in troubleshooting a DeviceNet Network.(CSLO 2,4)

MET250 - Factory Talk

General

Division
Skilled Trades & Technology Division

Course Description
Factory concepts and programming used in creating Human Machine Interfaces (HMI) in a variety of industry applications. An HMI is a graphical tool which controls automated devices.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Evaluation Level) Compare and contrast the sections and functions of a Human Machine Interface (HMI). (CSLO 2,4) 2.(Synthesis Level) Construct and configure graphic objects that will display the temperature, pressure and rpm and provide feedback from the system.(CSLO 2,4) 3.(Synthesis Level) Construct and configure interactive objects which will allow control of valves, motors and other automated devices.(CSLO 2,4) 4.(Synthesis Level) Construct message displays which will provide warnings and production status.(CSLO 2,4)

MET289 - Advanced Technology Capstone

General

Division
Skilled Trades & Technology Division

Course Description
Advanced technology capstone course brings together skills acquired in previous coursework in manufacturing processes, concept, design, engineering and robotics into a suitable project with special emphasis on planning, problem solving, and machine processing. Prerequisites: AIT100; AIT105; AIT110; AIT115; AIT120; AIT125; AIT205; AIT210; AIT215; AIT225; AIT270

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify and demonstrate procedures used in precision layout as it applies to advanced manufacturing processes and projects. (CSLO 2 & 4)
2. (Synthesis Level) Develop systematic procedures for problem solving to complete advanced manufacturing processes and projects. (CSLO 2 & 4)
3. (Synthesis Level) Incorporate the concepts and processes learned throughout the manufacturing technology coursework to design advanced solutions to scenarios from the instructor or other students. (CSLO 2, 3 & 4)
4. (Analysis Level) Problem-solve as a team in response to real world manufacturing situations. (CSLO 4)
5. (Synthesis Level) Integrate and demonstrate safe and self-directed work habits. (CSLO 2, 3 & 4)
6. (Synthesis Level) Perform routine operations on traditional manufacturing equipment. ((CSLO 3)

Course Requisites

MET296 - Advanced Manufacturing Apprentice

General

Division
Skilled Trades & Technology Division

Course Description
Manufacturing internship placements tailored to the students' academic program, interests, and skills.

Total Number Of Credits:
30

Internship Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply manufacturing theory to practice. (CSLO 2 & 3) 2. (Evaluation Level) Appraise career goals by having applied experiences in manufacturing. (CSLO 3) 3. (Evaluation Level) Assess understanding and knowledge of the NIMS. (CSLO 2) 4. (Evaluation Level) Assess ability to apply discipline-related knowledge to the field. (CSLO 2, 3 & 4)

MHL100 - Music Appreciation

General

Division
Visual & Performing Arts Division

Course Description
Music history and literature with emphasis on listening to and evaluating all types of music, noting the influence of the major composers and the media through which music is produced. Attendance at live musical events in a variety of venues will be encouraged. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Describe the properties of sound and elements of music and relate their importance to music in all styles in oral or written discourse.
2. (Analysis Level) Aurally recognize voices and instruments commonly found in choral music and symphony orchestras.
3. (Synthesis Level) In written discourse, summarize significant historical developments with shifts in musical styles.
4. (Analysis Level) In written or oral discourse, examine the main characteristics of music distinctive to each historical period from ancient Greece and Rome to the present.
5. (Analysis Level) Aurally extrapolate from selected musical examples from each historical period: title, composer, melody, harmony, rhythmic characteristics, as well as, genre and formal organization.
6. (Synthesis Level) Research and report musical events of varying genres currently happening in Arizona, the United States, and the world.

Course Requisites

MHL207 - Survey of Jazz and Popular Music

General

Division
Visual & Performing Arts Division

Course Description
Survey of popular music, noting unique musical styles of the associated composers and performers. Impact of popular music on social and historic events of the past century. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify visually and aurally the musical instruments associated with popular music in the 20th century.
2. (Application Level) Summarize a variety of prominent jazz and popular music styles of the 20th century.
3. (Analysis Level) Aurally extrapolate from selected musical examples from varying styles of popular music: title, artist, genre and formal organization and why it is significant.
4. (Analysis Level) Compare and contrast 19th century musical elements from varied cultures that contributed to the creation of jazz in the 20th century.
5. (Comprehension Level) In written or verbal discourse, summarize how musical styles have changed or were affected by historic events and social developments of the 20th century.
6. (Analysis Level) In written or verbal discourse deconstruct historical examples of prejudice, discrimination and segregation endured by musicians in the 20th century as a demonstration of cultural, gender and ethnic awareness.

Course Requisites

MLT210 - Clinical Laboratory Operation

General

Division
Medical Lab Technician Program

Course Description
Overview of laboratory services, laboratory professionals, and the role of a medical laboratory technician. An understanding of health care reform, reimbursement, cost analysis, coding, credentialing, accreditation, and regulatory agencies is included. Emphasis is on process improvement, laboratory mathematics, statistics, documentation, medico-legal implications, education, management and personnel, and specimen integrity. Additional focus is on application of pre-analytical, analytical, and post-analytical principles, infection control, and laboratory safety. Also covered is recognition of acceptable quality control and quality management principles, phlebotomy principles, and lab equipment, glassware, labware, and water purification. Additional topics are information systems and information management in laboratories, the importance of professional growth, communicating with the patient and public, ethical conduct and medical laboratory technician terminology. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Define the role of the medical laboratory technician in the healthcare delivery system as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,3)
2.0 (Application Level) Use common medical terminology. (CSLO 1,2,3)
3.0 (Application Level) Demonstrate knowledge of infection control and safety practices. (CSLO 1,2)
3.1 (Application Level) Demonstrate accepted practices for infection control, isolation techniques, aseptic techniques, and methods for disease prevention. (CSLO 1,2)
3.2 (Synthesis Level) Incorporate the mandated regulations with federal, state, and local guidelines regarding all the safety practices required by NAACLS. (CSLO 2,3)
3.2.1 (Application Level) Observe the OSHA bloodborne Pathogens Standard and Needle Safety Precaution Act. (CSLO 2)
3.2.2 (Application Level) Use prescribed procedures to handle electrical, radiation, biological, and fire hazards. (CSLO 2)
3.2.3 (Application Level) Use appropriate practices, as outlined in the OSHA Hazard Communication Standards, including the correct use of the Material Safety Data Sheet, as directed. (CSLO 2)
4.0 (Application Level) Follow standard operating procedures to collect specimens. (CSLO 1,2)
4.1 (Synthesis Level) Perform assigned specimen collection tasks incorporating knowledge of the circulatory, urinary, and other body systems. (CSLO 2,4)
4.2 (Comprehension Level) Describe the difference between whole blood, serum, and plasma. (CSLO 2)
4.3 (Application Level) Identify and use blood collection equipment. (CSLO 2)
4.31 (Evaluation Level) Evaluate and identify the additive by the evacuated tube color. (CSLO 2)
4.32 (Application Level) Identify and properly use equipment needed to collect blood by venipuncture and capillary (dermal) puncture. (CSLO 2)
4.4 (Application Level) Collect blood specimens by venipuncture. (CSLO 2,4)
4.5 (Application Level) Collect blood specimens by capillary (dermal) puncture. (CSLO 2,4)
4.6 (Knowledge Level) Identify special precautions necessary during blood collections by venipuncture and capillary (dermal) puncture. (CSLO 2,4)
4.7 (Application Level) List and apply the criteria that would lead to rejection or recollection of a patient sample. (CSLO 2,4)
4.8 (Synthesis Level) Instruct patients in the proper collection and preservation for non-blood samples. (CSLO 1,2)
5.0 (Application Level) Prepare blood and body fluid specimens for analysis according to standard operating procedures. (CSLO 2,4)
5.1 (Application Level) Follow standard operating procedures for labeling, transporting, and processing of specimens, including transport to reference laboratories. (CSLO 2)
5.2 (Synthesis Level) Follow the criteria for reporting specimens and test results that will be used as legal evidence. (CSLO 2,4)
6.0 (Application Level) Prepare/reconstitute reagents, standards and controls according to standard operating procedure. (CSLO 2)
6.1 (Analysis Level) Follow laboratory protocol for storage and suitability of reagents, standards, and controls. (CSLO 2)
6.2 (Synthesis Level) Recognize and report contamination and/or deterioration in reagents, standards, and controls. (CSLO 2,4)
7.0 (Synthesis Level) Perform appropriate tests at the medical laboratory technician level, according to standard operating procedures. (CSLO 2,4)
7.1 (Synthesis Level) Identify and report potential pre-analytical errors that may occur during specimen collection, labeling, transporting, and processing. (CSLO 2,4)
7.2 (Evaluation Level) Compare and evaluate test results to reference intervals. (CSLO 2,4)
7.3 (Synthesis Level) Record results by manual method or computer according to laboratory protocol. (CSLO 2)
7.4 (Synthesis Level) Report STAT results of completed tests according to laboratory protocol. (CSLO 2)
7.5 (Synthesis Level) Recognize critical values and follow established protocol regarding reporting. (CSLO 2)
7.6 (Application Level) Use and handle measurement equipment appropriately. (CSLO 2)
9.0 (Comprehension Level) Follow established quality control protocols to include maintenance and calibration of equipment. (CSLO 2,4)
9.1 (Synthesis Level) Perform quality control procedures. (CSLO 2)
9.2 (Synthesis Level) Record quality control results. (CSLO 2)
9.3 (Synthesis Level) Identify and report control results that do not meet pre-determined criteria. (CSLO 2,4)
10.0 (Application Level) Communicate (verbally and nonverbally) effectively and appropriately in the workplace. (CSLO 1,3)

10.1 (Application Level) Demonstrate confidentiality expectations of privileged information for individuals. (CSLO 1,2,3)
10.2 (Evaluation Level) Evaluate and defend the value of diversity in the workplace. (CSLO 1,2)
10.3 (Application Level) Demonstrate appropriate and professional interaction when working with other individuals. (CSLO 1,3)
10.4 (Analysis Level) Examine and discuss the major points of the American Hospital Association Patients Bill of Rights and the Patients Bill of Rights from the institution. (CSLO 1,3)
10.5 (Application Level) Demonstrate professional appearance and appropriate work behaviors. (CSLO 1,3)
10.6 (Application Level) Apply written and verbal instructions in carrying out testing procedures. (CSLO 2,4)
11.0 (Application Level) Use information systems necessary to accomplish job functions. (CSLO 2)
12.0 (Synthesis Level) Record data using the appropriate form when documenting potential pre-analytical errors that may occur during specimen collection, labeling, transporting, and/or processing. (CSLO 2,4)

MLT220 - Clinical Hematology and Hemostasis

General

Division
Medical Lab Technician Program

Course Description
Examines the anatomy and physiology of the hemopoietic and hemostasis systems, hematology and hemostasis case studies, anemia categories, and thrombocyte, hemostatic, and malignant and nonmalignant leukocyte disorders. Emphasis on interpreting, evaluating, and reporting hematology and hemostasis results, anticoagulant therapy, morphology, peripheral smear correlation with analyzer results, and patinet condition. Erythrocyte indices, collection techniques, specimen handling, calibration, and quality control are also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
7

Lecture Credits
5

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
Hematology Learning Outcomes:
1.0 (Application Level) Use common clinical hematology/hemostasis terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2)
2.0 (Application Level) Prepare, store, and dispose of specimens for hematology/hemostasis analysis according to standard operating procedures. (CSLO 2)
3.0 (Evaluation Level) Decide suitability of specimens for hematology/hemostasis procedures according to: the test requested, ⟐appropriate patient preparation/method of collection, time of collection/processing, storage, hemolysis/lipemia and interfering substances. (CSLO 2,4)
4.0 (Application Level) Prepare reagents, standards, and controls for hematology/hemostasis tests. (CSLO 2)
5.0 (Application Level) Prepare and stain slides for further analysis. (CSLO 2)
6.0 (Evaluation Level) Interpret technical testing errors for each test performed. (CSLO 2,3,4)
7.0 (Application Level) Report results of procedures using pre-determined criteria. (CSLO 2,4)
8.0 (Application Level) Demonstrate established quality control procedures specific to hematology/hemostasis tests, including maintenance and instrument calibration. (CSLO 2)
9.0 (Application Level) Establish inventory control and supplies for hematology/hemostasis tests. (CSLO 2)

Course Requisites

MLT221 - Clinical Hematology and Hemostasis

General

Division
Medical Lab Technician Program

Course Description
Examines the anatomy and physiology of the hemopoietic and hemostasis systems, hematology and hemostasis case studies, anemia categories, and thrombocyte, hemostatic, and malignant and nonmalignant leukocyte disorders. Emphasis on interpreting, evaluating, and reporting hematology and hemostasis results, anticoagulant therapy, morphology, peripheral smear correlation with analyzer results, and patinet condition. Erythrocyte indices, collection techniques, specimen handling, calibration, and quality control are also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
4

Lecture Credits
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
Hematology Learning Outcomes:
1.0 (Application Level) Use common clinical hematology/hemostasis terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2)
2.0 (Application Level) Prepare, store, and dispose of specimens for hematology/hemostasis analysis according to standard operating procedures. (CSLO 2)
3.0 (Evaluation Level) Decide suitability of specimens for hematology/hemostasis procedures according to: the test requested, ◈appropriate patient preparation/ method of collection, time of collection/processing, storage, hemolysis/lipemia and interfering substances. (CSLO 2,4)
4.0 (Application Level) Prepare reagents, standards, and controls for hematology/hemostasis tests. (CSLO 2)
5.0 (Application Level) Prepare and stain slides for further analysis. (CSLO 2)
6.0 (Evaluation Level) Interpret technical testing errors for each test performed. (CSLO 2,3,4)
7.0 (Application Level) Report results of procedures using pre-determined criteria. (CSLO 2,4)
8.0 (Application Level) Demonstrate established quality control procedures specific to hematology/hemostasis tests, including maintenance and instrument calibration. (CSLO 2)
9.0 (Application Level) Establish inventory control and supplies for hematology/hemostasis tests. (CSLO 2)

Course Requisites

MLT230 - Clinical Urinalysis and Body Fluids Analysis

General

Division
Medical Lab Technician Program

Course Description
Examines anatomy and physiology of the renal system, renal diseases, and renal function tests. Emphasis is on interpretation, evaluation, and reporting of urinalysis and body fluid results, urine and body fluid collection techniques, types, specimen handling and preservation, instrument calibration, maintenance, and quality control. Application of body fluid analysis, and chemical and microscopic analysis of urine are also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Use common urinalysis terminology as it relates to the point-of-care or clinical laboratory. (CSLO 1,2,3)
2.0 (Application Level) Prepare, store, dispose of, and properly transport specimens for urinalysis testing according to standard operating procedure. (CSLO 2)
3.0 (Comprehension level) Instruct patients in the proper collection techniques including mid-stream, random, clean catch, timed collections, collections for drug screening, and urine pregnancy tests. (CSLO 1,2)
4.0 (Analysis Level) Determine the suitability of specimens for urinalysis procedures related to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
5.0 (Knowledge level) Assemble/prepare reagents, standards, and controls for urinalysis testing. (CSLO 2)
6.0 (Application level) Prepare slides for microscopic examination. (CSLO 2)
7.0 (Application level) Perform urinalysis tests at the Medical Laboratory Technician level. (CSLO 2)
8.0 (Evaluation level) Recognize technical errors for each test performed. (CSLO 2,4)
9.0 (Analysis level) Report results of tests using pre-determined criteria. (CSLO 2,4)
10.0 (Application level) Perform pre-determined quality control procedures for urinalysis tests, including maintenance and instrument calibration. (CSLO 2)

Course Requisites

MLT231 - Clinical Urinalysis and Body Fluids Analysis

General

Division
Medical Lab Technician Program

Course Description
Examines anatomy and physiology of the renal system, renal diseases, and renal function tests. Emphasis is on interpretation, evaluation, and reporting of urinalysis and body fluid results, urine and body fluid collection techniques, types, specimen handling and preservation, instrument calibration, maintenance, and quality control. Application of body fluid analysis, and chemical and microscopic analysis of urine are also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Use common urinalysis terminology as it relates to the point-of-care or clinical laboratory. (CSLO 1,2,3)
2.0 (Application Level) Prepare, store, dispose of, and properly transport specimens for urinalysis testing according to standard operating procedure. (CSLO 2)
3.0 (Comprehension level) Instruct patients in the proper collection techniques including mid-stream, random, clean catch, timed collections, collections for drug screening, and urine pregnancy tests. (CSLO 1,2)
4.0 (Analysis Level) Determine the suitability of specimens for urinalysis procedures related to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
5.0 (Knowledge level) Assemble/prepare reagents, standards, and controls for urinalysis testing. (CSLO 2)
6.0 (Application level) Prepare slides for microscopic examination. (CSLO 2)
7.0 (Application level) Perform urinalysis tests at the Medical Laboratory Technician level. (CSLO 2)
8.0 (Evaluation level) Recognize technical errors for each test performed. (CSLO 2,4)
9.0 (Analysis level) Report results of tests using pre-determined criteria. (CSLO 2,4)
10.0 (Application level) Perform pre-determined quality control procedures for urinalysis tests, including maintenance and instrument calibration. (CSLO 2)

Course Requisites

MLT240 - Clinical Immunohematology and Immunology

General

Division
Medical Lab Technician Program

Course Description
Principles of immunology and immunologic testing, causes of disorders of the immune system, and the study of blood group antigens, antibodies, and genetics. Additional emphasis is on understanding donor blood collection, component preparation, and transfusion therapies. Performance of testing techniques and evaluation of data is also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
7

Lecture Credits
5

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.0 (Application Level) Use common immunology/immunohematology terminology as it relates to the point-of-care and clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Prepare, store, and dispose of specimens for immunology immunohematology testing according to standard operating procedures. (CSLO 2)
3.0 (Analysis Level) Determine suitability of specimens for immunology/immunohematology procedures related to the test requested, appropriate patient preparation/method of collection, time of collection, storage, and specimen rejection criteria. (CSLO 2,4)
4.0 (Synthesis Level) Assemble/prepare reagents, standards, and controls for immunology/immunohematology tests. (CSLO 2)
5.0 (Synthesis Level) Perform immunology/immunohematology tests at the medical laboratory technician level. (CSLO 2,4)
6.0 (Evaluation Level) Recognize technical testing errors for each test performed. (CSLO 2,4)
7.0 (Analysis Level) Report results of tests using pre-determined criteria. (CSLO 2)
8.0 (Comprehension Level) Follow established quality control procedures specific to immunology/immunohematology tests, including maintenance, and instrument calibration. (CSLO 2,4)

Course Requisites

MLT241 - Clinical Immunohematology and Immunology

General

Division
Medical Lab Technician Program

Course Description
Principles of immunology and immunologic testing, causes of disorders of the immune system, and the study of blood group antigens, antibodies, and genetics. Additional emphasis is on understanding donor blood collection, component preparation, and transfusion therapies. Performance of testing techniques and evaluation of data is also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
4

Lecture Credits
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.0 (Application Level) Use common immunology/immunohematology terminology as it relates to the point-of-care and clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Prepare, store, and dispose of specimens for immunology immunohematology testing according to standard operating procedures. (CSLO 2)
3.0 (Analysis Level) Determine suitability of specimens for immunology/immunohematology procedures related to the test requested, appropriate patient preparation/method of collection, time of collection, storage, and specimen rejection criteria. (CSLO 2,4)
4.0 (Synthesis Level) Assemble/prepare reagents, standards, and controls for immunology/immunohematology tests. (CSLO 2)
5.0 (Synthesis Level) Perform immunology/immunohematology tests at the medical laboratory technician level. (CSLO 2,4)
6.0 (Evaluation Level) Recognize technical testing errors for each test performed. (CSLO 2,4)
7.0 (Analysis Level) Report results of tests using pre-determined criteria. (CSLO 2)
8.0 (Comprehension Level) Follow established quality control procedures specific to immunology/immunohematology tests, including maintenance, and instrument calibration. (CSLO 2,4)

Course Requisites

MLT250 - Clinical Chemistry

General

Division
Medical Lab Technician Program

Course Description
Principles and procedures of clinical chemistry and testing for diseases of protein, nonprotein nitrogen compounds, lipid, glucose, bilirubin, liver disease, cardiac and endocrine function, toxicology, therapeutic drug monitoring, acid base balance, electrolytes, and trace elements. Emphasis on quality assurance, quality control, mathematics and statistical analysis, specimen collection, and preanalytical processes. Study of immunoassays, nucleic acid probes, viral and tumor markers, automation of analytical techniques, spectrophotometry, genetic diseases and inborn errors of metabolism, and point-of-care testing. Use of reagents, equipment, supplies, and units of measure are also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
7

Lecture Credits
5

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Use common clinical chemistry terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Prepare, store, and dispose of specimens for chemistry analysis according to standard operating procedures. (CSLO 2)
3.0 (Analysis Level) Determine suitability of specimens for chemistry procedures according to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
4.0 (Synthesis Level) Assemble/prepare reagents, standards, and controls for chemistry tests. (CSLO 2)
5.0 (Synthesis Level) Perform appropriate tests at the medical laboratory technician level. (CSLO 2,4)
6.0 (Analysis Level) Recognize technical testing errors for each test performed. (CSLO 2,4)
7.0 (Synthesis Level) Report results of procedures using pre-determined criteria. (CSLO 2)
8.0 (Application Level) Follow established quality control procedures specific to chemistry tests, including maintenance and instrument calibration. (CSLO 2,4)

Course Requisites

MLT251 - Clinical Chemistry

General

Division
Medical Lab Technician Program

Course Description
Principles and procedures of clinical chemistry and testing for diseases of protein, nonprotein nitrogen compounds, lipid, glucose, bilirubin, liver disease, cardiac and endocrine function, toxicology, therapeutic drug monitoring, acid base balance, electrolytes, and trace elements. Emphasis on quality assurance, quality control, mathematics and statistical analysis, specimen collection, and preanalytical processes. Study of immunoassays, nucleic acid probes, viral and tumor markers, automation of analytical techniques, spectrophotometry, genetic diseases and inborn errors of metabolism, and point-of-care testing. Use of reagents, equipment, supplies, and units of measure are also covered. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
4

Lecture Credits
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.0 (Knowledge Level) Use common clinical chemistry terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Prepare, store, and dispose of specimens for chemistry analysis according to standard operating procedures. (CSLO 2)
3.0 (Analysis Level) Determine suitability of specimens for chemistry procedures according to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
4.0 (Synthesis Level) Assemble/prepare reagents, standards, and controls for chemistry tests. (CSLO 2)
5.0 (Synthesis Level) Perform appropriate tests at the medical laboratory technician level. (CSLO 2,4)
6.0 (Analysis Level) Recognize technical testing errors for each test performed. (CSLO 2,4)
7.0 (Synthesis Level) Report results of procedures using pre-determined criteria. (CSLO 2)
8.0 (Application Level) Follow established quality control procedures specific to chemistry tests, including maintenance and instrument calibration. (CSLO 2,4)

Course Requisites

MLT270 - Clinical Parasitology, Virology, Mycology

General

Division
Medical Lab Technician Program

Course Description
Examines microbial infectious and bioterrorism agents, classification, morphology, phenotyping, diseases, biotechnology and molecular technology, quality assurance and quality control, epidemiological significance, and regulatory standards. Application of antimicrobial, biochemical and differential testing, drug resistance, selection, inoculation and incubation of culture media, isolation techniques, cell culture and viral detection tests, and macroscopic and microscopic examination. Emphasis on staining, rapid and commercial testing methods, safety precautions, specimen collection, handling, storage, and disposal of biological material, pretreatment, decontamination, and concentration techniques, specimen type, source, and common microbial flora, specimen acceptability, and instrumentation. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1.0 (Application Level) Use common microbiology terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Follow special safety procedures and aseptic technique required for processing microbiology specimens. (CSLO 2,4)
3.0 (Comprehension Level) Prepare, store, dispose of, and properly transport specimens for microbiology testing according to standard operating procedure. (CSLO 2)
4.0 (Analysis Level) Determine suitability of specimens for microbiology procedures related to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
5.0 (Knowledge Level) Assemble/prepare reagents, standards, and controls for microbiology testing. (CSLO 2,4)
6.0 (Evaluation Level) Recognize technical errors for each test performed. (CSLO 2,4)
7.0 (Synthesis Level) Report results of tests using pre-determined criteria. (CSLO 2,4)

MLT275 - Clinical Microbiology

General

Division
Medical Lab Technician Program

Course Description
Examines microbial infectious and bioterrorism agents, classification, morphology, phenotyping, diseases, biotechnology and molecular technology, quality assurance and quality control, epidemiological significance, and regulatory standards. Application of antimicrobial, biochemical and differential testing, drug resistance, selection, inoculation and incubation of culture media, isolation techniques, cell culture and viral detection tests, and macroscopic and microscopic examination. Emphasis on staining, rapid and commercial testing methods, safety precautions, specimen collection, handling, storage, and disposal of biological material, pretreatment, decontamination, and concentration techniques, specimen type, source, and common microbial flora, specimen acceptability, and instrumentation. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
7

Lecture Credits
5

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.0 (Application Level) Use common microbiology terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Follow special safety procedures and aseptic technique required for processing microbiology specimens. (CSLO 2,4)
3.0 (Comprehension Level) Prepare, store, dispose of, and properly transport specimens for microbiology testing according to standard operating procedure. (CSLO 2)
4.0 (Analysis Level) Determine suitability of specimens for microbiology procedures related to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
5.0 (Knowledge Level) Assemble/prepare reagents, standards, and controls for microbiology testing. (CSLO 2,4)
6.0 (Application Level) Prepare slides for microscopic examination. (CSLO 2)
7.0 (Application Level) Perform microbiology tests at the Medical Laboratory Technician level. (CSLO 2,4)
8.0 (Evaluation Level) Recognize technical errors for each test performed. (CSLO 2,4)
9.0 (Synthesis Level) Report results of tests using pre-determined criteria. (CSLO 2,4)

Course Requisites

MLT276 - Clinical Microbiology

General

Division
Medical Lab Technician Program

Course Description
Examines microbial infectious and bioterrorism agents, classification, morphology, phenotyping, diseases, biotechnology and molecular technology, quality assurance and quality control, epidemiological significance, and regulatory standards. Application of antimicrobial, biochemical and differential testing, drug resistance, selection, inoculation and incubation of culture media, isolation techniques, cell culture and viral detection tests, and macroscopic and microscopic examination. Emphasis on staining, rapid and commercial testing methods, safety precautions, specimen collection, handling, storage, and disposal of biological material, pretreatment, decontamination, and concentration techniques, specimen type, source, and common microbial flora, specimen acceptability, and instrumentation. Prerequisites: Acceptance into the Medical Laboratory Science program and permission of Program Director.

Total Number Of Credits:
4

Lecture Credits
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1.0 (Application Level) Use common microbiology terminology as it relates to the point-of-care or clinical laboratory environment. (CSLO 1,2,3)
2.0 (Application Level) Follow special safety procedures and aseptic technique required for processing microbiology specimens. (CSLO 2,4)
3.0 (Comprehension Level) Prepare, store, dispose of, and properly transport specimens for microbiology testing according to standard operating procedure. (CSLO 2)
4.0 (Analysis Level) Determine suitability of specimens for microbiology procedures related to the test requested, appropriate patient preparation/method of collection, time of collection/processing, storage, and specimen rejection criteria. (CSLO 2,4)
5.0 (Knowledge Level) Assemble/prepare reagents, standards, and controls for microbiology testing. (CSLO 2,4)
6.0 (Application Level) Prepare slides for microscopic examination. (CSLO 2)
7.0 (Application Level) Perform microbiology tests at the Medical Laboratory Technician level. (CSLO 2,4)
8.0 (Evaluation Level) Recognize technical errors for each test performed. (CSLO 2,4)
9.0 (Synthesis Level) Report results of tests using pre-determined criteria. (CSLO 2,4)

Course Requisites

MLT281 - Clinical Practicum I

General

Division
Medical Lab Technician Program

Course Description
Students will be completing the required external clinical practicum hours needed to complete the MLT program. The students will be completing at least three of the following rotations: Hematology/Coagulation-80 hours, Chemistry-80 hours, Urinalysis/Body Fluid-40 hours, Blood Bank-80 hours and Microbiology-80-120 hours (site dependent). Prerequisites: MLT210; MLT221; MLT231; MLT241; MLT251; MLT270; MLT276. Corequisites: Admission into MLT program and program director approval.

Total Number Of Credits:
5

Practicum Credits
5

MSLOs

Measurable Student Learning Outcomes
MLT.281.MSLO.1.0: Recall standard operating procedures (SOPs) and safety protocols for all major laboratory departments. (CSLO #2; CSLO #3)

MLT.281.MSLO.2.0: Identify common laboratory instrumentation and their functions across clinical disciplines. (CSLO #2; CSLO #3)

MLT.281.MSLO.3.0: Explain the clinical significance of test results in the context of patient diagnosis and treatment. (CSLO #2; CSLO #4)

MLT.281.MSLO.4.0: Summarize the pre-analytical, analytical, and post-analytical phases of laboratory testing across departments. (CSLO #2; CSLO #4)

MLT.281.MSLO.5.0: Demonstrate correct technique when performing waived, moderate, and high complexity testing under supervision. (CSLO #2; CSLO #3)

MLT.281.MSLO.6.0: Use laboratory information systems (LIS) to document, retrieve, and review patient data and test results accurately. (CSLO #2; CSLO #3)

MLT.281.MSLO.7.0: Distinguish between acceptable and unacceptable specimen quality or testing conditions during clinical rotations. (CSLO #2; CSLO #4)

MLT.281.MSLO.8.0: Compare normal versus abnormal results and recognize potential sources of analytical error. (CSLO #2; CSLO #4)

MLT.281.MSLO.9.0: Assess the accuracy, precision, and reliability of laboratory results using quality control and calibration data. (CSLO #2; CSLO #4)

MLT.281.MSLO.10.0: Justify decisions made during troubleshooting or result verification based on clinical and laboratory evidence. (CSLO #2; CSLO #4)

MLT.281.MSLO.11.0: Develop a plan to improve workflow efficiency or patient safety in a clinical laboratory setting based on observed practices. (CSLO #1; CSLO #4)

MLT.281.MSLO.12.0: Propose a case-based correlation between test results and possible disease states encountered during clinical experiences. (CSLO #1; CSLO #4)

MLT282 - Clinical Practicum II

General

Division
Medical Lab Technician Program

Course Description
Students will be completing the required external clinical practicum hours needed to complete the MLT program. The students will be completing the remaining rotations not completed in MLT 281, of the following rotations: Hematology/Coagulation-80 hours, Chemistry-80 hours, Urinalysis/Body Fluid-40 hours, Blood Bank-80 hours and Microbiology-80-120 hours (site dependent). Prerequisites: MLT210; MLT221; MLT231; MLT241; MLT251; MLT270; MLT276; MLT281. Corequisite: Requires admission into MLT program and program director approval.

Total Number Of Credits:
5

Practicum Credits
5

MSLOs

Measurable Student Learning Outcomes
MLT.282.MSLO.1.0: Recall standard operating procedures (SOPs) and safety protocols for all major laboratory departments. (CSLO #2; CSLO #3)

MLT.282.MSLO.2.0: Identify common laboratory instrumentation and their functions across clinical disciplines. (CSLO #2; CSLO #3)

MLT.282.MSLO.3.0: Explain the clinical significance of test results in the context of patient diagnosis and treatment. (CSLO #2; CSLO #4)

MLT.282.MSLO.4.0: Summarize the pre-analytical, analytical, and post-analytical phases of laboratory testing across departments. (CSLO #2; CSLO #4)

MLT.282.MSLO.5.0: Demonstrate correct technique when performing waived, moderate, and high complexity testing under supervision. (CSLO #2; CSLO #3)

MLT.282.MSLO.6.0: Use laboratory information systems (LIS) to document, retrieve, and review patient data and test results accurately. (CSLO #2; CSLO #3)

MLT.282.MSLO.7.0: Distinguish between acceptable and unacceptable specimen quality or testing conditions during clinical rotations. (CSLO #2; CSLO #4)

MLT.282.MSLO.8.0: Compare normal versus abnormal results and recognize potential sources of analytical error. (CSLO #2; CSLO #4)

MLT.282.MSLO.9.0: Assess the accuracy, precision, and reliability of laboratory results using quality control and calibration data. (CSLO #2; CSLO #4)

MLT.282.MSLO.10.0: Justify decisions made during troubleshooting or result verification based on clinical and laboratory evidence. (CSLO #2; CSLO #4)

MLT.282.MSLO.11.0: Develop a plan to improve workflow efficiency or patient safety in a clinical laboratory setting based on observed practices. (CSLO #1; CSLO #4)

MLT.282.MSLO.12.0: Propose a case-based correlation between test results and possible disease states encountered during clinical experiences. (CSLO #1; CSLO #4)

MTC100 - Music Fundamentals

General

Division
Visual & Performing Arts Division

Course Description
Music fundamentals, including melody, harmony and rhythm, and development of basic music skills, including accurate performance, development of music literacy, and acquisition of basic musical understanding, basic theory and structure of music. Corequisite: MTC101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application level) Demonstrate how the basic properties of time and sound relate to music.
2. (Application level) Demonstrate a working knowledge of various note and rest values within varying time classifications.
3. (Application level) Identify and write intervals and their respective inversions.
4. (Application level) Identify and write major and minor key signatures.
5. (Analysis level) Analyze, identify, and write major and minor scales.
6. (Analysis level) Analyze, identify, and write triads.

Course Requisites

MTC101 - Aural Fundamentals

General

Division
Visual & Performing Arts Division

Course Description
An introduction to the fundamentals of tonal aural problems and rhythms taught through sight singing and ear training. Corequisite: MTC100.

Total Number Of Credits:
0.5

Lab Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify and sing basic intervals aurally.
2. (Application Level) Sight sing a simple melody.
3. (Synthesis Level) Write a dictated passage.

Course Requisites

MTC102 - Integrated Music Theory I

General

Division
Visual & Performing Arts Division

Course Description
Concepts of music theory taught through ear training and written work to include structure of tonality through Roman numeral analysis. Recommended: MUP110 or MUP109P.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Label triads, seventh chords and their inversions using Roman numeral analysis. (CSLO 2)

2. (Comprehension Level) Interpret figured bass notation. (CSLO 2)

3. (Application Level) Demonstrate principles of correct doubling and voice leading. (CSLO 2)

4. (Analysis Level) Analyze cadences and their role within musical phrases. (CSLO 2,4)

5. (Knowledge Level) Identify/write non-harmonic tones. (CSLO 2,4)

6. (Analysis Level) Analyze progressive/retrogressive chord progressions and how secondary chords function within the structure. (CSLO 2,4)

7. (Synthesis Level) Formulate all principles of tonal harmony through harmonization techniques. (CSLO 2,4)

Course Requisites

MTC106 - Integrated Music Theory II

General

Division
Visual & Performing Arts Division

Course Description
Concepts of music theory taught through sight singing, ear training, dictation, and written work to include diatonic harmony, secondary dominants; common chord modulations; and various common forms. Prerequisite: MTC102. Recommended: MUP110 or MUP109P.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and label 7th, 9th, 11th & 13th chords using Roman numeral analysis. (CSLO 2)
2. (Analysis Level) Analyze the harmonic functions of 7th, 9th, 11th & 13th chords. (CSLO 2,4)
3. (Knowledge Level) Identify altered non-harmonic tones. (CSLO 2)
4. (Knowledge Level) Identify secondary dominants and the principles of modulations. (CSLO 2)
5. (Analysis Level) Analyze the principles of modulations. (CSLO 2,4)
6. (Knowledge Level) Identify and explain functions or relationships of borrowed chords. (CSLO 2)

Course Requisites

MTC202 - Integrated Music Theory III

General

Division
Visual & Performing Arts Division

Course Description
Concepts of music theory taught through sight singing, ear training, dictation and written work to include: Modes; Neapolitan and augmented-sixth chords; chromatic modulation; Sonata and Rondo Form. Prerequisite: MTC106.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Sight sing chromatic or harmonically altered music. (CSLO 2,3)
2. (Application Level) Notate chromatic or harmonically altered melodic and harmonic music patterns. (CSLO 2)
3. (Application Level) Identify the modes of familiar melodies. (CSLO 2,3)
4. (Knowledge Level) Aurally recognize Neapolitan and augmented sixth chords. (CSLO 2)
5. (Synthesis Level) Write an essay about how form and tonal harmonies are related in various eras. (CSLO 2,4)

Course Requisites

MTC206 - Integrated Music Theory IV

General

Division
Visual & Performing Arts Division

Course Description
Concepts of music theory taught through sight-singing, ear training, dictation, and written work. This includes an introduction to basic 20th century theory and analysis, and provides focus on the study of collections, set theory, and serial techniques. Prerequisite: MTC202.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1) (Application Level) Sight-sing complex tonal and atonal melodies and harmonic patterns. (CSLO 2,4)
2) (Application Level) Notate complex tonal and atonal melodies and harmonic patterns. (CSLO 2)
3) (Application Level) Identify standard 20th century serial techniques, and write tone rows for a composition. (CSLO 2,4)
4) (Knowledge Level) Aurally recognize various 20th century musical styles. (CSLO 2,3,4)
5) Synthesis Level) Write an essay discussing the tonal shifts of 20th century music as related to each other and music from previous eras. (CSLO 2,4)

Course Requisites

MUP104 - College Choir

General

Division
Visual & Performing Arts Division

Course Description
Concert Choir, a major performance ensemble, is dedicated to the performance of varied choral literature from all historical periods, styles, and ethnic origins which performs for community concerts, graduations, and at least one major CAC concert each semester. Prerequisite(s): Ability to match pitch

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate basic theory and musicianship.
2. (Application Level) Demonstrate proper intonation and choral blend.
3. (Synthesis Level) Perform in the style dictated by the composer and the historical era of the music being performed.
4. (Application Level) Demonstrate knowledge of the correct pitches in their individual parts of the concert pieces.

Course Requisites

MUP105 - Voice Class

General

Division
Visual & Performing Arts Division

Course Description
An introduction to the basics of proper vocal technique, including breath management, tone production, tone quality, resonance, vocal physiology, vocal registration, vocal health and management, and how to practice. These principles will be practiced by singing in class, both in group and solo situations. May take four times for credit.

Total Number Of Credits:
1

Lab Credits
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop and model thorough performance skills, including diaphragmatic breathing, facial expression, diction and pronunciation, tone quality, phrasing, and intonation. (CSLOs 2,3)
2. (Knowledge Level) Memorize music. (CSLOs 2)
3. (Application Level) Demonstrate improvement in vocal skill levels. (CSLOs 2,3)

MUP107 - Band

General

Division
Visual & Performing Arts Division

Course Description
A performing organization open to Central Arizona College students and Pinal County residents. The ensemble performs a wide range of standard concert band literature as well as lighter works. Experience is gained by performing concerts on campus.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform standard concert band literature in a stylistically appropriate manner. (CSLO 2, 3)
2. (Synthesis Level) Perform standard concert band literature with musical expression. (CSLO 2, 3)
3. (Application Level) Demonstrate an awareness of significant composers and their contributions to concert band literature relative to the literature being performed. (CSLO 1, 2)

Course Requisites

MUP108 - Orchestra

General

Division
Visual & Performing Arts Division

Course Description
A performing organization open to Central Arizona College students and Pinal County residents. The ensemble performs a wide range of standard string orchestra literature as well as lighter works. Experience is gained by performing concerts on campus.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform standard string orchestra literature in a stylistically appropriate manner. (CSLO 2, 3)
2. (Synthesis Level) Perform standard string orchestra literature with musical expression. (CSLO 2, 3)
3. (Application Level) Demonstrate an awareness of significant composers and their contributions to string orchestra literature relative to the literature being performed. (CSLO 1, 2)

Course Requisites

MUP109B - Private Instruction: Brass

General

Division
Visual & Performing Arts Division

Course Description
Private instruction on a brass instrument that concentrates on proper tone production, articulation, technique and performance of a variety of repertoire. May take four times for credit. Recommended: MUP107 Band and/or MUP112 Jazz Ensemble. Must have own personal instrument. Prerequisite: Instructor consent.

Total Number Of Credits:
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate a characteristic tone with correct intonation.
2. (Application Level) Demonstrate stylistic appropriate articulations.
3. (Application Level) Demonstrate technical and rhythmical accuracy.
4. (Application Level) Accurately sight read. 5. (Synthesis Level) Perform standard brass solo literature.

Course Requisites

MUP109D - Private Instruction: Percussion

General

Division
Visual & Performing Arts Division

Course Description
Private instruction on percussion instruments that concentrates on appropriate mallet selection, tone production, technique and performance of a varied repertoire. May take four times for credit. Prerequisite: Instructor consent.

Total Number Of Credits:
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Select and demonstrate correct usage of appropriate mallets. 2. (Application Level) Demonstrate a characteristic tone on varying percussion instruments. 3. (Application Level) Demonstrate technical and rhythmical accuracy. 4. (Application Level) Accurately sight read. 5. (Synthesis Level) Perform standard percussion solo literature.

Course Requisites

MUP109G - Private Instruction: Guitar/Bass

General

Division
Visual & Performing Arts Division

Course Description
Private instruction on guitar/bass guitar that concentrates on learning to play and read music, chords and a varied repertoire. Student must supply instrument. May take four times for credit.

Total Number Of Credits:
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate correct guitar technique. 2. (Application Level) Demonstrate stylistic appropriate finger technique. 3. (Application Level) Demonstrate technical and rhythmic accuracy. 4. (Application Level) Accurately sight-read. 5. (Synthesis Level) Perform standard guitar solo literature.

MUP109P - Private Instruction: Piano/Keyboard

General

Division
Visual & Performing Arts Division

Course Description
Performance of piano keyboard repertoire, technical skills, and keyboard theory including scales, progressions, transposition, improvisation and harmonization commensurate with student's level of achievement. May take four times for credit.

Total Number Of Credits:
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform repertoire with proper musicianship on the piano keyboard commensurate with the achievement level of the student. 2. (Application Level) Demonstrate knowledge of music terms, music concepts, and keyboard theory required to perform his/her repertoire. 3. (Application Level) Demonstrate technical skills and provide basic theoretical explanations commensurate with the achievement level of the student. 4. (Application Level) Demonstrate the basic knowledge of musicology including composer, style, era, and theory of student's repertoire. 5. (Application Level) Demonstrate the ability to evaluate musicianship of his/her keyboard performance.

MUP109S - Private Instruction: Orchestral Strings

General

Division
Visual & Performing Arts Division

Course Description
Performance of violin, viola, cello, or string bass repertoire, technical skills, and theory including scales, arpeggios, sight-reading, etc, commensurate with student's level of achievement. Students must provide own instrument and purchase own music, as recommended by instructor. May take four times for credit. Recommended: Enrollment in MUP119, CAC Orchestra.

Total Number Of Credits:
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform repertoire with proper musicianship on an orchestral string instrument commensurate with the achievement level of the student. (CSLO 2,3,4) 2. (Application Level) Demonstrate knowledge of music terms, music concepts, and theory required to perform his/her repertoire. (CSLO 2,3) 3. (Application Level) Demonstrate technical skills and provide basic theoretical explanations commensurate with the achievement level of the student. (CSLO 2,3) 4. (Application Level) Demonstrate the basic knowledge of musicology including composer, style, era, and theory of student's repertoire. (CSLO 2,3) 5. (Application Level) Demonstrate the ability to evaluate musicianship of his/her instrumental performance. (CSLO 2,3)

MUP109V - Private Instruction: Voice

General

Division
Visual & Performing Arts Division

Course Description
An opportunity for creative self-expression and for the creativity of other human efforts as reflected through the art songs and other music studied. Private instruction on consonants and vowels, correct posture, diaphragmatic breathing, and music theory skills to produce proper vocal production in the performance of a variety of styles and vocal repertoire. May take 5 times for credit. Prerequisite: MUP105.

Total Number Of Credits:
1

Studio Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Develop and demonstrate basic knowledge and performance skill in voice. 2. (Synthesis Level) Create a sound pedagogical framework for the student to recall when singing, demonstrating: a) The basis of a good vocal technique including posture, breath management, vowel formation, clarity of consonants, intonation, and a free, focused resonant tone. b) Growth in producing an even vocal line and growth in interpretation. 3. (Synthesis Level) Examine the instructional materials and vocal literature and demonstrate proficiency in at least four songs, memorizing each and singing in the characteristic style of each composer and era. Concentration at this level will be on folk songs and British, American, Italian, and German art songs. 4. (Application Level) Explore and demonstrate basic pronunciation skills in English and the diction rules for singing in Italian and German.

Course Requisites

MUP109W - Private Instruction: Woodwind

General

Division
Visual & Performing Arts Division

Course Description
Private instruction on a woodwind instrument that concentrates on proper tone production, articulation, technique and performance of a varied repertoire. Permission of the instructor is required. May take four times for credit. Must have own personal instrument. Recommended: MUP107 Band and/or MUP112 Jazz Ensemble. Prerequisite: Instructor consent.

Total Number Of Credits:
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate a warm characteristic tone with correct intonation. 2. (Application Level) Demonstrate stylistically appropriate articulations. 3. (Application Level) Demonstrate technical and rhythmic accuracy. 4. (Application Level) Accurately sightread. 5. (Synthesis Level) Perform standard woodwind solo literature.

Course Requisites

MUP110 - Piano Class

General

Division
Visual & Performing Arts Division

Course Description
Class instruction of piano keyboard repertoire, technical skills and keyboard theory commensurate with student's level of achievement. May take four times for credit.

Total Number Of Credits:
1

Lab Credits
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform repertoire with proper musicianship on the piano keyboard commensurate with the achievement level of the student. (CLSO 1, 2, 3)
2. (Application Level) Demonstrate knowledge of music terms, music concepts, and keyboard theory required to perform his/her repertoire. (CLSO 1, 2, 3)
3. (Application Level) Demonstrate technical skills and provide basic theoretical explanations commensurate with the achievement level of the student. (CLSO 4)
4. (Application Level) Demonstrate the basic knowledge of musicology including composer, style, era and theory of student's repertoire. (CLSO 2, 4)
5. (Evaluation Level) In oral discourse evaluate various aspects of musicianship of his/her keyboard performance. (CLSO 2, 4)

MUP111 - Guitar Ensemble

General

Division
Visual & Performing Arts Division

Course Description
A performing organization open to Central Arizona College students by audition or instructor recommendation. The ensemble repertoire includes a vast array of works from traditional literature as well as contemporary works by jazz and pop composers and arrangers. Experience is gained by performing for the college, schools and community. Students must provide own instruments. May take four times for credit. Recommended: MUP109G.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform in a stylistically appropriate manner in a vast array of works from traditional literature as well as contemporary works by jazz and pop composers and arrangers. (CSLO 2,3,4)
2. (Synthesis Level) Perform group pieces utilizing appropriate techniques and scales. (CSLO 1,2,3,4)
3. (Analysis Level) Examine and discuss significant contributors to guitar within varying styles and periods in relation to literature being performed. (CSLO 2,4)
4. (Analysis Level) Compare and contrast the technical, historical, analytical and musicianship skills required to interpret and perform period literature. (CSLO 2,4)

Course Requisites

MUP112 - Jazz Ensemble

General

Division
Visual & Performing Arts Division

Course Description
A performing organization open to Central Arizona College students and community members. The ensemble performs a wide range of standard Jazz Band literature as well as lighter works. Experience is gained by performing concerts on campus. May take four times for credit.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
Upon completion of this course the student will be able to:

1. (Demonstrate Level) Perform standard Jazz Band literature as assigned. (CSLO 2, 3)
2. (Demonstrate Level) Demonstrate an awareness of significant styles of Jazz Band music and the prominent composers associated with each. (CSLO 1, 2) Including but not limited to:
o Dixieland
o Swing/Big Band
o BeBop
o Cool Jazz
o Hard Bop
o Bossa Nova
o Latin Jazz
o Free Jazz
o Fusion
o Modern Jazz
3. (Demonstrate Level) Perform standard Jazz Band literature as appropriate. (CSLO 2)

Course Requisites

MUP118 - Handbell Choir

General

Division
Visual & Performing Arts Division

Course Description
An ensemble designed for the intermediate to advanced musician seeking to learn new instruments and to study great music specifically composed and arranged for handbells. Repertoire performed at public functions as well as college concerts. May take 4 times for credit.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate intermediate or advanced theory and musicianship. (CSLO 2)
2. (Application Level) Perform ensemble techniques. (CSLO 3)
3. (Application Level) Demonstrate knowledge of characteristics and style of each composer and era represented in each concern piece. (CSLO 1, 2)
4. (Application Level) Apply knowledge of the assigned bell part within each concert piece using proper rhythm, notation realization, hand and phrasing techniques. (CSLO 2, 3)
5. (Synthesis Level) Model proper phrase transference, dynamic transference, weave technique and four-in-hand technique. (CSLO 3, 4)

Course Requisites

MUP105SU20 - Voice Class

General

Division
Visual & Performing Arts Division

Course Description
An introduction to the basics of proper vocal technique, including breath management, tone production, tone quality, resonance, vocal physiology, vocal registration, vocal health and management and how to practice. These principles will be practiced by singing in class, both in group and solo situations. May be taken two times for credit.

Total Number Of Credits:
2

Lab Credits
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop and model thorough performance skills, including diaphragmatic breathing, facial expression, diction and pronunciation, tone quality, phrasing, and intonation. (CSLOs 2,3) 2. (Knowledge Level) Memorize music. (CSLOs 2) 3. (Application Level) Demonstrate improvement in vocal skill levels. (CSLOs 2,3)

MUP110SU20 - Piano Class

General

Division
Visual & Performing Arts Division

Course Description
Class instruction of piano keyboard repertoire, technical skills and keyboard theory commensurate with student's level of achievement. May be taken four times for credit.

Total Number Of Credits:
2

Lab Credits
1

Recitation Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Perform repertoire with proper musicianship on the piano keyboard commensurate with the achievement level of the student. (CLSO 1, 2, 3) 2. (Application Level) Demonstrate knowledge of music terms, music concepts, and keyboard theory required to perform his/her repertoire. (CLSO 1, 2, 3) 3. (Application Level) Demonstrate technical skills and provide basic theoretical explanations commensurate with the achievement level of the student. (CLSO 4) 4. (Application Level) Demonstrate the basic knowledge of musicology including composer, style, era and theory of student's repertoire. (CLSO 2, 4) 5. (Evaluation Level) In oral discourse evaluate various aspects of musicianship of his/her keyboard performance. (CLSO 2, 4)

NTR104 - Nutrition

General

Division
Dietetic Education Division

Course Description
An introductory study of the optimal diet for health and fitness, principles of basic nutrition, and nutritional needs Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Define the process of digestion, absorption and metabolism of food and nutrients; types, amounts, food sources and functions of carbohydrates, proteins, fats; the difference between hunger and appetite and nutritional needs throughout various stages of life: birth, childhood, adolescence, and geriatric.
2. (Knowledge Level) Identify methods of reducing exposure to food borne pathogens and contaminants in an effort to reduce the incidence of food borne illness.(CSLO#1)
3. (Comprehension Level) Explain the role, use, and safety of nutritional and herbal supplements.
4. (Comprehension Level) Describe the role of proper nutrition in the prevention and/or management of chronic health conditions such as diabetes, coronary artery disease, hypertension, and cancer.
5. (Evaluation Level) Summarize effective methods of weight control.
6. (Application Level) Apply current nutrition and physical activity guidelines to an individual.
7. (Evaluation Level) Compare and contrast food security issues and explain the impact on nutritional status. (CSLO#1)
8. (Synthesis Level) Explain the science of nutrition: attitudes, behaviors and guidelines (U.S. Dietary Goals, Dietary Guidelines for Americans, Choose My Plate, and the Nutrition Labeling and Education) and their impact on overall health.
9. (Evaluation Level) Evaluate an individual's food intake and physical activity, and the interrelationships between food, fitness, and disease based on current guidelines using diet analysis software.

Course Requisites

NTR105 - ServSafe Preparation

General

Division
Dietetic Education Division

Course Description
Applied course in food safety and sanitation to identify and analyze the factors which cause foodborne illnesses through the study of proper purchasing, preparation, handling, and storage.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the need for food safety, the hazards that threaten the safety of food, and guidelines for training employees. (CSLO 1)
2. (Comprehension Level) Identify and discuss food safety system development using Hazard Analysis Critical Control Point (HACCP) methods. (CSLO 2)
3. (Comprehension Level) Identify and describe the flow of food safely and effectively from purchasing, receiving, storing, preparing, and cooking, holding, and serving, to cooling and reheating. (CSLO 2)
4. (Comprehension Level) Identify and explain the sanitary maintenance of facilities and equipment. (CSLOs 2, 3)
5. (Analysis Level) Analyze and summarize the role and need of regulatory agencies for facility, employee, and customer protection. (CSLO 1)

NTR123 - Nutrition Throughout the Life Cycle

General

Division
Dietetic Education Division

Course Description
Examines the role of nutrition during every stage of life, common problems and concerns, nutritional adequacy with an emphasis on birth through age eighteen. Prerequisite: NTR 200 or NTR 104.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Describe the nutrition principles required to achieve optimal health prior to conception. (CSLO 2)
2. (Comprehension Level) Give examples of the role nutrition plays during pregnancy. (CSLOs 2, 3)
3. (Evaluation Level) Compare and contrast breastfeeding to formula feeding. (CSLOs 1, 4)
4. (Knowledge Level) Describe and list the macro and micro nutrition recommendations for life cycle stages. (CSLO 2)
5. (Comprehension Level) Outline common nutrition problems and concerns for life cycle stages. (CSLOs 2, 3, 4)
6. (Knowledge Level) Summarize the type of tools used to assess an individual's nutritional adequacy. (CSLOs 2, 3)
7. (Synthesis Level) Explain how principles of nutrition, health and wellness can manage and/or prevent chronic health conditions during every stage of life. (CSLOs 2, 4)

Course Requisites

NTR134 - Healthy Weight for Kids

General

Division
Dietetic Education Division

Course Description
An overview of the challenges and strategies that can help children achieve and maintain a healthy weight as a means to reduce the incidence of chronic health conditions, including diabetes, heart disease, and others.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe how to divide the eating responsibilities between the child and the adult. (CSLO#3)
2 (Application Level) Apply strategies to help motivate children to eat healthy, varied, and balanced meals and snacks and be more physically active.(CSLO#3)

NTR141 - Nutrition and Wellness

General

Division
Dietetic Education Division

Course Description
Concepts, procedures, and techniques to achieve the optimal diet for health and fitness, principles of basic nutrition, nutritional needs throughout the lifecycle and a scientific investigation into one's own personal health and wellness status. Recommended: RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Define the process of digestion, absorption and metabolism of food and nutrients; types, amounts, food sources and functions of carbohydrates, proteins, fats; the difference between hunger and appetite and nutritional needs through various stages of life: birth, childhood, adolescence, and geriatric.
2. (Knowledge Level) Identify methods of reducing exposure to food borne pathogens and contaminants in an effort to reduce the incidence of food borne illness.
3. (Comprehension Level) Explain the role, use, and safety of nutritional and herbal supplements.
4. (Comprehension Level) Describe the role of proper nutrition in the prevention and/or management of chronic health conditions such as diabetes, coronary artery disease, hypertension, and cancer.
5. (Comprehension Level) Summarize effective methods of weight control.
6. (Application Level) Demonstrate the ability to apply current nutrition and physical activity guidelines to an individual.
7. (Evaluation Level) Compare and contrast food security issues and relate the impact on nutritional status.
8. (Analysis Level) Explain the science of nutrition: attitudes, behaviors, and guidelines (U.S. Dietary Goals, Dietary Guidelines for Americans, Choose My Plate, and the Nutrition Labeling and Education Act of 1990) and their impact on overall health.
9. (Synthesis Level) Formulate, using the scientific method, a hypothesis regarding an individual's level of wellness.
10. (Synthesis Level) Explain nutrient intake data, biochemical data, physical data, and/or fitness/lifestyle data as it relates to oneself and global nutrition issues.
11. (Evaluation Level) Evaluate an individual's food intake and physical activity, and the interrelationships between food, fitness, and disease based on current guidelines using diet analysis software.
12. (Evaluation Level) Critique baseline data in comparison to the norm and initiate development of an overall wellness plan.

Course Requisites

NTR142 - Applied Food Science

General

Division
Dietetic Education Division

Course Description
Applied scientific principles of food preparation and production. Students must purchase ingredients for assignments (average cost $100.00).

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1.(Knowledge Level) Identify the basic four flavors of food and a variety of commonly used spices and herbs. (CSLO 2)
2. (Knowledge Level) Recall unit of measure equivalencies. (CSLO 3)
3. (Analysis Level) Recognize the factors that influence food safety and issues in food biotechnology. (CSLO 1)
4. (Comprehension Level) Identify and explain sources and functions of carbohydrates, protein, fat and water in food preparation. (CSLO 2, 3)
5. (Application Level) Demonstrate appropriate methods of measuring ingredients, knife skills and basic cooking methods. (CSLO 3, 7)
6. (Comprehension Level) Identify the physical, chemical and organoleptic changes that occur in food ingredients during preparation and cooking.(CSLO 2)
7. (Synthesis Level) Design menus that meet accepted standards for nutritional adequacy. (CSLO 3, 4)
8. (Synthesis Level) Design menus appropriate for individuals from various socio-cultural backgrounds. (CSLO 3, 5, 6)
9. (Evaluation Level) Justify the promotion of pleasurable eating. (CSLO 4, 5)

NTR150 - Overview Nutrition Professions

General

Division
Dietetic Education Division

Course Description
Overview of the career opportunities in the fields of nutrition, dietetics, foodservice management, wellness and counseling.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1.(Comprehension Level) Define and describe the fields of nutrition and dietetics. (CSLO#2)
2.(Analysis Level) Investigate and explain the required educational preparation, training and areas of practice in various nutrition-related fields. (CSLO#3)
3.(Comprehension Level) Identify and describe future trends in nutrition careers. (CSLO#3, 7)

NTR156 - Foundations of Dietary Manager Internship

General

Division
Dietetic Education Division

Course Description
Identify rotation facilities and Registered Dietitian preceptor to successfully complete a dietary manager's internship. The course emphasizes the legal and ethical aspects specific to internships for nutrition professionals. Prerequisites: NTR104 and NTR223.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Give examples of ethical considerations for dietary managers and analyze appropriate ways to handle each example. 2. (Comprehension Level) Describe the basic tenants of patient confidentiality according to Health Insurance Portability and Accountability Act of 1996 (HIPAA). 3. (Evaluation Level) Select and justify the selection of a facility, or facilities, and a Registered Dietitian (RD) preceptor to support completion of the internship/practicum competencies. 4. (Synthesis Level) Create a time management schedule to complete the competencies required by the Dietary Manager Internship. 5. (Application Level) Research facility personnel specific requirements and create a plan for meeting these requirements, e.g., immunizations, background checks, orientation. 6. (Application Level) Execute complete documentation for the facility and RD/preceptor required to begin the internship/practicum.

Course Requisites

NTR160 - Special Topics in Nutrition: Literacy, Food & Culture, and Healthy Kids

General

Division
Dietetic Education Division

Course Description
This course integrates nutrition literacy, food and culture, and principles for healthy weight management in children to prepare students to support effective, inclusive, and developmentally appropriate nutrition education. Students will examine how individuals and families access, understand, and use nutrition information, how cultural customs, beliefs, and values influence food choices and health behaviors, and how evidence-based strategies can support healthy weight in children. Emphasis is placed on assessing client needs, tailoring communication and educational materials, and applying culturally responsive and family-centered approaches to promote wellness and reduce the risk of chronic disease across diverse populations. Prerequisite or corequisite: NTR104 or NTR200.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Assess clients' nutrition literacy and implement strategies to facilitate understanding of education materials and in counseling sessions. (CSLO 2, 3)

2. (Synthesis Level) Create education materials and counseling scenarios that address nutrition literacy for a given client. (CSLO 2, 3)

3. (Remembering Level) Describe specific customs, regional foods, beliefs, and value systems that explain cultural similarities and differences globally. (CSLO 1, 2)

4. (Understanding Level) Compare and contrast the impact of various customs and cultures on knowledge, attitudes, and behavior. (CSLO 1, 4)

5. (Remembering Level) Distinguish specific techniques for discussing cultural issues. (CSLO 1, 3)

6. (Understanding Level) Describe how to divide the eating responsibilities between the child and the adult. (CSLO 2)

7. (Applying Level) Apply strategies to help motivate children to eat healthy, varied, balanced meals and snacks, and be more physically active. (CSLO 2, 3)

NTR163 - Orientation to Dietetic Technician Program

General

Division
Dietetic Education Division

Course Description
Comprehensive orientation for students who have been admitted into the Dietetic Technician Program. Prerequisite: Acceptance into the Dietetic Technician Program.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Participate in diverse environments and demonstrate cultural/civic engagement by attending a dietetic meeting and engaging in a community outreach volunteer opportunity. (CSLO 1)
2. (Synthesis Level) Identity, comprehend, apply and synthesize the facts, concepts, theories and practices across specialized knowledge areas by developing a realistic time management schedule to complete the Dietetic Technician AAS degree and Internship. (CSLO 2)
3. (Application Level) Demonstrate skills which will enhance the development of a dietetics professional, e.g., ethics, scope of practice. (CSLO 3)
4. (Analysis Level) Inquire and analyze to solve problems, draw logical conclusions or create innovative ideas in order to identify facilities and potential preceptors to complete the internship/practicum competencies. (CSLO 4)

Course Requisites

NTR191 - Nutrition Counseling Skill Development

General

Division
Dietetic Education Division

Course Description
Comprehensive skill development of step-by-step nutrition counseling. Prerequisite: NTR104 or NTR200.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define the basics of an effective counseling relationship and broaden the understanding of one's own traits and skills that can impact the relationship. (CSLO 3)
2. (Application Level) Demonstrate interpersonal skills needed for a productive counseling intervention and utilize effective counseling responses and nutrition literacy considerations. (CSLOs 1, 3)
3. (Application Level) Implement a counseling model and a motivational algorithm to direct the flow of a counseling intervention and write a counseling intervention using two methodologies. (CSLO 2)
4. (Application Level) Implement a step-by-step counseling intervention and nutrition care plan. (CSLO 2)
5. (Analysis Level) Select appropriate food management tools according to a clients desire for structure. (CSLOs 2, 4)
6. (Synthesis Level) Develop a client-friendly behavior tracking method. (CSLOs 2, 4)
7. (Application Level) Implement basic relapse prevention techniques and various behavior change strategies. (CSLO 1)
8. (Synthesis Level) Complete a protocol to incorporate physical activity into a nutrition counseling session. (CSLOs 2, 4)
9. (Evaluation Level) Demonstrate procedures for ending a counseling relationship and evaluating the counseling process. (CSLOs 3, 4)
10. (Application Level) Relate the principles of various professional issues, such as ethics, standards and client rights. (CSLOs 1, 3)
11. (Knowledge Level) Select materials useful to a beginning nutrition counselor, including procedures for handling difficult client behaviors and group counseling. (CSLO 3)

Course Requisites

NTR196 - Dietary Manager Internship

General

Division
Dietetic Education Division

Course Description
Supervise application of food production, food service management and nutritional care principles in clinical and community environments. Prerequisites: NTR105, NTR223, and NTR240.

Total Number Of Credits:
4

Internship Credits
4

Other Credit Information
4 Internships total 150 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Remembering Level) Gather nutrition data. (CSLO 1,2)
2. (Applying Level) Apply nutrition data. (CSLO 1,2)
3. (Applying Level) Provide nutrition education. (CSLO 1,2)
4. (Evaluating Level) Evaluate effectiveness of standardized recipes. (CSLO 1,3,4)
5. (Creating Level) Develop and implement standards and procedures for preparing food. (CSLO 1,3,4)
6. (Creating Level) Supervise and forecast the production and distribution of food. (CSLO 1,4)
7. (Analyzing Level) Monitor meal service. (CSLO 1,2)
8. (Applying Level) Implement continuous quality improvement procedures for foodservice department. (CSLO 1,2)
9. (Applying Level) Modify standard menus. (CSLO 1,2)
10. (Analyzing Level) Manage foodservice personnel and communications. (CSLO 1,4)
11. (Analyzing Level) Manage foodservice sanitation and safety. (CSLO 1,4)
12. (Analyzing Level) Manage foodservice business operations. (CSLO 1,4)

Course Requisites

NTR200 - Human Nutrition

General

Division
Dietetic Education Division

Course Description
The scientific principles of human nutrition emphasize nutrient metabolism, the relationships between diet and disease, and the importance of nutrition in health promotion and disease prevention. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the biochemical processes of digestion, absorption, metabolism, and utilization of nutrients. (CSLO 2)
2. (Comprehension Level) Discuss the influence of age, growth, and normal development on nutrient requirements and explain changes in these requirements across the life span. (CSLO 2, 3)
3. (Application Level) Calculate the nutrient composition of foods. (CSLO 3)
4. (Synthesis Level) Categorize the influence of socioeconomic, cultural, and psychological factors on food and nutrition behavior. (CSLO 1)
5. (Analysis Level) Examine and explain health promotion and disease prevention theories, including complementary, alternative nutrition, and herbal therapies. (CSLO 3, 4)
6. (Evaluation Level) Evaluate and explain the role of food in the promotion of a healthy lifestyle, showing how a healthy lifestyle affects current food and nutrition laws, regulations, and policies. (CSLO 1)

Course Requisites

NTR201 - Nutrition Literacy

General

Division
Dietetic Education Division

Course Description
Develop the skills and knowledge to assess Nutrition Literacy, defined as the ability to access, explain, and use health-related information and services to make sound, thoughtful health decisions, and to tailor counseling and education materials to maximize client understanding. Prerequisite: NTR200 OR NTR104.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Assess clients nutrition literacy and implement strategies to facilitate understanding of education materials and in counseling sessions.(CSLO2)
2. (Synthesis Level) Create education materials and counseling scenarios that address nutrition literacy for a given client.

Course Requisites

NTR219 - Community Nutrition

General

Division
Dietetic Education Division

Course Description
Assessment of community nutrition needs through planning, analyzing, and interpreting data. Develop nutrition education programs for diverse socioeconomic conditions and age groups. Recommended for students seeking employment in community or public health. Prerequisite: NTR104. Prerequisite or corequisite: NTR200.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify a target population and define a general nutrition problem. (CSLO 1)
2. (Synthesis Level) Develop parameters of a community nutrition assessment. (CSLOs 1, 2)
3. (Synthesis Level) Collect data about the community. (CSLO 1)
4. (Analysis Level) Analyze and interpret data and report the findings of the assessment. (CSLOs 2, 4)
5. (Evaluation Level) Set priorities for nutrition education needs identified in the assessment. (CSLO 4)
6. (Synthesis Level) Develop a plan of action. (CSLO 2,4)

Course Requisites

NTR222 - Nutrition Assessment & Medical Nutrition Therapy

General

Division
Dietetic Education Division

Course Description
This course continues the exploration of the Nutrition Care Process (NCP) with a focus on managing complex medical conditions through Medical Nutrition Therapy (MNT). Students will deepen their understanding of medical nutrition calculations, nutrition support, and the development of tailored nutrition care plans. The course emphasizes the management of conditions such as gastrointestinal disorders, cardiovascular disease, diabetes, cancer, and food allergies. Students will integrate evidence-based practice, cultural competency, and ethical considerations into their approaches, culminating in comprehensive case study presentations. Prerequisite: NTR222A.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Analyze the role of dietitians in managing chronic diseases using the Nutrition Care Process (NCP) and medical nutrition therapy (MNT) principles.
   CSLO #2: Integrative Knowledge
2. Evaluate the impact of food allergies, intolerances, and gastrointestinal disorders on nutrition status and MNT interventions.
   CSLO #4: Reasoning Skills
3. Synthesize evidence-based research and clinical data to formulate MNT plans for patients with cardiovascular, endocrine, and cancer-related conditions.
   CSLO #2: Integrative Knowledge
4. Demonstrate the ability to calculate and apply nutrition support techniques, including enteral and parenteral nutrition, in complex clinical case studies.
   CSLO #3: Personal & Professional Skills
5. Discuss the importance of cultural competence and personal bias in the development and delivery of MNT for diverse patient populations.
   CSLO #1: Cultural & Civic Engagement
6. Create and present a comprehensive MNT care plan based on a complex case study, incorporating nutrition support considerations and personal bias reflection.
   CSLO #3: Personal & Professional Skills

Course Requisites

NTR222A - Medical Nutrition Therapy I

General

Division
Dietetic Education Division

Course Description
This course introduces the Nutrition Care Process (NCP) and its application in clinical nutrition settings. Students will explore core aspects of nutritional assessment, diagnosis, intervention, and monitoring/evaluation. Topics include anthropometric measurements, biochemical data interpretation, and medical nutrition therapy for various conditions such as obesity, cardiovascular disease, and gastrointestinal disorders. The lab component offers practical, hands-on experience in applying theoretical concepts through case studies, physical assessments, and dietary planning. Emphasis is placed on cultural competence and evidence-based practice in nutrition care. Prerequisite: NTR123.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes

Lecture Student Learning Outcomes

1. Analyze and apply the Nutrition Care Process to assess and diagnose nutritional issues in clinical settings.
   CSLO #2: Integrative Knowledge
2. Evaluate dietary, biochemical, and anthropometric data to develop personalized nutrition care plans.
   CSLO #4: Reasoning Skills
3. Integrate evidence-based research into the development of medical nutrition therapy interventions for various disease states.
   CSLO #2: Integrative Knowledge
4. Discuss the importance of cultural competence in nutrition care and its role in patient-centered medical nutrition therapy.
   CSLO #1: Cultural & Civic Engagement
   Bloom's Taxonomy Level: Evaluate

Lab Student Learning Outcomes

1. Demonstrate proficiency in performing and interpreting nutrition-focused physical exams to assess malnutrition.
   CSLO #3: Personal & Professional Skills
   Bloom's Taxonomy Level: Apply
2. Create and implement medical nutrition therapy plans based on case studies using clinical assessment data.
   CSLO #3: Personal & Professional Skills

NTR223 - Food Service Management

General

Division
Dietetic Education Division

Course Description
Current management theories related to institutional food service emphasizing quality improvement and evaluation of service, meal planning, recipe development, safe and sanitary food procurement and production methods, facility layout and design, staffing, marketing, and financial management.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline the key aspects of the food service industry and its management needs/roles. (CSLOs 2, 4)
2. (Application Level) Demonstrate a working knowledge of key strategies for effective human relations, leadership, communication, and organizational change. (CSLO 3)
3. (Synthesis Level) Categorize the principles of menu planning, standardized recipe development, as well as guidelines for safety and sanitation. (CSLOs 2, 4)
4. (Comprehension Level) Explain the methods and organization required for effective food procurement and production methods, as well as type of service. (CSLO 2)
5. (Synthesis Level) Design a quality improvement plan based on the evaluation of services provided. (CSLOs 2, 4)
6. (Analysis Level) Outline techniques and related staffing and scheduling patterns, and marketing strategies, as well as facility layout and design, with effective financial management. (CSLOs 2, 4)
7. (Evaluation Level) Identify and interpret scenarios in a food service operation where the code of professional ethics would apply. (CSLOs 3, 4)
8. (Evaluation Level) Identify and critique food safety system development using Hazard Analysis Critical Control Point (HACCP) methods. (CSLOs 2, 4)
9.(Comprehension Level) Identify and describe the flow of food safely and effectively from purchasing, receiving, storing, preparing, and cooking, holding, and serving to cooling and reheating. (CSLO 2)

NTR223A - Institutional Food Services

General

Division
Dietetic Education Division

Course Description
No description.

Total Number Of Credits:
1

NTR240 - Clinical Nutrition

General

Division
Dietetic Education Division

Course Description
In-depth study of Medical Nutrition Therapy and the role of nutrition in the prevention and treatment of diseases.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Develop an over-arching explanation of what motivates people to eat, and how customers/patients choose their food recognizing the cultural, religious, and regional influences on food choices. (CSLO1)
2. (Synthesis Level) Plan and implement menus using basic and advanced nutrition concepts essential for planning modified diets; select the recommended foods according to established nutrition principles and apply guidelines and tools to assess nutritional adequacy.(CSLO2)
3. (Evaluation Level) Outline the process of digestion and compare the construction of a modified menu to the digestion physiology of individuals who have unique needs.(CSLO2)
4. (Evaluation Level) Compare and contrast nutrition needs throughout a life cycle addressing the specialized nutrition needs of each customer/patient group.
5. (Application Level) Explain and apply medical nutrition therapy to the prevention and/or treatment of many diseases.
6. (Analysis Level) Illustrate examples of alternative therapies and how to assess them to promote optimum nutrition for clients.
7. (Evaluation Level) Interpret nutrition data in order to support the entire process of nutritional assessment and planning; outline the process of documentation of nutrition data in the medical record; select the regulations and standards governing the healthcare industry that require planning, documentation, and ongoing clinical care. (CSLO4)
8. (Synthesis Level) Summarize how to create nutrition education which meets the customer's/client's educational needs and enables the client to adapt that education to daily life.

NTR244 - Nutrition Management & Leadership

General

Division
Dietetic Education Division

Course Description
This course explores the principles and practices of management in dietetics and nutrition-related organizations. Students will examine leadership, organizational structure, communication, human resource management, marketing, sustainability, budgeting, and quality improvement. Emphasis is placed on evidence-based decision-making, diversity, and self-assessment to prepare students for entry-level nutrition and dietetics technician roles and seamless transfer to university-level dietetics programs. Prerequisites: NTR200; NTR223.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. Analyze organizational structure, policies, and healthcare delivery systems to determine their impact on nutrition and dietetics practice. (CSLO #2, CSLO #4)

2. Examine leadership theories and personal leadership style to create a professional growth plan. (CSLO #3, CSLO #4)

3. Demonstrate effective oral and written communication through reports, presentations, and simulated interviews. (CSLO #3)

4. Develop and deliver educational materials using strategies appropriate for diverse audiences. (CSLO #1, CSLO #3)

5. Design a basic marketing plan for a nutrition program or foodservice initiative. (CSLO #2, CSLO #4)

6. Identify HR processes, including staffing, orientation, evaluation, and discipline, to support effective team operations. (CSLO #2, CSLO #3)

7. Illustrate principles of food safety, sanitation, and sustainability practices in foodservice operations. (CSLO #2)

8. Apply budgeting, cost control, and financial reporting principles to evaluate a nutrition service department. (CSLO #2, CSLO #4)

9. Evaluate productivity, quality, and outcomes data using established criteria to recommend improvement strategies. (CSLO #2, CSLO #4)

10. Apply conflict resolution and teamwork strategies through case-based online discussions, scenario analysis, and collaborative digital projects. (CSLO #1, CSLO #3)

11. Construct a portfolio artifact articulating personal strengths, career goals, and advocacy strategies. (CSLO #3)

NTR255 - Nutrition Medical Terminology

General

Division
Dietetic Education Division

Course Description
This course introduces students to essential medical terminology used in clinical nutrition and dietetics. Students will learn to identify, pronounce, and use medical terms related to body systems, diagnostic procedures, and health professions. Emphasis is placed on understanding medical abbreviations, root words, and word-building rules. The course also covers medical terminology for major body systems, including the cardiovascular, respiratory, and digestive systems. It provides students with the language skills necessary for effective communication in healthcare settings. Prerequisites: NTR200 OR NTR104.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Apply word-building rules to construct and interpret medical terms related to nutrition and dietetics. (CSLO 2)
2. (Analyzing Level) Analyze and interpret abbreviations and terminology related to diagnostic and laboratory procedures in a clinical nutrition context. (CSLO 4)
3. (Understanding Level) Demonstrate proficiency in the pronunciation and use of medical terms related to body systems and healthcare professions. (CSLO 3)

Course Requisites

NTR256 - Nutrition Medical Terminology

General

Division
Dietetic Education Division

Course Description
This course introduces students to essential medical terminology used in clinical nutrition and dietetics. Students will learn to identify, pronounce, and use medical terms related to body systems, diagnostic procedures, and health professions. Emphasis is placed on understanding medical abbreviations, root words, and word-building rules. The course also covers medical terminology for major body systems, including the cardiovascular, respiratory, and digestive systems. It provides students with the language skills necessary for effective communication in healthcare settings. Prerequisites: NTR104 OR NTR200.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Apply word-building rules to construct and interpret medical terms related to nutrition and dietetics. (CSLO 2)
2. (Analyzing Level) Analyze and interpret abbreviations and terminology related to diagnostic and laboratory procedures in a clinical nutrition context. (CSLO 4)
3. (Understanding Level) Demonstrate proficiency in the pronunciation and use of medical terms related to body systems and healthcare professions. (CSLO 3)

NTR295 - Dietetic Technician Professional Practice Internship

General

Division
Dietetic Education Division

Course Description
In the internship portion of the class, students will meet competencies required for the Nutrition & Dietetic Technician AAS degree specifically in the areas of ethics, the scope of practice, professional development, public policy legislation, and communication. The lecture portion of the class consists of the student and instructor securing a written agreement between CAC and the following/terminal semester's internship rotation facility including a Registered Dietitian Nutritionist preceptor or other credentialed preceptor, as approved by the Nutrition & Dietetic Technician Program Director. Prerequisites: All general education requirements for Nutrition and Dietetic Technician AAS Degree completed and Program Director consent.

Total Number Of Credits:
3

Lecture Credits
2

Internship Credits
1

Other Credit Information
Internship is 66 Hours of Supervised Practice

MSLOs

Measurable Student Learning Outcomes
Internship

(CSLO #3)
(Application Level)
CNDT 2.1 Adhere to current federal regulations and state statutes and rules, as applicable and in accordance with accreditation standards and the Scope of Dietetics Practice, Standards of Professional Practice, and the Code of Ethics for the Profession of Dietetics.
CNDT 2.2 Use clear and effective oral and written communication.
CNDT 2.7 Participate in professional and community organizations.
CNDT 2.11 Prepare a plan for professional development according to Commission on Dietetic Registration guidelines.
CNDT 2.12 Participate in advocacy on local, state or national legislative and regulatory issues or policies impacting the nutrition and dietetics profession.

Lecture

1. (Comprehension Level) Describe the basic tenets of patient confidentiality according to the Health Insurance Portability and Accountability Act of 1996 (HIPPA).
2. (Comprehension Level) Indicate a facility or facilities, and a Registered Dietitian Nutritionist (RDN) preceptor to complete the internship/practicum competencies.
3. (Synthesis Level) Research facility personnel specific requirements and plan for meeting these requirements e.g. immunizations.
4. (Synthesis Level) Complete documentation for the facility, RDN preceptor, and internship documentation required to begin the internship/practicum.

NTR295X - Dietetic Technician Professional Practice Internship

General

Division
No Department

Course Description
Competencies required for the Dietetic Technician AAS specifically in the areas of ethics, scope of practice, professional development, public policy legislation and communication. Prerequisites: All general education requirements for Dietetic Technician AAS Degree completed and Program Director consent.

Total Number Of Credits:
1

MSLOs

Measurable Student Learning Outcomes
(CSLO #3) (Application Level) CNDT 2.1 Adhere to current federal regulations and state statutes and rules, as applicable and in accordance with accreditation standards and the Scope of Dietetics Practice, Standards of Professional Practice and the Code of Ethics for the Profession of Dietetics. CNDT 2.2 Use clear and effective oral and written communication. CNDT 2.7 Participate in professional and community organizations. CNDT 2.11 Prepare a plan for professional development according to Commission on Dietetic Registration guidelines. CNDT 2.12 Participate in advocacy on local, state or national legislative and regulatory issues or policies impacting the nutrition and dietetics profession.

NTR296 - Dietetic Technician Internship

General

Division
Dietetic Education Division

Course Description
The application of life cycle nutrition, assessment, disease prevention and medical nutrition therapy in clinical, community and food service management settings. Prerequisite: All Dietetic Technician AAS Degree requirements completed with a grade of C or better, Program Director or instructor consent.

Total Number Of Credits:
6

Internship Credits
6

MSLOs

Measurable Student Learning Outcomes
FSM Rotation
CNDT 1.4 Implement actions based on care plans, protocols, policies and evidence-based practice.
CNDT 2.8 Demonstrate professional attributes in all areas of practice.
CNDT 2.2 Use clear and effective oral and written communication
CNDT 4.3 Use current nutrition informatics technology to develop, store, retrieve and disseminate information and data.
CNDT 3.8 Modify recipes and menus for acceptability and affordability that accommodate the cultural diversity and health status of various populations, groups and individuals
CNDT 4.7 Propose and use procedures as appropriate to the practice setting to promote sustainability, reduce waste and protect the environment.
CNDT 3.7 Perform supervisory functions for purchasing, production and service of food that meets nutrition guidelines, cost parameters, and health needs
CNDT 2.4 Demonstrate active participation teamwork and contributions in group settings
CNDT 2.1 Adhere to current federal regulations and state statutes and rules, as applicable and in accordance with accreditation standards and the Scope of Practice for the Nutrition and Dietetics Technician, Registered, Standards of Practice, Standards of Professional Performance, and Code of Ethics for the Profession of Nutrition and Dietetics.
CNDT 1.3 Collect performance improvement, financial, productivity or outcomes data and compare it to established criteria
CNDT 4.6 Assist with marketing clinical and customer services.
CNDT 4.4 Assist in developing a plan for a new service including budget.
CNDT 3.6 Present an educational session to a target population.
CNDT 2.9 Show cultural humility in interactions with colleagues, staff, clients, patients and the public.

EDU Rotation
CNDT 2.9 Show cultural humility in interactions with colleagues, staff, clients, patients and the public.
CNDT 2.3 Prepare and deliver sound food and nutrition presentations to a target audience
CNDT 3.3 Provide nutrition and lifestyle education to well populations
CNDT 4.5 Implement and adhere to budgets.
CNDT 1.1 Access data, references, patient education materials, consumer and other information from credible sources
CNDT 3.5 Develop nutrition education materials for disease prevention and health improvement that are culturally and age appropriate and designed for the literacy level of the audience.
CNDT 3.4 Promote health improvement, food safety, wellness and disease prevention for the general population
CNDT 1.2 Evaluate information to determine if it is consistent with accepted scientific evidence.
CNDT 2.2 Use clear and effective oral and written communication
CNDT 4.2 Perform supervisory, education and training functions

MNT Rotation
CNDT 2.2 Use clear and effective oral and written communication
CNDT 3.1 Perform nutrition screening and identify clients or patients to be referred to the registered dietitian nutritionist.
CNDT 3.2 Perform specific activities of the Nutrition Care Process as assigned by registered dietitian nutritionists in accordance with the Scope of Practice for the Nutrition and Dietetics Technician, Registered for individuals, groups and populations in a variety of settings.
CNDT 2.6 Refer situations outside the nutrition and dietetic technician scope of practice or area of competence to a registered dietitian nutritionist or other professional
CNDT 2.1 Adhere to current federal regulations and state statutes and rules, as applicable and in accordance with accreditation standards and the Scope of Practice for the Nutrition and Dietetic Technician, Registered, Standards of Practice, Standards of Professional Performance, and the Code of Ethics for the Profession of Dietetics
CNDT 4.6 Assist with marketing clinical and customer services.
CNDT 2.5 Function as a member of interprofessiona l teams.

CNDT 4.1 Deliver nutrition services through quality improvement and customer satisfaction activities.
CNDT 4.3 Use current nutrition informatics technology to develop, manage, and disseminate information and data.
CNDT 2.9 Show cultural humility in interactions with colleagues, staff, clients, patients and the public.

Course Requisites

NTR296A - Dietetic Technician Food Service Management Internship

General

Division
Dietetic Education Division

Course Description
The application of food service management in an institutional food service setting. Prerequisite: All Dietetic Technician A.A.S. Degree requirements completed with a grade of C or better. Program Director or instructor consent.

Total Number Of Credits:
2

Internship Credits
2

MSLOs

Measurable Student Learning Outcomes
FSM Rotation-ACEND 2022 Standards

CNDT 1.4 Implement actions based on care plans, protocols, policies and evidence-based practice.
CNDT 2.8 Demonstrate professional attributes in all areas of practice.
CNDT 2.2 Use clear and effective oral and written communication
CNDT 4.3 Use current nutrition informatics technology to develop, store, retrieve and disseminate information and data.
CNDT 3.8 Modify recipes and menus for acceptability and affordability that accommodate the cultural diversity and health status of various populations, groups and individuals
CNDT 4.7 Propose and use procedures as appropriate to the practice setting to promote sustainability, reduce waste and protect the environment.
CNDT 3.7 Perform supervisory functions for purchasing, production and service of food that meets nutrition guidelines, cost parameters, and health needs
CNDT 2.4 Demonstrate active participation teamwork and contributions in group settings
CNDT 2.1 Adhere to current federal regulations and state statutes and rules, as applicable and in accordance with accreditation standards and the Scope of Practice for the Nutrition and Dietetics Technician, Registered, Standards of Practice, Standards of Professional Performance, and Code of Ethics for the Profession of Nutrition and Dietetics.
CNDT 1.3 Collect performance improvement, financial, productivity or outcomes data and compare it to established criteria
CNDT 4.6 Assist with marketing clinical and customer services.
CNDT 4.4 Assist in developing a plan for a new service including budget.
CNDT 3.6 Present an educational session to a target population.
CNDT 2.9 Show cultural humility in interactions with colleagues, staff, clients, patients and the public.

NTR296B - Dietetic Technician Education and Clinical Internship

General

Division
Dietetic Education Division

Course Description
The application of life cycle nutrition, assessment, disease prevention, and medical nutrition therapy in clinical and community settings. Prerequisite: All Dietetic Technician A.A.S. Degree requirements completed with a grade of C or better. Program Director or instructor consent.

Total Number Of Credits:
4

Internship Credits
4

MSLOs

Measurable Student Learning Outcomes
Accreditation Council for Education in Nutrition and Dietetics Competencies:

EDU Rotation
CNDT 2.9 Show cultural humility in interactions with colleagues, staff, clients, patients, and the public.
CNDT 2.3 Prepare and deliver sound food and nutrition presentations to a target audience
CNDT 3.3 Provide nutrition and lifestyle education to well populations
CNDT 4.5 Implement and adhere to budgets.
CNDT 1.1 Access data, references, patient education materials, consumer and other information from credible sources
CNDT 3.5 Develop nutrition education materials for disease prevention and health improvement that are culturally and age-appropriate and designed for the literacy level of the audience.
CNDT 3.4 Promote health improvement, food safety, wellness, and disease prevention for the general population
CNDT 1.2 Evaluate information to determine if it is consistent with accepted scientific evidence.
CNDT 2.2 Use clear and effective oral and written communication
CNDT 4.2 Perform supervisory, education, and training functions

MNT Rotation
CNDT 2.2 Use clear and effective oral and written communication
CNDT 3.1 Perform nutrition screening and identify clients or patients to be referred to the registered dietitian nutritionist.
CNDT 3.2 Perform specific activities of the Nutrition Care Process as assigned by registered dietitian nutritionists in accordance with the Scope of Practice for the Nutrition and Dietetics Technician, Registered for individuals, groups, and populations in a variety of settings.
CNDT 3.2 Perform specific activities of the Nutrition Care Process as assigned by registered dietitian nutritionists in accordance with the Scope of Practice for the Nutrition and Dietetics Technician, Registered for individuals, groups, and populations in a variety of settings.
CNDT 3.2 Perform specific activities of the Nutrition Care Process as assigned by registered dietitian nutritionists in accordance with the Scope of Practice for the Nutrition and Dietetics Technician, Registered for individuals, groups, and populations in a variety of settings.
CNDT 2.6 Refer situations outside the nutrition and dietetic technician's scope of practice or area of competence to a registered dietitian nutritionist or other professional
CNDT 2.1 Adhere to current federal regulations and state statutes and rules, as applicable and in accordance with accreditation standards and the Scope of Practice for the Nutrition and Dietetic Technician, Registered, Standards of Practice, Standards of Professional Performance, and the Code of Ethics for the Profession of Dietetics
CNDT 4.6 Assist with marketing clinical and customer services.
CNDT 2.5 Function as a member of interprofessional teams.
CNDT 4.1 Deliver nutrition services through quality improvement and customer satisfaction activities.
CNDT 4.3 Use current nutrition informatics technology to develop, manage, and disseminate information and data.
CNDT 2.9 Show cultural humility in interactions with colleagues, staff, clients, patients, and the public.

NUR121A - Transitions Across the Lifespan

General

Division
Nursing Division

Course Description
Within the framework of transitions theory, the focus is on individuals and families in defined practice settings such as Long Term Care and Medical Surgical Acute Care areas. Included is the situational transition of the individual to the nursing student role, and the patient's admission to and movement within the healthcare system as it relates to health-illness and developmental transitions. Provides the opportunity for the practice of nursing in real and simulated structured situations. Prerequisites: Nursing cohort student; BIO 201; BIO 202; eligible for ENG 101 and MAT 141; LNA or L.P.N. licensure from the Arizona State Board of Nursing. Corequisite: NUR126.

Total Number Of Credits:
4

Lecture Credits
4

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify healthy physiological, psychosocial, developmental, cultural, and spiritual functioning in patients and self, using appropriate assessment skills (CSLO 1).
2. (Application Level) Apply the nursing process to specialized population.
3. (Application Level) Practice psychomotor skills for assessment and procedures in the skills lab to obtain competency.
4. (Application Level) Apply appropriate assessment skills to patient care through simulation and in the clinical setting as scheduled (CSLO 2).
5. (Comprehension Level) Identify safety measures for decision-making using assessment, infection control, and medication administration principles to deliver quality, nursing care and identify rationales using evidenced based data.
6. (Application Level) Begin to apply safety measures for decision making in clinical practice.
7. (Comprehension Level) Identify professional responsibilities of a nurse including ethical, legal, and safety practices while advocating for patients.
8. (Evaluation Level) Evaluate self growth in one's attitude, ethical, legal, and safety practices (CSLO 3).
9. (Application Level) Identify and apply respectful inquiry about the course to class, test review, simulation and the clinical setting.
10. (Comprehension Level) Explain the responsibilities necessary to supervise, delegate, and coordinate health care personnel to manage patient care effectively and consistently.
11. (Application Level) Learn and begin to practice effective therapeutic communication to enhance trust in the patient-nurse relationship.
12. (Application Level) Develop a foundational understanding of clinical judgement and apply it to specialized populations.
13. (Application Level) Apply therapeutic communication to provide safe nursing care to teach patients, families, and communities effectively while learning to communicate with other personnel in the healthcare system.

NUR121AX - Transitions Across the Lifespan

General

Division
Nursing Division

Course Description
The course will address nursing care across the developmental stages throughout the life span, within the focus of transitions theory. The course will assist the student with identification and application of nursing process framework, clinical judgment, foundations of critical thinking, nursing care and therapeutics in specialized settings for clients experiencing changes from birth to geriatric stages of development and identification of changes of self in relation to the nursing student role. The focus is on individuals and families in defined practice settings such as Long Term Care, Post Acute Care, Medical Surgical Acute Care and Outpatient Obstetric, Women's Health and/or Outpatient Pediatric settings. The course provides the opportunity for the practice of nursing in real and simulated structured situations. Recommended: Join a study group, attend every lab practice, and meet with your faculty adviser at least twice each semester. Prerequisites: Nursing cohort student; BIO201; BIO202; NUR200; LNA or L.P.N. licensure from the Arizona State Board of Nursing. Corequisite: NUR126A; MAT141 or higher; ENG101.

Total Number Of Credits:
7

Lecture Credits
4

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify healthy physiological, psychosocial, developmental, cultural, and spiritual functioning in patients and self, using appropriate assessment skills. (CSLO 1)

2. (Application Level) Apply the nursing process to specialized population. (CSLO 2)

3. (Application Level) Practice psychomotor skills for assessment and procedures in the skills lab to obtain competency. (CSLO 3)

4. (Application Level) Apply appropriate assessment skills to patient care through simulation and in the clinical setting as scheduled. (CSLO 2)

5. (Comprehension Level) Identify safety measures for decision-making using assessment, infection control, and medication administration principles to deliver quality, nursing care and identify rationales using evidenced based data. (CSLO 4)

6. (Application Level) Begin to apply safety measures for decision making in clinical practice. (CSLO 4)

7. (Comprehension Level) Identify professional responsibilities of a nurse including ethical, legal, and safety practices while advocating for patients. (CSLO 1, 3)

8. (Evaluation Level) Evaluate self growth in one's attitude, ethical, legal, and safety practices (CSLO 3).

9. (Application Level) Identify and apply respectful inquiry about the course to class, test review, simulation and the clinical setting. (CSLO 3)

10. (Comprehension Level) Explain the responsibilities necessary to supervise, delegate, and coordinate health care personnel to manage patient care effectively and consistently. (CSLO 3)

11. (Application Level) Learn and begin to practice effective therapeutic communication to enhance trust in the patient-nurse relationship. (CSLO)

12. (Application Level) Develop a foundational understanding of clinical judgement and apply it to specialized populations. (CSLO 2, 4)

13. (Application Level) Apply therapeutic communication to provide safe nursing care to teach patients, families, and communities effectively while learning to communicate with other personnel in the healthcare system. (CSLO 1, 3)

NUR121BX - Fundamentals of Health/Illness Transitions

General

Division
Nursing Division

Course Description
Within the transitions theory, the course will focus on individuals and families with commonly occurring health concerns. Identification and application of nursing therapeutics in defined practice settings to assist culturally and spiritually diverse patients making health-illness and situational transitions. Recommended: Participate in a study group, use the learning resource center if needed, and meet with your nursing faculty advisor at least twice during the semester to evaluate your progress. Prerequisites: NUR200; NUR121A; NUR126A; MAT141 or higher; ENG101. Corequisites: NUR125; NUR135; NUR145A; PSY 101; ENG 102.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Organize and plan care for patients based upon alterations in physiological, psychosocial, cultural, developmental, and spiritual functioning using appropriate assessment skills and nursing interventions to improve patients' health. (CSLO 2)

2. (Application Level) Apply clinical judgement to diverse patient situations to effectively plan care. (CSLO 4)

3. (Application Level) Practice psychomotor skills for specific procedures to evaluate outcomes in the practice setting. (CSLO 3)

4. (Application Level) Apply knowledge of assessment skills to alterations in health and deliver appropriate interventions in the clinical setting by evaluating responses to nursing interventions. (CSLO 2, 4)

5. (Application Level) Apply safety measures for decision making to the clinical setting when taking care of patients with diverse alterations, with assistance. (CSLO 4)

6. (Application Level) Apply professional responsibilities to patients with alterations in health including ethical, legal, and safety practices while demonstrating advocacy for patients. (CSLO 1, 3)

7. (Analysis Level) Reflect on self-growth in one's attitude, ethical, legal, and safety practices. (CSLO 3)

8. (Application Level) Apply and evaluate respectful inquiry methods about the class, test review, simulation and the clinical setting. (CSLO 3)

9. (Application Level) Identify opportunities to supervise, delegate, and coordinate health care personnel to manage patient care effectively and consistently with minimal assistance. (CSLO 3)

10. (Application Level) Identify and practice therapeutic communication to provide safe nursing care and teach patients and families effectively. (CSLO 1, 3)

NUR125X - Nursing Psychiatric Care and Developmental Transitions

General

Division
Nursing Division

Course Description
Nursing care of the patient across psychological and psychiatric stages in the lifespan. Transitions theory is used as the framework to examine healthy and unhealthy transitions and nursing therapeutics, which promote healthy developmental transitions. Recommended: Participate in a study group, use the learning resource center if needed, and meet with your nursing faculty advisor at least twice during the semester to evaluate your progress. Prerequisites: NUR200, NUR121A, NUR126A, BIO201, BIO202. Corequisites: NUR135, NUR121B, NUR145A, ENG102, PSY101.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify healthy and specific alterations in physiological, psychosocial, cultural, developmental, and spiritual functioning for specialized populations using appropriate assessment skills and nursing interventions to improve patients' health. (CSLO 1,2,4)

2. (Application Level) Apply the nursing process to specialized patient populations to effectively plan care. (CSLO 2,4)

3. (Application Level) Practice psychomotor skills for specific population procedures to evaluate outcomes in the practice setting. (CSLO 2,4)

4. (Analysis Level) Identify and apply knowledge of assessment skills to specialized populations (psychiatric/mental health) and deliver appropriate interventions in the simulation and clinical settings by evaluating responses to nursing interventions.

5. (Analysis Level) Apply safety measures for decision making to the clinical setting when taking care of specialized patients with assistance.(CSLO 3)

6. (Application Level) Apply professional responsibilities to specialized populations including ethical, legal, safety practices to patient care while demonstrating advocacy for patients. Evaluate self-growth in one's attitude, ethical, legal, and safety practices. (CSLO 1, 3)

7. (Application Level) Apply and evaluate respectful inquiry methods about the course classroom, test review, simulation, and the clinical setting. (CSLO 1,2,4)

8. (Application Level) Utilize therapeutic communication and therapeutic environments appropriate for psychiatric/mental health setting to provide safe nursing care to teach patients and families effectively while learning to communicate with other personnel in the healthcare system. (CSLO 2,4)

9. (Analysis Level) Identify opportunities to supervise, delegate, and coordinate health care personnel to manage patient care effectively and consistently with minimal assistance. (CSLO 3)

NUR126AX - Introduction to Principles and Application of Drug Dosage Calculations

General

Division
Nursing Division

Course Description
Introduction to medication administration concepts and intensive study and practice in calculating dosages and concentrations of solutions used in nursing. Recommended: Utilize the learning resource center to assist with needed math skills. Meet with your nursing faculty advisor during the course at least twice during the semester. Participate in a study group. Prerequisites: Admitted to the nursing program; NUR 200; BIO201; BIO202; LNA or L.P.N. licensure from the Arizona State Board of Nursing. Corequisites: NUR121A, MAT 141 or higher, ENG 101.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Apply the components of critical thinking to clinical decision making related to medication administration and correct dosage calculations. (CSLO 4)

2. (Application Level) Apply focused mathematical conversion processes in dosage administration and calculations including but not limited to ratio, proportions, calculation of pediatric and adult medication dosages, volume of medications, reconstitution of medications, IVPB calculations, rates of infusion, and focused mathematical conversion processes. (CSLO 4)

3. (Comprehension Level) List complications of medical errors from drug miscalculations and discuss medical error statistics. (CSLO 2)

NUR126B - Bridge Introduction to Principles & Application of Drug Dosage Calculations

General

Division
Nursing Division

Course Description
Introduction to medication administration concepts and intensive study and practice in calculating dosages and concentrations of solutions used in nursing. Recommended: GPA 2.75. Prerequisites: LPN license in good standing; Successful Completion of HESI LPN Exam; 1st Year RN prerequisites including ENG101, ENG102, PSY101, MAT141. Corequisites: NUR131.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Apply the components of critical thinking to clinical decision making related to medication administration and correct dosage calculations. (CSLOs 3, 4)
2. (Application Level) Apply focused mathematical conversion processes in dosage administration and calculations including but not limited to ratio, proportions, calculation of pediatric and adult medication dosages, volume of medications, reconstitution of medications, IVPB calculations, rates of infusion, and focused mathematical conversion processes. (CSLOs 3, 4)
3. (Comprehension Level) List complications of medical errors from drug miscalculations and discuss medical error statistics. (CSLOs 3, 4)

NUR126C - Advanced Principles and Application of Drug Dosage Calculations

General

Division
Nursing Division

Course Description
Advanced medication administration concepts and intensive study and practice in calculating dosages and concentrations of solutions used in nursing. Recommended: Utilize the learning resource center to assist with needed math skills. Meet with your nursing faculty advisor during the course at least twice during the semester. Participate in a study group. Prerequisites: NUR121A, NUR125, NUR126A, NUR121B, NUR135, NUR145A; or NUR130 and NUR126B. Corequisites: NUR201, NUR145B.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Apply the components of critical thinking to clinical decision making related to medication administration and correct dosage calculations. (CSLOs 3, 4)
2. (Application Level) Apply focused mathematical conversion processes in dosage administration and calculations including but not limited to ratio, proportions, calculation of pediatric and adult medication dosages, volume of medications, reconstitution of medications, IVPB calculations, rates of infusion, and focused mathematical conversion processes. (CSLOs 3, 4)
3. (Comprehension Level) List complications of medical errors from drug miscalculations and discuss medical error statistics. (CSLOs 3, 4)

NUR130 - LPN to RN Bridge Course

General

Division
Nursing Division

Course Description
The LPN to RN bridge course allows an LPN to bridge their previous education and experience to the accredited RN curriculum. Included in this course are dosages and calculations; assessment; IV concepts and skills, pharmacology, and concepts related to the transition to Professional RN licensure exam. LPN license in good standing; Successful Completion of HESI LPN Exam.1st Year RN prerequisites: ENG101 College Composition I, ENG102 College Composition II, PSY101 Introduction to Psychology, MAT141 College Mathematics or higher, NUR126 Principles and Application of Drug Dosage CalculationsCredits may transfer - contact college to review past college credits to evaluate what may transfer.Student must submit accredited LPN curriculum and transcript from previous program/institution of study.

Total Number Of Credits:
5

NUR131 - LPN to RN Bridge Course

General

Division
Nursing Division

Course Description
The LPN to RN bridge course allows an LPN to bridge their previous education and experience to the accredited RN curriculum. Included in this course are dosages and calculations; assessment; IV concepts and skills, pharmacology, and concepts related to the transition to Professional RN licensure exam. Recommended: GPA 2.75. Prerequisites: LPN license in good standing; Successful Completion of HESI LPN Exam. 1st Year RN prerequisites including: ENG101, ENG102, PSY101, MAT141. Credits may transfer - contact college to review past college credits to evaluate what may transfer. Student must submit accredited LPN curriculum and transcript from previous program/institution of study. Corequisites: NUR126B.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Compare the differences in the functions of the Licensed Practical Nurse and the Registered Nurse (CSLO 2).
2. (Applying Level) Apply dosage and calculations (math) to administration of drugs to accurately perform medication administration.
3. (Applying Level) Apply knowledge of IV therapy to the role of the RN.
4. (Applying Level) Utilize assessment skills to apply the steps of the nursing process to patients in the clinical setting (CSLO 3).
5. (Analyzing Level) Analyze drug prototypes for medications used in the delivery of care (CSLO 4).
6. (Evaluating Level) Assess simulation performance based upon criteria for transitioning from LPN to RN (CSLO 3, CSLO 4).
7. (Evaluating Level) Assess IV skills according to criteria (CSLO 3, CSLO 4).
8. (Applying Level) Apply principles of psychology to reduce anxiety when transitioning to the RN role (CSLO 2).

Course Requisites

NUR135X - Nursing in Obstetric and Pediatric Transitions

General

Division
Nursing Division

Course Description
Transitions theory is used to examine unhealthy transitions and nursing therapeutics in pediatric and obstetrical settings. Recommended: Participate in a study group, use the learning resource center if needed, and meet with your nursing faculty advisor at least twice during the semester to evaluate your progress. Prerequisites: NUR121A, NUR125X, NUR126AX, ENG101, and MAT141 or Higher. Corequisites: NUR 121B, NUR 125X, NUR 145A, PSY101 and ENG102.
Detailed Description: This course focuses on the role of the nurse in meeting the physiological, psychosocial, cultural and developmental needs of the maternal and child client. Course content includes antepartal, intrapartal, and postpartal care, complications of pregnancy, gynecological alterations, and selected pediatric alterations. Nutrition, pharmacology, cultural diversity, use of technology, communication, anatomy and physiology review, medical terminology, and clinical judgement are integrated throughout this course. Upon completion of this course, students will be able to provide and manage care for maternal and pediatric clients in a variety of settings.
The Alabama College System (2006) https://www.bscc.edu/Content/Uploads/bscc.edu/files/NUR%20106%20-%20Maternal%20and%20Child%20Nursing%20POI.pdf

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Identify specific alterations in physiological, psychosocial, cultural, developmental, and spiritual functioning for specialized populations (obstetrics, gynecological, and pediatric) using appropriate assessment skills and nursing interventions to improve patients' health. (CSLO 1,2,4)

2. (Application Level) Apply clinical judgement to specialized patient populations to effectively plan care. (CSLO 2)

3. (Application Level) Practice psychomotor skills for specific population procedures to evaluate outcomes in the practice setting. (CSLO 2,4)

4. (Application) Identify and apply knowledge of assessment skills to specialized populations and deliver appropriate interventions in the simulation and clinical settings by evaluating responses to nursing interventions. (CSLO 2, 4)

5. (Analysis Level) Apply safety measures for decision making to the clinical setting when taking care of specialized patients with assistance (CSLO 4).

6. (Application Level) Apply professional responsibilities to specialized populations including ethical, legal, safety practices to patient care while demonstrating advocacy for patients. Evaluate self-growth in one's attitude, ethical, legal, and safety practices (CSLO 3).

7. (Application Level) Apply and evaluate respectful inquiry methods about the course classroom, test review, simulation, and the clinical setting. (CSLO 1, 2, 3)

8. (Analysis Level) Identify opportunities to supervise, delegate, and coordinate health care personnel to manage patient care effectively and consistently with minimal assistance. (CSLO 3)

9. (Application Level) Utilize therapeutic communication to provide safe nursing care to teach patients and families effectively while learning to communicate with other personnel in the healthcare system. (CSLO 2,4)

NUR145A - Introduction to Pathopharmacology

General

Division
Nursing Division

Course Description
The fundamentals of pathophysiology as it relates to pharmacology for nursing care is discussed. A focus on pathological conditions that cause disease, the incidence, signs, symptoms, diagnosis, treatment, and special considerations of major diseases of the body systems are studied. Students will demonstrate application of pathophysiological principles to pharmacologic therapy as it relates to major drug classifications, prototypes, therapeutic actions, side effects, interactions, ethical-legal implications, age-related, and cultural considerations of patients. The nursing process will be used as the method by which students apply pathopharmacologic principles to patient care. Prerequisites: NUR121A, NUR126A, NUR125. Corequisite: NUR121B.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the relationship between pathophysiology and pharmacology as a holistic approach to patient care and wellness. (CSLO 2)
2. (Analysis Level) Describe the major organs, their locations, and functions for the eight major body systems (immune, neurological, endocrine, reproductive, cardiovascular, renal, respiratory, and gastrointestinal) and compare normal function to abnormal function. (CSLO 2)
3. (Comprehension Level) Identify and explain the causes, incidence, prevention methods, signs, symptoms, and treatments of the most prevalent diseased states within each major body system (immune, neurological, endocrine, reproductive, cardiovascular, renal, respiratory, and gastrointestinal). (CSLO 2)
4. (Evaluation Level) Compare and contrast the pathogenesis of principle acute, chronic disease, and recurrent disease states. (CSLO 4)
5. (Application Level) Apply the nursing process (assessment, diagnosis, planning, intervention, and evaluation) in administering safe, effective medication therapy (including but not limited to medication rights, components of medication orders, communication strategies, and dosage calculations). (CSLO 2)
6. (Application Level) Apply physiological, psychosocial, developmental, spiritual, and cultural considerations to preventative measures, treatments, and pharmacological considerations for patients with major disease states. (CSLO 1, 2)
7. (Application Level) Formulate and implement decision-making strategies related to safe medication administration by exhibiting an understanding of major drug classifications and prototypes to treat specific diseases and conditions. (CSLO 2)
8. (Evaluation Level) Examine and evaluate the legal, ethical, and interdisciplinary implications for nurses and other health professionals as it relates to the drug therapy process. (CSLO 3)
9. (Analysis Level) Prioritize essential teaching strategies regarding drug therapy for safe medication administration to the specific needs of individuals, families, and groups within a healthcare facility or home environment. (CSLO 4)
10. (Synthesis Level) Improve communication with other healthcare providers using communication tools and resources such as SBAR, VORB, and medication reconciliation processes to ensure safe medication administration on a continuum of care. (CSLO 3, 4)

NUR145B - Advanced Pathopharmacology

General

Division
Nursing Division

Course Description
Advanced pathophysiology as it relates to pharmacology for nursing care is discussed. A focus on pathological conditions that cause disease, the incidence, signs, symptoms, diagnosis, treatment, and special considerations of major diseases of the body systems are studied. Students will demonstrate application of pathophysiological principles to pharmacologic therapy as it relates to major drug classifications, prototypes, therapeutic actions, side effects, interactions, ethical-legal implications, age-related, and cultural considerations of patients. The nursing process will be used as the method by which students apply pathopharmacologic principles to patient care. Prerequisites: NUR121A, NUR121B, NUR126A, NUR125, NUR135, NUR145A. Corequisite: NUR201.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the relationship between pathophysiology and pharmacology as a holistic approach to patient care and wellness. (CSLO 2)
2. (Analysis Level) Describe the major organs, their locations, and functions for the eight major body systems (immune, neurological, endocrine, reproductive, cardiovascular, renal, respiratory, and gastrointestinal) and compare normal function to abnormal function. (CSLOs 2, 4)
3. (Comprehension Level) Identify and explain the causes, incidence, prevention methods, signs, symptoms, and treatments of the most prevalent diseased states within each major body system (immune, neurological, endocrine, reproductive, cardiovascular, renal, respiratory, and gastrointestinal). (CSLO 2)
4. (Evaluation Level) Compare and contrast the pathogenesis of principle acute, chronic disease, and recurrent disease states. (CSLOs 2, 4)
5. (Application Level) Apply the nursing process (assessment, diagnosis, planning, intervention, and evaluation) in administering safe, effective medication therapy (including but not limited to medication rights, components of medication orders, communication strategies, and dosage calculations). (CSLOs 3, 4)
6. (Application Level) Apply physiological, psychosocial, developmental, spiritual, and cultural considerations to preventative measures, treatments, and pharmacological considerations for patients with major disease states. (CSLOs 1, 2)
7. (Application Level) Formulate and implement decision-making strategies related to safe medication administration by exhibiting an understanding of major drug classifications and prototypes to treat specific diseases and conditions. (CSLOs 2, 4)
8. (Evaluation Level) Examine and evaluate the legal, ethical, and interdisciplinary implications for nurses and other health professionals as it relates to the drug therapy process. (CSLOs 1, 3)
9. (Analysis Level) Prioritize essential teaching strategies regarding drug therapy for safe medication administration to the specific needs of individuals, families, and groups within a healthcare facility or home environment. (CSLOs 3, 4)
10. (Synthesis Level) Improve communication with other healthcare providers using communication tools and resources such as SBAR, VORB, and medication reconciliation processes to ensure safe medication administration on a continuum of care. (CSLOs 3, 4)

NUR150 - Nursing Professional Transitions

General

Division
Nursing Division

Course Description
Leadership, professional development, and specialized course content to prepare first year nursing students to transition into the second year of the nursing program. Upon the successful completion of this course, the first year nursing student is eligible to take the NCLEX-PN exam. Prerequisites: Admitted Nursing cohort student; NUR121, NUR122, NUR126 and NUR145.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Formulate plans of nursing care for special populations.
2. (Analysis Level) Analyze normal growth and development in infants and children.
3. (Application Level) Use the nursing process in providing safe nursing care to specialized populations.
4. (Analysis Level) Select nursing research to support evidence based nursing practice.
5. (Evaluation Level) Value the role of the professional nurse through communication and practice.
6. (Analysis Level) Analyze different leadership styles used in a variety of nursing roles.

Course Requisites

NUR200 - Advanced Medical Terminology for Nursing and Healthcare Professionals

General

Division
Nursing Division

Course Description
Clinical abbreviations and word structures related to clinical diseases, medications, structures of the human body, and relevant clinical procedures. Emphasis is on necessary clinical language needed to assess and care for patients in the clinical setting. Prerequisites: Nursing Cohort or admission to Diagnostic Medical Sonography program.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
At the end of the course, the student will be able to:

1. (Comprehension Level) Associate word parts learned to clinical terms used in nursing practice. (CSLO 2)
2. (Application Level) Demonstrate competency in answering clinical test questions by using parts of words to express clinical assessment, clinical body structures, clinical procedures, and clinical nursing interventions. (CSLO 3)
3. (Analysis Level) Analyze the parts of a clinical term to determine the meaning as it relates to clinical findings in test reports. (CSLO 4)
4. (Synthesis Level) Assemble parts of words to show competency in evaluating meanings of medical terms used in clinical charting systems. (CSLO 2,3)

Course Requisites

NUR201 - Advanced Nursing in Health/Illness Transitions

General

Division
Nursing Division

Course Description
Advanced focus on individuals and families with commonly occurring health concerns as they transition across the lifespan. Identification and application of nursing therapeutics in defined practice settings to assist culturally and spiritually diverse patients making health-illness and situational transitions. Prerequisites: NUR121A, NUR121B, NUR125, NUR135, NUR145A or acceptance into the LPN to RN Bridge Program. Corequisites: NUR145B, NUR126C.

Total Number Of Credits:
8

Lecture Credits
4

Lab Credits
12

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Organize and plan care for patients based upon alterations in physiological, psychosocial, cultural, developmental, and spiritual functioning using appropriate assessment skills and nursing interventions to improve patients' health. (CSLO 2)
2. (Application Level) Apply the nursing process to diverse patient situation to effectively plan care. (CSLO 2, 4)
3. (Application Level) Practice psychomotor skills for specific procedures to evaluate outcomes in the practice setting. (CSLO 3)
4. (Evaluation Level) Apply knowledge of assessment skills to alterations in health and deliver appropriate interventions in the clinical setting by evaluating responses to nursing interventions. (CSLO 3, 4)
5. (Application Level) Apply safety measures for decision making to the clinical setting when taking care of patients with diverse alterations, with assistance. (CSLO 3, 4)
6. (Evaluation Level) Apply professional responsibilities to patients with alterations in health including ethical, legal, and safety practices while demonstrating advocacy for patients. Evaluate self-growth in one's attitude, ethical, legal, and safety practices. (CSLO 1, 3)
7. (Evaluation Level) Apply and evaluate respectful inquiry methods about the class, test review, simulation and the clinical setting (CSLO 3).
8. (Evaluation Level) Supervise, delegate, and coordinate health care personnel to manage patient care effectively and consistently with minimal assistance. (CSLO 3, 4)
9. (Evaluation Level) Utilize and evaluate therapeutic communication to provide safe nursing care and teach patients and families effectively. (CSLO 3, 4)

NUR222 - Nursing in Organizational Transitions

General

Division
Nursing Division

Course Description
Nursing care at this level focuses on the patient with complex health problems and their family/caregiver(s)and students perform higher-level nursing skills. Application of evidence-based clinical practice and transitions theory within organizational settings. Recommended: 1. Participate in a study practice, attend all practice labs, use the learning resource center as needed, and meet with your nursing faculty adviser at least twice during the semester to evaluate your progress. 2. Apply for graduation before the deadline. 3. Confirm with registration that all graduation requirements have been met. 4. Plan to take a NCLEX preparation course prior to the NCLEX-RN exam. 5. Take the NCLEX-RN exam within six months of graduation or sooner. Prerequisites: BIO205, NUR221. Corequisites: MAT141, or higher MAT course; Humanities course; NUR223.

Total Number Of Credits:
8

Lecture Credits
4

Lab Credits
12

MSLOs

Measurable Student Learning Outcomes
The student will be able to:

1. (Evaluation Level) Justify and Prioritize a variety of assessment skills to use the nursing process to plan and deliver care to critical care patients and their families. (CSLO 2, 4)
2. (Evaluation Level) Perform competency evaluation of specific skills. (CSLO 3)
3. (Synthesis Level) Evaluate and revise outcomes of care in simulation case studies and in the clinical setting to utilize critical thinking skills to respond to rapid changes in patients' health conditions. (CSLO 2, 4)
4. (Evaluation Level) Evaluate decision making skills independently using evidenced based data. (CSLO 2, 4)
5. (Synthesis Level) Examine professional responsibilities including the student's own attitudes, ethical, legal, safety practices and evaluate how the student demonstrated patient advocacy in practice. (CSLO 1, 3)
6. (Evaluation Level) Apply and evaluate respectful inquiry methods related to classroom, test review, simulation and the clinical setting. (CSLO 3)
7. (Evaluation Level) Supervise, delegate, and coordinate health care personnel independently to manage patient care effectively and consistently. (CSLO 3, 4)
8. (Synthesis Level) Effectively communicate to patients, families, and other healthcare personnel in the community and healthcare setting while evaluating opportunities to improve self. (CSLO 3, 4)
9. (Evaluation Level) Evaluate self-growth in program. (CSLO 3)

Course Requisites

NUR223 - Transition to the Nursing Workforce

General

Division
Nursing Division

Course Description
Students prepare for graduation by writing resumes, practicing interviews for employment, preparing e-portfolio, virtual simulations on practice management of care, prioritization and delegation. Recommended: Keep all artifacts throughout the program to complete an E-portfolio. Prerequisites: NUR121, NUR126, NUR145, NUR122, NUR221. Corequisites: NUR222, HUM, MAT141 or higher.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Finalize E-portfolio based on saved artifacts collected throughout the program. (CSLO 3)
2. (Synthesis Level) Create resume and cover letters reviewing the best way to present oneself for nursing employment. (CSLO 2,3)
3. (Synthesis Level) Design interview questions that may be asked by employers. Role play interviewing for employment. (CSLO 2,3)
4. (Evaluation Level) Review Professional Standards of Nursing. Take the Nurse Practice Act exam that is on the Board of Nursing website until 100% accuracy is reached. (CSLO 2,3)
5. (Synthesis Level) Develop prioritization, delegation, and patient management skills through Virtual Simulations. (CSLO 1,2,3,4)

Course Requisites

NURLPN - Nursing AZ Licensed Practical Nurse

General

Division
Nursing Division

Course Description
Use this course to reflect 14 applied credits earned from having an Arizona LPN. These students begin in the 3rd block of Nursing.

Total Number Of Credits:
14

Lecture Credits
14

MSLOs

Measurable Student Learning Outcomes
The student must pass the NACE Foundations of Nursing Exam with a 67% or better.

PAC102D - Intermediate Archery

General

Division
Business & Computer Technology Division

Course Description
No description.

Total Number Of Credits:
1

PAC102J - Intermediate Weight Training

General

Division
Business & Computer Technology Division

Course Description
Weight training techniques for use throughout the life cycle. May take two times for credit.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and discuss the intermediate lifts for the major muscle groups of the body.
2. (Comprehension Level) Identify and explain position and execution of advanced lifts for the major muscle groups.
3. (Application Level) Demonstrate stretching and cool-down routines.
4. (Synthesis Level) Design and implement an individualized weight lifting program based on student goals and needs.
5. (Application Level) Demonstrate safety procedures appropriate when participating in a weight training program.

PAC105 - Physical Fitness: Core Emphasis

General

Division
Business & Computer Technology Division

Course Description
Activity course focused on a balanced development of physical fitness. This course utilizes fitballs, tubing and/or other non-weight equipment to strengthen the core, upper and lower body. May take four times for credit.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Discuss, demonstrate and perform proper warm-up techniques. (CSLO: 3)
2. (Application Level) Show proper technique with evidence of proper alignment and balance with course equipment. (CSLO: 3)
3. (Application Level) Demonstrate multiple exercises that strengthen the core, upper and lower body including chest, shoulder, arms, hip and buttock, lower and upper back and abdominal body areas using proper techniques. (CSLO: 3)

PAC106 - Aerobics and Weight Training

General

Division
Business & Computer Technology Division

Course Description
Fundamental skills and principles of weight training and aerobics. May take two times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe and demonstrate functional, dynamic warm-up programs for aerobics and weight training.
2. (Application Level) Describe and demonstrate functional, dynamic stretching techniques for activities that encompass aerobics and weight training.
3. (Application Level) Describe and demonstrate activities that encompass aerobic training programs.
4. (Application Level) Describe and demonstrate activities that encompass weight training programs.
5. (Application Level) Describe and demonstrate functional, dynamic cool down programs for aerobics and weight training.
6. (Application Level) Describe and demonstrate progression of aerobic and weight training programs.

PAC113 - Total Body Conditioning

General

Division
Business & Computer Technology Division

Course Description
Total body workout through aerobic exercise. This course covers upper body conditioning and abdominal conditioning, stretching techniques, safety, diet and nutrition. May take four times for credit.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Develop and increase cardiovascular endurance over the duration of the course through aerobic and anaerobic exercise.
2. (Application Level) Develop and increase muscle strength by 5% from beginning of course to end of course.
3. (Application Level) Demonstrate and increase abdominal strength by 5 repetitions in each set of floor exercise techniques.
4. (Application Level) Demonstrate and employ safety measures in exercise activities with zero errors, when using weights.
5. (Synthesis Level) Explain the importance of diet and nutrition by completing a written assessment on diet and nutritional effects on physical fitness with a minimum 80% accuracy.

PAC121 - Theory and Practice of Basketball I

General

Division
Business & Computer Technology Division

Course Description
Fundamental techniques of team play and strategy in the sport of basketball. Includes mechanics of basketball, rules and total body conditioning. May take two times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and discuss proper conditioning for basketball including off-season, pre-season and in-season programs.
2. (Application Level) Perform the correct offensive and defensive footwork necessary to successfully defend and move within the rules of the sport of basketball.
3. (Application Level) Describe and demonstrate shooting mechanics (sight, balance, hand position, elbow alignment, shooting rhythm and follow-through); accurately performing the mechanics of shooting 100% of the time.
4. (Application Level) Perform the five basic basketball shots (free throw, jump shot, three-point shot, hook shot and lay-up) by performing 4 of the 5 basic shots with 50% accuracy.
5. (Application Level) Employ the pass, catch, and dribble of basketball by performing ball-handling activities without turning the ball over.
6. (Application Level) Practice rebounding the basketball and securing missed shots on the defensive end 75% of the time and on the offensive end 33% of the time in game simulations and/or games.
7. (Synthesis Level) Formulate offensive and defensive strategies of play by performing with at least the minimum required energy for high intensity practice and games and by operating the team's offensive and defensive schemes correctly in 90% of the opportunities.
8. (Synthesis Level) Analyze the psychology of team development including organization, practice and team building. Through written or oral assessment, articulate the team's personal perspectives of the psychological make-up of the team experience.

PAC122 - Theory and Practice of Baseball I

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of baseball, including techniques of team play, rules, conditioning and mechanics of baseball. May take two times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and discuss the rules and regulations of intercollegiate baseball competition and abide by them during intercollegiate games.
2. (Application Level) Demonstrate and discuss proper conditioning for baseball including off-season, pre-season and in-season programs.
3. (Application Level) Demonstrate and discuss offensive strategies of baseball including hitting, bunting, base running, base stealing and sliding, and perform these activities with a 50 percent success rate.
4. (Application Level) Demonstrate and discuss defensive strategies of baseball including pitching, catcher play, fielding ground balls and fly balls, double play, cut-off and relay, pick-off and pitcher fielding, and perform these activities with an 80 percent success rate.
5. (Synthesis Level) Discuss the psychology of team development including mental focus, imaging and team building through written and oral assessment.
6. (Synthesis Level) Discuss the theoretical aspects of competitive baseball through written and oral assessment.

PAC123 - Theory and Practice of Track/Field I

General

Division
Business & Computer Technology Division

Course Description
Fundamentals and techniques of track and field events including psychological aspects, training and styles used in track and field events. May take two times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Demonstrate, analyze, and discuss through written or oral assessment the psychological aspects of track and field competition including mental focus, imaging, team building and team harmony. 2. (Analysis Level) Demonstrate, analyze, and discuss test results of individual strengths and weaknesses related to specific events and perform activities to strengthen areas of weakness and avoid injury as related to these events. 3. (Application Level) Demonstrate and discuss specific track and field event rules and strategies while a performing specific event within the rules. 4. (Synthesis Level) Perform to the level of qualifying standards for regional and/or national meets using the NJCAA skills necessary for specific individual and team events including dashes, runs, steeplechase, relays, hurdles, heptathlon/decathlon, shot-put, discus, javelin, jumps, hammer throw, and/or pole vault. 5. (Analysis Level) Analyze and explain the benefits of health and total body conditioning including weight training and cross training after performing with at least the minimum required energy for high intensity practices and meets.

PAC125 - Theory and Practice Softball I

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of softball, including techniques of team play, rules, conditioning and mechanics of softball. May take two times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Discuss and apply the rules and regulations of intercollegiate softball competition, per instructor's guidelines. 2. (Application Level) Apply proper conditioning for softball including off-season, pre-season and in-season programs, per instructor's guidelines. 3. (Application Level) Discuss and demonstrate offensive strategies of softball, including hitting, bunting, base running, base stealing, and sliding, per instructor's guidelines. 4. (Application Level) Discuss and demonstrate defensive strategies of softball including pitching, catcher play, fielding ground balls and fly balls, double play, cut-off and relay, pick-off, and pitcher fielding, per instructor's guidelines. 5. (Synthesis Level) Integrate the psychology of team development including mental focus, imaging, and team building, per instructor's guidelines. 6. (Synthesis Level) Adapt and develop the theoretical aspects of competitive softball, per instructor's guidelines.

PAC126 - Theory and Practice Cross Country I

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of racing strategies, mechanics of cross country, rules, conditioning, and cross training are emphasized. May take two times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate and discuss psychological aspects of cross-country competition including mental focus, imaging, team building, and team harmony. 2. (Comprehension Level) Discuss and complete tests of individual strengths and weaknesses. 3. (Application Level) Apply and discuss strategies of cross-country racing. 4. (Application Level) Demonstrate various aspects of conditioning such as: static and dynamic stretching, aerobic, and anaerobic exercise. 5. (Application Level) Demonstrate health and total body conditioning including weight training, plyometrics, and cross training. 6. (Synthesis Level) Analyze running technique, determine specific beneficial changes and expected results, and implement an improvement plan. 7. (Evaluation Level) Compare and contrast racing plans that are appropriate under different racing conditions and justify the decision. 8. (Evaluation Level) Compare and contrast various training and physiological principles involved in running.

PAC127 - Theory and Practice Volleyball I

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of volleyball including techniques of team play, rules, theory, conditioning and mechanics of volleyball. May take four times for credit.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Discuss and apply the rules and regulations of intercollegiate volleyball competition. 2. (Application Level) Discuss and apply proper conditioning for volleyball including off-season, pre-season and in-season programs. 3. (Application Level) Discuss and demonstrate offensive strategies of volleyball. 4. (Application Level) Discuss and demonstrate defensive strategies of volleyball. 5. (Comprehension Level) Discuss the psychology of team development including mental focus, imaging, and team building. 6. (Comprehension Level) Discuss the theoretical aspects of competitive volleyball.

PAC221 - Theory & Practice Basketball II

General

Division
Business & Computer Technology Division

Course Description
Advanced techniques of team play and strategy in the sport of basketball. Includes advanced mechanics of basketball and total body conditioning. May take four times for credit. Prerequisite: PAC121 or instructor consent.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proper conditioning for basketball with a performance at the minimum level required energy for high intensity practice and games including off-season, pre-season and in-season programs. 2. (Synthesis Level) Demonstrate and combine offensive and defensive footwork within the rules of basketball 100% of the time to successfully defend and operate offensively. 3. (Application Level) Display and perform proper shooting mechanics including sight, balance, hand position, elbow alignment, shooting rhythm and follow-through, 100% of the time when guided. 4. (Application Level) Perform four out of the five basic basketball shots including free throw, jump shot, three-point shot, hook shot, and lay-up, with 50% accuracy in game or game simulation. 5. (Synthesis Level) Demonstrate and combine ball handling activities under defensive pressure (dribbling, passing and catching) without turning the ball over 70% of the time. 6. (Application Level) Display proper rebounding techniques, securing missed shots on the defensive end 75% of the time and on the offensive end 33% of the time, with the ability to adapt in various offensive and defensive scenarios in game simulations and/or games. 7. (Synthesis Level) Demonstrate and combine correct offensive and defensive strategies of play 65% of the opportunities versus an opponent. 8. (Synthesis Level) Exhibit through written or oral assessment personal development as a member of an organized team.

Course Requisites

PAC222 - Theory & Practice Baseball II

General

Division
Business & Computer Technology Division

Course Description
Advanced techniques of baseball including techniques of team play, rules, conditioning and mechanics of baseball. May take two times for credit. Prerequisite: PAC122 or consent of instructor.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate proper conditioning for baseball, including off-season, pre-season, and in-season programs to finish high intensity practices and games. 2. (Application Level) Demonstrate and apply offensive strategies of baseball, including hitting, bunting, base running, base stealing and sliding to game situations and perform these strategies with a success rate of 50 percent. 3. (Application Level) Demonstrate defensive strategies of baseball, including pitching, cather play, fielding ground balls and fly balls, double plays, cutt-off and relay, pick-off, and pitcher fielding and perform these startegies at an 85 percent success rate. 4. (Application Level) Demonstrate personal development as a member of an organized team through written and oral assessments. 5. (Application Level) Demonstrate the psychology of team development to team success, including mental focus, visual imagery and overall team building. 6. (Application Level) Demonstrate advanced competitive baseball techniques.

Course Requisites

PAC223 - Theory & Practice Track & Field II

General

Division
Business & Computer Technology Division

Course Description
Advanced techniques of track and field events including psychological aspects, training and styles used in track and field events. May take two times for credit. Prerequisite: PAC123 or consent of Instructor.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Examine and explain psychological aspects of track and field and demonstrate mental focus, imaging, team building and team harmony in competitive events. 2. (Analysis Level) Analyze and appraise individual strengths and weaknesses as related to specific events. 3. (Analysis Level) Identify and differentiate specific track and field event rules and strategies. 4. (Evaluation Level) Examine and evaluate the skills necessary to perform specific individual and team events at the national qualifying level. 5. (Comprehension Level) Point out and explain the benefits of health and total body conditioning including weight training and cross training.

Course Requisites

PAC225 - Theory & Practice Softball II

General

Division
Business & Computer Technology Division

Course Description
Advanced techniques of softball, including techniques of team play, rules, conditioning and mechanics of softball. May take two times for credit. Prerequisite: PAC125 or consent of Instructor.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Explain and apply the rules and regulations of intercollegiate softball competition.
2. (Application Level) Explain and demonstrate the proper conditioning required for softball including off-season, pre-season and in-season programs.
3. (Analysis Level) Analyze and breakdown advanced offensive strategies of softball including hitting, bunting, base running, base stealing and sliding.
4. (Analysis Level) Analyze and breakdown advanced defensive strategies of softball including pitching, catcher play, fielding ground balls and fly balls, double play, cut-off and relay, pick-off, and pitcher fielding.
5.(Evaluation Level) Evaluate and interpret the psychology of team development including mental focus, imaging and team building.
6. (Evaluation Level) Explain and infer the theoretical aspects of competitive softball.

Course Requisites

PAC226 - Theory & Practice Cross Country II

General

Division
Business & Computer Technology Division

Course Description
Advanced techniques of racing strategies, mechanics of cross-country, rules, conditioning and cross training for cross country racing. May take two times for credit. Prerequisite: PAC126 or consent of Instructor.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate psychological aspects of cross-country competition including mental focus, imaging, and team building. 2. (Application Level) Explain and demonstrate various aspects of conditioning including static and dynamic stretching. 3. (Application Level) Explain and demonstrate health and total body conditioning including weight training, plyometrics, and cross training. 4. (Analysis Level) Analyze and apply racing strategies for competitive cross-country events. 5. (Evaluation Level) Critique and assess advanced competitive cross-country racing.

Course Requisites

PAC227 - Theory and Practice Volleyball II

General

Division
Business & Computer Technology Division

Course Description
Advanced techniques of volleyball, including techniques of team play, rules, conditioning and mechanics of volleyball. May take four times for credit. Prerequisite: PAC127 or instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and apply the rules and regulations of intercollegiate volleyball competition. 2. (Application Level) Explain and demonstrate the proper conditioning required for volleyball including off-season, pre-season and in-season programs. 3. (Analysis Level) Analyze advanced offensive strategies of volleyball. 4. (Analysis Level) Analyze advanced defensive strategies of volleyball. 5. (Evaluation Level) Evaluate the psychology of team development including mental focus, imaging and team building. 6. (Comprehension Level) Explain the theoretical aspects of competitive volleyball. 7. (Application Level) Exhibit advanced competitive volleyball techniques.

Course Requisites

PED100 - History & Philosophical Foundations of Sport & Physical Education

General

Division
Business & Computer Technology Division

Course Description
The historical and philosophical foundations of sport and physical education, current and future directions of instruction, administration, and research.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Explain the historical and philosophical past as it relates to sports and physical education through written and oral assessment. 2. (Synthesis Level) Explain the various stages in history from the Greeks to modern time as it relates to sports and physical education through written and oral assessment. 3. (Analysis Level) Contrast and outline the differences between games, sport, and play. 4. (Knowledge Level) List the important dates and events and how they shaped the future of sports and physical education. 5. (Application Level) Apply the philosophy and teaching methods used in sports and physical education. 6. (Evaluation Level) Critique and summarize the history of the Olympic Games from 1896 to present. 7. (Evaluation Level) Assess the history of exercise, sport, and physical education as they relate to men and women in today's society.

PED102 - The Management of Sport

General

Division
Business & Computer Technology Division

Course Description
A comprehensive overview of sport management: fundamentals and history; structure, policy and the governance of sport; sport economics and finance; sport marketing; and professional relations in sport. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain and identify why sport is a dominant and global influence in society. (CSLO:1,2,3) 2. (Comprehension Level) Identify and explain sports media businesses and industries whose sole purpose is producing, televising, broadcasting and printing information about spectator-driven sporting events. (CSLO:1,2) 3. (Comprehension Level) Explain and identify why sport organizations are structured and designed in different ways and describe different factors that impact the development of organizational strategy. (CSLO:2,3,4) 4. (Comprehension Level) Identify and discuss the difference in governance structures between interscholastic, intercollegiate and professional sport in the United States.(CSLO:1,2,3,4) 5. (Application Level) Apply the basic economic forces of maximization, constraint and cost to the sports industry; use supply and demand to explain movements in prices and salaries. (CSLO: 2,3,4) 6. (Comprehension Level) Identify and explain various types of financing needed for different sport organizations and the sources of different financing options. (CSLO:2,3,4) 7. (Synthesis Level) Show and apply the basic principles of sport marketing to actual problems in sport; develop a marketing plan. (CSLO: 1,2,3,4) 8. (Analysis Level) Explain and analyze the varying states of labor relations between management (owners, leagues and coaches) and labor (athletes, referees, umpires and judges). (CSLO: 1,2,3,4)

Course Requisites

PED103 - Foundations of Exercise

General

Division
Business & Computer Technology Division

Course Description
Fundamentals of basic biomechanics, motor learning/control/development, exercise physiology, exercise metabolism, physiology of training, nutrition and sports psychology.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
Biomechanics Domain:

1. (Comprehension Level) Define biomechanics, statics, dynamics, kinematics, and kinetics; explain the ways in which they are related.
2. (Comprehension Level) Discuss qualitative and quantitative approaches for analyzing human movement.

   Motor Learning/Control/Development Domain:
3. (Knowledge Level) Define motor development, motor learning and motor control.
4. (Comprehension Level) Discuss how skills and abilities are different.

   Exercise Physiology Domain:
5. (Comprehension Level) Describe factors influencing physical fitness in the US over the past century.

   Exercise Metabolism Domain:
6. (Comprehension Level) Discuss the relationship between exercise intensity/duration and bioenergetic pathways.
7. (Knowledge Level) Identify the factors that regulate fuel selection during different types of exercise.

   Physiology of Training/Training Effect Domain:
8. (Comprehension Level) Identify and discuss the basic principles of training overload, the FITT Principle, and calculating age predicted maximum heart rate.
9. (Comprehension Level) Define and discuss the role of preload, afterload, and contractility on endurance training.

   Nutrition Domain:
10. (Knowledge Level) List the essential nutrients required for bodily functions.
11. (Comprehension Level) Explain how to use food labels and other consumer tools to make informed choices about foods and how they can affect lifestyle choices. Sports Psychology Domain:
12. (Comprehension Level) Explain the differences between clinical, educational, and research sport psychology.
13. (Comprehension Level) Describe the roles and functions to be played by sport psychologists in clinical sport psychology.

PED105 - Women and Sport in the U.S.

General

Division
Business & Computer Technology Division

Course Description
The history of women in sports from the early 1900s to present with an emphasis on Olympic, intercollegiate and professional competition, and the role gender has played in determining access to participation and leadership roles. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Compare and contrast the opportunities provided to men and women to compete in athletics.
2. (Evaluation Level) Discuss the impact of Title IX on women's participation in sports in the U.S.
3. (Comprehension Level) Discuss the role physical education played in the rise of intercollegiate athletics for women.
4. (Comprehension Level) Describe the evolution of women's participation in the Olympic Games.
5. (Analysis Level) Explain the existence of women's professional leagues in the U.S. and compare them to similar leagues overseas.
6. (Comprehension Level) Identify and discuss the prominent organizations involved in the governance of women's athletics.
7. (Comprehension Level) Explain the role women have played in leading (as coaches and/or administrators) women's athletic teams at the collegiate and professional level.
8. (Comprehension Level) Describe the current status of women's issues in sports.

Course Requisites

PED109 - Athletic Training Practicum

General

Division
Business & Computer Technology Division

Course Description
No description.

Total Number Of Credits:
2

PED112 - Introduction to Strength Training

General

Division
Business & Computer Technology Division

Course Description
A comprehensive guide to the design and implementation of strength and conditioning programs.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the health-related and skill-related components of fitness.
2. (Comprehension Level) Discuss fundamental weight training concepts and the F.I.T. principle.
3. (Comprehension Level) List and describe adaptations of tissue to physical activity.
4. (Comprehension Level) List and describe adaptations of cardiopulmonary systems to physical activity.
5. (Comprehension Level) List and discuss adaptations to resistance and endurance training.
6. (Comprehension Level) List and discuss nutritional and supplement considerations.
7. (Application Level) Demonstrate resistance training techniques and safety.
8. (Comprehension Level) Describe periodization and program design.
9. (Comprehension Level) Discuss the importance of injury prevention and performance enhancement.

PEH101 - Personal Health

General

Division
Business & Computer Technology Division

Course Description
The significance of physical, mental, emotional, spiritual, occupational, environmental, financial, and social dimensions of wellness to the individual and society, community health programs, and national health indicators. Special emphasis on learning tools for a healthy lifestyle. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe the most recent scientifically-based personal health information. (CSLO: 1,2,3,4)
2. (Application Level) Examine and demonstrate scientific research gathering of health-related topics using books, journals, and the Internet. (CSLO: 1,2,3,4)
3. (Comprehension Level) Discuss health as the foundation of life.(CSLO: 1,2,3,4)
4. (Comprehension Level) Discuss psychological health including stress, stress management, violence and abuse. (CSLO: 1,2,3,4)
5. (Analysis Level) Research and outline biological and psychological factors which influence relationships and sexuality. (CSLO: 1,2,3,4)
6. (Comprehension Level) Discuss reproductive health including functions and structures of male and female reproductive systems, sexual dysfunction, the menstrual cycle, pregnancy, infertility, and contraceptives. (CSLO: 1,2,3,4)
7. Comprehension Level) Identify and describe consequences of drug use, drug abuse, alcohol, and tobacco. (CSLO: 1,2,3,4)
8. (Comprehension Level) Identify and explain the basic principles of nutrition, including nutrients, diet planning and malnutrition. (CSLO: 1,2,3,4)
9. (Application Level) Provide examples to show concepts related to physical fitness, cardiovascular health, body weight and weight management. (CSLO: 1,2,3,4)
10. (Comprehension Level) Describe and classify illness and disease, including cancer, infections, immunity, and non-infectious disease. (CSLO: 1,2,3,4)
11. (Comprehension Level) Describe and give examples of the effects of aging, dying, and death. (CSLO: 1,2,3,4)
12. (Comprehension Level) Identify and give examples of environmental health concerns including poisoning and pollution in the home, work place, and outdoors. (CSLO: 1,2,3,4)

Course Requisites

PEH111 - Nutrition for Health, Fitness and Sport

General

Division
Business & Computer Technology Division

Course Description
Practical nutritional application for health and wellness, and a sports and fitness based lifestyle. Explore the essential nutrients and the recommended nutrient intake for fitness and sport, and weight maintenance through proper nutrition and exercise.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and discuss the inter-relationship between nutrition, exercise, and health-related fitness. (CSLO 2,3,4)
2. (Comprehension Level) Identify and discuss the inter-relationship between nutrition, exercise, and sports-related fitness. (CSLO 2,3,4)
3. (Analysis Level) Explain and relate the effects of dietary supplements on health and on physical performance. (CSLO 2,3,4)
4. (Comprehension Level) Identify and discuss the human energy systems. (CSLO 2,3,4)
5. (Comprehension Level) Identify and discuss the essential nutrients required during athletic/physical performance. (CSLO 2,3,4)
6. (Comprehension Level) Describe ideal body weight and optimal body composition for health and sport. (CSLO 2,3,4)
7. (Comprehension Level) Describe healthful weight maintenance, loss and gain through proper nutrition and exercise. (CSLO 2,3,4)
8. (Knowledge Level) Identify sport-specific training and nutrition regimens that optimize physical performance and maintain or promote health. (CSLO 2,3,4)

PEV110 - Rodeo Sports Events I

General

Division
Athletics- Sports/Fitness

Course Description
Development of skills in one or more of the following rodeo events: steer wrestling, calf roping, team roping, bull riding, bareback riding, saddle bronc riding, barrel racing, goat tying or breakaway roping. For members of the intercollegiate athletic rodeo team. May take four times for credit.

Total Number Of Credits:
2

Lecture Credits
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe how to function as a team member in intercollegiate rodeo activities and practice these skills throughout the course.
2. (Knowledge Level) Define event specific strategies in intercollegiate rodeos.
3. (Comprehension Level) Explain the basic pre-rodeo, in-rodeo and post-rodeo etiquette expected of student athletes.

PEV201 - Varsity Basketball I

General

Division
Athletics- Sports/Fitness

Course Description
Hone basketball skills, knowledge and strategies. Explain and adhere to NJCAA regulations, basketball etiquette, and team rules. May take two times for credit. Prerequisite: Intercollegiate Basketball Team member.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to function as a team member and follow all team rules, student-athlete code of conduct and NJCAA regulations in intercollegiate basketball activities.
2. (Synthesis Level) Integrate offensive and defensive strategies with a 50% success rate in intercollegiate basketball scrimmages and games.
3. (Application Level) Explain and apply the proper pre-game, in-game and post-game etiquette expected of student athletes.

Course Requisites

PEV202 - Varsity Baseball I

General

Division
Athletics- Sports/Fitness

Course Description
For members of the intercollegiate varsity baseball team. May take three times for credit. Prerequisite: Intercollegiate Baseball team member.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to function as a team member in intercollegiate baseball activities.
2. (Application Level) Demonstrate offensive and defensive strategies in intercollegiate baseball scrimmages and games.
3. (Application Level) Demonstrate the basic pre-game, in-game and post-game etiquette expected of student athletes according to the NJCAA rules and the student athlete code of conduct.

Course Requisites

PEV203 - Varsity Track and Field I

General

Division
Athletics- Sports/Fitness

Course Description
Hone track and field skills, knowledge, and strategies. May take two times for credit. Prerequisite: Intercollegiate Track and Field Team member.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to function as a team member in intercollegiate track and field activities by following team, college and NJCAA rules.
2. (Synthesis Level) Integrate event specific strategies in invitational, conference and national intercollegiate track and field meets.
3. (Application Level) Perform the basic pre-meet and in-meet requirements expected of track and field student athletes with no errors.

Course Requisites

PEV205 - Varsity Softball I

General

Division
Athletics- Sports/Fitness

Course Description
For members of the intercollegiate varsity softball team. May take three times for credit. Prerequisite: Intercollegiate Varsity Softball team member.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to function as a team member in intercollegiate softball activities.
2. (Application Level) Employ offensive and defensive strategies in intercollegiate softball scrimmages and games.
3. (Application Level) Explain and demonstrate the basic pre-game, in-game and post-game etiquette expected of student athletes.

Course Requisites

PEV206 - Varsity Cross Country I

General

Division
Athletics- Sports/Fitness

Course Description
Varsity level Cross-Country I includes rules and athlete code of conduct, training and competition strategies, teamwork, and sports etiquette. May take three times for credit. Prerequisite: Intercollegiate Varsity Cross-Country team member.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to function as a team member in intercollegiate cross country activities.
2. (Synthesis Level) Integrate specific team training strategies into intercollegiate cross country meets.
3. (Comprehension Level) Explain in detail the pre-meet, in-meet and post-meet etiquette expected of student athletes.
4. (Knowledge Level) Define all team rules, student-athlete code of conduct and NJCAA regulations.
5. (Application Level) Practice pre-meet, in-meet and post-meet routines with the proper etiquette.

Course Requisites

PEV207 - Varsity Volleyball I

General

Division
Athletics- Sports/Fitness

Course Description
Hone volleyball skills, knowledge, and strategies. May take two times for credit. Prerequisite: Intercollegiate Volleyball Team member.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate the ability to function as a team member in intercollegiate volleyball activities.
2. (Synthesis Level) Integrate offensive and defensive strategies in intercollegiate volleyball scrimmages and games.
3. (Comprehension Level) Explain the basic pre-game, in-game and post-game etiquette expected of student athletes.

Course Requisites

PEV211 - Varsity Basketball II

General

Division
Athletics- Sports/Fitness

Course Description
Intercollegiate varsity basketball with application of theory in NJCAA events. May take three times for credit. Prerequisite: PEV201 or instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Follow all team rules, student-athlete code of conduct and NJCAA regulations.
2. (Application Level) Perform pre-game, in-game and post-game routines with the proper etiquette.
3. (Application Level) Demonstrate the ability to function as a team member in intercollegiate basketball activities.
4. (Synthesis Level) Integrate advanced offensive and defensive strategies in intercollegiate basketball scrimmages and games.
5. (Synthesis Level) Explain in detail the pre-game, in-game and post-game etiquette expected of student athletes.
6. (Application Level) Participate in all CAC varsity basketball games.

Course Requisites

PEV212 - Varsity Baseball II

General

Division
Athletics- Sports/Fitness

Course Description
Intercollegiate Varsity Baseball with application of theory in NJCAA events. May take two times for credit. Prerequisites: PEV202 or instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Describe how to function as a team member in intercollegiate baseball activities and practice these skills throughout the course.
2. (Knowledge Level) Define offensive and defensive strategies in intercollegiate baseball games.
3. (Comprehension Level) Explain the basic pre-game, in-game and post-game etiquette expected of student athletes.

Course Requisites

PEV213 - Varsity Track & Field II

General

Division
Athletics- Sports/Fitness

Course Description
Intercollegiate Varsity Track and Field with application of theory in NJCAA events. May take two times for credit. Prerequisite: PEV203 or instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Describe how to function as a team member in intercollegiate track and field activities and develop and practice these skills throughout the course.
2. (Knowledge Level) Define event specific strategies in intercollegiate track and field meets.
3. (Comprehension Level) Explain the basic pre-meet, in-meet and post-meet etiquette expected of student athletes.

Course Requisites

PEV215 - Varsity Softball II

General

Division
Athletics- Sports/Fitness

Course Description
Intercollegiate Varsity Softball with application of theory in NJCAA events. May take two times for credit. Prerequisite: PEV205 or instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Describe how to function as a team member in intercollegiate softball activities and develop and practice these skills throughout the course.
2. (Comprehension Level) Define and describe advanced hitting and fielding strategies in intercollegiate softball scrimmages and games.
3. (Comprehension Level) Explain in detail the pre-game, in-game and post-game etiquette expected of student athletes.

Course Requisites

PEV216 - Varsity Cross Country II

General

Division
Athletics- Sports/Fitness

Course Description
Intercollegiate Varsity Cross-Country with application of theory in NJCAA events. May take two times for credit. Prerequisite: PEV206 or instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Describe how to function as a team member in intercollegiate cross-country activities and develop and practice these skills throughout the course.
2. (Knowledge Level) Define specific team training strategies for intercollegiate cross-country meets.
3. (Comprehension Level) Explain the basic pre-race, in-race and post-race etiquette expected of student athletes.

Course Requisites

PEV217 - Varsity Volleyball II

General

Division
Athletics- Sports/Fitness

Course Description
Intercollegiate Varsity Volleyball with application of theory in NJCAA events. May take two times for credit. Prerequisite: PEV207 or Instructor consent.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe how to function as a team member in intercollegiate volleyball activities.
2. (Synthesis Level) Integrate advanced hitting, passing and serving strategies in intercollegiate volleyball scrimmages and games.
3. (Comprehension Level) Explain in detail the pre-game, in-game and post-game etiquette expected of student athletes.

Course Requisites

PHI101 - Introduction to Philosophy

General

Division
Social & Behavioral Sciences Division

Course Description
Representative problems and theories regarding the nature of reality and the acquisition of knowledge including examination and development of personal philosophical positions. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and compare key philosophical concepts in philosophical literature introduced to students.
2. (Knowledge Level) Recognize examples and identify possible questions asked within sub-fields of philosophy; ontology, epistemology, metaphysics, and ethics.
3. (Comprehensive Level) Associate major philosophers with positions they have taken regarding key philosophical issues: pragmatism, existentialism, utilitarianism, empiricism, and rationalism.
4. (Analysis Level) Analyze key philosophical concepts and apply them to real world issues.
5. (Application Level) Identify the personal beliefs of major philosophers and relate to several philosophical issues and positions.

Course Requisites

PHI103 - Introduction to Logic

General

Division
Social & Behavioral Sciences Division

Course Description
Introduction to Logic includes techniques for reasoning deductively and inductively, avoiding fallacies, and using language accurately. Application of formal and informal techniques to the development, analysis, and evaluation of arguments. Recommended: RDG100 and MAT118 or higher.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain and distinguish the basic concepts of validity, invalidity, and soundness.
2. (Evaluation Level) Analyze and evaluate the forms of categorical syllogisms.
3. (Application Level) Identify and apply the symbolic language of the statement calculus (aka propositional calculus).
4. (Evaluation Level) Evaluate arguments and argument-forms in the statement calculus by means of truth tables.
5. (Evaluation Level) Evaluate arguments and argument-forms in the statement calculus by constructing formal proofs ("direct" and "indirect").
6. (Application Level) Apply the symbolic language of the first-order predicate calculus.
7. (Evaluation Level) Evaluate arguments and argument forms in the predicate calculus by constructing first-order formal proofs.
8. (Application Level) Apply the basic principles of inductive reasoning: logical analogy, reasoning from particular facts to general conclusions, and reasoning about cause and effect.
9. (Evaluation Level) Analyze and evaluate inductive arguments.
10. (Application Level) Apply the basic principles of scientific method and reasoning concerning probability.
11. (Analysis Level) Calculate the probabilities of specific events by the use of standard algebraic means.
12. (Comprehension Level) Identify and classify informal fallacies (common errors in reasoning) that are frequently committed in everyday life.
13. (Evaluation Level) Analyze and evaluate fallacious arguments from everyday life, including examples from newspapers, magazines, political speeches, etc.

Course Requisites

PHI105 - Introduction to Ethics

General

Division
Social & Behavioral Sciences Division

Course Description
Major philosophical theories of conduct emphasize applying normative ethical theory to contemporary topics. Prerequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Identify and compare various ethical theories, including those of philosophers such as Aristotle, Immanuel Kant, and John Stuart Mill, and name and place proponents of those theories in historical and philosophical contexts.(CSLO 2, 3, and 4)
2. (Analysis Level) Identify and compare general ethical theories, including divine command ethics, virtue ethics, and others. Determine which theory (ies) comprises the basis for one's own personal ethical decision making. (CSLO 2 and 4)
3. (Analysis Level) Given a specific modern day ethical conflict situation or dilemma, determine what philosophers, such as Kant, Aristotle, or Mill, would do in that situation based on each of their ethical theories. (CSLO 2 and 4)
4. (Evaluation Level) Develop, express, and justify consistent personal positions on different ethical issues, such as obligations to help the poor within the U.S. and other countries, abortion, sexual equality, racism, sexual harassment, pornography, hate speech, gay and lesbian issues, war, and international terrorism. (CSLO 3 and 4)
5. (Evaluation Level) Write research papers (minimum 3,500 words total) exhibiting a competency in interpretation and evaluation of evidence on modern ethical topics such as homelessness, homosexuality, and other issues. (CSLO 2 and 4)

Course Requisites

PHI112 - World Religions

General

Division
Social & Behavioral Sciences Division

Course Description
A survey of the major world religions focusing on the founders, history, system of beliefs, concepts of God/gods, private and public worship, and sacred scriptures. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Compare and contrast the historical origins of the world's religions to include the period of history in which each religion developed, the part of the world where it developed and how these factors shaped the direction of each religion.
2. (Knowledge Level) Identify the founders of the world's religions and display familiarity with the important aspects of the lives of the founders as it relates to each religion that particular founder started.
3. (Synthesis Level) Summarize the important religious concepts found in the world's sacred scriptures.
4. (Comprehension Level) Identify the deity or deities of the world's religions and explain the specific role of that deity or deities in the worship of that religion.
5. (Comprehension Level) Describe the clergy, rituals, prayers, places of worship, and religious objects of various world religions.
6. (Evaluation Level) Critique the important ethical codes of each of the world's religions, while differentiating between concepts of rewards and punishments of an afterlife where applicable.
7. (Analysis Level) Examine current events and relate these events to the appreciation of religious diversity and tolerance of other people's religions.

Course Requisites

PHL155 - Intro to Phlebotomy

General

Division
Allied Health Division

Course Description
This course is an introduction to the basic knowledge, attitude, skills and practical experience necessary for the safe and successful collection of blood samples via venipuncture using a vacutainer, butterfly, syringe, and micro collection techniques on real patients in a hospital and doctor's office setting under supervision. In addition, this course prepares students to take the national exam to become a Certified Phlebotomist, which ensures a higher standard for phlebotomy jobs.
Prerequisites: Junior if graduating early or Senior in HS; High School Diploma; or GED.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding, Remembering Evaluating Levels) Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. (CSLO #2)
2. (Understanding Level) Understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas. (CSLO #1, 2)
3. (Application Level) Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way. (CSLO #2, 3)
4. (Analyzing Level) Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.
5. (Evaluating Level) Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. (CSLO #1, 3, 4)
6. (Creating Level) Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions. (CSLO #4)

PHL255 - Phlebotomy Practicum

General

Division
Allied Health Division

Course Description
This course is an introduction to the basic knowledge, attitude, skills, and practical experience necessary for the safe and successful collection of blood samples. Via: venipuncture using a vacutainer, butterfly, syringe, and micro collection techniques on real patients in a hospital or doctor’s office setting under supervision. Along with preparing the student in taking the National Exam in becoming a Certified Phlebotomist that insures a higher standard for phlebotomy jobs.
Prerequisite: PHL155.

Total Number Of Credits:
3

Practicum Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate procedures for infection control and safety. (CSLO #1)
2. (Application Level) Demonstrate proper use of safety equipment and implications that may affect performance. (CSLO #3)
3. (Application Level) Demonstrate venipuncture and capillary puncture techniques. (CSLO #2, 3)
4. (Comprehension Level) Explain puncture techniques. (CSLO #2)
5. (Comprehension Level) Describe requisitioning, specimen transport and processing. (CSLO #2)
6. (Application Level) Demonstrate quality assurance practices in phlebotomy. (CSLO #3, 4)

PHT101 - Introduction to Pharmacology

General

Division
Pharmacy Technician Program

Course Description
An overview of pharmacy including history of pharmacy, pharmacy terminology, the role and responsibilities of a pharmacy technician compared to that of the pharmacist, and ethical and legal information. Also addressed, theory of procuring, manipulating, calculating, and preparing drugs for dispensing.

Total Number Of Credits:
6

Lecture Credits
5

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the duties, roles, and responsibilities of the pharmacy technician including medications, and outline non-medication pharmacy related activities. (CSLO 1,2,4)
2. (Comprehension Level) Explain the techniques necessary to prepare and dispense medication in both the institutional and community pharmacy setting. (CSLO 1,2,3,4)
3. (Application Level) Calculate accurate drug dosages and measurements to fill patient prescriptions. (CSLO 2,4)
4. (Evaluation Level) Interpret administrative and customer relations in their role as a pharmacy technician using role playing, including constructive critique of fellow students' role plays. (CSLO 1,2,3,4)
5. (Application Level) Apply the legal and ethical responsibilities of the pharmacy technician in dealing with privileged medical and personal information. (CSLO 1,2,3,4)
6. (Analysis Level) Recognize and examine the theory of procurement, manipulation, calculation, and preparation of drugs for dispensing. (CSLO 2,4)
7. (Evaluation Level) Evaluate relevant pharmacy websites and reference materials. (CSLO 2,4)
8. (Evaluation Level) Compare and contrast the roles of pharmacists and pharmacy technicians in ensuring compliance with professional standards and legal, regulatory, formulary, contractual, and safety requirements. (CSLO 2,3,4)
9. (Evaluation Level) Analyze and interpret the accreditation standards and requirements of the American Society of Health-Systems Pharmacists (ASHP). (CSLO 2,4)

PHT102 - Advanced Pharmacy Technician Concepts

General

Division
Pharmacy Technician Program

Course Description
Apply hands-on skills in small or large scale compounding, prescription procurement, quality control, record keeping, and insurance benefit coordination for observation, feedback, and evaluation from the instructor prior to practicum. Prerequisite: PHT101.

Total Number Of Credits:
6

Lecture Credits
5

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Explain and demonstrate skills necessary to manage inventory, validate DEA numbers and process cash register transactions. (CSLO 2,3,4)
2. (Synthesis Level) Explain and demonstrate effective customer service skills in the pharmacy environment. (CSLO 1,3)
3. (Application Level) Apply patient- and medication-safety practice in all aspects of the pharmacy technicians' roles including assisting pharmacists in medication therapy monitoring. (CSLO 2,3,4)
4. (Application Level) Prepare and distribute patient-specific and non-patient-specific medications from bulk supply. (CSLO 2,3)
5. (Application Level) Complete maintenance on facilities and equipment, including automated dispensing equipment, crash carts, regular and narcotic floor stock. (CSLO 2,4)
6. (Application Level) Prepare medications requiring compounding of non-sterile and sterile products. (CSLO 2,4)
7. (Application Level) Demonstrate appropriate technique of drug manipulation using syringes and needles. (CSLO 2,4)
8. (Application Level) Demonstrate proper aseptic technique in the pharmacy setting. (CSLO 2,4)

Course Requisites

PHT150 - Pharmacy Calculations

General

Division
Pharmacy Technician Program

Course Description
Mathematical calculations essential to the duties of pharmacy technicians in a variety of contemporary settings are covered. Includes complete coverage of American Society of Health-System Pharmacists (ASHP) Curriculum Standard 12 and business-related calculations for insurance processing, inventory management, and depreciation.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply calculation operations in handling prescription orders and recognize information on medication labels. (CSLO 3 & 4)
2. (Synthesis Level) Calculate drug doses using ratio-proportion and dimensional analysis methods. (CSLO 2, 3, & 4)
3. (Synthesis Level) Prepare injectable medications and parenteral solutions using special calculations. (CSLO 2, 3, & 4)
4. (Application Level) Use special calculations in the compounding of sterile and non-sterile preparations. (CSLO 2, 3, & 4)
5. (Comprehension Level) Explain the concept of average wholesale price to profit calculations. (CSLO 1 & 2)
6. (Comprehension Level) Define and explain insurance processing, inventory management, and depreciation. (CSLO 3 & 4)

PHT164 - Pharmacy Certification Review

General

Division
Pharmacy Technician Program

Course Description
Preparation for taking the national pharmacy certification exam necessary for placement in the field and verification of competency. Prerequisite: PHT102. Corequisite: PHT175.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Categorize medications into their respective drug class and compare their effects on the body at a local and systemic level. *(CSLOs 2, 3)*
2. (Comprehension Level) Describe pharmaceutical law and explain special provisions for the administration of pharmaceuticals. *(CSLOs 2, 3, 4)*
3. (Application Level) Demonstrate the handling and dispensing of medications. *(CSLOs 2, 4)*
4. (Evaluation Level) Demonstrate quality control policies and procedures. *(CSLOs 2, 3, 4)*
5. (Application Level) Use the metric system for pharmaceutical calculations. *(CSLOs 2, 3)*
6. (Application Level) Demonstrate infection control in a pharmacy setting. *(CSLOs 2, 3, 4)*
7. (Evaluation Level) Evaluate methods for effective communication with patients and other healthcare professions. *(CSLOs 1,2,3,4)*
8. (Knowledge Level) Memorize the generic names of the top 200 brand-name drugs. *(CSLOs 2, 3)*
9. (Application Level) Implement techniques and strategies and apply knowledge learned in preparation for passing a nationally-accredited pharmacy technician certification exam. *(CSLOs 1, 2, 3, 4)*

PHT175 - Practicum - Pharmacy Technician

General

Division
Pharmacy Technician Program

Course Description
Practical experience of 240 hours (120 hours in two separate practice settings) under the supervision of a pharmacist performing a variety of technical duties related to preparation and dispensing of drugs according to standard procedures. Students must receive a grade of C or better to pass this course. Students who fail will not be allowed to repeat this course. Students who withdraw with instructor's permission may retake this course only once with instructor permission. Prerequisites: Mandatory requirements specific to PHT175 must be met before enrollment; all program courses must be successfully completed before enrollment; instructor consent.

Total Number Of Credits:
4

Practicum Credits
4

Other Credit Information
4 Pracitca total 240 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Under supervision of the pharmacist, prepare medications for clients. (CSLOs 2, 3)
2. (Application Level) Perform cashier functions. (CSLO 3)
3. (Application Level) Prepare and update patient profiles and records. (CSLOs 2, 3)
4. (Application Level) Compute the inventory of stock and over-the-counter medications. (CSLO s 2, 4)
5. (Application Level) Compute supplies inventory. (CSLOs 2, 3, 4)
6. (Synthesis Level) Communicate with patients, medical personnel and staff. (CSLOs 1, 3)
7. (Application Level) Apply professional law and ethics as related to pharmacy technician's responsibilities and scope in Arizona. (CSLOs 1, 2, 3, 4)

Course Requisites

PHT150SU21 - Pharmacy Calculations

General

Division
Pharmacy Technician Program

Course Description
Mathematical calculations essential to the duties of pharmacy technicians in a variety of contemporary settings are covered. Includes complete coverage of ASHP curriculum standard 12 and business-related calculations for insurance processing, inventory management, and depreciation.

Total Number Of Credits:
1

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply calculation operations in handling prescription orders and recognize information on medication labels. (CSLO 3 & 4) 2. (Synthesis Level) Calculate drug doses using ratio-proportion and dimensional analysis methods. (CSLO 2, 3, & 4) 3. (Synthesis Level) Prepare injectable medications and parenteral solutions using special calculations. (CSLO 2, 3, & 4) 4. (Application Level) Use special calculations in the compounding of sterile and non-sterile preparations. (CSLO 2, 3, & 4) 5. (Comprehension Level) Explain the concept of average wholesale price to profit calculations. (CSLO 1 & 2) 6. (Comprehension Level) Define and explain insurance processing, inventory management, and depreciation. (CSLO 3 & 4)

PHY100 - Physical Universe

General

Division
Science & Engineering Division

Course Description
The basic principles of physics and chemistry and their application in science, technology, and everyday life. Emphasis is on the fundamental behavior of matter and energy in physical systems with concepts presented and applied at the mathematical level of elementary algebra. Recommended: MAT097 and RDG100.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply the methods of observation and scientific inquiry in the measurement and calculation of quantities such as density, displacement, velocity, and acceleration incorporating the implementation and interpretation of the outcome of laboratory experiments. (CSLO 2,4)
2. (Analysis Level) Outline the progression of our view of our place in the universe from ancient to modern times in terms of how astronomical observations inform our worldview. (CSLO 1,3,4)
3. (Application Level) Apply Newton's laws and the conservation of mechanical energy to physical situations such as a baseball in flight, or a car braking to a stop while traveling down a hill. (CSLO 2)
4. (Knowledge Level) Name nature's two great conservation laws and state which quantities are being conserved. (CSLO 3,4)
5. (Knowledge Level) Identify the four states of matter in terms of how molecular structure differs among the material states of solid, liquid, gas, and plasma. (CSLO 2)
6. (Analysis Level) Outline the basic organization of the periodic table of elements and identify key components of atomic structure such as the number of protons, atomic mass, and basic electron configurations within a molecule. (CSLO 2)
7. (Knowledge Level) Define the composition and basic structure of the atmosphere in terms of the ten general cloud types in their correct altitude range, the two minor atmospheric constituents that play a major role in the energy balance of the surface of the earth and their effect, and be able to visually identify the clouds observed on any given day. (CSLO 2,3,4)
8. (Analysis Level) Outline the major geological processes that continually shape the surface of the earth, such as plate tectonics in terms of boundary conditions and their impact on volcanic activity, ocean trench formation and earthquakes, as well as the rock cycle and how it relates to the three major rock types. (CSLO 2,4)
9. (Comprehension Level) Explain the phases of the moon and the lunar cycle in terms of visibility, and describe the sun-moon gravitational interaction that is responsible for ocean tides. (CSLO 2,4)
10. (Analysis Level) Explain why the earth has seasons in relation to the apparent path of the sun in the sky to the tilt of the Earth's axis relative to the plane of revolution. (CSLO 2,3,4)
11. (Analysis Level) Outline the life cycle of stars in general and our own sun in particular, and describe the stellar evolution of main sequence stars in terms of the nuclear reaction at their core and how that relates to stellar color and brightness. (CSLO 2,4)
12. (Evaluation Level) Outline the present explanation of the origin of the universe, and compare and contrast challenges to the Big Bang Theory by giving a historical synopsis of cosmology over the last century. (CSLO 1,2,3,4)
13. (Analysis Level) Explain what an electrical current is and how magnetic fields are related to electrical currents in terms changing magnetic fields. (CSLO 2)

Course Requisites

PHY101 - Introduction to Physics

General

Division
Science & Engineering Division

Course Description
Introduction to Physics explores fundamental principles of mechanics, thermodynamics, waves, electricity, magnetism, and modern physics. The course emphasizes problem-solving, real-world applications, and system analysis using theoretical and computational methods, including Python simulations. Laboratory activities integrate experimentation and data analysis to connect theory with practice, preparing students for advanced study while fostering critical thinking, collaboration, and communication skills. Recommended: MAT 097 or MAT 121 or placement assessment into MAT 151 or higher.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain and apply the fundamental language of physics, including systems of measurement, fundamental physical quantities, and units, to analyze physical phenomena *(CSLO 2, 4)*.

   (a) Use the International System of Units (SI) to describe and quantify physical quantities, ensuring accurate and realistic estimations for practical problems.

   (b) Convert between units using dimensional analysis and interpret results in the context of scientific applications.

   (c) Identify and apply fundamental physical constants to solve real-world problems, documenting the reasoning process clearly.

2. (Application Level) Analyze motion in one and two dimensions by applying the principles of kinematics and dynamics to real-world physical systems *(CSLO 2, 4)*.

   (a) Solve practical problems involving uniformly accelerated motion using graphical, mathematical, and computational methods.

   (b) Analyze projectile motion in real-world contexts, such as sports or engineering applications, and communicate findings effectively.

   (c) Collaborate in groups to design and interpret experiments that model motion in a plane, integrating data into meaningful conclusions.

3. (Application Level) Apply Newton's Laws of Motion to evaluate forces and momentum in physical systems, emphasizing logical and efficient problem-solving techniques *(CSLO 2, 4)*.

   (a) Construct and interpret free-body diagrams to describe forces acting on objects in realistic scenarios.

   (b) Solve problems involving friction, tension, and normal forces, connecting solutions to everyday applications.

   (c) Use the Momentum Principle to analyze collisions, designing experiments or simulations to validate theoretical predictions.

4. (Application Level) Evaluate energy transformations and conservation laws in mechanical systems to solve meaningful problems and communicate findings *(CSLO 2, 4)*.

   (a) Analyze work done by forces and energy transformations in systems involving conservative and non-conservative forces, such as roller coasters or pendulums.

   (b) Solve problems involving gravitational potential energy and kinetic energy.

   (c) Document energy analyses through clear and concise written, graphical, and computational communications.

5. (Application Level) Analyze rotational motion and mechanical properties of matter, integrating concepts of torque, angular momentum, and material behavior *(CSLO 2, 4)*.

   (a) Solve practical problems involving angular velocity, angular acceleration, and torque, relating them to engineering or mechanical systems.

   (b) Apply conservation of angular momentum to analyze real-world systems, such as spinning objects or planetary motion.

   (c) Evaluate mechanical properties such as elasticity and pressure through experiments or simulations, collaborating effectively to interpret results.

6. (Application Level) Apply the principles of thermodynamics to analyze thermal systems and their real-world applications.

   (a) Solve problems involving heat transfer (conduction, convection, and radiation) and energy conservation in contexts like HVAC systems or climate science *(CSLO 2, 4)*.

   (b) Analyze thermodynamic cycles, such as engines and refrigerators, emphasizing energy efficiency and environmental impact.

(c) Use the Ideal Gas Law to describe thermal systems at microscopic and macroscopic levels, documenting findings in detailed reports.

7. (Application Level) Explain wave phenomena and apply them to analyze sound, light, and harmonic motion in practical systems *(CSLO 2, 4).*

   (a) Model simple harmonic motion and analyze damping effects in oscillatory systems, relating them to sound or seismic activity.

   (b) Solve problems involving wave properties such as frequency, wavelength, and amplitude.

   (c) Apply the principles of wave interference and diffraction to analyze sound and optical systems.

8. (Application Level) Analyze electrostatic, electrical, and magnetic phenomena, emphasizing applications to modern technology *(CSLO 2, 4).*

   (a) Solve problems involving electric fields, forces, and potentials using Coulomb's Law, and apply these principles to technological systems.

   (b) Analyze electrical circuits with resistors and capacitors to evaluate current flow and power consumption.

   (c) Use Faraday's and Ampere's laws to explain the relationship between electricity and magnetism in systems like motors or generators.

9. (Comprehension Level) Explain the principles of modern physics, including quantum mechanics, relativity, and nuclear physics, in historical and contemporary contexts *(CSLO 1, 2).*

   (a) Describe key discoveries in quantum mechanics and their applications, such as semiconductors or quantum computing.

   (b) Solve problems involving relativistic energy and momentum, relating them to advancements in particle physics or space exploration.

   (c) Analyze nuclear reactions, including fission and fusion, emphasizing their implications for energy production and societal impact.

10. (Application Level) Use Python as a computational tool to model and analyze physical systems across various topics in physics *(CSLO 3, 4).*

    (a) Write Python scripts to simulate physical systems such as projectile motion, wave behavior, and thermal processes.

    (b) Interpret and refine simulation results to compare them with theoretical predictions.

    (c) Visualize data using Python to create plots, animations, and other graphical representations.

    (d) Collaborate on computational projects and communicate results in a scientific format.

11. (Application Level) Demonstrate proficiency in investigating physical principles through the application of the scientific method and effective data analysis *(CSLO 3, 4).*

    (a) Design experiments, analyses, or simulations to test hypotheses, ensuring proper control of variables and accuracy in data collection or generation.

    (b) Obtain and analyze data using appropriate methods, including physical experiments, computational simulations, or video analysis.

    (c) Apply critical thinking and quantitative reasoning to interpret results, identify sources of error, and assess the validity of conclusions.

    (d) Collaborate effectively in groups to interpret findings and present results through written reports, oral presentations, or graphical representations.

PHY111 - College Physics I

General

Division
Science & Engineering Division

Course Description
Non-calculus treatment of the principles of physics for non-physics majors, covering the motion of particles in one and two dimensions, Newton's laws, energy, momentum, angular momentum, conservation laws, gravitation, fluids, mechanical waves, sound, temperature, heat, heat engines, the laws of thermodynamics and special relativity. Recommended: RDG100. Students should possess basic proficiency in solving quadratic equations, using trigonometric functions, and geometry. Prerequisite: MAT182 OR 187.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Use the concepts and methods of kinematics, dynamics and work-energy relationships to evaluate static and dynamic physical systems.
2. (Application Level) Demonstrate knowledge of principles, methods and applications of mechanics and wave motion in physics.
3. (Synthesis Level) Model the dynamics of particles, solids and fluids on microscopic and macroscopic levels using the three fundamental principles of mechanics: momentum, angular momentum and energy.
4. (Application Level) Demonstrate knowledge of the distinguishing features and applications of models such as the one-dimensional constant-force particle model, the constant-force model, the particle model and the rigid-body model.
5. (Evaluation Level) Use the Momentum Principle to evaluate physical situations modeled as point-particle and multi-point particle systems in Newtonian frames of reference.
6. (Evaluation Level) Use the Momentum Principle and the basic concepts of force in order to evaluate static and dynamic physical situations involving fluid pressure, buoyancy and the speed of sound in various solids and fluids.
7. (Evaluation Level) Use the principles of Archimedes and Bernoulli in order to evaluate static and dynamic fluid systems.
8. (Analysis Level) Use the Impulse-Momentum relationship to describe and analyze physical situations subject to Newton◈s Laws of Motion.
9. (Evaluation Level) Use Newtons Law of Gravity and the Momentum Principle to predict the motion of astronomical systems and near-Earth gravitational field effects.
10. (Evaluation Level) Use the Energy Principle and the Momentum Principle to describe and evaluate Gravitational Potential Energy, Mechanical Energy, Rotational Kinetic and Translational Kinetic Energy.
11. (Evaluation Level) Use the Angular Momentum Principle to evaluate physical situations involving the rotation of a rigid body under torque.
12. (Evaluation Level) Use the Conservation Principles for Energy, Momentum and Angular Momentum to evaluate static & dynamic physical systems and collisions.
13. (Analysis Level) Develop the physics of waves in order to analyze physical situations involving simple, an harmonic and damped harmonic motion.
14. (Application Level) Use the Principles of Momentum and Energy in order to develop and apply the microscopic and macroscopic forms of the Ideal Gas Law to thermal work processes.
15. (Synthesis Level) Use the principles, methods and techniques of Relativistic Kinematics and Dynamics to describe how the Special Theory of Relativity impacts the classical notions of Force, Momentum and Energy.
16. (Application Level) Use a computational model in a graphics simulation environment (Visual Python) for characterizing one or more of the three fundamental principles of Mechanics: Momentum, Angular Momentum and Energy, as it pertains to one or more particular physical experiments that have been completed in lab.
17. Application Level) Use the methods of observation and scientific inquiry to demonstrate knowledge of concepts and principles by implementing and interpreting the outcome of laboratory experiments.
18. (Application Level) Demonstrate proficiency with laboratory equipment and procedures.

Course Requisites

PHY112 - College Physics II

General

Division
Science & Engineering Division

Course Description
Non-calculus treatment of the principles of physics for non-physics majors, covering electricity, magnetism, circuits, electromagnetic waves, light, optics, and modern physics. Prerequisites: PHY111 AND (MAT 182 OR MAT 187).

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate knowledge of principles, methods and applications of physics in the areas of electricity, magnetism, electromagnetic waves, circuit analysis, physical optics, wave optics and atomic structure.
2. (Knowledge Level) Define the basic properties of electrical charge, the electrostatic force, and the electric field.
3. (Analysis Level) Outline the relationship between electric and magnetic fields and their interdependence.
4. (Analysis Level) Use Kirchhoffs Loop and Node Rules to analyze elementary DC and AC circuits with resistive, capacitive and inductive elements.
5. (Evaluation Level) Explain the wave-particle duality of light and how the experimental evidence justifies this principle.
6. (Evaluation Level) Use the Energy and Momentum Principles to evaluate physical systems on microscopic and macroscopic levels as they pertain to the structure of matter and the accompanying interactions.
7. (Comprehension Level) Discuss the various methods of radioactive decay and the energy required for nuclear transformations such as fission and fusion.
8. (Comprehension Level) Explain the Photoelectric Effect.
9. (Analysis Level) Use the principles of geometric and wave optics to describe and analyze optical phenomena pertaining to devices such as telescopes and microscopes.
10. (Application Level) Use a computational model in a graphics simulation environment (Visual Python) for characterizing one or more electromagnetic phenomena as it pertains to a particular physical experiment that has been completed in lab.
11. (Evaluation Level) Use the methods of observation and scientific inquiry to demonstrate knowledge of concepts and principles by implementing and interpreting the outcome of laboratory experiments.
12. (Application Level) Demonstrate proficiency with laboratory equipment and procedures.

Course Requisites

PHY121 - University Physics I: Mechanic

General

Division
Science & Engineering Division

Course Description
First course in the three-semester, calculus-based University Physics sequence covering Kinematics, Newton's laws, Work, Energy, Momentum, Angular Momentum, Conservation Laws, Statics and Dynamics of particles, solids, fluids, mechanical waves, and sound. Recommended: Students should possess proficiency with basic derivatives and integrals, factoring equations, trigonometric functions, and the ability to use geometry in real world scenarios. Prerequisite: MAT221.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Use the concepts and methods of calculus to not only derive equations for kinematics, dynamics and work-energy relationships, but also use them to evaluate static and dynamic physical systems. (CSLO 2, 4)
2. (Application Level) Demonstrate knowledge of principles, methods and applications of mechanics and wave motion in physics. (CSLO 2, 4)
3. (Application Level) Demonstrate knowledge of the distinguishing features and applications of models such as the one-dimensional constant-force particle model, the constant-force model, the particle model and the rigid-body model. (CSLO 2, 4)
4. (Evaluation Level) Use the Momentum Principle to evaluate physical situations modeled as point-particle and multi-point particle systems, in both Newtonian and Relativistic frames of reference. (CSLO 2, 4)
5. (Evaluation Level) Use the Momentum Principle and the basic concepts of force in order to evaluate static and dynamic physical situations involving fluid pressure, buoyancy and the speed of sound in various solids and fluids. (CSLO 2, 4)
6. (Analysis Level) Use the Impulse-Momentum relationship to describe and analyze physical situations subject to Newtons Laws of Motion. (CSLO 2, 4)
7. (Evaluation Level) Use Newtons Law of Gravity and the Momentum Principle to predict the motion of astronomical systems and near-Earth gravitational field effects. (CSLO 2, 4)
8. (Evaluation Level) Use the Energy Principle and the Momentum Principle to describe and evaluate Gravitational Potential Energy, Mechanical Energy, Rotational Kinetic and Translational Kinetic Energy. (CSLO 2, 4)
9. (Evaluation Level) Use the Angular Momentum Principle to evaluate physical situations involving the rotation of a rigid body under torque. (CSLO 2, 4)
10. Synthesis Level) Model the dynamics of particles, solids and fluids on microscopic and macroscopic levels using the three fundamental principles of mechanics: momentum, angular momentum and energy. (CSLO 2, 4)
11. (Evaluation Level) Use the Energy Principle to evaluate physical situations on microscopic and macroscopic levels as they pertain to the structure of matter and the accompanying interactions. (CSLO 2, 4)
12. (Evaluation Level) Use the Conservation Principles for Energy, Momentum and Angular Momentum to evaluate static & dynamic physical systems and collisions. (CSLO 2, 4)
13. (Synthesis Level) Develop the physics of waves in order to analyze physical situations involving simple, a harmonic and damped harmonic motion. (CSLO 2, 4)
14. (Application Level) Use a computational model in a graphics simulation environment (Visual Python) for characterizing one or more of the three fundamental principles of Mechanics: Momentum, Angular Momentum and Energy, as it pertains to one or more particular physical experiments that have been completed in lab. (CSLO 2, 3, 4)
15. (Evaluation Level) Use the methods of observation and scientific inquiry to demonstrate knowledge of concepts and principles by implementing and interpreting the outcome of laboratory experiments. (CSLO 2, 3, 4)
16. (Application Level) Demonstrate proficiency with laboratory equipment and procedures. (CSLO 3)

Course Requisites

PHY122 - University Physics II: Electricity & Magnetism

General

Division
Science & Engineering Division

Course Description
Second course in the three-semester, calculus-based University Physics sequence covering electric charge and current, electric and magnetic fields in vacuum and materials, elementary AC & DC circuit analysis with resistive, capacitive and inductive elements, displacement current, electromagnetic waves and Maxwell's equations. Recommended: Students should possess proficiency with basic derivatives and integrals, factoring equations, trigonometric functions, and the ability to use geometry in real world scenarios. Students should retain all skills developed in PHY121, most notably the ability to use graphical and analytic vectors, as well as all mathematical skills developed thus far. Prerequisites: PHY121. Corequisite: MAT231 must be taken as a prerequisite or corequisite.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Demonstrate knowledge of principles, methods and applications of physics in the areas of electricity, magnetism, electromagnetic waves and circuit analysis. (CSLOs 1, 2)
2. (Analysis Level) Use the concepts and methods of calculus to analyze physical systems involving electric and magnetic fields in terms of the integral and differential forms of Maxwell's Equations. (CSLOs 1, 2)
3. (Comprehension Level) Explain the laws of Coulomb, Gauss, Ampere, Faraday, Lenz, Lorentz, Biot-Savart and their associated inter-relations. (CSLOs 1, 2)
4. (Comprehension Level) Explain the coordination of Gauss, Faradays and Amperes Laws under the heading of Maxwell's Equations. (CSLOs 1, 2)
5. (Application Level) Use integral calculus to describe various charged shapes, solids and shells. (CSLO 2, 4)
6. (Application Level) Use Coulomb's Law to calculate electrostatic forces. (CSLOs 1, 2)
7. (Application Level) Use Faraday's Law and Lenz's Law to determine the size and direction of induced currents. (CSLOs 1, 2)
8. (Application Level) Use Ampere's Law to quantify and describe the magnetic field of toroid's, solenoids and wires. (CSLOs 1, 2)
9. (Application Level) Use Gauss's Law to calculate the electric field of symmetric charge distributions and to explain the properties of insulators and conductors in static equilibrium. (CSLOs 1, 2)
10. (Application Level) Use the Biot-Savart Laws to determine the magnetic field properties of single moving charges and currents. (CSLOs 1, 2)
11. (Analysis Level) Use Kirchhoff's Loop and Node Rules to analyze elementary DC and AC circuits with resistive, capacitive and inductive elements. (CSLOs 1, 2)
12. (Application Level) Use a computational model in a graphics simulation environment (Visual Python) for characterizing one or more electromagnetic phenomena as it pertains to a particular physical experiment that has been completed in lab. (CSLOs 2, 3)
13. (Application Level) Use the methods of observation and scientific inquiry to demonstrate knowledge of concepts and principles by implementing and interpreting the outcome of laboratory experiments. (CSLOs 2, 3)
14. (Application Level) Demonstrate proficiency with laboratory equipment and procedures. (CSLOs 2, 3)

Course Requisites

PLU121 - Plumbing Level I

General

Division
Skilled Trades & Technology Division

Course Description
This comprehensive Plumbing Course is designed to prepare students with fundamental skills and knowledge needed to enter the plumbing trade. This course provides hands-on training and theoretical instruction, emphasizing safety, plumbing systems, and essential trade skills. Understand the fundamentals of plumbing, including basic materials, tools, and safety practices, Identify and use plumbing tools and equipment, Read and interpret plumbing drawings and specifications. Understand plumbing codes, regulations, and safe work practices. Install, maintain, and repair piping systems using various materials such as copper, plastic, and steel. Perform basic pipefitting and joining techniques including threading, soldering, and brazing. Understand the principles of water supply, drainage, and venting systems. Install plumbing fixtures and appliances. Diagnose and troubleshooting common plumbing problems. Apply sustainable plumbing practices, including water conservation and green technologies. Corequisites: BCT100; BCT150.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Analyzing Level) Upon completion of Plumbing Level I, students will be able to Analyze plumbing systems by integrating knowledge of materials, tools, and safety standards. (CSLO #2)
2. (Understanding Level) Upon completion of Plumbing Level I, students will be able to: Demonstrate effective communication and teamwork skills in professional plumbing settings. Demonstrate time management and organizational skills to efficiently complete plumbing tasks. CSLO #3
3. (Application Level) Upon completion of Plumbing Level I, students will be able to: Apply workplace safety practices consistently to protect self and others. Show responsibility and accountability in fulfilling job duties and meeting deadlines. Reflect on personal growth areas and develop strategies for ongoing professional improvement. (CSLO #3)
4. (Evaluating Level) Upon completion of Plumbing Level I, students will be able to inquire, analyze, and apply critical thinking to solve plumbing-related problems, draw logical conclusions from technical data, and develop innovative solutions in plumbing systems. (CSLO #4)

PLU122 - Plumbing Level II

General

Division
Skilled Trades & Technology Division

Course Description
Plumbing Level II builds on foundational knowledge from Level I, providing intermediate instruction in residential, commercial, and industrial plumbing systems. This course deepens student skills in piping systems, fixtures, and safety, while introducing key plumbing codes and specialty installations. Students will engage in a combination of classroom theory and hands-on lab activities to prepare for real-world plumbing applications and professional advancement. Interpret and apply plumbing code requirements to a variety of system installations. Identify, measure, cut, join, and support different types of piping materials such as plastic, copper, cast iron, and carbon steel. Safely install, test, and troubleshoot various water heating systems and fixtures. Perform calculations for pipe sizing, pressure loss, and system layout using plans and blueprints. Demonstrate safe work practices using power tools and specialized plumbing equipment. Understand and apply key concepts of backflow prevention, fixture installation, and indirect/special waste systems. Prerequisites: BCT100; BCT150; PLU121. Corequisite: PLU221.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Upon completion of Plumbing Level II, students will be able to: Actively build relationships while planning team plumbing projects with classmates from varied cultural backgrounds. (CSLO #1)
2. (Remembering Level) Upon completion of Plumbing Level II, students will be able to: Define, comprehend, apply, key facts, concepts, theories, and practical techniques from both broad and specialized plumbing knowledge areas, demonstrating the ability to integrate these elements to solve complex plumbing problems. (CSLO # 2)
3. (Understanding Level) Upon completion of Plumbing Level II, students will be able to: Demonstrate effective personal and professional skills, including communication, teamwork, time management, and adherence to workplace ethics and safety standards, as evidenced by successful participation in group projects, timely completion of assignments, and compliance with industry codes of conduct. (CSLO #3)
4. (Evaluating Level) Upon completion of Plumbing Level II, students will be able to: Inquire & analyze to solve problems, draw logical conclusions, or create innovative ideas. (CSLO #4)

PLU221 - Plumbing Level III

General

Division
Skilled Trades & Technology Division

Course Description
Plumbing Level III is an advanced training course designed for individuals who have successfully completed Plumbing Levels I and II or have equivalent industry experience. Based on the NCCER Plumbing Level 3, 5th Edition, this course continues the development of essential skills and knowledge required for a professional plumbing career, with a strong focus on system design, code compliance, and advanced installation practices.
This level emphasizes commercial and specialty plumbing systems, advanced layout techniques, and introduces students to key supervisory concepts, laying the groundwork for leadership roles in the field. Applied Math for Plumbing, Sizing Water Supply Piping, Backflow Preventers, Types of Venting, Sewage and Sump Pumps, Corrosive-Resistant Waste Piping, Compressed Air Systems, Service Plumbing, Water Pressure Booster and Recirculation Systems, Indirect and Special Waste. Prerequisites: BCT100; BCT150; PLU121. Corequisite: PLU122.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Aplying Level) Students will be able to: Identify the impact of plumbing work on communities globally and locally, emphasizing sustainability and social responsibility. Exhibit awareness of ethical practices and civic responsibilities in professional settings. (CSLO #1)
2. (Remembering Level) Upon completion of Plumbing Level III, students will be able to: Identify, comprehend, and recall facts, concepts, theories, and practices from both broad plumbing fundamentals and specialized areas to solve practical and theoretical problems in plumbing systems. (CSLO #2)
3. (Understanding Level) Upon completion of the Plumbing Level III program, students will be able to demonstrate personal and professional skills that enhance their development, including: Effective communication and teamwork within a professional plumbing environment. Time management and organizational skills to meet project deadlines. Adherence to workplace safety standards and ethical practices. Continuous self-assessment and willingness to engage in lifelong learning and skill improvement. (CSLO #3)
4. (Evaluating Level) Students will be able to inquire and analyze complex plumbing problems, apply critical thinking to develop effective solutions, draw logical conclusions from technical data, and create innovative ideas to improve plumbing systems and practices. (CSLO #4)

PLU222 - Plumbing Level IV

General

Division
Skilled Trades & Technology Division

Course Description
Plumbing Level IV is the final stage of the NCCER Plumbing training program and prepares students for journey-level certification and supervisory roles within the plumbing trade. This advanced course focuses on specialized systems, plumbing system design, business management practices, and professional development. It integrates technical knowledge with practical applications to ensure students are equipped for leadership roles and high-level trade responsibilities.
This course provides a comprehensive understanding of advanced plumbing systems including water pressure booster and recirculation systems, indirect and special waste systems, and hydronic heating systems. Students will also gain insights into system design, plan reading, and the layout and sizing of water supply and drainage systems, aligning with real-world industry applications.
In addition to technical skills, the course emphasizes critical soft skills such as jobsite management, supervision, and plumbing code application, essential for those seeking supervisory or contractor roles. Students will work with plumbing codes, specifications, and architectural drawings and will develop problem-solving skills necessary for complex system installations and troubleshooting. Business Principles for Plumbers, Introductory Supervisory Skills, Water Pressure Booster and Recirculation Systems, Indirect and Special Waste Systems, Plumbing and Gas System Design, Hydronic and Solar Heating Systems, Codes, Drawings, and Specifications, and Servicing Piping Systems, Fixtures, and Appliances. Prerequisites: BCT100; BCT150; PLU121; PLU122; PLU221.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Upon successful completion of the program, students will be able to demonstrate respectful communication and collaboration with diverse clients, coworkers, and stakeholders on a construction site, showing awareness of cultural differences and the ethical responsibilities of a global tradesperson. (CSLO#1)
2. (Remembering Level) Upon successful completion of the program, learners will be able to identify, comprehend, apply, and define facts, concepts, theories, and practices across both broad and specialized knowledge areas relevant to plumbing. (CSLO#2)
3. (Application Level) Upon successful completion of the program, apply problem-solving techniques to workplace challenges with a focus on safety, efficiency, and quality. Maintaining and organizing tools, materials, and documentation to support continuous learning and job readiness. Adapting to new technologies, codes, and regulations relevant to the plumbing industry. (CSLO#4)
4. (Analyizing Level) Upon successful completion of the program, students will be able to analyze complex plumbing scenarios by gathering and interpreting relevant information. Apply logical reasoning to troubleshoot and solve plumbing problems effectively. Draw well-supported conclusions to make informed decisions on system design and repair. Develop innovative solutions for improving plumbing systems and overcoming challenges. (CSLO#4)

POS101 - American Politics

General

Division
Social & Behavioral Sciences Division

Course Description
The theory, organization, politics, function and problems of the federal system of government in the United States; the growth of self-government to the adoption of the federal form; the powers, functions and related activities of national government and institutions. Meets the Arizona State Department of Education U.S. Constitution requirement for teacher certification. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Associate specific political and military events with the appropriate historical figures and the correct historical era. (CSLO 2)
2. (Evaluation Level) Compare and contrast the functions, duties, and responsibilities of the 3 branches of government. (CSLO 4)
3. (Comprehension Level) Describe and explain the organizational structure of the federal government as established by the US Constitution. (CSLO 2)
4. (Analysis Level) Differentiate between the various political ideologies and theories that formed the basis of the US Constitution. (CSLO 2, 4)
5. (Analysis Level) Explain the amendment process and analyze the impact of specific amendments on the development of the United States. (CSLO 2, 4)
6. (Analysis Level) Differentiate and explain the political theories and ideologies that are the basis for the political parties in the US. (CSLO 2, 4)
7. (Analysis Level) Examine the influence and contributions of the media and lobbyist groups on national politics. (CSLO 1, 4)
8. (Comprehension Level) Identify and explain specific social, religious, cultural, minority and gender related contributions to the American governmental system. (CSLO 1)

Course Requisites

POS104 - Contemporary Issues in World Politics

General

Division
Social & Behavioral Sciences Division

Course Description
A study of the international system, its actors and their capabilities; ends and means of foreign policy; international tension; conflict and cooperation in an age of increasing globalization. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Relate specific political, social and military events with the appropriate historical and contemporary figures and the correct historical era. (CSLO 2, 4)
2. (Comprehension Level) Describe and discuss international terms and geopolitical issues as they relate to contemporary world issues. (CSLO 2)
3. (Analysis Level) Distinguish specific social, religious, cultural and ethnic minority groups and explain how their specific world view both shapes and is shaped by globalization. (CSLO 1, 2)
4. (Application Level) Apply various theories and explanatory models to contemporary events in an attempt to understand current events and predict future outcomes. (CSLO 2, 4)
5. (Analysis Level) Explain and analyze the social, economic, cultural and political impact of globalization on developed and developing nations. (CSLO 1, 2, 4)
6. (Evaluation Level) Compare, contrast and evaluate the benefits and costs of the use of diplomacy, economic sanctions, military intervention and terrorism as an effective tool for achieving political goals. (CSLO 1, 2)

Course Requisites

POS220 - U.S. and Arizona Constitutions

General

Division
Social & Behavioral Sciences Division

Course Description
An examination of the U.S. Constitution, the Bill of Rights and other significant amendments, and the constitution of the State of Arizona, including the historic background, theory, organization and functions of the U.S. federal and state systems of government, required to meet the Arizona State Department of Education U.S. Constitution and Arizona government requirements for teacher certification. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and explain the significance of the people and events of the past that led to the U.S. movement for independence from Great Britain. (CSLO 1)
2. (Comprehension Level) Compare and contrast the functions, duties, limitations and responsibilities of the three branches of the federal government. (CSLO 2)
3. (Comprehension Level) Describe and explain the organizational structure of the federal system of government established by the Constitution. (CSLO 2)
4. (Analysis Level) Differentiate between the various political ideologies and theories that formed the basis of the U.S. Constitution. (CSLO 4)
5. (Analysis Level) Explain the amendment process and analyze the impact of specific amendments on the development of the United States. (CSLO 4)
6. (Comprehension Level) Identify Arizona's major historical periods from Pre-Columbian to the modern era. (CSLO 4)
7. (Comprehension Level) Compare and contrast the functions, duties, limitations and responsibilities of the various branches of government in Arizona. (CSLO 2)
8. (Analysis Level) Compare and contrast the Arizona governmental structure and constitution with the federal government's structure and constitution. (CSLO 4)
9. (Analysis Level) Interpret, compare, contrast and/or critique different explanations and evaluations of Arizona governmental institutions. (CSLO 4)
10. (Comprehension Level) Identify and discuss specific contributions made by social, religious, cultural and minority groups to the Arizona political experience. (CSLO 3)
11. (Comprehension Level) Associate specific political events with key political figures and the governmental branch. (CSLO 1)

Course Requisites

POS297 - Career Advancement

General

Division
Social & Behavioral Sciences Division

Course Description
No description.

Total Number Of Credits:
0.5

PSY101 - Introduction to Psychology

General

Division
Social & Behavioral Sciences Division

Course Description
Introduction to principles and theories of human behavior, development, personality and cognition, and the relationship to societal issues. Historical views and research methodology applied to psychology are also presented. (Field trips may be required.) Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Distinguish between the major psychological schools of thought and their historical bases. (CSLOs #2, 4)
2. (Analysis Level) Differentiate between the various research methods used in psychological studies. (CSLOs #2, 4)
3. (Knowledge Level) Identify physiological and psychological systems involved in cognition, sensation, perception, and states of consciousness. (CSLO #2)
4. (Evaluation Level) Compare and contrast psychoanalytic, cognitive, humanistic and social learning theories as they pertain to various aspects of human development. (CSLOs #2, 4)
5. (Analysis Level) Differentiate between the various personality theories, categories of personality, and the assessments used in the determination of personality types. (CSLOs #2, 4)
6. (Application Level) Apply psychological theories to social situations. (CSLOs #1, 3)
7. (Analysis Level) Compare the various treatment modalities and their application to abnormal behaviors. (CSLOs #2, 4)
8. (Evaluation Level) Appraise challenges of contemporary life and the behavioral management and coping techniques implicated. (CSLOs #1, 3, 4)

Course Requisites

PSY200 - Social Psychology

General

Division
Social & Behavioral Sciences Division

Course Description
Students will acquire a scientific framework for interpreting social behavior by investigating theories, research, and methods of social psychology. Topics include as applied to social perception (self and others); social influence (cultural sources of attitudes, conformity); social relations (attraction, altruism, aggression); and application (law, business, and well-being). Prerquisites: PSY101; SOC101. Prerequisite or Corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define types of social experiences throughout the course of life development (culture, religion, laws, socio-economic status, level of education, etc.,) and their influence over ones perception of social self.
2. (Comprehension Level) Give examples of cultural terms and concepts based on historical and current theories of Social Psychology.
3. (Application Level) Apply Social Psychology current research concepts, methods, and/or theories to observations in social settings.
4. (Analysis Level) Relate areas of study which overlap psychology and sociology such as personality, behavior, ethnicity, parenting styles, religion, intelligence, and social interaction and identify cultural commonalities.
5. (Synthesis Level) Categorize the fundamental Social Psychology components (social perceptions, social influence, social relations, political/legal, and scientific applications) and provide examples of each.
6. (Evaluation Level) Evaluate the impact of various social interactions (face-to-face, popular media) on ones identify, relationships, role behavior, and attitudes toward other individuals.
7. (Synthesis Level) Develop a digital identity , i.e., the ability to imagine how one will expand and develop one's current social psychology knowledge and skills in anticipation of living among future generations. Propose how one would create such an intentional identity.
8. (Analysis Level) Identify and analyze the characteristics of a social psychology problem-based learning prompt, i.e., social relationship, social perceptions, media perceptions.
9. (Synthesis Level) Compose at least 5,000 words of written discourse, formal prose (of that amount, at least 50% must be polished), that exhibits competency in composing and revising skills, the conventions of standard English, and the ability to follow APA writing style in multiple assignments that span the semester and which follow social psychology parameters.

Course Requisites

PSY202 - Psychology of Abnormality

General

Division
Social & Behavioral Sciences Division

Course Description
Theories of normality and abnormality, models of psychopathology, classification and treatment of mental disorder, and principles of various forms of psychotherapy. Prerequisite: PSY101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the scientific basis for classifying and treating mental illness.
2. (Evaluation Level) Compare and contrast the development of the psychology of abnormality historically, empirically, and ethically.
3. (Analysis Level) Analyze, summarize, and apply the Diagnostic and Statistical Manual 5 (DSM 5) system of classification of mental illness.
4. (Synthesis Level) Create a capstone project using the knowledge obtained in class wherein the student creates a fictional mental disorder including symptoms, diagnoses and treatment.
5. (Evaluation Level) Identify and critique the resources available for improving mental health today.
6. (Evaluation Level) Evaluate the issues currently underlying classification and treatment of mental illness.
7. (Evaluation Level) Using a variety of case studies, accurately evaluate ethical and logistical challenges in diagnosing and treating those with mental disorders.

Course Requisites

PSY203 - Developmental Psychology

General

Division
Social & Behavioral Sciences Division

Course Description
Biosociopsychological approach to the study of human development, focusing on personality, social, physical, and cognitive changes from conception to late adulthood. Prerequisite: PSY101. Prerequisite or corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Identify typical physical, cognitive, and psychosocial milestones of development at all ages from prenatal development to late adulthood. (CSLO 2)
2. (Analysis Level) Differentiate between various theoretical perspectives and examine interventions based on each theory. (CSLO 2, 4)
3. (Analysis Level) Analyze his/her own physical, cognitive, and psychosocial development, examining cultural, and personal factors that have impacted his/her personal life. (CSLO 1, 2, 3, 4)
4. (Application Level) Apply basic concepts and major research findings to real life situations or case studies. (CSLO 2, 4)
5. (Knowledge Level) Identify physical, cognitive, cultural, and psychosocial data gathered through observation activities. (CSLO 1, 2)
6. (Application Level) Apply psychological theories to social situations. (CSLO 2, 3)
7. (Analysis Level) Compare the various treatment modalities and their application to abnormal behavior. (CSLO 2, 4)
8. (Application Level) Apply coping techniques identified in class to behavioral management, coping techniques and relationships. (CSLO 3, 4)
9. (Synthesis Level) Total written output for the course will be no less than 5,000 words, or approximately 18 - 20 pages. 50% of that work will polished, revised, formal prose. (CSLO 3)
10. (Evaluation Level) Students will have multiple opportunities to evaluate their own written work in conferences with the instructor and in peer review. (CSLO 3, 4)

Course Requisites

PSY205 - Personality & Social Adjustment

General

Division
Social & Behavioral Sciences Division

Course Description
Explore personality theory and assessment, research methodology, hypothesis testing, life planning and social adjustment, utilizing the principles of positive psychology in order to increase self-awareness and health. Prerequisite: PSY101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the concepts of each major theory of personality and the primary theorists associated with each theory. (CSLO 2,3)
2. (Analysis Level) Identify each research method used in the study of personality theory, identifying the strengths and weaknesses of each one. (CSLO 4)
3. (Analysis Level) Analyze personality development and social adjustment theories from a variety of sources. (CSLO 2,4)
4. (Synthesis Level) Synthesize different points of view about personality or its assessment logically and effectively into a comprehensive written discourse using APA style. (CSLO 1,2)
5. (Analysis Level) Examine, use, analyze and explain results of personality assessment methods. (CSLO 2,4)
6. (Evaluation Level) Compare, evaluate and justify different points of view on a given subject related to personality assessment, personality theory, or ethical issues. (CSLO 1,3)
7. (Synthesis Level) Model empathy and social skills expected of individuals who understand and respect personality differences in other people. (CSLO 1,2,3)
8. (Synthesis Level) Apply elements of self-awareness and principles of self-management in positive life plan. (CSLO 1,3)
9. (Evaluation Level) Assess one's own personality type(s) according to a major personality theory and evaluate the accuracy of the results. (CSLO 3)

Course Requisites

PSY230 - Introduction to Statistics

General

Division
Social & Behavioral Sciences Division

Course Description
Provides a conceptual and practical introduction to statistics used in psychology and other behavioral sciences. Covers basic topics in statistics including: measures of central tendency and variability, probability and distributions, correlations and regression, hypothesis testing, t-tests, analysis of variance, and chi-square tests. Includes instruction in statistical analysis using statistical software. Geared specifically for students in the social and behavioral sciences professions. Recommended: RDG100. Prerequisite: MAT141 or higher.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Compare and contrast various statistical terms and operations. (CSLO 2,4)
2. (Application Level) Solve problems using operations descriptive statistics applied to data arrays within certain population parameters, including calculation of central tendencies, variance and correlations. (CSLO 2,3,4)
3. (Synthesis Level) Incorporate applications of fundamental aspects of estimation, discrimination, probability and distributions, and the predictive power of statistical procedures to suggested scenarios. (CSLO 2,3,4)
4. (Evaluation Level) Interpret statistical data/reports of scientific writings. (CSLO 2,4)
5. (Application Level) Apply problem solving techniques based on inferential statistics to hypothetical situations. (CSLO 2,3,4)

Course Requisites

PSY255 - Biopsychology

General

Division
Social & Behavioral Sciences Division

Course Description
This course explores the biological foundations of behavior and mental processes. Topics include brain structure, neurotransmission, and the impact of genetics and hormones on behavior. Prerequisite: PSY 101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Identify and describe the major structures and functions of the brain and nervous system, including their roles in behavior and mental processes. (CSLO 2,4)
2. (Application Level) Explain the mechanisms of neurotransmission, including the role of neurotransmitters and hormones in influencing mood, cognition, and behavior. (CSLO 2,4)
3. (Analysis Level) Analyze how different brain regions and neural circuits are linked to specific behaviors, emotions, and cognitive functions. (CSLO 2,4)
4. (Application Level) Describe and apply basic research methods used in biopsychology, including experimental design, neuroimaging techniques, and behavioral assessments. (CSLO 2,3,4)
5. (Evaluation Level) Evaluate the biological underpinnings of common biopsychological disorders such as depression, anxiety, and schizophrenia, and discuss their implications for treatment and therapy. (CSLO 2,3,4)
6. (Creation Level) Integrate biological and psychological perspectives to understand how genetics, brain function, and environmental factors interact to influence behavior and mental health. (CSLO 1,2,3,4)

PSY277 - Human Sexuality

General

Division
Social & Behavioral Sciences Division

Course Description
Exploration of sexual issues from psychological, physiological, and sociological perspectives. Historical, multicultural variations in sexuality, female and male reproductive anatomy, physiology, conception through birth, diseases, gender issues, sexual communication, sexual behavior patterns, love, and sexual orientations, sexual abuses are examined. Recommended: This class focuses on sensitive material and may not be appropriate for younger students or students who find the study of sexuality uncomfortable or offensive. Prerequisite: SOC101 or PSY101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe and explain the multicultural aspects of human sexual history.
2. (Comprehension Level) Describe information regarding biological issues including sexual anatomy, hormones, sexual arousal and response, conception, pregnancy, contraception, sexually transmitted diseases, and cancers. (CSLO 2 & 4)
3. (Comprehension Level) Summarize the social context of human sexuality from historical and cultural perspectives. (CSLO 1)
4. Analysis Level) Distinguish between the terms sex, sexuality, and gender. (CSLO 3)
5. (Evaluation Level) Critique the social meaning of issues related to sexuality including legal controls, the uses and abuses of mass media upon the concept of gender and behavior, varieties of sexual life styles, sexual orientations, relationships, and practices. (CSLO 1 & 4)
6. (Synthesis Level) Construct a sexual policy that will guide health decisions concerning sexual rights, responsibilities, safe, and non-threatening sexual behaviors. (CSLO 1)
7. (Evaluation Level) Assess and evaluate what is socially defined as sexual deviance and sexual abuse, comparing and contrasting what is "normal" versus "non-normative" behaviors with clinically diagnosed sexual disorders. (CSLO 1)
8. (Analysis Level) Discuss how various researchers have attempted to define, describe, and measure love (e.g., Rubin, Sternberg, Lee, Fisher, etc.) and use this information to reflect on past relationships.
9. Analysis Level) Discuss social, cultural, and psychological issues related to gender, intimate relationships, love, and marriage.
10. (Evaluation Level) Create a month-by-month timeline describing conception through term of pregnancy, and describe major developments of embryo, zygote, and fetus. (CSLO 3)
11. (Analysis Level) Understand and differentiate between different types of sexually transmitted diseases, the behaviors leading to them, and prevention methods. (CSLO 1 & 4)
12. (Analysis Level) Examine one's own personal sexual development and engage in discussion on gender issues, gender identity development, and willingness to establish healthy and safe sexual and emotional well being. (CSLO 1 & 3)

Course Requisites

PSY290 - Research Methods

General

Division
Social & Behavioral Sciences Division

Course Description
Principles of scientific inquiry in psychological research. Includes the review of current literature, hypothesis development, ethics, variables, measurement, validity, reliability, experimental designs, quasi-experimental designs, non-experimental designs, as well as the planning, execution, statistical analysis, and reporting of psychological research in APA format. This course includes lecture and lab. Recommended: This course includes lecture (3) and lab (1). Students should be prepared for a significant amount of reading, writing, data analysis, and summarization of statistical output. Prerequisites: ENG101; PSY101; PSY230 (Recommended) OR BUS208 OR MAT162. Corequisite: ENG102.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Describe key concepts, principles, and overarching themes in psychology. (APA 1.1) (CSLO 1,2,4)
2. (Understanding Level) Describe applications of psychology in research. (APA 1.3) (CSLO 2,3)
3. (Evaluating Level) Critique the strengths and limitations of various research techniques. (CSLO 2,4)
4. (Creating Level) Express scientific reasoning in the interpretation of psychological phenomena. (APA 2.1) (CSLO 2,4)
5. (Understanding Level) Demonstrate psychology information literacy through reviews of current and applicable literature. (APA 2.2) (CSLO 2,3,4)
6. (Applying Level) Collect subject data in accordance with the Collaborative Institutional Training Initiative (CITI) or National Institute of Health (NIH) ethical standards expressing ethical, scientific practices. (APA 3.15) (CSLO 1,3)
7. (Evaluating Level) Select and apply appropriate statistical tests for each hypothesis. (CSLO 2,4)
8. (Creating Level) Design, conduct, and summarize basic psychological research. (APA 2.4) (CSLO 2,3,4)
9. (Understanding Level) Demonstrate effective scientific writing and statistical summarization skills adhering to American Psychological Association (APA) style. (APA 4.1) (CSLO 2,3,4)
10. (Applying Level) Exhibit effective presentation skills of scientific research and the ability to answer complex questions. (APA 4.2) (CSLO 3,4)

Course Requisites

RAD100 - Fundamentals of Radiologic Science & Health Care

General

Division
Radiology Program

Course Description
Introduction to the field of radiology, the healthcare system and the Radiologic Technology program. Content also includes an introduction to radiologic terminology, ethics, patient care, health care systems, accreditation and professional organizations, and radiation protection. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Assess the role of ethics and ethical behavior in health care delivery. (CSLO 3)
2. (Comprehension Level) Summarize parameters of legal responsibility in the practice of radiography regarding patient personal information, intentional torts, negligence/malpractice, and risk reduction. (CSLO 2)
3. (Knowledge Level) Identify the major professions that make up a health care system, including the radiologic technology professions and the disciplines that comprise radiography. (CSLO 2)
4. (Analysis Level) Define accreditation, credentialing, certification, registration, licensure and regulations as they relate to the field of radiologic technology. (CSLO 2)
5. (Evaluation Level) Outline the basic principles of radiation protection, including a justification for and objectives of a radiation protection program, sources of radiation and potential biologic damage, sources of radiation, safe practices, and legal/ethical responsibilities. (CSLO 4)

Course Requisites

RAD103 - Radiographic Positioning Terminology

General

Division
Radiology Program

Course Description
Introduction to the field of radiology, the healthcare system and the Radiologic Technology program. Content includes an introduction to medical terminology, osteology, arthrology, anatomic relationships, positioning terminology, body planes, and radiographic positioning landmarks.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Assess the anatomic relationship and body movement terminology, including body planes, body cavities, surface landmarks, and body habitus types. (CSLO 3)
2. (Comprehension Level) Summarize bone markings and features including processes, projections, depressions, and fractures. (CSLO 2)
3. (Knowledge Level) Define osteology, including comparing the appendicular and axial skeleton, bone development, and bone classifications. (CSLO 2)
4. (Analysis Level) Define functional and structural arthrology classifications. (CSLO 2)
5. (Evaluation Level) Outline the basic preliminary steps in radiography, including radiographic standards, standard precautions, patient preparations, radiation safety standards, and basic positioning procedures. (CSLO 4).

RAD110 - Radiographic Positioning I

General

Division
Radiology Program

Course Description
An introduction to radiographic positioning and a review of related anatomy covering anatomy, physiology and the fundamentals of radiographic positioning for the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen, and vertebral column. Prerequisite: RAD103.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Explain the basics of anatomical and radiographic nomenclature. (CSLO 2,3)
2. (Knowledge Level) Identify the structure and function of anatomy related to the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, vertebral column and abdomen. (CSLO 2,3)
3. (Knowledge Level) Define the standard positioning terms related to procedures of the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen and vertebral column. (CSLO 2,3).

Course Requisites

RAD110LB - Radiographic Positioning I Lab

General

Division
Radiology Program

Course Description
An introduction to radiographic positioning and a review of related anatomy covering anatomy, physiology and the fundamentals of radiographic positioning for the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen and vertebral column. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Simulate the general considerations for radiographic procedures of the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen and vertebral column including an evaluation of radiographic orders, patients with special needs, room preparation and patient communication. (CSLOs 1, 2, 3)
2. (Evaluation Level) Evaluate images of the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen and vertebral column for positioning, centering, appropriate anatomy and overall image quality. (CSLO 4)
3. (Knowledge Level) Indicate the anatomy and structures visualized on routine radiographs of the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen and vertebral column. (CSLO 2)
4. (Application Level) Demonstrate the routine and special positions/projections for the upper and lower extremities, shoulder girdle, chest, pelvis, pelvic girdle, abdomen and vertebral column. (CSLOs 2, 3)

Course Requisites

RAD120 - Principles of Radiographic Exposure I

General

Division
Radiology Program

Course Description
An introduction to the fundamental factors of digital image production, with related accessories and image analysis. Prerequisite: Radiologic Technology cohort student.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the establishment of image appearance standards, characteristics, and the importance of a Quality Assurance program. (CSLO 2)
2. (Analysis Level) Distinguish density, contrast, recorded detail, distortion, spatial, and exposure latitude. (CSLO 4)
3. (Comprehension Level) Define beam filtration and list beam-limiting devices, their function and applications. (CSLO 1)
4. (Analysis Level) Compare scattered and secondary radiation, including factors and effects. (CSLO 2)
5. (Comprehension Level) Explain control of remnant beam/exit beam methods to include function, construction, types, grid characteristics, selection, and primary cutoff. (CSLO 4)
6. (Comprehension Level) Describe exposure factors and the concepts of exposure factor formulation. (CSLO 2)
7. (Knowledge Level) Define the characteristics of image receptors. (CSLO 2)

Course Requisites

RAD130 - Patient Care in Radiologic Science

General

Division
Radiology Program

Course Description
Basic concepts of patient care, physical and psychological needs of the patient/family. Infection control measures, routine/emergency patient care procedures; patient safety, assessment, radiologic technologist/patient communications and patient care devices are presented. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Summarize the practice standards for the radiographer as defined by the American Society of Radiologic Technologists (ASRT) and state licensure. (CSLO 2)
2. (Comprehension Level) Describe the importance of attitudes and communication in patient care including professionalism, age specific interactions, verbal/nonverbal communication, cultural variations, communication challenges, and psychological considerations. (CSLO 2)
3. (Comprehension Level) Describe specific patient safety measures and concerns including environmental factors, body mechanics, patient transfers, positioning, and immobilization techniques. (CSLO 2)
4. (Evaluation Level) Demonstrate the ability to evaluate a patient's physical needs. (CSLO 2)
5. (Synthesis Level) Articulate the principles of infection control to include the importance of standard precautions, isolation procedures, sources and modes of transmission of infection/disease, and institutional control procedures. (CSLO 2)
6. (Comprehension Level) Identify unique patient care situations including medical emergencies and trauma. (CSLO 2)
7. (Analysis Level) Distinguish various patient care devices and explain function and special considerations. (CSLO 2)

Course Requisites

RAD140 - Practicum I

General

Division
Radiology Program

Course Description
Initial clinical radiography experience that applies radiographic theory to the performance of procedures. Through structured, sequential competency-based assignments under supervision, students acquire proficiency in clinical practice and the performance of radiographic exams. Prerequisite: Radiologic Technology cohort student.

Total Number Of Credits:
3

Practicum Credits
3

Other Credit Information
3 Practica total 240 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the basic concepts of clinical practice including the code of ethics/professional behavior, professional communication, and roles of the radiographer. (CSLO 2)
2. (Application Level) Employ basic skills in the prioritizing of procedures required in daily clinical practice including scheduling, order evaluation, room setup, and patient assessment.(CSLO 2)
3. (Synthesis Level) Provide patient-centered clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity, or culture. (CSLO 2)
4. (Application Level) Apply the principles of radiation protection standards. (CSLO 2)
5. (Application Level) Demonstrate the principles of transferring, positioning, and immobilizing patients. (CSLO 2)
6. (Evaluation Level) Critique images for appropriate anatomy, image quality and patient identification. (CSLO 4)
7. (Application Level) Demonstrate competency in the performance of radiographic exams as designated and in compliance with Competency Requirements for Primary Certification of the American Registry of Radiologic Technologists (ARRT). (CSLO 2)

Course Requisites

RAD150 - Radiation Physics I

General

Division
Radiology Program

Course Description
The fundamentals of radiation production/characteristics including the basics of atomic structure, the nature of radiation, interactions of photons with matter, and associated terminology. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the basic structure of the atom including composition and nomenclature. (CSLO 2)
2. (Knowledge Level) Define the basic nature of radiation. (CSLO 2)
3. (Comprehension Level) Describe the basic concepts of x-ray production, including types, common terminology, conditions necessary for production, the x-ray emission spectra, factors that effect the emission spectra, and efficiency in production. (CSLO 2)
4. (Knowledge Level) List various photon interactions with matter and describe the interaction/relation to atomic number, photon energy, and part density. (CSLO 2)
5. (Comprehension Level) Explain coherent scatter, photoelectric effect, Compton effect, pair production, and photodisintegration. (CSLO 2)

Course Requisites

RAD160 - Radiographic Positioning II

General

Division
Radiology Program

Course Description
Human structure/function, sectional anatomy and the fundamentals of radiographic positioning of the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery. Prerequisites: RAD110 and Radiologic Technology cohort student.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify the structure and function of anatomy related to the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery. (CSLO 2)
2. (Knowledge Level) Define the standard positioning terms related to procedures of the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery. (CSLO 2)
3. (Comprehension Level) Explain the general considerations for radiographic procedures of the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery, including an evaluation of radiographic orders, patients with special needs, room preparation and patient communication. (CSLOs 1, 2, 3, 4)

Course Requisites

RAD160LB - Radiographic Positioning II Lab

General

Division
Radiology Program

Course Description
Human structure/function, sectional anatomy and the fundamentals of radiographic positioning of the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery. Prerequisites: RAD110 and Radiologic Technology cohort student.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate images of the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery for positioning, centering, appropriate anatomy and overall image quality. (CSLOs 2, 4)
2. (Knowledge Level) Indicate the anatomy and structures visualized on routine radiographs of the bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery. (CSLO 2)
3. (Application Level) Demonstrate the routine and special positions/ projections for bony thorax, contrast studies of urinary and digestive systems, cranium, arthrography, myelography, venography, pediatric imaging, basic mobile radiography and imaging during trauma and surgery. (CSLOs 1, 2, 3)

Course Requisites

RAD170 - Principles of Radiographic Exposure II

General

Division
Radiology Program

Course Description
This course examines digital image acquisition, image display and image analysis. Prerequisite: RAD120 and Radiologic Technology Cohort student.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the basic principles of digital radiography, including digital image characteristics and digital receptors. (CSLO 2)
2. (Analysis Level) Compare detector properties and evaluative criteria and dynamic range versus latitude. (CSLO 4)
3. (Analysis Level) Outline the process of image acquisition, including common image acquisition errors. (CSLO 2)
4. (Analysis Level) Associate the impact of various image processing parameters to the image appearance. (CSLO 2)
5. (Comprehension Level) Summarize the fundamental principles of exposure. (CSLO 2)
6. (Comprehension Level) Explain the basic concepts of image evaluation. (CSLO 2)
7. (Comprehension Level) Give examples of the basic practice of quality management and the need of maintenance as related to digital image acquisition. (CSLO 2)
8. (Knowledge Level) Define the various types of image display, including monitors, film, Picture Archive Communication System (PACS), and teleradiology. (CSLO 2)
9. (Comprehension Level) Describe the elements of a radiographic image. (CSLO 2)
10. (Comprehension Level) Explain effective image analysis to include standards, appearance, procedural factors, positioning, centering, radiation protection, and corrective actions. (CSLO 2, 3, 4)

Course Requisites

RAD180 - Practicum II

General

Division
Radiology Program

Course Description
Structured, sequential competency-based assignments under supervision, students will acquire proficiency in clinical practice and the performance of radiographic exams. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
3

Practicum Credits
3

Other Credit Information
3 Practica total 240 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the concepts of clinical practice, including the code of ethics/professional behavior, professional communication, and roles of the radiographer. (CSLO 3)
2. (Application Level) Employ intermediate skills in the prioritizing of procedures required in daily clinical practice, including scheduling, order evaluation, room setup, and patient assessment. (CSLO 2)
3. (Application Level) Provide patient-centered clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity, or culture. (CSLO 4)
4. (Application Level) Apply the principles of radiation protection standards. (CSLO 2)
5. (Application Level) Demonstrate the principles of transferring, positioning, and immobilizing patients at an intermediate skill level. (CSLO 2)
6. (Evaluation Level) Critique images for appropriate anatomy, image quality, and patient identification. (CSLO 4)
7. (Application Level) Demonstrate intermediate competency in the performance of radiographic exams as designated and in compliance with Competency Requirements for Primary Certification of the American Registry of Radiologic Technologists (ARRT). (CSLO 2)

Course Requisites

RAD200 - Practicum III

General

Division
Radiology Program

Course Description
Through structured, sequential competency-based assignments under supervision, students acquire proficiency in clinical practice and the performance of radiographic exams. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
7

Practicum Credits
7

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the concepts of clinical practice including the code of ethics/professional behavior, professional communication, and roles of the radiographer. (CSLO 3)
2. (Application Level) Employ skills at a working proficiency in the prioritizing of procedures required in daily clinical practice, including scheduling, order evaluation, room setup, and patient assessment. (CSLO 4)
3. (Synthesis Level) Provide patient-centered clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity, or culture. (CSLO 2)
4. (Application Level) Apply the principles of radiation protection standards. (CSLO 2)
5. (Application Level) Demonstrate the principles of transferring, positioning, and immobilizing patients at a working proficiency level. (CSLO 2)
6. (Evaluation Level) Critique images for appropriate anatomy, image quality, and patient identification. (CSLO 4)
7. (Application Level) Demonstrate competency in the performance of radiographic exams as designated and in compliance with Competency Requirements for Primary Certification of the American Registry of Radiologic Technologists (ARRT). (CSLO 2)

Course Requisites

RAD205 - Ethical and Legal Issues for Imaging Professionals

General

Division
Radiology Program

Course Description
Fundamental background in ethical and legal issues encountered in the field of radiography.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Discuss the origins of medical ethics. (CSLO 3)
2. (Application Level) Apply medical and professional ethics in the context of a broader societal ethic. (CSLO 2)
3. (Comprehension Level) Explain the role of ethical behavior in health care delivery. (CSLO 2)
4. (Comprehension Level) Explain concepts of personal honesty, integrity, accountability, competence, and compassion as ethical imperatives in health care. (CSLO 3)
5. (Analysis Level) Identify legal and professional standards and relate each to practice in health professions. (CSLO 3)
6. (Knowledge Level) Identify specific situations and conditions that give rise to ethical dilemmas in health care. (CSLO 4)
7. (Comprehension Level) Explain select concepts embodied in the principles of patient's rights, the doctrine of informed consent, and other issues related to patients' rights. (CSLO 3)
8. (Comprehension Level) Explain the legal implications of professional liability, malpractice, professional negligence, and other legal doctrines applicable to professional practice. (CSLO 3)
9. (Comprehension Level) Describe the importance of timely, accurate, and comprehensive methods of documentation as a legal and ethical imperative. (CSLO 3)
10. (Analysis Level) Explore theoretical situations and questions relating to the ethics of health care delivery. (CSLO 4)
11. (Comprehension Level) Explain legal terms, principles, doctrines, and laws specific to the radiologic sciences. (CSLO 2)
12. (Analysis Level) Outline the conditions necessary for a valid malpractice claim. (CSLO 4)
13. (Comprehension Level) Describe institutional and professional liability protection typically available to the radiographer. (CSLO 2)
14. (Comprehension Level) Describe the components and implications of informed consent. (CSLO 2)
15. (Knowledge Level) Identify standards for informed consent and disclosure of protected health information. (CSLO 3)
16. (Analysis Level) Describe how consent forms are used relative to specific radiographic procedures. (CSLO 3)
17. (Analysis Level) Differentiate between civil and criminal liability. (CSLO 2)
18. (Comprehension Level) Define tort and explain the differences between intentional and unintentional torts. (CSLO 2)

RAD210 - Radiation Physics II

General

Division
Radiology Program

Course Description
Continuation of RAD150, Radiation Physics I, covering the basics of imaging systems and quality control. Prerequisite: RAD140 and Radiologic Technology Cohort student.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Compare and contrast the general components and functions of the tube circuit and the filament circuit. (CSLO 4)
2. (Knowledge Level) Identify the components of diagnostic x-ray tubes. (CSLO 2)
3. (Synthesis Level) Categorize the general types of imaging equipment in terms of purpose, components, applications, and operation. (CSLO 2)
4. (Analysis Level) Differentiate between image-intensified fluoroscopy and digital fluoroscopy.
5. (Comprehension Level) Explain the purpose, principles, and application of linear tomography.
6. (Knowledge Level) Define the elements and benefits of a quality management program to the patient and to the department. (CSLO 2)

Course Requisites

RAD230 - Radiobiology & Radiation Protection

General

Division
Radiology Program

Course Description
Building and expanding on the basic and radiation protection concepts presented in RAD100, Fundamentals of Radiologic Science and Health Care. Content includes the principles of the interaction of ionizing radiation, biological systems and concepts of radiation protection. Prerequisites: RAD100 and Radiologic Technology Cohort student.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Outline basic cell biology including an overview of cell constituents, cell structure, and the various stages of cell growth. (CSLO 2)
2. (Analysis Level) Distinguish among types of ionizing radiation and their interaction with cells. (CSLO 1)
3. (Knowledge Level) Identify various biophysical events. (CSLO 2)
4. (Comprehension Level) Explain the effects of radiation. (CSLO 2)
5. (Knowledge Level) Define the concepts of radio sensitivity and response including the Law of Bergoni and Tribondeau, cell survival and recovery, systemic response to radiation, dose-response curves, total body irradiation, late effects of radiation, and risk factors. (CSLO 2)
6. (Synthesis Level) Categorize and explain the various units of detection and measurement. (CSLO 4)
7. (Evaluation Level) Justify the objectives of a radiation protection program and personnel monitoring. (CSLO 4)
8. (Evaluation Level) Interpret the functions of surveys, regulatory/advisory agencies, and regulations as related to radiation protection. (CSLO 4)
9. (Comprehension Level) Describe the application of radiation protection principles. (CSLO 2)
10. (Comprehension Level) Explain the considerations for radiation protection for patients. (CSLO 1)

Course Requisites

RAD240 - Practicum IV

General

Division
Radiology Program

Course Description
Through structured, sequential competency-based assignments under supervision, students will acquire proficiency in clinical practice and the performance of radiographic exams. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
4

Practicum Credits
4

Other Credit Information
4 Pracitca total 360 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Employ an advanced knowledge of the concepts of clinical practice, including the code of ethics/professional behavior, professional communication, and roles of the radiographer as evidenced by documented competencies. (CSLO 2)
2. (Application Level) Utilize an advanced level of skill in the prioritizing of procedures required in daily clinical practice, including scheduling, order evaluation, room setup, and patient assessment as evidenced by clinical instructor evaluation. (CSLO 4)
3. (Synthesis Level) Provide patient-centered clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity, or culture. (CSLO 2)
4. (Application Level) Apply the principles of radiation protection standards. (CSLO 2)
5. (Application Level) Implement advanced principles of transferring, positioning, and immobilizing patients. (CSLO 2)
6. (Evaluation Level) Critique images for appropriate anatomy, image quality, and patient identification. (CSLO 4)
7. (Synthesis Level) Demonstrate competency in the performance of radiographic exams as designated and in compliance with Competency Requirements for Primary Certification of the American Registry of Radiologic Technologists (ARRT). (CSLO 2)

Course Requisites

RAD250 - Pharmacology and Venipuncture

General

Division
Radiology Program

Course Description
The theory and practice of pharmacology including basic techniques of venipuncture and administration of diagnostic contrast agents and/or intravenous medications. Prerequisite: Radiologic Technology cohort student.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Explain basic drug nomenclature and distinguish between the chemical, generic, and trade names for select drugs. (CSLO 2)
2. (Comprehension Level) Describe the various methods of drug classification, including chemical group, mechanism, and primary effect. (CSLO 2)
3. (Evaluation Level) Compare and contrast the general pharmacologic principles of pharmacokinetics and pharmacodynamics. (CSLO 4)
4. (Knowledge Level) Define the five rights of drug safety. (CSLO 2)
5. (Analysis Level) Relate the drug categories to radiography, including side effects, uses, and impacts on medical imaging. (CSLO 2)
6. (Analysis Level) Classify contrast agents, including types of compounds, beam attenuation characteristics, pharmacologic profile, dosage, and preparation. (CSLO 4)
7. (Comprehension Level) Describe the systemic and parenteral routes of drug administration. (CSLO 2)
8. (Comprehension Level) Explain intravenous drug therapy, including purpose, advantages, sites of administration, common complications, initiation, related patient care issues, and relevant documentation. (CSLO 2)
9. (Analysis Level) Outline current practice status, including professional standards, state statutes, and employer prerogatives.
10. (Comprehension Level) Explain the concept of informed consent.

Course Requisites

RAD260 - Radiographic Pathology

General

Division
Radiology Program

Course Description
The concepts of disease and the etiology of selected pathologic conditions are examined with an emphasis on the radiographic appearance of various diseases and the influence of pathologic changes on considerations of technique. Prerequisite: Radiologic Technology cohort student.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) List and define basic terms related to pathology. (CSLO 2)
2. (Analysis Level) Differentiate between the classifications of pathology, including definitions, examples, sites, complications, and prognosis. (CSLO 2)
3. (Comprehension Level) Summarize and give examples of the causes of disease. (CSLO 4)
4. (Comprehension Level) Explain the disease process as it relates to radiopathology. (CSLO 2)
5. (Analysis Level) Identify and relate radiologic pathology. (CSLO 2)
6. (Analysis Level) Outline the pathological considerations of etiology, sites complications, prognosis, radiographic appearance, procedural, and technique modifications, and appropriate imaging modality. (CSLO 4)

Course Requisites

RAD270 - Advanced Imaging

General

Division
Radiology Program

Course Description
This course is an overview of the various fields of medical imaging with a focus on Computed Tomography. Prerequisite: Radiologic Technology cohort student.

Total Number Of Credits:
2

Lecture Credits
2

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Differentiate the various energies used to generate images, and explain the equipment and other dynamics of specialties within the imaging environment. (CSLO 2)
2. (Evaluation Level) Evaluate the benefits of CT scan technology and explain its clinical applications. (CSLO 2)
3. (Comprehension Level) Describe the components of the CT imaging system. (CSLO 2)
4. (Analysis Level) Examine the theoretical principles and explain the practical applications of the various specialties within medical imaging. (CSLO 2)
5. (Comprehension Level) Explain modality integration, correlation, and radiation safety practices. (CSLO 4)

Course Requisites

RAD280 - Registry Review

General

Division
Radiology Program

Course Description
A comprehensive review geared toward preparing the students for the national ARRT registry examination. Prerequisite: Radiologic Technology Cohort student.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Classify the sub-sections of each of the five main content areas and correctly identify a detailed listing of topics and associated concepts within each category. (CSLO 4)
2. (Analysis Level) Outline strategies to enhance and improve retention of radiographic concepts and skills. (CSLO 2)
3. (Evaluation Level) Assess personal weaknesses and strengths in content areas to determine focus of studies. (CSLO 3)
4. (Evaluation Level) Critique various review resources, including books, CDs, and on-line materials that can be utilized to augment examination preparation. (CSLO 3)

Course Requisites

RAD290 - Practicum V

General

Division
Radiology Program

Course Description
The final course in the clinical radiography experiences series that applies radiographic theory to the performance of procedures and continued application and reinforcement of skills mastered in previous practicums. Through structured, sequential competency-based clinical assignments under supervision, students continue to refine and enhance proficiency in an effort to achieve professional entry level competency. Observations in specialized imaging areas will be optional during this practicum. Prerequisites: RAD240 and Radiologic Technology Cohort student.

Total Number Of Credits:
4

Practicum Credits
4

Other Credit Information
4 Pracitca total 360 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Model professional entry level knowledge of the concepts of clinical practice including the code of ethics/professional behavior, professional communication, and roles of the radiographer as evidenced by documented terminal competencies. (CSLO 4)
2. (Synthesis Level) Develop and exhibit professional entry level competency of prioritizing procedures required in daily clinical practice including scheduling, order evaluation, room setup, and patient assessment as evidenced by clinical instructor final evaluation.(CSLO 4)
3. (Synthesis Level) Plan and provide patient-centered clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity, or culture. (CSLO 4)
4. (Application Level) Apply the principles of radiation protection standards. (CSLO 2)
5. (Synthesis Level) Incorporate the principles of transferring, positioning, and immobilizing to patient care. (CSLO 4)
6. (Evaluation Level) Critique images for appropriate anatomy, image quality, and patient identification. (CSLO 4)
7. (Synthesis Level) Demonstrate competency in the performance of all required radiographic exams. (CSLO 4)

Course Requisites

RDG09117 - Reading Essentials

General

Division
Literary Arts & Language Division

Course Description
This course will increase reading comprehension, reading fluency, and college-level vocabulary while introducing students to the writing process. Emphasis will be on identifying the topic, main idea, and details in reading passages then using this knowledge for idea development and organization in writing. In addition, students will work on the development of grammar and punctuation skills as well as the revision process. Prerequisite: Appropriate placement score.

Total Number Of Credits:
3

RDG10017 - College Reading

General

Division
Literary Arts & Language Division

Course Description
Emphasizes effective reading, critical thinking, and study skills leading to increased reading comprehension necessary for college level texts in all subject areas. Successful use of Learning Management Systems (LMS) and navigating information technology is emphasized. Completion of this course with a grade of C or better fulfills the college reading proficiency requirement. Recommended: ENR 090 or appropriate placement tool recommendation.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Employ subject area vocabulary effectively.(CSLO 2, 4)

2. (Analysis Level) Analyze textbook information and readings for topics, main ideas (stated or implied), and supporting details.(CSLO 2, 4)

3. (Analysis Level) Analyze readings and textbook assignments to find patterns of organization. (CSLO 2)

4. (Application Level) Demonstrate appropriate college level oral reading fluency. (CSLO 3)

5. (Synthesis Level) Formulate inferences from graphics and written texts. (CSLO 2,4)

6. (Comprehension Level) Outline and summarize reading material without plagiarizing.(CSLO 2)

7. (Comprehension Level) Identify author's purpose, tone and possible bias. (CSLO 2)

8. (Application Level) Apply critical reading/thinking strategies in order to evaluate evidence used to support specific claims. (CSLO 2, 4)

9. (Application Level) Apply appropriate reading and study strategies to comprehend information from academic texts and prepare for and take exams. (CSLO 2,3)

10. (Application Level) Use online learning management systems successfully in all modalities of instruction to facilitate the reading of online resources, supplements, and assessments. (CSLO 3)

11. (Application Level) Use informational technology (literacy skills) to search for specific information in library resources and credible online sources. (CSLO 3)

Course Requisites

REC101 - Recreation, Leisure and the Quality of Life

General

Division
Business & Computer Technology Division

Course Description
The conceptual foundations of recreation, play and leisure from cultural, historical, philosophical, physiological, psychological, and sociological perspectives; and the significance of recreation, play and leisure on life quality. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Analyze and discuss the role and importance of recreation, play, and leisure in various societies. (CSLO: 1,2,3,4)
2. (Comprehension Level) Identify and explain the conceptual foundations of recreation, play, and leisure from cultural, historical, philosophical, physiological, psychological, and sociological perspectives. (CSLO: 1,2,3,4)
3. (Synthesis Level) Identify, describe, and apply theories about human growth and development across the lifespan to case studies. (CSLO: 1,2,3,4)
4. (Comprehension Level) Explain how recreation, play, and leisure contribute to well-being, a healthy lifestyle, and self-fulfillment. (CSLO: 1,2,3,4)
5. (Evaluation Level) Create and implement a personal plan to meet individual developmental needs, including all eight areas: social, physical, aesthetic, psycho-emotional, cognitive, spiritual, environmental, and civic engagement. (CSLO: 1,2,3,4)
6. (Analysis Level) Compare and contrast the significance of recreation, play, and leisure throughout the life cycle for all persons, including underrepresented groups, and in different societies. (CSLO: 1,2,3,4)
7. (Analysis Level) Identify and relate the significance of culture, economics, politics, and technology to recreation, play, and leisure. (CSLO: 1,2,3,4)
8. (Comprehension Level) Describe and explain the interrelationship of recreation, play, and leisure behavior with the natural environment. (CSLO: 1,2,3,4)
9. (Evaluation Level) Research a need in a specific community, define the project, analyze barriers and challenges, then design a program to meet the need, including creating a budget, training staff, and providing the infrastructure to maintain sustainability. (CSLO: 1,2,3,4)

Course Requisites

REC108 - Recreation Practicum

General

Division
Business & Computer Technology Division

Course Description
Involves 105 hours of practical field experience in an approved recreation agency working with the special duties and problems of aides and supervisors of recreation programs, and observing and participating in assigned situations.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

Other Credit Information
Total 105 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and discuss various budget needs for government recreation services and leisure activities. (CSLOs 1,2,3,4)
2. (Comprehension Level) Identify and discuss the various types of recreational services and activities that communities may choose to implement. (CSLOs 1,2,3,4)
3. (Comprehension Level) Identify and discuss problems and challenges associated with the many recreational programs available to communities. (CSLOs 1,2,3,4)
4. (Comprehension Level) Identify and discuss various professional organizations related to field of interest. (CSLOs 1,2,3,4)
5. (Evaluation Level) Compare and contrast current programs in recreation and leisure settings. (CSLOs 1,2,3,4)
6. (Synthesis Level) Prepare a budget and itinerary for a proposed recreational activity. (CSLOs 1,2,3,4)
7. (Analysis Level) Analyze the positives and negative aspects of recreational facilities as they impact the community. (CSLOs 1,2,3,4)

REC110 - Western Horsemanship

General

Division
Business & Computer Technology Division

Course Description
No description.

Total Number Of Credits:
2

REC203 - Leisure Delivery Systems

General

Division
Business & Computer Technology Division

Course Description
Development, management and organization of public, nonprofit, and private sectors of the leisure services profession and industry. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe and explain the history of the leisure services industry in America and relate the economic, political and social influences on its development.
2. (Analysis Level) Research and identify the career development resources, ethical issues, organizational characteristics and tenets that comprise the leisure services industry.
3. (Analysis Level) Analyze and relate the principles of leisure behavior including how these principles can be used to market leisure services in natural and developed environments.
4. (Evaluation Level) Research and evaluate the role of management in public, private and nonprofit leisure service sectors; relate the implications of finances, legal foundations, organizational behavior, and policy development to the nature of service delivery.
5. (Analysis Level) Analyze and breakdown the interrelationships between the public, private and nonprofit sectors within modern society and the economic, human, institutional, and natural resources that are necessary to sustain leisure delivery systems.
6. (Evaluation Level) Assess and summarize the use of diverse service resources which promote and enhance the leisure experience.
7. (Evaluation Level) Research and evaluate the career opportunities, contemporary issues, professional responsibilities, and types of leisure service organizations within the following sub-fields: municipal/community recreation, outdoor recreation, nonprofit/youth and human services, tourism and commercial recreation, and therapeutic recreation.

Course Requisites

REC250 - Leadership in Recreation

General

Division
Business & Computer Technology Division

Course Description
Theories and strategies for leadership in recreation and tourism settings, including communication skills, group dynamics, motivational processes, and supervisory skills.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Distinguish between various traditional and contemporary leadership styles. (CSLO: 1,2,3,4)
2. (Application Level) Identify, explain and display multiple leadership styles and strategies for groups of varying size. (CSLO: 1,2,3,4)
3. (Analysis Level) Illustrate several approaches to evaluating leadership. (CSLO: 1,2,3,4)
4. (Analysis Level) Differentiate between the roles of individuals and groups. (CSLO: 1,2,3,4)
5. (Comprehension Level) Identify and describe the dynamics of creativity and how it affects leadership. (CSLO: 1,2,3,4)
6. (Evaluation Level) Defend the importance of role models in leadership positions. (CSLO: 1,2,3,4)
7. (Evaluation Level) Evaluate personal interaction skills and leadership style; and refine self-observation skills. (CSLO: 1,2,3,4)
8. (Evaluation Level) Assess personal verbal communication style and skills; and experiment with alternatives. (CSLO: 1,2,3,4)
9. (Application Level) Demonstrate alternative interaction and leadership styles. (CSLO: 1,2,3,4)
10. (Application Level) Demonstrate the ability to accept constructive criticism and to provide constructive feedback with others. (CSLO: 1,2,3,4)
11. (Analysis Level) Identify leadership styles and analyze them for effectiveness, failure and success.

REC088D5 - ARC Learn to Swim

General

Division
Business & Computer Technology Division

Course Description
No description.

Total Number Of Credits:
0.25

SCI195 - High Altitude Balloon Payload

General

Division
Science & Engineering Division

Course Description
Develop and fly an experiment for a high-altitude balloon as part of an Arizona Space Grant Consortium project. Students will collect and analyze scientific data obtained by the balloon experiment and present their results at a meeting arranged by the Arizona Space Grant Consortium.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Design, construct, integrate, and test an experimental package. (CSLO 2, 3 & 4)
2. (Comprehension Level) Explain the basics of balloons and related atmospheric physics. (CSLO 2, 3 & 4)
3. (Analysis Level) Collect and analyze scientific data. (CSLO 2, 3 & 4)
4. (Synthesis Level) Communicate results through written work and oral presentations. (CSLO 1 & 3)

SCI195A - Applied Projects in STEM - A

General

Division
Science & Engineering Division

Course Description
Applied Projects in STEM is intended to fulfill an undergraduate academic (research and/or design) need of importance to the student and to enhance/broaden what is learned through the regular curriculum. Students will work with the faculty advisor to define the content of the project they undertake to meet their specific needs. Recommended for students who are interested in doing applied projects outside of regular classes. May take 4 times for credit. S/U grading option only. Prerequisite: Faculty approval.

Total Number Of Credits:
1

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain area of research or a design project.
2. (Understanding Level) Explain and document desired outcomes and constraints.
3. (Evaluating Level) Define various solutions to meet the desired outcome, compare and contrast these solutions, and conclude which specific solution would best deliver the outcomes.
4. (Applying Level) Develop a plan for research or design project, with deliverables.
5. (Applying Level) Implement your research plan and/or construct your design.
6. (Evaluating Level) Examine your research results and/or evaluate your design
7. (Evaluating Level) Interpret whether the desired outcome is met.
8. (Creating Level) Discuss your results.
9. (Creating Level) Discuss and develop an improvement plan.
10. (Creating Level) Disseminate.

SCI195B - Applied Projects in STEM - B

General

Division
Science & Engineering Division

Course Description
Applied Projects in STEM is intended to fulfill an undergraduate academic (research and/or design) need of importance to the student and to enhance/broaden what is learned through the regular curriculum. Students will work with the faculty advisor to define the content of the project they undertake to meet their specific needs. Recommended for students who are interested in doing applied projects outside of regular classes. May take 4 times for credit. S/U grading option only. Prerequisite: Faculty approval.

Total Number Of Credits:
2

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain area of research or a design project.
2. (Understanding Level) Explain and document desired outcomes and constraints.
3. (Evaluating Level) Define various solutions to meet the desired outcome, compare and contrast these solutions, and conclude which specific solution would best deliver the outcomes.
4. (Applying Level) Develop a plan for research or design project, with deliverables.
5. (Applying Level) Implement your research plan and/or construct your design.
6. (Evaluating Level) Examine your research results and/or evaluate your design
7. (Evaluating Level) Interpret whether the desired outcome is met.
8. (Creating Level) Discuss your results.
9. (Creating Level) Discuss and develop an improvement plan.
10. (Creating Level) Disseminate.

SOC101 - Introduction to Sociology

General

Division
Social & Behavioral Sciences Division

Course Description
The systematic study of society; the role and impact of society on individual and group social interaction. Recommended: RDG100 and ENG 100 or ENG 121 or appropriate placement test scores

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) List and describe social institutions, their role, functions and impact on individual and group life. (CSLO 2)
2. (Knowledge Level) Describe the role of race/ethnicity, sex/gender, age and social class on social interaction. (CSLO 1,2,4)
3. (Comprehension Level) Explain social change and its influence on social institutions, culture, social inequality and social interactions. (CSLO 1,2,3,4)
4. (Application Level) Apply basic sociological concepts, theories, terms, and principles to a variety of experiences and situations. (CSLO 2,3,4)
5. (Knowledge Level) Define sociology and discuss the historical context for sociology as a discipline. (CSLO 2,4)
6. (Comprehension Level) Discuss sociological imagination and the inter-relatedness of individuals and groups within the global community. (CSLO 1,2,3,4)

SOC200 - Racial and Ethnic Minorities

General

Division
Social & Behavioral Sciences Division

Course Description
Race and ethnicity in American society including such topics as discrimination, segregation, conflict, power and assimilation with an emphasis on contemporary issues. Prerequisites: SOC101 and ENG101. Prerequisite or Corequisite: ENG102.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
At the end of this course, you will be able to:
1. (Comprehension Level) Explain the concepts of race and ethnicity using various sociological theories. (CSLO 1, 2)
2. (Analysis Level) Examine discrimination as a function of a power differential between majority and subordinate groups. (CSLO 1, 2, 4)
3. (Analysis Level) Analyze similarities and differences among America's major minority groups. (CSLO 1, 2)
4. (Comprehension Level) Explain how the ideologies of assimilation, cultural pluralism and conflict theory influence the experiences of ethnic, racial and culturally diverse populations. (CSLO 1, 2)
5. (Evaluation Level) Compare and contrast the historical backgrounds of minority groups in the U.S. and communicate the influence of religion, immigration policies and social class on each group. (CSLO 1, 2, 3, 4)
6. (Synthesis Level) Explain the structural, economic, social and personal effects of prejudice and discrimination and communicate how these factors perpetuate social inequalities among minority groups. (CSLO 1, 2, 3, 4)
7. (Analysis Level) Examine and explain the role of media in perpetuating and reinforcing stereotypes and discrimination of minority groups. (CSLO 1, 2, 4)
8. (Evaluation Level) Assess the impact of race and ethnicity on contemporary social issues. (CSLO 1, 2, 3, 4)

Course Requisites

SOC202 - Contemporary Social Problems

General

Division
Social & Behavioral Sciences Division

Course Description
A systematic study of contemporary American and global social problems from a sociological viewpoint. Prerequisites: SOC 101. Corequisites: ENG101 must be taken as a prerequisite or corequisite.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define a social problem. (CSLO 1,2,3,4)
2. (Evaluation Level) Explain how biases influence how social problems and global issues are identified and the approach used to resolve them. (CSLO 1,2,4)
3. (Analysis Level) Using various sociological theories, terms, and concepts, analyze the continued existence of social problems both in the U.S. and around the world.(CSLO 1,2,4)
4. (Evaluation Level) Compare the relationship of U.S. and global social problems.(CSLO 1,2,4)
5. (Synthesis level) Design experiments utilizing the research methods social scientists use to gather social facts. (CSLO 1,4)
6. (Comprehension Level) Explain why social problems exist by using various sociological theories, terms and concepts. (CSLO 2,4)
7. (Comprehension Level) Discuss the societal benefits and consequences of social problems to the individual and the various groups within society.(CSLO 1,2,3,4)
8. (Analysis Level) Analyze how specific social policies address contemporary social problems in the U.S. and globally. (CSLO 2,4)

Course Requisites

SOC203 - Marriage and Family

General

Division
Social & Behavioral Sciences Division

Course Description
A comprehensive examination of marriage and the family as a cultural unit and a social institution. Prerequisite: SOC101. Prerequisite or Corequisite: ENG101.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) List and describe social institutions, their role, functions and impact on individual and group life. (CSLO 2)
2. (Knowledge Level) Describe the role of race/ethnicity, sex/gender, age and social class on social interaction. (CSLO 1,2,4)
3. (Comprehension Level) Explain social change and its influence on social institutions, culture, social inequality and social interactions. (CSLO 1,2,3,4)
4. (Application Level) Apply basic sociological concepts, theories, terms, and principles to a variety of experiences and situations. (CSLO 2,3,4)
5. (Knowledge Level) Define sociology and discuss the historical context for sociology as a discipline. (CSLO 2,4)
6. (Comprehension Level) Discuss sociological imagination and the inter-relatedness of individuals and groups within the global community. (CSLO 1,2,3,4)

SOC212 - Gender in Society

General

Division
Social & Behavioral Sciences Division

Course Description
Social structures and processes related to the construction of gender in society, including theoretical perspectives, impact of politics past and present, sex versus gender, and gender in the workplace, media, religion, medicine, and in global perspective. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Analysis Level) Distinguish between sex and gender. 2. (Application Level) Apply knowledge of theories and core sociological concepts to issues of sex and gender. 3. (Comprehension Level) Describe the role of socialization in the process of gender role development. 4. (Analysis Level) Analyze the development of contemporary gender roles in various social institutions and their impact on men and women in society. 5. (Analysis Level) Examine the role of social class, race and ethnicity on the construction and definition of gender and appropriate gender roles. 6. (Comprehension Level) Discuss gender roles from a global perspective. 7. (Analysis Level) Analyze social issues such as the distribution of wealth, power, and prestige between women and men and relate them to issues of gender. 8. (Evaluation Level) Interpret the role of the mass media in creating conventional ideas about gender. 9. (Analysis Level) Examine the biological, psychological and sociological perspectives of gender role development.

Course Requisites

SOC220 - Human Services Capstone

General

Division
Social & Behavioral Sciences Division

Course Description
Engage in real-world experiences that prepare students for a career in advocacy, case management, or evaluation. Complete a practicum project that defines a social problem and demonstrates the societal benefits and consequences of social issues to the individual and various social groups. Prerequisites: ENG 101, PSY 101, SOC 101, SWU 171. Corequisites: PHI 105, SOC 202.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define social problems in the context of ethical, psychological, and sociological theories. CSLO #2, #3, #4
2. (Knowledge) Demonstrate the societal benefits and consequences of social problems to the individual and the various groups within society. CSLO #2
3. (Application Level) Apply basic ethical, psychological, and sociological concepts, theories, terms, and principles to a variety of experiences and situations in an oral presentation. CSLO #1, #2, #3, #4
4. (Comprehension Level) Explain how ethical, psychological, and sociological values and beliefs influence human services practice. CSLO #1, #2, #3, #4
5. Understand the relationship between social problems and the interventions developed to address them. CSLO #1, #2, #3, #4

SOC101SU22 - Introduction to Sociology

General

Division
Social & Behavioral Sciences Division

Course Description
The systematic study of society; the role and impact of society on individual and group social interaction. Prerequisite or corequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
At the end of this course, students will be able to: 1. (Knowledge Level) List and describe social institutions, their role, functions and impact on individual and group life. 2. (Knowledge Level) Describe the role of race/ethnicity, sex/gender, age and social class on social interaction. 3. (Comprehension Level) Explain social change and its influence on social institutions, culture, social inequality and social interactions. 4. (Application Level) Apply basic sociological concepts, theories, terms, and principles to a variety of experiences and situations. 5. (Knowledge Level) Define sociology and discuss the historical context for sociology as a discipline. 6. (Comprehension Level) Discuss sociological imagination and the inter-relatedness of individuals and groups within the global community.

Course Requisites

SOC202SU22 - Contemporary Social Problems

General

Division
Social & Behavioral Sciences Division

Course Description
A systematic study of contemporary American and global social problems from a sociological viewpoint. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Knowledge Level) Define a social problem. 2. (Evaluation Level) Explain how biases influence how social problems and global issues are identified and the approach used to resolve them. 3. (Analysis Level) Using various sociological theories, terms, and concepts, analyze the continued existence of social problems both in the U.S. and around the world. 4. (Evaluation Level) Compare the relationship of U.S. and global social problems. 5. (Synthesis level) Design experiments utilizing the research methods social scientists use to gather social facts. 6. (Comprehension Level) Explain why social problems exist by using various sociological theories, terms and concepts. 7. (Comprehension Level) Discuss the societal benefits and consequences of social problems to the individual and the various groups within society. 8. (Analysis Level) Analyze how specific social policies address contemporary social problems in the U.S. and globally.

Course Requisites

SOC203SU22 - Marriage and Family

General

Division
Social & Behavioral Sciences Division

Course Description
A comprehensive examination of marriage and the family as a cultural unit and a social institution. Prerequisite: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
At the end of this course, students will be able to: 1. (Knowledge Level) Define marriage and family and its diversity. 2. (Evaluation Level) Compare and contrast macro or micro sociological processes to marriage and family. 3. (Evaluation Level) Evaluate the historic demographics and economic trends affecting marriage and families. 4. (Comprehension Level) Describe the influence of gender, social class, race/ethnicity, immigration, sexual orientation and the social institutions (such as religion, economics etc.) on intimate/family relationships 5. (Analysis Level) Identify and characterize the issues that cause stress and crises in marriages and families. 6. (Evaluation Level) Evaluate and summarize characteristics that can strengthen and weaken marriages and families.

Course Requisites

SPA101 - Elementary Spanish I

General

Division
Literary Arts & Language Division

Course Description
The basic skills of understanding, speaking, reading and writing Spanish with a survey of cultural materials from Spanish-speaking countries.

Total Number Of Credits:
4

Lecture Credits
4

Lab Credits
1

MSLOs

Measurable Student Learning Outcomes
Audience: Highly sympathetic; given the level of the task

1. (Application Level) In reading, derive meaning from the written Spanish language that contains learned vocabulary where context and/or background knowledge are supportive.

2. (Comprehension Level) Write simple sentences using formulaic expressions and learned vocabulary in the Spanish language writing system.

3. (Application Level) In speaking, utilize commonly used expressions to describe self and others, and formulate questions to satisfy basic needs. Express basic needs and use basic courtesy expressions.

4. (Application Level) In listening, demonstrate comprehension of frequently used words and phrases in simple spoken questions, statements, commands and courtesy formulae.

5. (Knowledge Level) Identify components of the cultures. Examples include: physical (personal space, customs), non-verbal (gestures), geographical, and arts (music, dance and physical art).

SPA102 - Elementary Spanish II

General

Division
Literary Arts & Language Division

Course Description
Refinement of basic communication skills in Spanish, emphasizing reading, writing, speaking and listening exercises. Survey of cultural norms, beliefs and traditions from areas where Spanish is spoken. Prerequisite: SPA101 or one full year of high school Spanish completed with grade of B or better or instructor consent.

Total Number Of Credits:
4

Lecture Credits
4

Lab Credits
1

MSLOs

Measurable Student Learning Outcomes
Please note that the exact verbiage of these revised (LATF approved, Feb. 2007) standards is mandated by the LATF and is used across the state to ensure articulation. Please go to: www.aztransfer.com/resources/LangATF/AZLATFOutcomesAssessments.pdf. (Comprehension Level) In reading Spanish: Demonstrate comprehension of the gist and some details of written...

1. descriptions containing factual information.

2. information expressing feelings, opinions, likes, and dislikes of objects, places, people and events.

3. narration of a series of events using the past, present or near future time frames.

4. authentic passages that are highly contextualized and that relate to topics containing factual information and/or current events.

(Application Level) In writing Spanish, using an appropriate amount of creativity, improvisation, and elaboration...

1. describe objects, places, people, and events.

2. express feelings, opinions, likes, and dislikes.

3. narrate a series of events using the past, present or near future time frames.

4. combine ideas into strings of sentences in present tense.

5. give instructions.

(Application Level) In speaking Spanish, using limited creativity, improvisation, and elaboration...

1. describe objects, places, people, and events.

2. express feelings, opinions, likes and dislikes.

3. narrate a series of events using the past, present or near future time frames.

4. initiate, respond, and contribute to simple face-to-face conversations.

5. give instructions.

(Analysis Level) In listening to Spanish from a speaker who uses moderately measured and deliberate speech and somewhat careful articulation, aurally comprehend the gist and a few details of...

1. descriptions of objects, places, people, and events on topics containing factual information.

2. information expressing feelings, opinions, likes and dislikes.

3. narrations of a series of events using the past tenses.

4. follow instructions or commands.

(Synthesis Level) Regarding cultures...

1. Recognize and describe simple cultural norms, beliefs and regional variations within areas where Spanish is spoken/used.

2. Recognize and describe key social and cultural traditions.

Course Requisites

SPA201 - Intermediate Spanish I

General

Division
Literary Arts & Language Division

Course Description
Continuation of Spanish 101 and 102. An expanded and in-depth study of the Spanish language and culture. A content-based approach integrates grammar and culture in functional use through listening, speaking, reading, and writing. More complex and abstract foreign language situations are covered and language use is encouraged through communicative activities, audio, video, and computer-based materials. Recommended: RDG100. Prerequisites: SPA102 or 4 semesters of high school Spanish with a grade of B or better.

Total Number Of Credits:
4

Lecture Credits
4

Lab Credits
1

MSLOs

Measurable Student Learning Outcomes
(Comprehension Level) In Reading Spanish: Demonstrate comprehension of the gist and numerous details of written:

1. Descriptions of objects, places, people and events;

2. Passages expressing feelings, opinions, emotional reactions, volition, doubt, and contingent situations;

3. Narrations of a series of events using the past tenses;

4. Authentic passages that are somewhat contextualized and that relate to topics containing subjective information and/or to current events. (CSLO - 1,2,3 and 4)

(Application Level) In Writing Spanish: using an appropriate amount of creativity, improvisation, and elaboration:

1. Describe objects, places, people, and events on topics containing subjective information;

2. Express feelings, opinions, emotional reactions and contingent situations;

3. Narrate a series of events using the past, present or future time frames;

4. Employ the writing process (e.g., organizing thoughts, composing, revising, proofreading). (CSLO - 2,3 and 4)

(Application Level) In Speaking Spanish: Using a moderate amount of creativity, improvisation and elaboration:

1. Describe objects, places, people and events;

2. Express feelings, opinions, emotional reactions, and contingent situations;

3. Narrate a series of events using the past, present or future time frames;

4. Initiate, respond and contribute to face-to-face conversations with some spontaneity using present and past tenses;

5. Give instructions or commands. (CSLO - 1,2,3 and 4)

(Analysis Level) In Listening to Spanish: from a speaker who uses natural pace and articulation, aurally comprehend the gist and some details of:

1. Descriptions of objects, places, people and events on topics containing subjective information;

2. Beliefs, feelings, opinions, emotional reactions, and situations involving volition, doubt, or contingencies;

3. Narrations of a series of events using past tenses. (CSLO - 1,2,3 and 4)

(Synthesis Level) CULTURE: Describe and exhibit initial understanding of cultural norms, values, beliefs, and regional variations within areas where Spanish is spoken/used. (CSLO - 1,2 and 3)

Course Requisites

SPA202 - Intermediate Spanish II

General

Division
Literary Arts & Language Division

Course Description
Continuation of Spanish 101, 102, and 201. Further insight into the literature and culture of the Spanish speaking world through content-based cultural activities, authentic readings, discussions, writing, and investigation of a variety of contemporary issues. A review of grammatical concepts includes analyses of complex syntactic structures such as subjunctive moods. Functional use is stressed through listening, speaking, reading, and writing. Audio, video, and computer materials are incorporated. Prerequisite: SPA201 or instructor consent.

Total Number Of Credits:
4

Lecture Credits
4

Lab Credits
1

MSLOs

Measurable Student Learning Outcomes
Please note that the specific language used in these outcomes was approved by the LATF in Feb. 2007, and is mandated for articulation purposes.

READING (Comprehension Level):

1). Apply critical thinking skills to analyze and evaluate passages that have a clear, underlying internal structure.

DEMONSTRATE COMPREHENSION OF THE GIST AND A NUMBER OF DETAILS OF WRITTEN...

2). descriptions of objects, places, people, and events on topics expressing basic needs, factual, and subjective information.

3). passages expressing feelings, opinions, emotional reactions, volition, doubt, and contingent situations.

4). narrations of a series of events in present, past and future time frames. (CSLO - 1,2,3 and 4)

WRITING (Application Level), using an appropriate amount of creativity, improvisation and elaboration...

1). describe objects, places, people, and events.

2). express feelings, opinions, emotional reactions, and contingent situations.

3). narrate a series of events in present, past, and future time frames.

4). employ the writing process (e.g. organizing thoughts, composing, revising, proofreading) on increasingly complex topics.

5). give instructions or commands. (CSLO - 2,3 and 4)

SPEAKING (Application Level), using an appropriate amount of creativity, improvisation, and elaboration....

1). describe objects, places, people, and events.

2). express feelings, opinions, emotional reactions, volition, doubt, and contingent situations.

3). narrate a series of events in present, past, and future time frames.

4). initiate, respond, and maintain face-to-face conversations with a moderate amount of spontaneity, using present and past tenses.

5). give instructions or commands. (CSLO - 1,2,3 and 4)

LISTENING (Analysis Level), from a speaker who uses natural pace and articulation, aurally comprehend the gist and numerous details of...

1). descriptions of objects, places, people, and events on topics containing subjective information.

2). beliefs, feelings, opinions, emotional reactions, and contingent situations.

3). narrations of a series of events in present, past, and future time frames. (CSLO - 1,2,3 and 4)

CULTURE (Synthesis Level): Interpret cultural norms, values, beliefs and regional variations within areas where Spanish is spoken/used. (CSLO - 1,2,3 and 4)

Course Requisites

SWU171 - Introduction to Social Work

General

Division
Social & Behavioral Sciences Division

Course Description
A descriptive and analytical historical perspective of the profession of social work, of social problems and of the social welfare system. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe the historical background and societal values which underpin social work practice and the role of social workers in various fields of practice.(CSLO 2,4)

2. (Comprehension Level) Relate and explain the history of the American social welfare system and the history of various oppressed populations as they relate to the American social welfare system. (CSLO 1,2,4)

3. (Analysis Level) Differentiate social work from the human service professions.(CSLO 2,3)

4. (Evaluation Level) Explain how race, sex, sexual orientation, economic status, physical or mental ability, age, and religion affect social work clients and the practice of social work. (CSLO 1,2,3,4)

5. (Analysis Level) Discuss social work's historic and current role in working with at-risk populations and working toward social and economic justice. (CSLO 1,2,3,4)

6. (Comprehension Level) Articulate the theories from a variety of fields that provide the basis of social workers' understanding of social problems and the interventions developed to address those problems. (CSLO 1,2,3,4)

7. (Analysis Level) Explain the relationship between social problems and the interventions developed to address them. (CSLO 1,2,4)

8. (Synthesis Level) Explain how a student's values and beliefs, and social work values and ethics relate to and influence social work practice. (CSLO 1,2,3,4)

9. (Comprehension Level) Relate and explain the history of the social work profession and social welfare. (CSLO 2,4)

10. (Application Level) Participate in 20 hours of on site volunteer work to become acquainted with the field of social work and what the responsibilities of a social worker entail. (CSLO 1,2,3,4)

Course Requisites

SWU250 - Mindfulness for Stress Management

General

Division
Social & Behavioral Sciences Division

Course Description
Introduction to the theory, research and practice behind mindfulness and stress management as it relates to quality of life issues and professional self-care. Focus on maintaining a healthy lifestyle and managing personal/professional stress by incorporating evidence based research on nutrition, mindfulness, communication, positive psychology, exercise, environmental factors contributing to wellness and disease; immune system support, activity management and developing practices that facilitate maintaining living in balance. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Describe how stress is manifested.

2. (Application Level) Implement effective time-management skills.

3. (Application Level) Identify and utilize the basic tenets of mindfulness and meditation. 4. (Synthesis Level) Identify patterns of behavior and create new strategies to enhance Quality of Life.

5. (Application Level) Identify and utilize stress reduction techniques.

6. (Analysis Level) Analyze environmental factors that influence lifestyle patterns.

7. (Comprehension Level) Describe the immune system.

8. (Comprehension Level) Explain the impact of culture on lifestyle habits and behaviors that affect stress levels.

9. (Comprehension Level) Explain the basic tenets of nutrition and employ food as medicine.

10.(Application Level) Review and develop effective communication skills.

11.(Synthesis Level) Construct and plan for a life of self-care: health, wellness and balance both mentally, emotionally, physically and spiritually.

Course Requisites

THE100 - Theatre Appreciation

General

Division
Visual & Performing Arts Division

Course Description
Survey of theater, including the origins of drama, influence of significant plays, contributions of the actors, directors, designers, stage managers and playwrights. Evaluation of stage and filmed versions of plays and how society influenced the development and creation of plays. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Record, summarize and evaluate information from a variety of print, multimedia, live theatrical productions, and sound sources related to the sociopolitical influences that shape the creation of works of art.
2. (Analysis Level) Describe and document how different civilizations varied from one another in culture and values and how those cultures and values had a direct impact on the development of theater.
3.(Analysis Level) Identify, analyze and articulate the influences of society on theater - past and present - and how past civilizations differ from our own.
4. (Comprehension Level) Identify, outline, and articulate the expected contributions of actors, directors, playwrights and design teams to theater and their influence on the theater.

Course Requisites

THE115 - Introduction to Cinema

General

Division
Visual & Performing Arts Division

Course Description
Survey of the history and development of the art of motion pictures, including criticism of aesthetic and technical elements. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate the influence societal and historical events have had over the creation of films.

2. (Comprehension Level) Discuss the history of cinema and how it has evolved into an art form.

3. (Evaluation Level) From a historical perspective identify, outline, evaluate, analyze, and articulate the contributions made by film in contrast to various other art forms.

4. (Evaluation Level) Identify, outline, evaluate, analyze and articulate the contributions from and expectations of actors, directors and cinematographers regarding film-making in the early to mid-20th century.

5. (Analysis Level) Incorporating the components of filmmaking techniques, classify films by genre, chronology, and narrative structure.

Course Requisites

THE116 - Contemporary Cinema

General

Division
Visual & Performing Arts Division

Course Description
Survey of various genres of motion picture films since 1960, including criticism of aesthetic and technical elements. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Evaluate how socio-political issues and contemporary films influence each other.

2. (Analysis Level) Differentiate numerous genres of film making and describe their potential value.

3. (Evaluation Level) Identify, outline, evaluate, analyze and articulate the contributions made by film in comparison to drama, literature, and the visual arts.

4. (Evaluation Level) Identify, outline, evaluate, analyze and articulate the contributions from and expectations for actors, directors and cinematographers.

5. (Evaluation Level) Compare and contrast movie making techniques from before and after 1950.

6. (Analysis Level) Classify a number of contemporary films by genre and cinematography.

Course Requisites

THE209 - Theater Dance Performance II

General

Division
Visual & Performing Arts Division

Course Description
No description.

Total Number Of Credits:
2

UAS173 - UAS Ground School

General

Division
Skilled Trades & Technology Division

Course Description
The VSO Ground course is a practical application of safety concepts and introduction to site specific safety considerations for small UAS operations. Upon completion of the course students will be able to apply concepts of unmanned aviation safety to unmanned operations; conduct pre-flight risk assessments; perform checklist procedures; record and track remote pilot and maintenance requirements; create safety analysis for new locations; understand remote sensing concepts for different industry clusters; distinguish between and identify appropriate datalink configurations; manipulate unmanned aircraft safety features and utilization of features for operations. Prerequisite: Hold a FAA Remote Pilot in Command Certificate, or have completed CAC Unmanned Aircraft Systems Fundamentals Certificate. Corequisite: UAS174.

Total Number Of Credits:
6

Lecture Credits
5

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Examine visual line of sight, safety ecosystem, basics of safety management systems. *(CSLO 2,4)*
2. (Evaluating Level) Examine FAA Part 107, National Airspace System (NAS), Battery Safety. *(CSLO 2,4)*
3. (Evaluating Level) Examine Basic Application of Aeronautical Decision Making, Crew Resource Management, Human Factors. *(CSLO 2,4)*
4. (Evaluating Level) Examine Basic Application of Site Analysis/Survey, Mission Planning, Mission Deployment, Post Flight Processing, Post Mission. *(CSLO 2,4)*
5. (Analyzing Level) Explore safety and risk management practices associated with small UAS. *(CSLO 2)*

UAS174 - UAS Flight School

General

Division
Skilled Trades & Technology Division

Course Description
The VSO Flight course is a knowledge and experience-based application of safety concepts and introduction to site specific safety considerations for small UAS operations. Upon completion of the course students will be able to demonstrate concepts of unmanned aviation safety to unmanned operations; conduct pre-flight risk assessments; perform initial qualification maneuvers to practical testing standards; demonstrate psycho-motor skills necessary for safe flight; demonstrate safe attitudes toward professional operations; demonstrate aeronautical decision making skills; operate in GPS denied environment; demonstrate response to simulated emergency situations and use of safety systems. Prerequisite: Hold a FAA Remote Pilot in Command Certificate, or have completed CAC Unmanned Aircraft Systems Fundamentals Certificate. Corequisite: UAS173.

Total Number Of Credits:
6

Lecture Credits
5

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluating Level) Examine visual line of sight, safety ecosystem, basics of safety management systems. (CSLO 2,4)
2. (Evaluating Level) Examine FAA Part 107, National Airspace System (NAS), Battery Safety. (CSLO 2,4)
3. (Evaluating Level) Examine Basic Application of Aeronautical Decision Making, Crew Resource Management, Human Factors. (CSLO 2,4)
4. (Evaluating Level) Examine Basic Application of Site Analysis/Survey, Mission Planning, Mission Deployment, Post Flight Processing, Post Mission. (CSLO 2,4)
5. (Analyzing Level) Explore safety and risk management practices associated with small UAS. (CSLO 2)

WGS100 - Introduction to Gender and Women's Studies

General

Division
Social & Behavioral Sciences Division

Course Description
Interdisciplinary survey of gender and feminist issues in contemporary society. Includes theoretical approaches to gender & gender socialization; body, health and intimacy issues; gender and religion; contemporary issues in politics/law, education, work and family. Recommended: RDG100.

Total Number Of Credits:
3

Lecture Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Comprehension Level) Identify and describe theoretical approaches to gender through an interdisciplinary perspective, including world systems and non-Western paradigms.

2. (Comprehension Level) Identify and explain the concepts of gender in the construction of identity.

3. (Analysis Level) Examine how the intersections of race, class, ethnicity, gender, and sexuality construct and perpetuate structural inequalities.

4. (Analysis Level) Trace the historical and socio-political emergence of feminist critiques of socialization processes, work, family, health, sexuality, education, politics, law, religion and culture.

5. (Comprehension Level) Describe and explain the historical development of feminism and gender identities in America.

6. (Comprehension Level) Identify and explain the contemporary participation of women in politics, government, education, religion and work.

7. (Analysis Level) Compare and contrast non-Western cultural perspectives on women, gender and feminism with cultural perspectives in the west.

8. (Analysis Level) Examine issues of gender and intimacy in relationship to the norms and mores of courtship, marriage, sex, familial and other intimate relationships.

Course Requisites

WLD078 - Introduction to Metal Art

General

Division
Skilled Trades & Technology Division

Course Description
An introduction to the identification and use of the primary steel cutting and welding processes. Students will have an opportunity to express their creative side. The focus of the course is to combine the use of industrial tools and the welding process to create a work of art.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Apply welding fundamentals and processes, and the correct and safe use of welding equipment and tools. (CSLO 2 & 3)
2. (Evaluation Level) Demonstrate, explain and critique teamwork, adaptability/flexibility, planning and organizing, problem solving, decision-making and applied technology.
3. (Synthesis Level) Create something unique to the student that expresses their imagination and personality by using the fundamentals of welding.

WLD110 - Survey of Welding Processes

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course with a focus on the fundamentals and safety related to the Oxyfuel, Plasma Arc, and Carbon Arc cutting processes. Also included are the welding processes of Shielded Metal Arc, Gas Metal Arc, and Flux-cored Arc welding. The course is designed for the beginner and other CTE majors that required a basic knowledge of welding. Recommended: Basic knowledge of measuring tools.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safety requirements related to the Oxyfuel, plasma, and carbon arc cutting processes, and the Shielded Metal, Gas Metal, and Flux-cored Arc welding processes. (CSLO #2, 3)

2. (Evaluation Level) Analyze and evaluate potential safety-related accidents per the AWS Z49.1. (CSLO #2)

3. (Application Level) Identify and demonstrate the use of various types of Oxyfuel and plasma cutting equipment, engine driven welding machines, and multi-process digital welding equipment. (CSLO #2, 3)

4. (Application Level) Explain and demonstrate two ways of striking an arc, and developing proper technique when using the Gas Metal Arc and Shielded Metal Arc welding processes. (CSLO #2, 3)

5. (Application Level) Identify and demonstrate the most common weld joints and types of welds. This will include AWS typical fillet, lap, and tee joints. (CSLO #2)

6. (Application Level) Demonstrate and explain the Gas Metal Arc welding transfer modes. (CSLO #2, 3)

7. (Evaluation Level) Evaluate and explain the various types of weld discontinuities and how they can affect the strength of a weldment. (CSLO #2, 3)

WLD110A - Survey of Welding Processes High School Part A

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course with a focus on the fundamentals and safety related to the Oxyfuel, Plasma Arc, and Carbon Arc cutting processes. Also included are the welding processes of Shielded Metal Arc, Gas Metal Arc, and Flux-cored Arc welding. The course is designed for the beginner that needs a basic knowledge of welding. Recommended: Must be a current Pinal County high school student. Corequisite: WLD110B

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safety requirements related to the Oxyfuel, plasma, and carbon arc cutting processes, and the Shielded Metal, Gas Metal, and Flux-cored Arc welding processes. (CSLO #2, 3)

2. (Evaluation Level) Analyze and evaluate potential safety-related accidents per the AWS Z49.1. (CSLO #2)

3. (Application Level) Identify and demonstrate the use of various types of Oxyfuel and plasma cutting equipment, engine driven welding machines, and multi-process digital welding equipment. (CSLO #2, 3)

4. (Application Level) Explain and demonstrate two ways of striking an arc, and developing proper technique when using the Gas Metal Arc and Shielded Metal Arc welding processes. (CSLO #2, 3)

5. (Application Level) Identify and demonstrate the most common weld joints and types of welds. This will include AWS typical fillet, lap, and tee joints. (CSLO #2)

6. (Application Level) Demonstrate and explain the Gas Metal Arc welding transfer modes. (CSLO #2, 3)

7. (Evaluation Level) Evaluate and explain the various types of weld discontinuities and how they can affect the strength of a weldment. (CSLO #2, 3)

WLD110B - Survey of Welding Processes High School Part B

General

Division
Skilled Trades & Technology Division

Course Description
Introductory course with a focus on the fundamentals and safety related to the Oxyfuel, Plasma Arc, and Carbon Arc cutting processes. Also included are the welding processes of Shielded Metal Arc, Gas Metal Arc, and Flux-cored Arc welding. The course is designed for the beginner and other CTE majors that required a basic knowledge of welding. Recommended: Must be a current Pinal County high school student. Prerequisite: WLD110A.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safety requirements related to the Oxyfuel, plasma, and carbon arc cutting processes, and the Shielded Metal, Gas Metal, and Flux-cored Arc welding processes. (CSLO #2, 3)

2. (Evaluation Level) Analyze and evaluate potential safety-related accidents per the AWS Z49.1. (CSLO #2)

3. (Application Level) Identify and demonstrate the use of various types of Oxyfuel and plasma cutting equipment, engine driven welding machines, and multi-process digital welding equipment. (CSLO #2, 3)

4. (Application Level) Explain and demonstrate two ways of striking an arc, and developing proper technique when using the Gas Metal Arc and Shielded Metal Arc welding processes. (CSLO #2, 3)

5. (Application Level) Identify and demonstrate the most common weld joints and types of welds. This will include AWS typical fillet, lap, and tee joints. (CSLO #2)

6. (Application Level) Demonstrate and explain the Gas Metal Arc welding transfer modes. (CSLO #2, 3)

7. (Evaluation Level) Evaluate and explain the various types of weld discontinuities and how they can affect the strength of a weldment. (CSLO #2, 3)

WLD115 - Welding NCCER Core

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to welding concepts and the National Center for Construction Education and Research (NCCER) core curriculum. Topics include knowledge of all safety rules; pre- and post-equipment inspections; fundamental welding processes and procedures; and basic shield arc, oxy-acetylene, tungsten inert gas, and metal inert gas welding using manual setting machines and digital machines. Corequisite: WLD125.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safety requirements related to the oxyfuel, plasma, and carbon arc cutting processes, and the shielded metal, gas metal, and flux-cored arc welding processes. (CSLO 2,3)

2. (Application Level) Identify and describe the proper use of personal protective equipment (PPE). (CSLO 2)

3. (Application Level) Identify basic angles and geometric shapes and explain how to calculate their area and volume. (CSLO 2,3)

4. (Application Level) Explain and demonstrate how to use various types of cutting and shaping tools. (CSLO 2,3)

5. (Application Level) Identify and demonstrate how to use various grinders and grinder attachments. (CSLO 2)

6. (Application Level) Identify and demonstrate the use of dimensions and various drawing scales. (CSLO 2,3)

7. (Evaluation Level) Evaluate and inspect common rigging hardware. (CSLO 2,3)

8. (Application Level) Describe communication, listening, and speaking processes and their relationship to job performance.

Course Requisites

WLD115A - Welding NCCER Core High School Part A

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to welding concepts and the National Center for Construction Education and Research (NCCER) core curriculum. Topics include knowledge of all safety rules; pre- and post-equipment inspections; fundamental welding processes and procedures; and basic shield arc, oxy-acetylene, tungsten inert gas, and metal inert gas welding using manual setting machines and digital machines. Recommended: Must be a current Pinal County high school student. Corequisite: WLD115B.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Explain and demonstrate safety requirements related to the oxyfuel, plasma, and carbon arc cutting processes, and the shielded metal, gas metal, and flux-cored arc welding processes. (CSLO 2,3)
2. (Applying Level) Identify and describe the proper use of personal protective equipment (PPE). (CSLO 2)
3. (Applying Level) Identify basic angles and geometric shapes and explain how to calculate their area and volume. (CSLO 2,3)
4. (Applying Level) Explain and demonstrate how to use various types of cutting and shaping tools. (CSLO 2,3)
5. (Applying Level) Identify and demonstrate how to use various grinders and grinder attachments. (CSLO 2)
6. (Applying Level) Identify and demonstrate the use of dimensions and various drawing scales. (CSLO 2,3)
7. (Evaluating Level) Evaluate and inspect common rigging hardware. (CSLO 2,3)
8. (Applying Level) Describe communication, listening, and speaking processes and their relationship to job performance.

WLD115B - Welding NCCER Core High School Part B

General

Division
Skilled Trades & Technology Division

Course Description
Introduction to welding concepts and the National Center for Construction Education and Research (NCCER) core curriculum. Topics include knowledge of all safety rules; pre- and post-equipment inspections; fundamental welding processes and procedures; and basic shield arc, oxy-acetylene, tungsten inert gas, and metal inert gas welding using manual setting machines and digital machines. Recommended: Must be a Pinal County High School Student. Prerequisite: WLD115A.

Total Number Of Credits:
3

Lecture Credits
1

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Applying Level) Explain and demonstrate safety requirements related to the oxyfuel, plasma, and carbon arc cutting processes, and the shielded metal, gas metal, and flux-cored arc welding processes. (CSLO 2,3)
2. (Applying Level) Identify and describe the proper use of personal protective equipment (PPE). (CSLO 2)
3. (Applying Level) Identify basic angles and geometric shapes and explain how to calculate their area and volume. (CSLO 2,3)
4. (Applying Level) Explain and demonstrate how to use various types of cutting and shaping tools. (CSLO 2,3)
5. (Applying Level) Identify and demonstrate how to use various grinders and grinder attachments. (CSLO 2)
6. (Applying Level) Identify and demonstrate the use of dimensions and various drawing scales. (CSLO 2,3)
7. (Evaluating Level) Evaluate and inspect common rigging hardware. (CSLO 2,3)
8. (Applying Level) Describe communication, listening, and speaking processes and their relationship to job performance.

WLD118 - Physical Characteristics & Mechanical Properties of Metals

General

Division
Skilled Trades & Technology Division

Course Description
Focus on the various physical and mechanical characteristics of ferrous and nonferrous metals. Welders must be familiar with the metallurgical factors that need to be considered during welding activities. This course presents metal composition, properties, structural steel, and common milled shapes used for fabrication. Corequisites: WLD130 and WLD230.

Total Number Of Credits:
1

Lecture Credits
1

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain the importance of having various materials for fabrication. Describe the composition and classification systems for a variety of metals. (CLSO 1)
2. (Evaluating Level) Compare and contrast the most commonly used metals in industry. (CSLO 2,3)
3. (Analyzing Level) Examine and explain the use of weld procedure specifications and metal requirements. (CSLO 2,3)
4. (Understanding Level) Describe the physical and mechanical characteristics of metals and explain how to identify base metals. (CLSO 1)
5. (Analyzing Level) Examine, identify and explain the common structural shapes of metal. (CSLO 2,3)

Course Requisites

WLD120 - Thermal Cutting Processes

General

Division
Skilled Trades & Technology Division

Course Description
Focus is on the most commonly used thermal cutting processes: Oxy-Fuel Cutting (OFC); Plasma arc cutting (PAC); carbon arc cutting/gouging (CAC); and machine cutting, with an emphasis on the proper set-up, use, and care of equipment and safety procedures.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the thermal cutting processes. (CSLO 2)

2. (Application Level) Explain and demonstrate the set-up and operation of the oxy-fuel (OFC), plasma arc (PAC), and carbon arc (CAC) processes. (CSLO 2,3)

3. (Evaluation Level) Compare and contrast the thermal cutting processes and the cost effectiveness in relation to a given project. (CSLO 2,3)

4. (Comprehension Level) Explain the uses of shielding/cutting gas applications for the appropriate thermal cutting processes. (CSLO 2,3)

5.(Evaluation Level) Detect and assess the cause of improper cuts and the importance of quality when cutting materials.(CSLO 2,3)

WLD121 - Shielded Metal Arc Welding I

General

Division
Skilled Trades & Technology Division

Course Description
Focus on the Shielded Metal Arc Welding (SMAW) process using DCEN, and DCEP modes. Skills include basic equipment set-up, electrode selection, proper arc starts, re-starts, and terminations, and basic Oxy-Fuel cutting, and material identification. Welding experiences with overlap padding in the flat and horizontal positions are provided. Also covered are AWS typical fillet and lap joint designs in the flat and horizontal positions with an emphasis on proper use and care of equipment and safety procedures.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trade. (CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines. (CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines. (CSLO 2,3)

4. (Evaluation Level) Compare and contrast SMAW Electrode selection, matching base metal, and filler metal combinations. (CSLO 2,3)

5. (Application Level) Explain and demonstrate the uses of Oxy-fuel, Plasma, and Carbon Arc Cutting. (CSLO 2,3)

6. (Synthesis Level) Produce overlap padding, fillet, lap, and T-joint welds in the flat, horizontal positions with an emphasis on proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut. (CLSO 2,3)

8. (Application Level) Explain and demonstrate proper weld techniques and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate, and critique three parameters of a good weld: penetration, crown height, and weld pattern. (CSLO 2,3)

WLD122 - Shielded Metal Arc Welding II

General

Division
Skilled Trades & Technology Division

Course Description
Focus on the Shielded Metal Arc Welding (SMAW) process for out of position welding. This will include an introduction to fabrication, weld procedure specifications, and base metal preparation.

Welding will include AWS typical fillet and lap joint designs in the flat, horizontal, vertical, and overhead positions with an emphasis on proper use and care of equipment and safety procedures. Prerequisites: Specialization #1; WLD 121.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades.(CSLO 2)

2. (Analysis Level) Explain and illustrate the importance and uses of weld procedure specifications, base metal preparation, and weld symbols.(CSLO 2,3)

3. (Application Level) Apply the basic principles of fabrication using the common tools of the trade. (CSLO 2,3)

4. (Synthesis Level) Develop proper techniques in utilization of Oxyfuel, Plasma, and Carbon Arc Cutting for base metal preparation and weld repair.(CSLO 2,3)

5. (Synthesis Level) Develop and improve welding techniques using the fillet, lap, and T-joint welds in the vertical and overhead positions, with emphasis on safety and proper use of equipment. (CSLO 2,3)

6. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut. (CLSO 2,3)

7. (Application Level) Explain and demonstrate proper weld techniques and how to avoid weld defects. (CSLO 2,3,4)

8. (Evaluation Level) Explain, demonstrate, and critique three parameters of a good weld: penetration, crown height, and weld pattern. (CSLO 2,3)

Course Requisites

WLD124 - Flux Cored Arc Welding I

General

Division
Skilled Trades & Technology Division

Course Description
Focus on Flux-cored Arc Welding (FCAW) using the FCAW-G, and FCAW-S processes. Welding will be in the flat, horizontal, vertical, and overhead positions. Also covered: AWS typical joint designs using the fillet, lap, and T-joint, with an emphasis on proper use and care of equipment and safety procedures. Prerequisites: Specialization #1- WLD 121, 122, 222, 225, or instructor consent.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades.(CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines.(CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines.(CSLO 2,3)

4. (Evaluation Level) Compare and contrast FCAW-G gas shielded, and FCAW-S self-shielded wire types. (CSLO 2,3)

5. (Comprehension Level) Explain the uses of mix gas applications for the appropriate welding methods.(CSLO 2,3)

6. (Synthesis Level) Perform fillet, lap, and T-joint welds in the flat horizontal, vertical, and overhead positions with an emphasis on proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut. (CLSO 2,3)

8. (Application Level) Explain and demonstrate proper weld technique and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate and critique three parameters of a good weld: penetration, crown height, and weld pattern. (CSLO 2,3)

Course Requisites

WLD125 - Pipe Welding I

General

Division
Skilled Trades & Technology Division

Course Description
Basic pipe welding of underground and industrial pipelines. Students will cut, bevel, fit and weld open root pipe joints.Primary focus will be the practice of the welding techniques needed to produce an acceptable root pass. This course will introduce pipe fitting tools and along with common work site safety practices. Pipe fitting trade math will be introduced to assist students with the fit up and fabrication of various pipe joint designs. Corequisite: WLD115.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures 100% of the time within a lab setting related to the pipe welding trades. (CSLO 3)

2. (Application Level) Explain and demonstrate the operation of a DC welding machine a minimum of 100% of the lab time. (CSLO 3)

3. (Application Level) Explain and demonstrate the operation of oxy-acetylene, and plasma arc torch cutting a minimum of 100% of the lab time. (CSLO 3)

4. (Analysis Level) Recognize and select the proper welding rod for the alloy of the pipe being welded. (CSLO 4)

5. (Analysis Level) Setup the welding machine with proper polarity, of DC reverse, to complete the pipe welding procedure. (CSLO 4)

6. (Synthesis Level) Measure and cut pipe per job specifications using oxy-acetylene and plasma arc cutting torches. (CSLO 3, 4)

7. (Analysis Level) Examine root pass for 100% penetration. (CSLO 2, 3)

8. (Analysis Level) Examine, detect and explain the cause of weld defects: inclusion, porosity, penetration and undercut in a given pipe weld. (CSLO 2)

Course Requisites

WLD128 - Intro to Structural Drawings & CAD

General

Division
Skilled Trades & Technology Division

Course Description
Focus on the understanding and interpretation of structural fabrication, steel erection, and structural contract drawings including analysis, identification, and application of proper interpretation and use of weld symbols. Computer-Aided Drafting (CAD) will be introduced - computer technology for creation and documentation of 2D drawings utilizing available CAD software. This includes operation and capabilities of computers in CAD, drafting fundamentals, dimensioning, annotating, management of CAD files, and printing. Corequisites: WLD129 & WLD229 OR WLD 143 & WLD 243.

Total Number Of Credits:
4

Lecture Credits
3

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Understanding Level) Explain and define structural fabrication, steel erection, and structural contract drawings. (CSLO 2,3,4)
2. (Analyzing Level) Explain the difference between conventional dimensioning and baseline dimensioning. (CSLO 2,3,4)
3. (Analyzing Level) Explain the term tolerancing and analyze its importance regarding blueprints. (CSLO 2,4)
4. (Applying Level) Identify and use American Welding Society (AWS) welding symbols and notations. (CSLO 2,3,4)
5. (Applying Level) Implement steps to launch a Computer Aided Design (CAD) program. (CSLO 2)
6. (Creating Level) Use CAD to create 2D drawings in accordance with American National Standards Institute (ANSI) guidelines. (CSLO 2,3)
7. (Creating Level) Create features in CAD through the usage of coordinate entry and angle interpretation. (CSLO 2)
8. (Analyzing Level) Deconstruct provided drawings to identify the elements needed to recreate the drawing from learned skills. (CSLO 2)
9. (Understanding Level) Describe steps to reproduce CAD drawings through printing and explain the reason for reproducing these documents. (CSLO 2,4)
10. (Applying Level) Identify and use the alphabet of lines per ANSI. (CSLO 2,3)
11. (Understanding Level) Identify selected symbols of structural materials, such as steel, cast iron, and aluminum, per ANSI. (CSLO 2)

Course Requisites

WLD129 - Intro to Shielded Metal Arc Welding & Thermal Cutting Processes

General

Division
Skilled Trades & Technology Division

Course Description
Focus on the Shielded Metal Arc Welding (SMAW) process using Direct Current Electrode Negative (DCEN), and Direct Current Electrode Positive (DCEP) modes. Skills include basic equipment set-up; electrode selection; proper arc starts, re-starts, and terminations; basic Oxy-Fuel Cutting (OFC); Plasma Arc Cutting (PAC); Carbon Arc Cutting (CAC); and material identification. Welding experiences with overlap padding in the flat and horizontal positions are provided. Also covered are American Welding Society (AWS) typical fillet and groove joint designs in the flat and horizontal positions with an emphasis on proper use and care of equipment and safety procedures. Corequisites: WLD128 & WLD229.

Total Number Of Credits:
6

Lecture Credits
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trade. (CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines. (CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines. (CSLO 2,3)

4. (Evaluation Level) Compare and contrast Shielded Metal Arc Welding (SMAW) Electrode selection, matching base metal, and filler metal combinations. (CSLO 2,3)

5. (Application Level) Explain and demonstrate the uses of Oxy-fuel, Plasma, and Carbon Arc Cutting. (CSLO 2,3)

6. (Synthesis Level) Produce overlap padding, fillet, lap, and T-joint welds in the flat, horizontal positions with an emphasis on proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut. (CLSO 2,3)

8. (Application Level) Explain and demonstrate proper weld techniques and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate, and critique three parameters of a good weld: penetration, crown height, and weld pattern. (CSLO 2,3)

Course Requisites

WLD130 - Intro to Flux Cored Arc Welding & Fabrication

General

Division
Skilled Trades & Technology Division

Course Description
Focus on Flux-cored Arc Welding (FCAW) using the Flux Cored Arc Welding with gas (FCAW-G), and Flux Cored Arc Welding self shield (FCAW-S) processes. Welding will be in the flat, horizontal, vertical, and overhead positions. Also covered: American Welding Society (AWS) typical joint designs using the fillet, lap, and T-joint, with an emphasis on proper use and care of equipment and safety procedures. Welding design, layout and fabrication processes with job/shop-oriented environment and emphasis on instructor pre-approved individual and group projects. Corequisites: WLD118 & WLD230.

Total Number Of Credits:
6

Lecture Credits
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades.(CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines.(CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines.(CSLO 2,3)

4. (Evaluation Level) Compare and contrast Flux Cored Arc Welding gas shielded (FCAW-G), and Flux Cored Arc Welding self shielded (FCAW-S) wire types. (CSLO 2,3)

5. (Comprehension Level) Explain the uses of mix gas applications for the appropriate welding methods.(CSLO 2,3)

6. (Synthesis Level) Perform fillet, lap, and T-joint welds in the flat horizontal, vertical, and overhead positions with an emphasis on proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut. (CLSO 2,3)

8. (Application Level) Explain and demonstrate proper weld technique and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate and critique three parameters of a good weld: penetration, crown height, and weld pattern. (CSLO 2,3)

10. (Application Level) Explain and demonstrate safe work habits and procedures in the welding design and fabrication of class projects. (CSLO 2,3)

11. (Analysis Level) Analyze and explain the procedure for estimating the amount and types of materials required for given project. (CSLO 2,3)

12. (Analysis Level) Explain, demonstrate and justify the proper and efficient layout of a successful project to minimize time and cost of the project. (CSLO 2,3)

13. (Evaluation Level) Explain, demonstrate and evaluate the proper welding procedures and finishing techniques for a welding project. (CSLO 2,3)

WLD143 - Pipefitting I

General

Division
Skilled Trades & Technology Division

Course Description
This course is an introduction to the techniques and skills required as a pipe-fitter/welder. Topics include orientation to the pipefitting trade along with training on use of hand and power tools typically used within the pipefitting industry. Oxyfuel cutting, working at heights, and common motorized equipment will be discussed. Shielded Metal Arc Welding (SMAW) of pipe test joints will be performed in the 5G and 6G positions. Students will practice pipe fabrication exercises using various piping system components. Emphasis will be placed on proper use and care of tools and equipment along with worksite safety issues. Special attention to performance standards required on critical pressure piping and cross-country pipeline welding will be stressed. Prerequisites: WLD115 & WLD125 or instructor consent. Corequisite: WLD243.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures 100% of the time within a lab setting related to the pipe welding trades. (CSLO 2,3)

2. (Application Level) Explain and demonstrate the correct operation of a DC welding machine a minimum of 100% of the lab time. (CSLO 2)

3. (Application Level) Explain and demonstrate the correct operation of a GMAW machine a minimum of 100% of the lab time. (CSLO 2)

4. (Analysis Level) Recognize and select the proper welding rod or GMAW wire for the alloy of the pipe being welded per the welding procedure used. (CSLO 2,4)

5. (Analysis Level) Setup the welding machine with proper polarity, amperage, and wire feed speed to complete a welding procedure. (CSLO 2)

6. (Synthesis Level) Perform welded pipe connections in the 5G and 6G positions with an emphasis on proper techniques to produce x-ray quality welds. (CSLO 2)

7. (Analysis Level) Examine root pass for 100% penetration. (CSLO 2)

8. (Evaluation Level) Examine, detect, and explain the cause of weld defects: inclusion, porosity, penetration and undercut, under fill and burn through in a given pipe weld. Explain and demonstrate measures to correct weld defects. (CSLO 2,4)

9. (Application Level) Explain and demonstrate pipe fabrication skills with attention to detailed measurements, proper joint fit up, and close tolerances. (CSLO 2,4)

Course Requisites

WLD196 - Welding Technology Internship I

General

Division
Skilled Trades & Technology Division

Course Description
This internship provides career advancement study to help students obtain hands-on work experience. Students gain experience using machines and tools only available in that work setting, such as operation of a press brake for forming steel, operation of overhead cranes, rigging and lifting materials, actual fit-up and welding of a production product, and/or operating a sheer for cutting heavy steel materials. This Internship requires 135 hours. Prerequisites: Welding Technology Certificate or Welding Technology AAS Degree student. Minimum CGPA 3.0 and program director consent.

Total Number Of Credits:
3

Internship Credits
3

Other Credit Information
3 Internships total 135 Hours

MSLOs

Measurable Student Learning Outcomes
1. (Synthesis Level) Demonstrate hands-on, real-life application of skills and knowledge learned in the theory and skills courses.

2. (Evaluation Level) Summarize the internship experience, evaluate best practices employed at the work site and identify suggestions for improvement of the CAC program, courses and the internship process.

3. (Application Level) Comply with the employer's work rules, regulations, corporate handbook and regulations.

4. (Application Level) Demonstrate reliability and the appropriate safe work habits in the workplace.

5. (Application Level) Comply with OSHA safety requirements.

Course Requisites

WLD221 - Gas Tungsten Arc Welding

General

Division
Skilled Trades & Technology Division

Course Description
Techniques of Gas Tungsten Arc welding; including the theory, operation, safety, care and maintenance of the Gas Tungsten Arc Welding equipment both manual and digital. Additionally students will use oxy-acetylene torch and tungsten inner gas welding processes on ferrous and non-ferrous metals with various joint designs.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Evaluation Level) Explain, demonstrate and self-critique the safe working habits and procedures related to gas tungsten arc welding 100% of the time within a lab demonstration setting for welding trades.

2. (Application Level) Identify and demonstrate the appropriate setup and use of designated welding machines.

3. (Synthesis Level) Analyze, explain and demonstrate the operation of AC/DC welding machine a minimum of 100% of the lab time.

4. (Application Level) Demonstrate the appropriate welding techniques for a minimum of three different types of metals.

5. (Synthesis Level) Analyze, explain and demonstrate the operation of tungsten inner gas torch (TIG): manual and digital, water cooled and air cooled at a minimum of 100% of the lab time.

6. (Synthesis Level) Analyze, explain and demonstrate the operation of oxy-acetylene and gas tungsten arc welding of aluminum and steel.

7. (Evaluation Level) Select proper tungsten percentage: 1% or 2%.

8. (Analysis Level) Identify, explain and demonstrate the test sequence for a minimum of three common weld defects.

9. (Evaluation level) Detect, explain and critique the causes of weld defects: inclusion, porosity, penetration and undercut in a given weld.

WLD222 - Gas Metal Arc Welding

General

Division
Skilled Trades & Technology Division

Course Description
This welding course focuses on short-circuiting, spraying and globular transferring of ferrous and non-ferrous metals and flux-cored welding in the flat and horizontal positions, with an emphasis on proper use and care of equipment and safety procedures. May take three times for credit. Prerequisite: WLD110.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades.

2. (Application Level) Explain and demonstrate the operation of AC/DC welding machines.

3. (Application Level) Explain and demonstrate the operation of a spool-gun using aluminum 0.035 wire, 0.035 steel wire and 0.035 stainless steel wire.

4. (Application Level) Explain and demonstrate how to use manual and digital setting machines.

5. (Analysis Level) Compare and contrast aluminum 4043 with solid wire 70S-6 to determine appropriate uses of each.

6. (Analysis Level) Examine and explain the use of flux-cored wire E71-T.

7. (Comprehension Level) Explain the uses of 25-75 gas and argon gas for appropriate welding methods.

8. (Synthesis Level) Perform welded joints in the flat and horizontal positions with emphasis on proper use and care of equipment.

9. (Evaluation Level) Detect and assess the cause of weld defects: inclusion, porosity, penetration and undercut in a given weld. Explain and demonstrate how to correct the weld.

10. (Application Level) Explain and identify the formation of porosity in a weld and demonstrate the appropriate measures for correcting the defect.

11. (Evaluation Level) Explain, demonstrate and critique three parameters of a good weld: penetration, crown height and weld pattern (ripple per inch).

Course Requisites

WLD224 - Flux Cored Arc Welding II

General

Division
Skilled Trades & Technology Division

Course Description
Focus on Flux-cored Arc Welding (FCAW) using the FCAW-G, and FCAW-S processes. Welding will be in the flat, horizontal, vertical, and overhead positions. Also covered: AWS typical joint designs using groove welds, with an emphasis on the proper use and care of equipment and safety procedures. Prerequisites: Specialization #1- WLD 121, 122, 222, 225. WLD 124, or instructor consent.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades. (CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines. (CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines. (CSLO 2,3)

4. (Evaluation Level) Compare and contrast FCAW-G gas shielded, and FCAW-A self-shielded wire types. (CSLO 2,3)

5. (Comprehension Level) Explain the uses of mix gas applications for the appropriate welding methods. (CSLO 2,3)

6. (Synthesis Level) Perform groove welds in the flat, horizontal, vertical, and overhead positions with an emphasis on the proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: Slag inclusions, porosity, overlap, lack of fusion, and undercut. (CSLO 2,3)

8. (Application Level) Explain and demonstrate proper weld technique and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate and critique three parameters of a good weld: penetration, crown height and weld pattern. (CSLO 2,3)

Course Requisites

WLD225 - Shielded Metal Arc Welding III

General

Division
Skilled Trades & Technology Division

Course Description
Focus on advanced Shielded Metal Arc Welding (SMAW) for out-of-positions welding. This will include a focus on weld joint design and fit-up, weld quality, and an introduction to destructive and non-destructive testing. Welding will include AWS typical groove welds in the flat, horizontal, vertical, and overhead positions per AWS D1-1 Guided Bend Test with an emphasis on proper use and care of equipment and safety procedures. Prerequisite(s): Specialization # 1; WLD 121, 122, 222, or instructor consent.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades.(CSLO 2)

2. (Synthesis Level) Use the fundamental techniques developed to become certified in the SMAW process to the AWS structural code.

3. (Evaluation Level) Explain and demonstrate how to evaluate weld discontinuities including undercut, overlap, porosity, and excessive reinforcement. (CSLO 2,3)

4. (Application Level) Apply the use of weld procedure specifications to base metal and filler metal selections, as it relates to welded joint designs. (CSLO 2,3)

5. (Synthesis Level) Develop proper techniques and utilization of Oxyfuel, Plasma, and Carbon Arc Cutting for preparation of welder qualification bend testing.(CSLO 2,3)

6. (Synthesis Level) Strengthen and develop advanced welding techniques by performing AWS typical groove welds in the flat, horizontal, vertical, and overhead positions, with emphasis on safety and proper use of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut, by performing destructive testing. (CLSO 2,3)

8. (Application Level) Explain and demonstrate proper weld techniques and how to avoid weld defects in groove welds. (CSLO 2,3,4)

9. (Synthesis Level) Certify to AWS D1.1 Structural code through successful completion of welder qualification bend testing. (CSLO 2,3)

Course Requisites

WLD227 - Welding Design and Fabrication

General

Division
Skilled Trades & Technology Division

Course Description
Welding design, layout and fabrication processes with job/shop-oriented environment and emphasis on instructor pre-approved individual and group projects. May take twice for credit. Prerequisite: WLD110.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe work habits and procedures in the welding design and fabrication of class projects.

2. (Analysis Level) Analyze and explain the procedure for estimating the amount and types of materials required for given project.

3. (Analysis Level) Explain, demonstrate and justify the proper and efficient layout of a successful project to minimize time and cost of the project.

4. (Evaluation Level) Explain, demonstrate and evaluate the proper welding procedures and finishing techniques for a welding project.

Course Requisites

WLD228 - Welding Inspection Technology

General

Division
Skilled Trades & Technology Division

Course Description
Focus is on the importance of quality in the welding industry, including basic concepts and tools of visual weld inspection, weld procedure specifications, and industry code interpretation. Also covered are non-destructive testing, destructive testing, and the requirements for becoming a certified welding inspector. Recomended: Prior welding or inspection experience.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades. (CSLO 3)

2. (Comprehension Level) Explain the importance of quality control, testing, and inspection. Describe the effects of weld failures and the impact on society. (CLSO 1)

3. (Application Level) Explain and demonstrate the operation of weld inspection gauges and tools. (CSLO 2,3)

4. (Evaluation Level) Compare and contrast the most commonly used industry codes. (CSLO 2,3)

5. (Analysis Level) Examine and explain the use of weld procedure specifications and welder qualifications. (CSLO 2,3)

6. (Comprehension Level) Explain the effects of heat input and how to verify weld preheat, inter-pass temperatures, and post heat inspection.(CSLO 3,4)

7. (Synthesis Level) Perform visual inspection using weld gauges, and perform destructive testing to weld samples per industry codes.(CSLO 2,3,4)

8. (Evaluation Level) Detect and assess the cause of weld defects: inclusion, porosity, penetration, and undercut in a given weld.(CSLO 2,3,4)

9. (Analysis Level) Compare visual discontinuities and determine the acceptability or serviceability of a weldment based on industry codes.(CSLO 2,3,4)

WLD229 - Advanced Shielded Metal Arc Welding

General

Division
Skilled Trades & Technology Division

Course Description
Focus on advanced Shielded Metal Arc Welding (SMAW) for out-of-positions welding. This will include a focus on weld joint design and fit-up, weld quality, and an introduction to destructive and non-destructive testing. Welding will include American Welding Society (AWS) typical groove welds in the flat, horizontal, vertical, and overhead positions per AWS D1-1 Guided Bend Test with an emphasis on proper use and care of equipment and safety procedures. Corequisites: WLD128 and WLD129.

Total Number Of Credits:
6

Lecture Credits
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades.(CSLO 2)

2. (Synthesis Level) Use the fundamental techniques developed to become certified in the Shielded Metal Arc Welding (SMAW) process to the American Welding Society (AWS) D1.1 structural code.

3. (Evaluation Level) Explain and demonstrate how to evaluate weld discontinuities including undercut, overlap, porosity, and excessive reinforcement. (CSLO 2,3)

4. (Application Level) Apply the use of weld procedure specifications to base metal and filler metal selections, as it relates to welded joint designs. (CSLO 2,3)

5. (Synthesis Level) Develop proper techniques and utilization of Oxyfuel, Plasma, and Carbon Arc Cutting for preparation of welder qualification bend testing.(CSLO 2,3)

6. (Synthesis Level) Strengthen and develop advanced welding techniques by performing AWS typical groove welds in the flat, horizontal, vertical, and overhead positions, with emphasis on safety and proper use of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: slag inclusions, porosity, overlap, lack of fusion, and undercut, by performing destructive testing. (CLSO 2,3)

8. (Application Level) Explain and demonstrate proper weld techniques and how to avoid weld defects in groove welds. (CSLO 2,3,4)

9. (Synthesis Level) Certify to AWS D1.1 Structural code through successful completion of welder qualification bend testing. (CSLO 2,3)

Course Requisites

WLD230 - Advanced Flux Cored Arc Welding

General

Division
Skilled Trades & Technology Division

Course Description
Focus on Flux-cored Arc Welding (FCAW) using the Flux Cored Arc Welding gas shielded (FCAW-G), and Flux Cored Arc Welding self shielded (FCAW-S) processes. Welding will be in the flat, horizontal, vertical, and overhead positions. Also covered: American Welding Society (AWS) typical joint designs using groove welds, with an emphasis on the proper use and care of equipment and safety procedures per NCCER Curriculum. Corequisite: WLD118 and WLD130.

Total Number Of Credits:
6

Lecture Credits
3

Lab Credits
9

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades. (CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines. (CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines. (CSLO 2,3)

4. (Evaluation Level) Compare and contrast Flux Cored Arc Welding gas shielded (FCAW-G), and Flux Cored Arc Welding self shielded (FCAW-S) wire types. (CSLO 2,3)

5. (Comprehension Level) Explain the uses of mix gas applications for the appropriate welding methods. (CSLO 2,3)

6. (Synthesis Level) Perform groove welds in the flat, horizontal, vertical, and overhead positions with an emphasis on the proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: Slag inclusions, porosity, overlap, lack of fusion, and undercut. (CSLO 2,3)

8. (Application Level) Explain and demonstrate proper weld technique and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate, and critique three parameters of a good weld: penetration, crown height, and weld pattern. (CSLO 2,3)

Course Requisites

WLD243 - Pipefitting II

General

Division
Skilled Trades & Technology Division

Course Description
This course will introduce students to piping systems, drawings, and component identification. Students will practice layout and fabrication using GTAW and SMAW processes on various piping systems. Carbon steel and stainless steel pipe welding procedures will be practiced. Focus will be on welding techniques and procedures used in high pressure piping and pressure vessels according to applicable codes. Special attention will be given to quality control and safety practices. Students will practice butt weld pipe fabrication exercises using fittings such as flanges, elbows, and saddle connections. Code requirements, inspection methods, and welder qualifications will be discussed. Prerequisites: WLD115 and WLD125 or instructor consent. Corequisite: WLD143.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures 100% of the time within a lab setting related to the pipe welding trades. (CSLO 2,3)

2. (Application Level) Explain and demonstrate the correct operation of a DC welding machine a minimum of 100% of the lab time during which it is used. (CSLO 2)

3. (Application Level) Explain and demonstrate the correct operation of GTAW and SMAW machines a minimum of 100% of the lab time during which they are used. (CSLO 2)

4. (Analysis Level) Recognize and select the proper welding rod and size for the alloy of the pipe and joint design being welded. (CSLO 2,4)

5. (Analysis Level) Setup the welding machine with proper polarity, amperage, and process to complete welding procedure. (CSLO 2,4)

6. (Synthesis Level) Measure and cut pipe per job specifications using mechanical tools, oxy-acetylene, and plasma arc cutting torches. (CSLO 2,4)

7. (Analysis Level) Examine root pass for 100% penetration. (CSLO 2)

8. (Analysis Level) Examine, detect, and explain the cause of weld defects: inclusion, porosity, penetration and undercut, under fill and burn through in a given pipe weld. (CSLO 2,4)

9. (Application Level) Explain and demonstrate pipe design, lay-out, and fabrication using drawings and code requirements. (CSLO 2)

10.(Knowledge Level) Describe applicable pipe welding code requirements for joint design, weld quality, inspection methods, and welder qualifications. (CSLO 2,4)

Course Requisites

WLD244 - Flux Cored Arc Welding III

General

Division
Skilled Trades & Technology Division

Course Description
Focus on Flux-cored Arc Welding (FCAW) using the FCAW-G, and FCAW-S processes. Welding will be in the flat, horizontal, vertical, and overhead positions. Also covered: AWS typical joint designs using groove welds, with an emphasis on the proper use and care of equipment and safety procedures. Prerequisites: WLD121, WLD122, WLD222, and WLD225; or Instructor Permission.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures within a lab setting related to the welding trades. (CSLO 2)

2. (Application Level) Explain and demonstrate the operation of multi-process welding machines. (CSLO 2,3)

3. (Application Level) Explain and demonstrate how to use manual and digital setting machines. (CSLO 2,3)

4. (Evaluation Level) Compare and contrast FCAW-G gas shielded, and FCAW-A self-shielded wire types. (CSLO 2,3)

5. (Comprehension Level) Explain the uses of mix gas applications for the appropriate welding methods. (CSLO 2,3)

6. (Synthesis Level) Perform groove welds in the flat, horizontal, vertical, and overhead positions with an emphasis on the proper use and care of equipment. (CSLO 2,3)

7. (Evaluation Level) Detect and assess the cause of weld defects: Slag inclusions, porosity, overlap, lack of fusion, and undercut. (CSLO 2,3)

8. (Application Level) Explain and demonstrate proper weld technique and how to avoid weld defects. (CSLO 2,3,4)

9. (Evaluation Level) Explain, demonstrate and critique three parameters of a good weld: penetration, crown height and weld pattern. (CSLO 2,3)

Course Requisites

WLD246 - Pipefitting III

General

Division
Skilled Trades & Technology Division

Course Description
This course will introduce students to rigging equipment and field practices common to the pipe industry. Advanced pipefitting trade math applications will be discussed as well as compliance to industry standards and specifications. Underground and above ground pipe installation practices as well as pipeline testing equipment will be discussed and demonstrated. Advanced pipefitting tools and techniques will be discussed. Prerequisite: WLD255 or instructor consent. Corequisite: WLD247.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures 100% of the time within a lab setting related to the pipe welding trades. (CSLO 2,3)

2. (Application Level) Explain and demonstrate the operation of pipefitting power tools a minimum of 100% of the lab time. (CSLO 2)

3. (Application Level) Explain and demonstrate the operation of GTAW and SMAW machines a minimum of 100% of the lab time. (CSLO 2)

4. (Analysis Level) Recognize and select the proper tools and equipment for the pipe and joint design being welded. (CSLO 2,4)

5. (Analysis Level) Setup the welding machine with proper polarity, amperage, and process to complete welding procedure. (CSLO 2)

6. (Synthesis Level) Measure and cut pipe per job specifications using mechanical tools, oxy-acetylene, and plasma arc cutting torches. (CSLO 2,4)

7. (Analysis Level) Examine pipe welds per code specifications. (CSLO 2)

8. (Analysis Level) Examine, detect, and explain the cause of defects and inconsistencies in fabricated piping systems. (CSLO 2,4)

9. (Application Level) Explain and demonstrate pipe design, lay-out, and fabrication using drawings and code requirements. (CSLO 2,4)

10.(Knowledge Level) Describe applicable pipe welding code requirements for joint design, weld quality, inspection methods, and welder qualifications. (CSLO 2,4)

Course Requisites

WLD247 - Pipefitting IV

General

Division
Skilled Trades & Technology Division

Course Description
This course will introduce students to advanced blueprint reading for pipe and pressure vessel fabrication. Specialty piping components and procedures will be explained and demonstrated. Safety procedures and issues specific to critical pipe systems will be discussed. Students will also be introduced to employability and leadership skills needed to progress in the profession. Prerequisite: WLD255 or instructor consent. Corequisite: WLD246.

Total Number Of Credits:
5

Lecture Credits
3

Lab Credits
6

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures 100% of the time within a lab setting related to the pipe welding trades. (CSLO 2,3)

2. (Application Level) Explain and demonstrate the operation of pipefitting power tools a minimum of 100% of the lab time. (CSLO 3)

3. (Application Level) Explain and demonstrate interpretation of isometric piping drawings. (CSLO 2,4)

4. (Analysis Level) Recognize and select the proper tools and equipment for the pipe and joint design being welded. (CSLO 2,4)

5. (Analysis Level) Setup the welding machine with proper polarity, amperage, and process to complete welding procedure. (CSLO 2,4)

6. (Synthesis Level) Measure and cut pipe per job specifications using specialty mechanical tools,oxy-acetylene and plasma arc cutting torches. (CSLO 2,4)

7. (Analysis Level) Examine pipe welds per code specifications. (CSLO 2)

8. (Analysis Level) Inspect, detect, and explain the cause of defects and inconsistencies in fabricated piping systems. (CSLO 2)

9. (Application Level) Explain and demonstrate pipe component installation to job specifications. (CSLO 2,4)

10.(Knowledge Level) Describe and explain basic skills required by supervisory personnel and professional development for employees. (CSLO 1)

Course Requisites

WLD255 - Advanced Pipe Welding II

General

Division
Skilled Trades & Technology Division

Course Description
This course prepares students for welder qualifications in several codes to meet the required standards of the advanced pipe industry. The focus of this course is on the welding procedures and techniques used in smaller diameter and heavier wall thickness piping. This will be a lab intensive class to allow students with the required lab time to pass advanced pipe welder qualification tests. Students will practice butt welds, socket welds, tube welding and advanced pipe fabrication. Specialty industry procedures such as hot tapping, heat treatment and stress relieving will be discussed. Special safety procedures such as fall protection, cranes and rigging, confined space and excavations will be discussed. WLD243 or Instructor Consent.

Total Number Of Credits:
8

Lecture Credits
4

Lab Credits
12

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures 100% of the time within a lab setting related to the pipe welding trades. (CSLO 2,3)
2. (Application Level) Explain and demonstrate the operation of a DC welding machines using SMAW and GTAW a minimum of 100% of the lab time. (CSLO 2,4)
3. (Application Level) Explain and demonstrate the operation of mechanical cutting, oxy-acetylene, and carbon arc torch cutting a minimum of 100% of the lab time. (CSLO 2,4)
4. (Analysis Level) Recognize and select the proper welding rod and size for the alloy and joint design of the pipe being welded. (CSLO 2,4)
5. (Analysis Level) Setup the welding machine with proper polarity, amperage, and process to complete the pipe welding procedure. (CSLO 2,4)
6. (Synthesis Level) Measure and cut pipe per job specifications and drawings using mechanical tools, oxy-acetylene, and plasma arc cutting torches. (CSLO 2,4)
7. (Analysis Level) Examine root pass for 100% penetration. (CSLO 2)
8. (Analysis Level) Examine fill and cap passes per code requirements. (CSLO 2)
9. (Analysis Level) Examine, detect and explain the cause of weld defects: inclusion, porosity, penetration, under fill, burn through, and undercut in a given weld. (CSLO 2)
10. (Comprehension Level) Explain and summarize applicable pipe welding codes, explain differences in industry applications between API and ASME codes. (CSLO 2,4)
11. (Knowledge Level) Define various code requirements for welder qualifications, weld positions, joint designs, and inspection/testing methods common to the pipe industry. (CSLO 2)
12. (Application level) Explain and demonstrate safety practices common to the pipe welding industry. Demonstrate proper use of personal protective equipment (PPE) and specialized safety equipment used in the fabrication and welding industries. (CSLO 2,3)

WLD22317 - Automatic Welding Processes I

General

Division
Skilled Trades & Technology Division

Course Description
Focus on the Submerged Arc Welding process(SAW), including the types and uses of automated welding processes. Topics to be covered are: electrical characteristics and power supplies, sest up and operation of a single wire submerged arc welding system, basic troubleshooting, and weld quality evaluation. Students will interpret and develop weld procedure specifications/performance qualification records for the SAW process. Recommended: A fundamental knowledge of welding processes.

Total Number Of Credits:
3

Lecture Credits
2

Lab Credits
3

MSLOs

Measurable Student Learning Outcomes
1. (Application Level) Explain and demonstrate safe working habits and procedures related to the Submerged Arc Welding Process. (CSLO # 1,2)

2. (Evaluation Level) Compare and contrast SAW single and dual wire systems. (CSLO 2)

3. (Comprehension Level) Explain electrical arc characteristics, types of power supplies, and duty cycle requirements related to the SAW process. (CSLO 2)

4. (Analysis Level) Identify and select matching base metal and filler metal combinations, proper flux type and recycling per AWS D1.1 structural code. (CSLO 2,3,4)

5. (Synthesis Level) Develop and utilize weld procedure specifications and performance qualification records per AWS D1.1 structural code.(CSLO 2,3,4)

6. (Analysis Level) Demonstrate and compare weld joint designs, base metal preparation, and weld metal deposition rates with single and multiple wire systems. (CSLO 2,3,4)

7. (Synthesis Level) Set up and operate a Submerged Arc Welding single wire power supply and positioner carriage using single wire system. Demonstrate set up and operation of a dual wire system. (CSLO # 2,3,4)

8. (Evaluation Level) Identify and evaluate the types and causes of weld discontinuities such as porosity, lack of fusion, incomplete penetration, slag inclusions as they relate to the SAW process. (CSLO # 1,2,3,4)

9. (Analysis Level) Understand and investigate the fundamentals of metallurgy and the requirements for pre-heat and inter-pass temperature monitoring. (CSLO # 2,3,4)