PROGRAMS OF STUDY

COLLEGE AND UNIVERSITY TRANSFER PROGRAMS

ASSOCIATE IN ARTS (A.A.),
ASSOCIATE IN FINE ARTS (A.F.A.)
OR ASSOCIATE IN SCIENCE (A.S.)
Associate degree programs designed to transfer to a bachelor's degree at a four-year college or university.

CAREER PROGRAMS – ASSOCIATE IN APPLIED SCIENCE (A.A.S.)
Associate degree programs designed to prepare students for immediate employment. With planning, these courses may transfer to a bachelor's degree. Students in these programs who plan to transfer should speak with an advisor or transfer counselor as early as possible.

CAREER PROGRAMS – CERTIFICATES
Certificates of competency or proficiency designed to prepare students for immediate employment.

PROGRAMS OF STUDY

COLLEGE AND UNIVERSITY TRANSFER PROGRAMS

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Associate Degree Program</th>
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<tr>
<td>Administration of Justice A.A.</td>
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<tr>
<td>Business Administration A.S.*</td>
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<tr>
<td>Communication Arts-Communication Studies Option A.A.*</td>
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<tr>
<td>Communication Arts-Journalism Option A.A.</td>
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<tr>
<td>Communication Arts-Theatre Option A.A.</td>
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<tr>
<td>Computer Science A.S.*</td>
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<tr>
<td>Creative Writing A.F.A.</td>
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<tr>
<td>Early Childhood Education A.A.</td>
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<td>Education A.A.*</td>
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<tr>
<td>Engineering A.S.</td>
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<td>English A.A.</td>
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<td>Global Studies A.A.</td>
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<td>Graphic Design A.F.A.</td>
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<td>History A.A.</td>
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<td>Mathematics/Natural Science A.S.</td>
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<td>Interactive Multimedia Certificate</td>
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<td>Machine Tool Technology A.A.S.</td>
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<td>Manufacturing Operations Certificate</td>
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<td>Medical Assistant A.A.S., Certificate*</td>
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<td>Medical Coding and Billing A.A.S., Certificate</td>
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<td>Municipal Police Academy Certificate</td>
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<td>Network Engineering Certificate</td>
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<td>Nursing A.A.*</td>
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<td>Office Administration Certificate</td>
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<td>Plumbing Apprenticeship Certificate</td>
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<td>Residential Electrical Certificate</td>
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<td>Respiratory Therapy A.A.S.</td>
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<td>RN First Assistant in Surgery Certificate</td>
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<td>Skilled Trades A.A.S.</td>
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<td>Theatre Arts Certificate</td>
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<td>Welding Technology Certificate</td>
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<tr>
<td>Web Development Certificate</td>
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</tbody>
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*C*Designates degree programs that can be completed in Chester County.

Delaware County Community College is an equal employment and educational opportunity institution conforming to all applicable legislation that prohibits discrimination. The College does not discriminate on the basis of race, color, religion, sex, age, national origin, disability, veteran status, sexual orientation or any other characteristic protected by state or federal laws in its educational programs, activities, admission or employment policies, as required by Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973 and other applicable statutes. Inquiries concerning Title IX and/or 504 compliance should be referred to: Carol Mullin, Director of Assessment Services, room 4265, 610-359-5318, or Kendrick Mickens, Director of First-Year Experiences, room 2170, 610-359-5340. TTY for the hearing impaired: 610-359-5020.
Mission
The Mission of Delaware County Community College is to facilitate learning by providing quality educational programs and services that are student focused, accessible, comprehensive, and flexible to meet the educational needs of the diverse communities it serves. In doing so, the College will enable its students to develop themselves to the limit of their desires and capabilities and to be successful.

DELAWARE COUNTY

MARPLE CAMPUS
901 South Media Line Road
Media, PA 19063-1094
610-359-5000
TTY for the hearing impaired: 610-359-5020

SOUTHEAST CENTER
2000 Elmwood Avenue
Curtis Building
Sharon Hill, PA 19079
610-957-5700

UPPER DARBY CENTER
Barclay Square
1570 Garrett Road
Upper Darby, PA 19082
610-723-1250

CHESTER COUNTY

DOWNINGTOWN CAMPUS
100 Bond Drive
Downingtown, PA 19335
484-237-6200

EXTON CENTER
912 Springdale Drive
Whiteland Business Park
Exton, PA 19341
610-450-6500

BRANDYWINE CAMPUS
443 Boot Road
Downingtown, PA 19335
610-723-1100

PENNOCKS BRIDGE CAMPUS
280 Pennocks Bridge Road
West Grove, PA 19390
484-237-6400

PHOENIXVILLE CAMPUS
1580 Charlestown Road
Phoenixville, PA 19460
610-723-1104

www.dccc.edu

Delaware County Community College is accredited by the Middle States Commission on Higher Education, 3624 Market Street, 2nd Floor West, Philadelphia, PA 19104. Phone: 267-284–5000
Email: info@msche.org Spanish: espanolinfo@msche.org

Content current as of June 2018. All changes effective for Fall 2018.
Delaware County Community College has joined numerous other colleges in the region and beyond in an effort to promote health and wellness by going tobacco-free. The policy prohibits the use of any tobacco product (cigarettes, cigars, pipes, snuff, chewing tobacco, etc.), on College owned or leased property. It is intended to eliminate exposure to secondhand smoke and provide an environment supportive of tobacco-free lifestyles. More information and resources are available at: www.dccc.edu/tobacco-free

Students celebrate the College’s 50th anniversary.

Delaware County Community College has joined numerous other colleges in the region and beyond in an effort to promote health and wellness by going tobacco-free. The policy prohibits the use of any tobacco product (cigarettes, cigars, pipes, snuff, chewing tobacco, etc.), on College owned or leased property. It is intended to eliminate exposure to secondhand smoke and provide an environment supportive of tobacco-free lifestyles. More information and resources are available at: www.dccc.edu/tobacco-free

Students celebrate the College’s 50th anniversary.

**Breathe EASY**
**TOBACCO-FREE CAMPUS**

Delaware County Community College has joined numerous other colleges in the region and beyond in an effort to promote health and wellness by going tobacco-free. The policy prohibits the use of any tobacco product (cigarettes, cigars, pipes, snuff, chewing tobacco, etc.), on College owned or leased property. It is intended to eliminate exposure to secondhand smoke and provide an environment supportive of tobacco-free lifestyles. More information and resources are available at: www.dccc.edu/tobacco-free

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### ABBREVIATIONS AND DEFINITIONS

The following course abbreviations are used throughout the catalog and refer to courses within a specific discipline:

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<th>Accounting</th>
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<tbody>
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<td>ADJ</td>
<td>Administration of Justice</td>
</tr>
<tr>
<td>AHA</td>
<td>Health Administration</td>
</tr>
<tr>
<td>AHM</td>
<td>Allied Health Medical</td>
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<tr>
<td>AHN</td>
<td>Allied Health Nursing</td>
</tr>
<tr>
<td>AHS</td>
<td>Surgical Technology</td>
</tr>
<tr>
<td>ARB</td>
<td>Arabic</td>
</tr>
<tr>
<td>ARC</td>
<td>Architecture</td>
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<td>ART</td>
<td>Art</td>
</tr>
<tr>
<td>AUT</td>
<td>Auto Mechanics</td>
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<tr>
<td>BIO</td>
<td>Biology</td>
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<tr>
<td>BUS</td>
<td>Business</td>
</tr>
<tr>
<td>CHE</td>
<td>Chemistry</td>
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<tr>
<td>COMM</td>
<td>Communication Studies</td>
</tr>
<tr>
<td>CPT</td>
<td>Carpentry</td>
</tr>
<tr>
<td>CUL</td>
<td>Culinary Arts</td>
</tr>
<tr>
<td>CS</td>
<td>Computing Science</td>
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<tr>
<td>DPR</td>
<td>Computer Information Systems</td>
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<tr>
<td>ECE</td>
<td>Early Childhood Education</td>
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<td>ECO</td>
<td>Economics</td>
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<tr>
<td>EDU</td>
<td>Education</td>
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<tr>
<td>EGR</td>
<td>Engineering</td>
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<tr>
<td>ELT</td>
<td>Electrical Occupations</td>
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<td>EMER</td>
<td>Emergency Management and Planning</td>
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<td>EMS</td>
<td>Emergency Medical Services</td>
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<td>EMT</td>
<td>EMT Paramedic</td>
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<td>ENG</td>
<td>English</td>
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<tr>
<td>ESL</td>
<td>English as a Second Language</td>
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<tr>
<td>ESS</td>
<td>Earth and Space Science</td>
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<tr>
<td>FRE</td>
<td>French</td>
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<tr>
<td>FST</td>
<td>Fire Science Technology</td>
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<tr>
<td>GER</td>
<td>German</td>
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<tr>
<td>HIS</td>
<td>History</td>
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<tr>
<td>HRM</td>
<td>Hotel and Restaurant Management</td>
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<td>HUM</td>
<td>Humanities</td>
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<td>HUS</td>
<td>Human Services</td>
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<tr>
<td>HVA</td>
<td>Heating, Ventilation, Air Conditioning and Refrigeration</td>
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<td>IMM</td>
<td>Interactive Multimedia</td>
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<tr>
<td>INT</td>
<td>Interdisciplinary</td>
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<td>IST</td>
<td>Industrial Systems Technology</td>
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<td>ITA</td>
<td>Italian</td>
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<td>MAT</td>
<td>Mathematics</td>
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<td>MPT</td>
<td>Municipal Police Training</td>
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<td>MTT</td>
<td>Machine Tool Technology</td>
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<td>MUS</td>
<td>Music</td>
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<tr>
<td>NDT</td>
<td>Neurodiagnostic Technology</td>
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<tr>
<td>NET</td>
<td>Network Engineering</td>
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<tr>
<td>NUS</td>
<td>Nursing</td>
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<tr>
<td>OCS</td>
<td>Occupational Studies</td>
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<tr>
<td>PCT</td>
<td>Process Control Technology</td>
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<tr>
<td>PHI</td>
<td>Philosophy</td>
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<td>PHY</td>
<td>Physics</td>
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<tr>
<td>PLB</td>
<td>Plumbing</td>
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<tr>
<td>PLG</td>
<td>Paralegal Studies</td>
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<tr>
<td>POL</td>
<td>Political Science</td>
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<td>Psychology</td>
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<td>Reading</td>
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<td>RTH</td>
<td>Respiratory Therapy</td>
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<tr>
<td>RUS</td>
<td>Russian</td>
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<tr>
<td>SCI</td>
<td>Science</td>
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<td>SOC</td>
<td>Sociology</td>
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<td>SPA</td>
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<td>SWO</td>
<td>Social Work</td>
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<td>TCC</td>
<td>Technical Department Core</td>
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<td>TCS</td>
<td>Construction Technology</td>
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<td>TEC</td>
<td>Technical Study</td>
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<tr>
<td>TDD</td>
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<td>TEL</td>
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<td>TME</td>
<td>Mechanical Technology</td>
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<td>WLD</td>
<td>Welding</td>
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</tbody>
</table>

The following course abbreviations are used throughout the catalog and refer to courses within a specific discipline:

| ACC, Accounting |
|-----|----------------|
| ADJ, Administration of Justice |
| AHA, Health Administration |
| AHM, Allied Health Medical |
| AHN, Allied Health Nursing |
| AHS, Surgical Technology |
| ARB, Arabic |
| ARC, Architecture |
| ART, Art |
| AUT, Auto Mechanics |
| BIO, Biology |
| BUS, Business |
| CHE, Chemistry |
| COMM, Communication Studies |
| CPT, Carpentry |
| CUL, Culinary Arts |
| CS, Computing Science |
| DPR, Computer Information Systems |
| ECE, Early Childhood Education |
| ECO, Economics |
| EDU, Education |
| EGR, Engineering |
| ELT, Electrical Occupations |
| EMT, EMT Paramedic |
| ENG, English |
| ESL, English as a Second Language |
| ESS, Earth and Space Science |
| FRE, French |
| FST, Fire Science Technology |
| GER, German |
| HIS, History |
| HRM, Hotel and Restaurant Management |
| HUM, Humanities |
| HUS, Human Services |
| HVA, Heating, Ventilation, Air Conditioning and Refrigeration |
| IMM, Interactive Multimedia |
| INT, Interdisciplinary |
| IST, Industrial Systems Technology |
| ITA, Italian |
| MAT, Mathematics |
| MPT, Municipal Police Training |
| MTT, Machine Tool Technology |
| MUS, Music |
| NDT, Neurodiagnostic Technology |
| NET, Network Engineering |
| NUS, Nursing |
| OCS, Occupational Studies |
| PCT, Process Control Technology |
| PHI, Philosophy |
| PHY, Physics |
| PLB, Plumbing |
| PLG, Paralegal Studies |
| POL, Political Science |
| PSY, Psychology |
| REA, Reading |
| RTH, Respiratory Therapy |
| RUS, Russian |
| SCI, Science |
| SOC, Sociology |
| SPA, Spanish |
| SWO, Social Work |
| TCC, Technical Department Core |
| TCS, Construction Technology |
| TEC, Technical Study |
| TDD, Drafting and Design Technology |
| TEL, Electronics Technology |
| TME, Mechanical Technology |
| WLD, Welding |

The following definitions may be helpful to students' understanding of the educational culture of postsecondary education:

**Academic Record**: transcript of grades, courses, credits and related academic information kept on file by the College

**Accelerated Session**: a period less than the fifteen-week semester in which students can complete coursework on an accelerated basis

**Associate Degree (A.A., A.A.S., A.F.A., A.S.)**: a two-year degree that generally prepares students for further study or entry into the workplace

**Certificate**: recognition provided for completion of short-term vocational or career-training programs

**Credit**: the value assigned to a college course depending on the number of class hours per week. For example, a three-credit course meets three hours per week

**Elective**: an optional course selected by the student

**ESL (English as a Second Language)**: English courses offered to speakers of other languages who completed most of their previous education outside of the United States to improve their English writing, grammar, reading, speaking and listening skills.

**FAFSA (Free Application for Federal Student Aid)**: a free financial aid application that must be submitted by students seeking grants and/or loans from state and federal governments, colleges and other sources

**GED (General Educational Development)**: a test for people who have not graduated from high school that is used to confirm their mastery of information covered in a basic high school curriculum

**Internships**: option to attend college and do paid work, receiving credit for both; also called co-op

**Major**: the course of study in which a student concentrates coursework, time and attention

**Placement Test**: assessment given to new students to determine their skill levels in English, reading and mathematics and their academic starting point

**Prerequisite**: a level of accomplishment required prior to enrolling in a particular course. For example, English Composition I is a prerequisite for English Composition II

**Registration**: transaction through which students enroll in coursework

**Semester**: usually a fifteen-week period in which college courses are completed
DEGREE AND CERTIFICATE REQUIREMENTS

Delaware County Community College's Philosophy on General Education

The College is dedicated to a comprehensive effort that encourages in individual students the attitude of inquiry, the skills of problem solving and concern for the values of a democratic society. This philosophy of general education seeks to give each student the knowledge, skills and values needed for lifetime learning and for becoming a self-fulfilled individual.

Associate Degree
To graduate, students must:
1. Earn a minimum of 60 credit hours, exclusive of basic, developmental and continuing education courses. Of these, at least 24 must be earned at Delaware County Community College with at least 15 hours in graded courses (courses for which grade points are issued) for the associate degree. Not more than 12 credit hours may be transferred back after completing attendance at this college. A maximum of three credits of physical education activities may be applied toward the 60 credit hours.
2. Have a cumulative grade point average of 2.0 (C) or higher.
3. Complete the approved curriculum satisfactorily. Curricula are itemized lists of courses and credits required for professional and technical competence. Additional curricula will be published in a series of special student bulletins. All approved curricula include courses required by the laws of the State of Pennsylvania and general education requirements.

Certificate of Proficiency
Delaware County Community College will award a certificate of proficiency to students who complete 30 credits of an approved career program. These credits will not normally include physical education, developmental, basic and/or continuing education courses and will usually consist of 24 credits in the career specialty and six credits in general education. Exceptions may be made upon recommendation of the Academic Affairs Committee. At least 50 percent of the credits must be earned at Delaware County Community College. The student must have a cumulative GPA of 2.0 or higher. At least six credit hours must be in courses that are awarded grade points.

Certificate of Competency
The College will award a certificate of competency to students who complete an approved credit-bearing career program that requires less than 30 credits. General education courses may not be required for programs that have less than 30 credits. The student must have a cumulative GPA of 2.0 or higher. At least six credit hours must be in courses that are awarded grade points. Certificates of Competency are awarded by the academic division.

Application for Graduation
Applications for graduation are posted on delaGATE during the appropriate application period. They are also available at Enrollment Central on the Marple Campus, and at off-campus locations, in October, March, and June for December, May and August graduations respectively.

Dual and Additional Degrees
A student who has already received a Delaware County Community College degree or certificate may qualify for an additional degree or certificate by 1) meeting the requirements of the additional curriculum and 2) completing at least 12 credits at the College subsequent to those received for the previous degree or certificate.
For Delaware County Community College degree holders, the curriculum leading to an additional degree or certificate must be different from the previous degree(s). General Studies and Technical Studies may not be earned as additional degrees. A degree at the College with options or concentrations is considered one degree and will be awarded only once. Some curricula are very similar, and students may not earn degrees in both. Some examples are:
1) Mathematics/Natural Science and Science for the Health Professions
2) Computer Information Systems and Information Technology and
3) General Business and any of the following majors: Business Administration, Accounting and Small Business Management.
For Delaware County Community College certificate holders, the curriculum leading to an additional certificate must be different from the previous certificate(s) and the curriculum leading to a first degree can be the same as or different from that of the certificate.
Students who complete all requirements for two degrees and at least 12 additional credits at the same time may receive two diplomas. General Studies, Technical Studies, and other restrictions listed above under degree holders may not be awarded as part of a dual degree. A certificate and degree in the same or similar curricula may not be awarded at the same time. Students may pursue no more than two degrees at one time and they must inform their advisors of the intent to follow two degrees. They must file two separate graduation applications.

Graduation with Honors
The associate degree or certificate will be granted “With Honors” if a student earns an overall average of 3.0 (B) in all courses applicable to the degree or certificate. For those students with an overall average of 3.5, the award will be “With High Honors.”
Delaware County Community College is a competency-based institution that has instituted nine College Academic Learning Goals as the core of our general education program. The nine College Academic Learning Goals are to be achieved by all of the graduates of our degree programs. Since the focus is on skills, knowledge, and abilities rather than courses, there is no mandatory set of courses that every graduate will take to complete the general education portion of a degree program. Instead, each degree program, career and transfer, has been designed by the College’s faculty to meet these goals. The goals are met either by general education courses or by required program courses that have been designed to meet one or more of the learning goals. Each degree program guides its graduates to achieve the College Academic Learning Goals in the way that is most reasonable and helpful to students in that field of study. The courses that meet the College Academic Learning Goals are part of, not in addition to, the program.

The nine College Academic Learning Goals are:

- **Critical Reasoning**: Graduates will demonstrate critical reasoning.
- **Diversity and Social Justice**: Graduates will demonstrate an understanding of inequality, oppression, power, privilege, and the struggle for social justice faced by historically marginalized people.
- **Global Understanding**: Graduates will demonstrate the ability to recognize and analyze global topics and issues.
- **Information Literacy**: Graduates will demonstrate the ability to find, evaluate, and communicate information found in the course of their research.
- **Information Technology**: Graduates will demonstrate the ability to use information technology.
- **Oral Communication**: Graduates will demonstrate the ability to communicate orally by delivering and receiving messages competently.
- **Quantitative Reasoning**: Graduates will demonstrate the ability to apply mathematical concepts and quantitative reasoning to solve problems.
- **Scientific Inquiry**: Graduates will demonstrate a conceptual and a quantitative understanding of natural science disciplines and develop scientific inquiry skills.
- **Written Communication**: Graduates will demonstrate the ability to compose coherent, evidence-based academic writing.

**Delaware County Community College Academic Guarantee**

Delaware County Community College believes that its instructional programs meet the needs of both graduates and employers by providing appropriate job entry skills and the competency levels required to transfer to baccalaureate institutions.

To assure this level of performance, the College allows our graduates the opportunity to enroll for up to fifteen (15) additional credit hours of coursework without tuition charge if their skills or competencies do not meet stated expectations of employers or transfer baccalaureate institutions. This guarantee applies to graduates earning their degree on or after May 2001. Time constraints apply for both when retraining commences and is completed and is limited to coursework regularly offered by Delaware County Community College for which the student earned a minimum grade of C.

A copy of the academic guarantee, along with appropriate documents required for retraining, is available from the Provost’s Office.

Yesenio Diaz Lopez receives her diploma at the 2018 Commencement ceremony.
### College Academic Learning Goals Designated Courses

This list is for Fall 2018 and will be continuously changing, please check the Delaware County Community College website for the most up-to-date list.

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1 Multiple College Academic Learning Goals Designations
ADMISSION PROCEDURES

Delaware County Community College is committed to providing an equal educational opportunity to all who can benefit. This open-door policy allows the College to admit any high school graduate or person who has passed the GED (high school equivalency) exam. Persons 19 or older who have not graduated from high school or passed the GED will be considered for admission on an individual basis. All students seeking credit coursework must file an application for admission.

The College strongly recommends that students apply as early as possible. Our admission procedure helps College counselors advise incoming students on the courses they select. Early applicants benefit both from placement testing and College Planning Sessions with the counseling staff.

How to Apply

An application for admission is available by calling the College at 610-359-5050, or online at: www.dccc.edu/apply

If you wish to be enrolled in credit coursework, please follow these steps:

1. Submit an admission application:
   • Those applying to neurodiagnostic technology, nursing, respiratory therapy, surgical technology, municipal police training, and individuals seeking financial aid must submit an official transcript from their guidance office.
   • Transfer students desiring credit for prior coursework must submit official transcripts from all postsecondary schools attended, and the petition for transfer of credit.
   • International students must submit an official report of their academic records of secondary and postsecondary education from a NACES (National Association of Credential Evaluation Services) approved member, original bank statement, and notarized affidavit of support verifying ability to meet expenses before an I-20 is issued.

2. Accepted students will receive information about scheduling or waiving our placement test. Students with SAT/ACT scores taken within the past five years are encouraged to submit their scores for consideration of waiving the placement test. Students with prior college credit in English Composition and mathematics may request a waiver of the placement test.

3. Participate in a College Planning Session to meet with a counselor, schedule your classes and learn more about Delaware County Community College.

If you graduated from high school or earned a GED and wish to enroll in credit courses on a part-time basis, you must complete steps 1 and 2 above. You are encouraged, but not required, to also participate in a College Planning Session.

Readmission

Students who have not been enrolled for a year or more or previously applied but did not take classes must reapply to the College. You must follow these steps:

1. Submit an application for admission and check the box on the application that reads, “Check here if applying for readmission.”

2. Complete the College’s Placement Test if you did not do so when you previously applied to the College or if you did not waive the Placement Test.

3. If you attended another college since leaving Delaware County Community College and you want to transfer the credits here, you must submit an official transcript. See “Transferring to Delaware County Community College.”

4. Participate in a College Planning Session to schedule your classes.

If you wish to re-enroll in courses on a part-time basis, you must complete steps 1 and 2 above. You are encouraged, but not required, to participate in a College Planning Session.

Visiting Students

If you attend a four-year college or university but wish to enroll at Delaware County Community College for coursework to transfer back to your home institution, follow these easy steps:

1. Together with your completed application, submit a copy of your home institution transcript or a letter from your advisor verifying that you have met any prerequisites associated with our course(s) you wish to take.
   • Be sure to include a major code in the appropriate space on the application form. Applications cannot be processed without a major code.

2. Include, with your application and transcript or letter, a note providing the specific course information for the classes in which you wish to enroll, including CRN (course reference #), SUBJ (subject code), CRS (credits), SEC (section), and TITLE (course title).

3. Either mail all of the above together to the Admissions Office or bring in person during business hours to our Marple Campus, Southeast Center, Downingtown Campus, Pennocks Bridge Campus, or Exton Center.

No High School Diploma or GED

If you have not graduated from high school, are 19 years of age or older, and wish to enroll in credit courses part time, you must:

1. Make an appointment to interview with a member of the admissions staff.

2. Complete a “non-high school graduate petition” for admission and submit it to the director of admissions.

3. Submit an admission application.

Special Admissions Programs

There is a special international student application for individuals who wish to attend on a student visa. Neurodiagnostic technology, nursing, surgical technology, and respiratory therapy programs have special admission procedures. Please contact the Admissions Office (610-359-5050) for a copy of the procedures and guidelines for these programs. Students interested in Municipal Police Training should contact the Municipal Police Academy (610-359-7386) for admission procedures. Students interested in the Plumbing Apprenticeship should call 610-356-4800 for admission procedures. Paramedic-Advance Life Support applicants must contact the Program Manager (610-723-6315) for special procedures. Perioperative Nursing applicants should call the Allied Health, Emergency Services and Nursing Department (610-359-5353). Technical Studies applicants must contact Assessment Services (610-359-5322).

Enrollment Opportunities for High School Students

The College’s High School Dual Enrollment Program gives students the opportunity to earn college credits while they’re still in high school at a fraction of the cost of standard tuition rates. Interested high school students are invited to apply, and participants are selected based on demonstrated academic ability and motivation. Accepted high school students can earn up to 21 credits at up to 66% off the traditional tuition pricing. For application materials and additional information, visit www.dccc.edu/highschool, call 610-359-5157 or email enroll@dccc.edu.
International Applicants

Non-immigrant students who require a Certificate of Eligibility (Form I-20) in order to obtain a student visa, must complete the College’s International Student Application. The admission process requires students to submit additional academic and financial documentation which is outlined on the International Student Application. The application can be downloaded from www.dccc.edu/international-admissions.

International students who require a student visa may apply to the College for admission to the fall and spring semesters, as well as for the summer English as a Second Language (ESL) semester. Because of the time needed to process applications for students requiring a Form I-20, the Admissions Office must receive application materials by the following deadlines: July 15, for the fall semester; November 15, for the spring semester; April 15, for summer ESL semester. Students should also consider the time required to obtain their academic and financial documentation and begin the application process as early as possible.

All students entering Delaware County Community College on a student visa must purchase health insurance through the College.

Current immigration regulations prohibit B-visa holders from enrolling in credit courses. However, they may enroll in up to two non-credit classes each semester. Students in other non-immigrant statuses, immigrants, refugees, asylees, and legal Permanent Residents should follow the regular admission process. Please contact the Admissions Office for application materials and information:

Delaware County Community College
901 South Media Line Road Media, PA 19063-1094 USA
610-359-5050
admiss@dccc.edu

Follow DCCC International on social media!
Facebook: https://www.facebook.com/dcccintl/
Instagram: https://www.instagram.com/dccc_intl/
#YouAreWelcomeHere

Transferring to Delaware County Community College

Application Procedures

When transferring to Delaware County Community College from another college, you must first submit an application to the College. You must also request that an official transcript from each institution where you have received college credits be sent to Enrollment Central at Delaware County Community College. Current and former students may transfer to the College a maximum of 36 credits from a regionally accredited institution of higher education.

Residents of sponsoring school districts in Delaware County are eligible for the lower sponsoring tuition rate. Residency must be established at least three months prior to registration. If residency within the sponsoring district is for less than three months, the applicant will still be eligible for the lower tuition if it can be proven that residency was established for a reason other than attending the College.

Applicants residing in a non-sponsoring district in Delaware County must pay the non-sponsoring tuition. Residents of other Pennsylvania counties also pay the non-sponsoring tuition. Out-of-state residents and international students must pay the out-of-state tuition rate. Non-immigrants also pay a per credit international student fee. Current tuition and fee information is available at www.dccc.edu/tuition.

Academic Advisement for New Students

An important aspect of the admission process is the college planning and advisement session. Following a presentation on College services, curricula and policies, each new student meets with an advisor to discuss personal goals and educational plans so he or she may gain the most from College programs. The College is committed to providing students with the information needed for them to take responsibility for making good decisions to reach their life and educational goals.

The student, after enrolling for the first semester, is assigned to an advisor. This advisor helps the student evaluate his/her progress at the College and provides information to help the student make appropriate course choices. For students with disabilities, early advisement is particularly important. Helpful hints, campus orientation and supplemental assistance are provided where appropriate for students with learning, physical, and/or psychological disabilities. Contact the Office of Disability Services at 610-359-5229.

Shared Programs with Bucks, Montgomery and Philadelphia County Community Colleges

A shared program allows students from sponsoring school districts or counties to take courses that are not offered at their home institution but available at another local community college. Students who elect to enroll at participating community colleges must be authorized by the director of admissions and pay the host college’s sponsored student rate for courses taken at the host college. Delaware County Community College students residing in sponsoring school districts may participate in the following shared program opportunities:

Offered at Bucks County Community College
Fine Woodworking
Historic Preservation
Meeting, Convention and Event Planning

Offered at Montgomery County Community College
Dental Hygiene
Engineering Technology
Health and Fitness Professional
Medical Laboratory Technology

Offered at Community College of Philadelphia
Chemical Technology
Dental Hygiene
Interpreter Education
Photographic Imaging

For further information, contact Admissions at 610-359-5333. Individuals from Bucks, Montgomery and Philadelphia counties should consult their home institution’s catalog for eligible programs offered by Delaware County Community College.

*Programs listed are subject to change.
Internships

Cooperative Education (Co-op) and internships are part of the College’s Experiential Learning program, which integrates off-campus career learning experiences with classroom studies. These experiences are structured to explore career options and/or to prepare for a specific occupation. Students participating in co-op and internships gain college credit and are graded for their learning/work experience by appropriate faculty.

1. Co-op: Students are placed in a full-time paid work/learning position that is directly related to their major field of study. They gain hands-on work experience and learn about related occupational positions in that field.

2. Internship: Students are placed in a part-time work/learning experience designed to introduce them to several facets of a particular career in an actual work environment. This can be paid or unpaid.

Co-op/internships can be done in selected majors in both degree and certificate programs. They may be taken for 1, 2, or 3 credits with a maximum of 6 credits per student. Course numbers for the majors participating in co-op/internship are: 199 for 3 credits (18 hours), 194 for 2 credits (120 hours), and 190 for one credit (60 hours).

Eligibility requirements:

For associate degree programs: completion of a minimum of 18 credits with at least 9 in the major, or core discipline. In some majors more courses are required.

For certificate programs, completion of the required courses for the certificate. The co-op/internship cannot be substituted for a required course.

The following are also required for all programs:
- A grade point average of at least 2.5
- A written faculty recommendation
- A current resume

The Student Employment Services and Co-Op Center staff work with students in securing appropriate opportunities. However, placement is not guaranteed. For more information, call 610-359-5304.

Independent Study

Some programs offer an “independent” instructional mode for self-motivated, highly disciplined students who cannot pursue certain courses within the regular course framework. Students must check with the division dean to determine if independent study is appropriate.

NOTE: Independent study should not be confused with individualized study. Individualized study courses are those in which students work with various types of instructional support and individualized instruction. MAT 100 are offered in individualized instruction mode.
Delaware County Community College is committed to helping students achieve success in their college experience. The Student Success areas provide resources, support, and services to students as they pursue their educational objectives. It is our goal to educate students to take responsibility for their education and their lives. Our programs and services are designed to teach self-sufficiency and make students active participants in their educational planning. The Student Success areas continue to align their support services, programs and activities to provide the resources and activities in and out of class to foster student engagement.

Office of Student Success and First Year Experiences

The Office of Student Success and First Year Experiences offers programs, services and resources designed to help ensure a successful transition for new students while also improving student retention and completion rates. In order to fulfill these objectives, the office actively supports students and collaborates with faculty, administrators, support staff and alumni to help students enjoy success both inside and outside of the classroom. As a result of these efforts, the office fosters the educational, career, financial, leadership and personal development of students throughout their collegiate experience. For more detailed information, please contact the Office of Student Success and First Year Experiences at 610-359-5340 or firstyearexp@dccc.edu.

Career and Counseling Services

The College maintains a comprehensive Career and Counseling Center. Services available to students include:

- Academic advising
- Transfer advising
- Short-term personal and career counseling
- Career information seminars
- A library of career and educational resources

Counseling is offered for educational, career and personal development. Counselors can also assist with academic problems, selection of an academic major, and personal concerns that may interfere with academic progress. Counseling is a walk-in service for students and an appointment is not always necessary. For information, call 610-359-5324 for the Marple Campus, 484-237-6210 for the Downingtown Campus, 610-450-6510 for the Exton Center, 484-237-6400 for the Southeast Center, 610-869-5100 for the Pennocks Bridge Campus and 610-723-1250 for the Upper Darby Center.

Students with Disabilities

Delaware County Community College welcomes all qualified students with disabilities. Students with disabilities seeking accommodations must provide current and comprehensive documentation in a timely manner. Students are required to meet with the Director of Disability Services in Room 1335 on the Marple Campus in order to determine appropriate accommodations. Students are responsible for picking up their accommodation letters every semester and communicating with their instructors. For more information about eligibility and documentation requirements, please contact the Office of Disability Services at 610-359-5229. Students on Branch Campuses can contact the Coordinator of Disability Services at 484-237-6251.

Assessment Services

Assessment Services, located in the Academic Building on the Marple Campus in Room 4260, provides testing services, academic advisement, transfer of credit into the College, credit for prior learning, advisor assignment and other services that support students’ progress toward their academic goals. For more information, visit www.dccc.edu/assessment or call 610-359-5322.

Testing Center

Testing services include the College’s Placement Tests for native speakers and English as a Second Language, College Level Examination Program (CLEP), American College Testing (ACT), testing for Allied Health majors, testing for Pearson-Vue clients, to include the GED exam, and the PECT and PAPA exam for teacher certification. The Testing Center offers the Praxis exams for teacher certification. Testing services are provided for current students as well as students from other colleges. For more information, visit www.dccc.edu/testing or call 610-325-2776.

Transfer of Credit

A student who transfers to Delaware County Community College from another college can request the transfer of credits by sending an official transcript from their previous institution to Enrollment Central or to records@dccc.edu. Current and former students may transfer to the College a maximum of 36 credits from a regionally accredited institution towards an associate degree and half of the total credits required towards a certificate. For more information, visit www.dccc.edu/transfer-college or call 610-359-5322.

Credit for Prior Learning

Prior learning can be evaluated for College credit through the use of standardized tests or the submission of a portfolio containing certificates, transcripts and other information that documents college-level learning earned outside a formal classroom. Examples of other learning opportunities include apprenticeships, military service and non-credit seminars. Obtaining credit for prior learning may accelerate degree completion. Prior Learning Assessment Advisors guide students in the identification and documentation of their learning as it relates to college courses and curricula in accordance with College policy. For more information, visit www.dccc.edu/credit-prior-learning or call 610-359-5322.

Advanced Placement

Delaware County Community College grants advanced-placement college credits to qualified students. Advanced placement allows students to fulfill the requirements for certain courses. Students must contact the College Board to have their official grade report sent directly to the Assessment Services office. Credit is awarded to students earning an appropriate score on CEEB advanced placement examinations subject to instructor approval. For additional information, call 610-359-3522.

College Level Examination Program (CLEP)

It is possible for a student to earn 36 credits toward an associate degree through the College Level Examination Program (CLEP). The CLEP exams provide students with the opportunity to receive college credit by earning qualifying scores on most of the examinations. For more information, contact Assessment Services at 610-359-3522 or visit www.collegeboard.org/clep.

Act 101 Program

Act 101 is a state-funded program for educationally underprepared and economically disadvantaged Pennsylvania residents. During the summer, Act 101 offers an intensive seven-week program of free transitional courses that help to make the start of college life a smooth and meaningful experience. During fall and spring semesters, the program offers professional counseling, tutoring (in reading, writing, mathematics and other subjects) and study skills workshops for program participants to promote student success. For more information contact the Act 101 Office in Room 2170, Marple Campus, at 610-359-5388 or go to www.dccc.edu/act101.
Campus Life

The Campus Life office promotes community and student development by supporting an activities program that enriches the overall collegiate experience of students. Through the collaborative efforts of students, faculty and staff we offer opportunities to engage students in programs that complement classroom experiences and provide opportunities for social interaction and the development of skills outside the classroom. The College supports a variety of clubs and organizations, intercollegiate athletics, sports clubs, intramural sports activities, and recreational activities, as well as co-curricular and cosponsored cultural programs, student leadership programs, community service programs, multicultural awareness programs, and other student development and engagement programs. The campus life office also coordinates the activities of the Student Government Association, literary magazine and theatre. Many opportunities are available for social interaction, intellectual and emotional growth, and the development of leadership and career-related skills through social, cultural and recreational activities and community service projects. The Campus Life office is located in the Student Center (Room 1180) on the Marple Campus. The Student Center includes an open student lounge and provides office space for clubs and organizations. To reach Campus Life, call 610-359-5341 or email camplife@dccc.edu. Students at branch campuses can reach us at cc-campus-life@dccc.edu. For more information, visit www.dccc.edu/campus-life.

Wellness, Athletics and Recreation

The Office of Wellness, Athletics and Recreation is committed to providing students with the opportunity to participate in quality wellness and recreational activities. Through a college-wide wellness, athletics and recreation program—including fitness, intercollegiate athletics, intramural sports, club sports, open recreation and special events—the office provides a variety of activities for students, faculty and staff. Call 610-359-5354 for additional information.

Intercollegiate Athletics: The College offers opportunities for full-time students to participate in athletic competition at the intercollegiate level. Students may compete in any of our seven intercollegiate sports teams. This competitive program allows student-athletes to develop skills and team spirit, and encourages them to achieve their highest potential. The College is a member of the Eastern Pennsylvania Athletic Conference in Region XIX of the National Junior College Athletic Association (NJCAA). Students interested in participating in any sport should contact the Director of Wellness, Athletics and Recreation Suni Blackwell at athleticsdept@dccc.edu. The College offers the following sports: Men’s soccer, Women’s Cross Country, Men and Women’s Basketball, Women’s Track and Field and coed Golf.

Intramural/Recreational Sports and Wellness: The intramural/recreation sports program provides opportunities for students to participate in informal recreational activities and sports competition. Our fitness center and aerobic studio, located on the Marple Campus, is open to faculty, staff and students with a current College ID. The center features free weights, circuit machines, treadmills, ellipticals and more. Aerobic classes are offered throughout the week.

Veterans Services

The Nazz Mariani Veterans Center

The College’s Veterans Center, named in honor of World War II Army veteran Nazz Mariani, is located in room 2570 of Founder’s Hall. The Center is equipped with computers, satellite cable, and a coffee maker among other amenities for student veterans and serves as a space for studying, socializing, and veterans focused programming. The Center is open from 8:30 a.m. to 8 p.m. Monday through Thursday and 8:30 a.m. to 4 p.m. on Fridays.

Veterans Benefits

Pennsylvania National Guard benefits. Benefits through the Pennsylvania Army and Air National Guard can be used at Delaware County Community College. These benefits will cover the full cost of tuition at the College for those that are eligible, but excludes the cost of fees. For more information, visit www.paguard.com or contact 717-861-8626.

Federal benefits. Benefits through the Department of Veterans Affairs (VA) can be used at Delaware County Community College. Veterans along with the spouses and dependents of veterans who have died or have service-related disability may be eligible for benefits. Students may inquire about their eligibility by calling the Veterans Administration at 888-442-4551 or by visiting www.gibill.va.gov.

Students using military education benefits are required to complete a Veterans Benefit Certification request (green sheet) for each term in which they are enrolled at the College. If you are a student using military education benefits for the first time at the College, however, you will need to provide us with the following:

- A Veterans Benefit Certification Request form (green sheet; can be found at the front desk in suite 3500 or at the concierge desk in Founder’s Hall)
- Apply for VA benefits at www.vets.gov unless you are using Veterans Vocational Rehabilitation benefits
- A certificate of eligibility from the VA or proof that they requested one unless you are using Veterans Vocational Rehabilitation benefits (can be retrieved online at www.ebenefits.va.gov)
- Students can apply for Veterans Vocational Rehabilitation benefits at www.ebenefits.va.gov

These documents can be submitted via email at va@dccc.edu, physical mail to the Admissions Office (901 S. Media Line Road, Media PA, 19063), or hand delivery to Enrollment Central in Founder’s Hall on the Marple Campus. Veterans that have unresolved concerns or need additional support can be scheduled for an appointment with the School Certifying Official at the front desk in the Enrollment Services suite (room 3500).

Veterans FYI:

- Issues that can be addressed at the College
  - VA benefit recipients who have had classes dropped for non-payment
  - VA benefit recipients attempting to see if the College has received all of the necessary documentation to process their military education benefits
  - Vocational Rehabilitation students that were unable to obtain their books from the bookstore
  - All first time VA benefit recipients
  - Counsel for students considering withdrawing or that have withdrawn from classes

- Issues/Questions that cannot be addressed at the College
  - VA benefit recipients that have not received payment from the VA (you must contact the VA at 888-442-4551 between 8 a.m. - 7 p.m., Monday-Friday)
  - VA benefit recipients that want to know how much they have remaining in benefits (you must contact the VA at 888-442-4551 between 8 a.m. - 7 p.m., Monday-Friday)
  - VA benefit recipients attempting to register for classes (you must contact the College’s Career and Counseling Center)
**Veterans FAQ:**

- **Will my classes be dropped for non-payment if my benefits aren’t processed in time?** Yes, unless you provide us with a copy of the Certificate of Eligibility for the veteran whose benefits are being used along with a certificate of eligibility or a printout of the confirmation page showing that you requested one.

- **I spoke to the VA and they said that the College hasn’t certified my enrollment yet. When will my benefits be processed?** The College will certify enrollment with the VA one month prior to the start of each term. From there, you can check on the status of your benefits by contacting the VA at 888-442-4551 between 8 a.m. - 7 p.m., Monday-Friday.

- **Why did I receive a debt letter from the VA?** The VA initiates debt letters when students withdraw from classes. You should bring the debt letter to the front desk in admissions so that the College can determine whether payment to you or the VA is warranted.

- **Can taking less classes impact my education benefits?** Yes. The amount you receive in VA education benefits is partially based on how many classes you are taking. Additionally, for Post 9/11 G.I. Bill (the most commonly used benefit), you will lose their monthly housing allowance when you fall below the equivalent of greater than half-time enrollment.

- **If I’m using vocational rehab benefits, what do I have to do to get my books for class?** The bookstore will be sent a list of all students receiving vocational rehabilitation benefits. If you’re using vocational rehabilitation benefits, you can simply go to the bookstore and provide the staff there with your name and let them know that you’re a “VA student.”

- **What am I allowed to purchase from the bookstore with my vocational rehab benefits?** You may only use vocational rehabilitation benefits to purchase textbooks, notebooks, pens, pencils, and other supplies explicitly listed in the syllabus for each class in which you’re enrolled.

**Office of Information Technology (OIT)**

OIT supports the College’s mission by providing technology to all academic and business offices. OIT partners with College leadership to leverage technology solutions for the benefit of our students. This includes systems, servers, desktops, IMacs, audio/visual services, and phone systems in offices, classrooms and public areas. OIT also supports the College’s public website, the delaGATE portal, and provides all wired and wireless networking services for all campuses.

**Support Center:** The OIT Support Center is available for students to obtain computer or network information and to report any technical problems. The Support Center is located at the Marple Campus in Room 4274. You can also contact us online at support.dccc.edu, or by phone at 610-359-5211. Students can also get assistance at the Learning Resource Centers located at our branch campuses.

**delaGATE:** The College portal is the central source of information for students. The portal is also used for access to a number of important College systems (email, registration, DegreeWorks, Canvas, student records, etc.). All students have access to delaGATE at delaGATE.dccc.edu.

**myDCCC Mobile App:** The myDCCC mobile app is available for Android, iOS and Kindle and helps students stay connected to Delaware County Community College on the go.

**International Student Services**

Delaware County Community College welcomes students from around the world. Recognizing that studying and living in a foreign country is a unique experience, one that can be both exciting and challenging, the Office of International Student Services supports non-immigrant students through a variety of programs and services. These include orientation, academic advising, assistance with immigration matters, and help locating housing. Students on an F-1 visa must study full-time in both the fall and spring semesters. Individuals on student visas are not eligible for Financial Aid. For more information about International Student Services, please visit us at the Marple Campus, Room 3500, or call 610-359-7322.

**English as a Second Language**

Delaware County Community College offers courses and services for students who need English for everyday life, employment, and study in U.S. colleges.

**Two types of classes are offered**

**Credit courses:** The College offers three levels of courses in grammar, writing, reading and speaking/listening (Elementary, Intermediate I and Intermediate II). Tutoring is required for ESL students in writing, reading and speaking/listening courses. This service supports classroom learning and student proficiency in English. The ESL credit program, coupled with reading and writing developmental courses, prepares students for introductory level college courses and English 100, required for all degrees. Although ESL credits do not count toward a student’s degree, they are important for success. Permanent residents may study either full- or part-time and may be eligible for financial aid. Students apply through the Admissions Office and are enrolled in classes after sitting for an English as a Second Language (ESL) placement test.

**Non-credit courses:** These courses meet four hours each week. The focus is on English conversation for everyday life, with some reading and writing. Students can register for these courses through Community Education.

**Learning Commons**

- **Marple Campus** – 610-359-5149
- **Downingtown Campus** – 484-237-6224
- **Exton Center** – 610-450-6516
- **Pennocks Bridge Campus** – 610-869-5117
- **Southeast Center** – 610-957-5725
- **Upper Darby** – 610-957-5725

**Website:** www.dccc.edu/learning-commons

The Learning Commons is a student-centered environment offering academic support services, quiet and collaborative study spaces and varied assistive technologies. Supplemental workshops are offered each semester to provide support in study skills, technology and research.

**Library Services**

Library Services provide access to sources necessary for students to complete course assignments. In addition to our physical print collection, students and faculty have access to approximately 60 databases which include newspapers, magazines, scholarly journals, books, streaming videos and more. These electronic resources can be accessed both on and off campus.

**Tutoring Services**

Tutors are available in person and online to provide students with academic support. Tutoring services are available on a walk-in basis or by appointment.
New Choices Career Development Program

New Choices is a FREE program providing career and personal development assistance to unemployed individuals, single parents, displaced homemakers, and those in transition. Small group workshops provide guidance to determine career interests, explore employment and training opportunities and prepare for success in today's job market. A non-credit “computer basics” class is included. Classes are offered in January, March, May and September at the Marple Campus. For additional information, and to find out if you're eligible, call 610-359-5232, email newchoices@dcc.edu, or visit room 1301 at the Marple Campus.

KEYS (Keystone Education Yields Success)

The KEYS Program is a state sponsored program whose purpose is to provide special supports to TANF and SNAP students enrolled at Delaware County Community College. The program seeks to assist students in achieving their academic and career goals through mentoring, workshops, career guidance, tutoring and referrals to college and community resources. KEYS also assists the student with obtaining special allowances from the County Assistance Office, including books, transportation, child care and car repair and purchase.

The program is open to all pre-60 month TANF and SNAP recipients who are currently enrolled or plan to attend the College. The student must be in, or plan to enroll in, a career specific certificate or associate degree program or be enrolled in a GED program. Programs may be credit or non-credit. For more information, contact the KEYS Office at 610-359-5231.

WHEN ADDITIONAL ACADEMIC PREPARATION IS NEEDED:

Basic & Developmental Courses

New students who have not successfully completed college-level math and English at another college or university must take a test in English Composition, Reading, and Mathematics to determine appropriate course placement. The tests take approximately two hours and should be scheduled early in the enrollment process. If the test scores indicate the need for remediation in any of the three areas, then the student must successfully complete Basic and/or Developmental Courses before taking college-level English, Reading, Mathematics, and most other courses. Remediation is required before the completion of 12 college credits. No credit towards a degree results from basic and developmental courses.

Student Employment Services and Co-Op Center

The Student Employment Services and Co-Op Center provides comprehensive support to students and graduates seeking work by offering individual consultations and classroom presentations, information panels, resume assistance, mock interviewing, employer information and on-campus employer recruiting. Two career fairs are presented annually. Students anticipating graduation are offered comprehensive one-on-one assistance to prepare for their impending search for employment. The Delaware County Community College Online Job Board (www.collegecentral.com/dcc) provides access to all types of job openings for students and alumni. The College also offers (www.dccc.edu/careercoach), an online tool designed to help students find a good career by providing the most current local data on wages, employment, job postings, and associated education and training. The Student Employment Services and Co-Op Center will open and maintain a file of faculty references for any student who requests one to be forwarded to a prospective employer.

The Student Employment Services and Co-Op Center administers the Co-Op/Internship program which is designed to engage students directly in their area of study through paid or unpaid work/learning experiences which are done for credit. The Center also administers the Work Study program, a financial aid program that provides funding for students to work in part-time jobs located on campus or in the local community with non-profit organizations. Numerous positions are available on all Delaware County Community College campuses as well as in Delaware, Chester and Philadelphia Counties. Many of these jobs provide students with work experience in their field of study. For more information about the Center, please visit Room 1305 on the Marple Campus, or call 610-359-5304.

President Dr. L. Joy Gates Black congratulates a Municipal Police Academy graduate.
The following represents the tuition and fees for the 2018-2019 academic year. For future years, these amounts are subject to change based on the recommendations of the College’s Board of Trustees. THE COLLEGE RESERVES THE RIGHT TO CHANGE, WITHOUT NOTICE, THE TUITION AND FEES HEREIN STATED. Tuition and fees do not include the cost of textbooks.

### Tuition

<table>
<thead>
<tr>
<th></th>
<th>Per Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents of sponsoring school districts</td>
<td>$121</td>
</tr>
<tr>
<td>Pennsylvanians residing in an area that does not sponsor a community college</td>
<td>$242</td>
</tr>
<tr>
<td>Non-Pennsylvania residents</td>
<td>$363</td>
</tr>
</tbody>
</table>

### Fees

**Enrollment Services Fee (Non-Refundable)**
- A $4 per credit hour enrollment services fee will be paid by all students and is charged per credit hour up to a maximum of ten (10) credit hours per term. This fee is for the purpose of funding the costs associated with the admissions application process, placement testing, enrollment and payment verification process, commencement cost and credentials for both degrees and certificates of competency and, where applicable, the evaluation of transfer credits.

**Instructional Support Fees**
- Instructional support fees are charged to support the cost of technology and/or the cost of unusual staffing, supply or facility costs associated with the course. Credit courses are charged either $57, $62 or $67 per credit hour.

**Plant Fee**
- A plant fee is charged to all students who do not reside in a school district that sponsors Delaware County Community College. The plant fee for nonsponsors who live in Pennsylvania is $3 per credit hour. Plant fee for out-of-state students and international students is $6 per credit hour.

**Student Activity Fee (non-refundable)**
- Per credit hour $2

**Payment Plan Fee (non-refundable)**
- A $30 fee is charged for deferring payment of tuition and fees through the College’s Payment Plan. The Payment Plan is limited to credit courses. Payments and due dates vary by term. Specific information about the plan may be obtained from Enrollment Central at 610-359-5118.

**Late Registration Fee (non-refundable)**
- A $20 fee may be charged to all students who register for courses after the announced registration dates or during the designated late registration period.

**Check Service Fee (non-refundable)**
- A $25 fee is charged each time a check is returned by the bank.

**International Fee (non-refundable)**
- A $35 per credit hour International Fee is charged to students who are citizens of a country other than the United States and who enter on nonimmigrant visas. This fee is used to support services for international students at the College.

### Payment Policy

All tuition and fees are payable at time of registration unless the student participates in the College’s Tuition Payment Plan (see below). The College accepts American Express, VISA, MasterCard, Discover Card, cash, money orders and personal checks at Enrollment Central on the Marple Campus. In-person payment services are also available at the Downingtown Campus, Exton Center and Southeast Center. Online payments can be made through delaGATE with a credit card or electronic check (student ID and password required).

### Tuition Bills

Tuition bills and schedules are sent via the College’s student email system. Students can access their student email through delaGATE. The College does not mail bills and schedules.

### Tuition Payment Plan

Students in credit courses may take advantage of the tuition payment plan. This plan divides tuition into two, three, or four (depending on the date of enrollment) payments rather than requiring one lump sum. A $30 non-refundable enrollment fee is charged for this plan. Information about the plan is available from Enrollment Central or by calling 610-359-5118.

### Tuition and Fee Refund

To be eligible for any refund, the student must officially withdraw from the course or courses. Contact Enrollment Central for details. A refund will not be issued that is greater than 100% of tuition and refundable fees minus any non-refundable fees and required deposits. Students who receive federal financial aid and withdraw before completing 60% of the semester will have all or a portion of that aid returned to the federal fund before any refund is issued (see financial aid section of this catalog). Refund of eligible payments will be made according to the following schedule:

<table>
<thead>
<tr>
<th>Time of Withdrawal During Semester</th>
<th>% Rate for Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before the start of classes</td>
<td>100% (0% of class time)</td>
</tr>
<tr>
<td>Before end of one week of classes</td>
<td>80% (7% of class time)</td>
</tr>
<tr>
<td>Before end of two weeks of classes</td>
<td>60% (15% of class time)</td>
</tr>
<tr>
<td>Before end of three weeks of classes</td>
<td>40% (20% of class time)</td>
</tr>
</tbody>
</table>

*Refund for summer sessions, special sessions and all irregularly scheduled sessions and courses is determined by the percentage of class time elapsed. Students who must officially withdraw from the College within the first three weeks of classes (or 20% of class time) because of a call to active duty, due to a disabling injury or serious illness (either must be certified by a physician) will receive a refund according to the schedule above. In addition, that student will be given a credit for the balance of tuition paid to be applied to future tuition charges. Federal “return of funds” policies still apply to all federal financial aid (see financial aid section of this catalog).

For a student who must officially withdraw from the College after the first three weeks of classes because of a call to active duty in the armed services (appropriately certified) or because of a disabling injury or serious illness (either must be certified by a physician), credit for the full amount of tuition paid will be applied to future tuition charges. Federal “return of funds” policies still apply to all federal financial aid (see financial aid section of this catalog). Refund or credit for the reasons of armed services or health will not be processed unless an official withdrawal was initiated at the time of discontinued attendance and notification and verification of the reason for withdrawal provided to the registrar within three weeks of the withdrawal date.
FINANCIAL AID

How to Apply for Financial Aid

All students are encouraged to apply for financial aid, which can minimize the need to overextend work hours while enrolled in classes and support successful goal completion. Aid is awarded for an academic year, covering the period from the beginning of the fall semester to the end of the second semester term. With planning and consultation with the Financial Aid Office, students’ aid can cover summer sessions in addition to the fall and spring semesters.

Step 1: Apply for admission to Delaware County Community College: www.dccc.edu/apply and complete a Free Application for Federal Student Aid (FAFSA) www.fafsa.ed.gov. The College’s School Code Number is 007110.

Financial aid recipients must be admitted to an approved academic program. All College associate degree programs and most certificate programs are approved for federal aid, and all associate degree programs are also approved for Pennsylvania state aid.

Applying for financial aid is best done electronically over the Internet. Students and parents of dependent students must apply for FAFSA (www.fafsa.ed.gov) which represents your signature on both the FAFSA and Master Promissory Note if securing a Federal Direct Loan.

Step 2: Log on to the College’s portal, delaGATE, and select from the menu ‘Financial Aid’ to check on the status of your financial aid application and obtain further instructions or important information required to complete the process. Checking delaGATE frequently is extremely important to be sure you do not overlook any details needed for finalizing your application.

Step 3: Do an online nationwide scholarship search at www.educationplanner.org. Also, check the College’s scholarship page for institutional scholarships for which you might be eligible at www.dccc.edu/ scholarship.

If you have questions contact us at:
Phone: 610-359-5330
email: finaid@dccc.edu.

How Financial Aid Is Awarded

The amount of financial assistance a student receives is determined by the student’s demonstrated need according to the following formula:

\[
\text{Cost of Education minus Expected Family Contribution (EFC)} = \text{Demonstrated Need}
\]

Cost of Education is calculated by academic year, two semesters (fall and spring), on the basis of full-time enrollment, and can be viewed on your delaGATE account. A student’s aggregate need-based aid cannot exceed “Demonstrated Need.”

If a student does not enroll full-time, enrolls in fewer than or more than two semesters or enrolls in ineligible courses, the Cost of Education will be calculated differently. If you have any questions, please contact the Financial Aid Office at finaid@dccc.edu.

**The U.S. Department of Education (USDE) determines whether a student is dependent or independent based on information submitted on the Free Application for Federal Student Aid (FAFSA). The Registrar’s Office of the College determines your residency status.**

After financial aid eligibility is determined and an aid package is developed, the Financial Aid Office will post the student’s eligibility on delaGATE, the College’s online student portal. Students may not be enrolled concurrently in any other college or university.

Statement of Satisfactory Academic Progress Policy for Delaware County Community College and Federal Assistance Programs

USDE regulations require that all students meet minimal quantitative and qualitative standards of academic progress toward a degree in order to continue receiving federal financial assistance. Federal SFA funds are: the Federal Pell Grant, Federal SEOG Program, Federal Work/Study Program, and the Stafford Loan Program. The College has adopted the following standards of satisfactory academic progress to comply with this federal requirement. These standards are for financial aid purposes only and neither replace nor override any of the College’s other academic policies.

1. A student is required to complete, with a passing grade, 67% of all credits attempted at Delaware County Community College. This quantitative standard is calculated as “number of credits successfully completed” divided by “number of credits attempted.” Successful completion of a course is indicated by a grade of A, B, C, D, or P or HP; unsuccessful completion is indicated by a grade of E, F, W, IN, NP, IP, NR, FA or NPA. Audited classes are not considered nor are courses completed at another institution and transferred into Delaware County Community College.

2. A student must attain a specific cumulative grade point average upon completion of a specific number of credits. This qualitative requirement is set as follows (subject to revision in 2014-2015):

- between 16 credits and 31 credits earned – 1.50 minimum GPA
- between 32 credits and 47 credits earned – 1.70 minimum GPA
- between 48 credits and 90 credits earned – 1.90 minimum GPA

3. Federal regulations also state that a student is not eligible to receive federal financial assistance after having attempted 150% of the required credits for a degree. A typical associate degree at Delaware County Community College requires completing approximately 60 credits; therefore, a student cannot receive financial assistance after having attempted 90 credits, regardless of the student’s completion rate (number 1 above) or grade point average.

Reestablishing Satisfactory Progress

A student who has not met either requirement (1 or 2 listed above) may reestablish his/her eligibility to receive federal financial assistance by enrolling at the College at his/her own expense and completing a sufficient number of courses at a sufficiently high grade point average to meet the standards. To be reinstated, a student must submit a letter of appeal (see below). Classes taken at other colleges or universities will not be taken into consideration for the purpose of financial aid reinstatement.

Right to Appeal

A student who has been determined ineligible to receive federal financial assistance for failure to meet the above standards of satisfactory academic progress may submit an appeal in writing to the Financial Aid Office. Appeals will be granted only where mitigating circumstances exist such as if the student became very ill, was severely injured or suffered the death of a parent, child or spouse. A waiver may also be granted if there has been a lapse of four years or more between a prior enrollment at the College and the term for which financial aid is sought. Appeals, for any reason, can only be considered if they are received in the Financial Aid Office one month prior to enrollment or within one month after the time that the student is sent notification of failure to make satisfactory academic progress.
Minimal Satisfactory Academic Progress Policy for Pennsylvania State Grant

Delaware County Community College is required to ensure that a student receiving a Pennsylvania State Grant has met the Pennsylvania Higher Education Assistance Agency’s (PHEAA) satisfactory academic progress requirement. This requirement applies to students who have received a State Grant in a prior academic year. These students must successfully complete the minimum number of credits appropriate to their enrollment status during terms for which they received a State Grant. The Financial Aid Office must use PHEAA’s award counter table to determine the minimum number of credits a student must pass in each semester in order to continue to receive a State Grant.

If the student received the prior State Grant at a different institution, the College must request a copy of the academic transcript from the student. The Financial Aid Office will review the academic transcript to confirm PHEAA’s academic progress requirement was met at the prior institution before applying any State Grant funds. Where a prior State Grant was received more than 10 years ago, the College is not required to perform the academic progress test.

At Delaware County Community College, academic progress for the State Grant is reviewed at the end of the Spring term for the preceding 12 month period to include Summer, Fall and Spring. This method is applied consistently for all students. Once academic progress is confirmed, the College does not review progress further until the next academic year.

To comply with PHEAA’s policy, it is possible some of the prior credits completed would not be included when performing the academic progress test. Such credits could include:

• Repeat coursework where the student received a passing grade previously. This course can only be counted once.
• Remedial/developmental/ESL coursework will only be counted where a remedial exception was granted in the prior term and only those courses counted toward the prior enrollment status are included in the count.
• Only those courses that meet PHEAA’s 50% classroom instruction rule are included in the count toward credits successfully completed. To receive a PA State Grant beyond the 2.00 counter requires special circumstances defined by the Pennsylvania Higher Education Assistance Agency. Contact the Financial Aid Office at Delaware County Community College for details if more than four full-time semesters or eight part-time semesters is needed to complete the associate degree.

If the Financial Aid Office determines that a student has made Satisfactory Academic Progress or has not received prior grants, we may still have to make adjustments to the PA State Grant. The information used to determine eligibility must agree with actual enrollment i.e. residency status (sponsoring or non-sponsoring) and enrollment status (full time, 12 or more credits per semester or part-time, between 6 and 11 credits per semester).

Refund to Federal Programs When the Student Withdraws

The Higher Education Amendments of 1998, Public Law 105-244 creates a formula to determine the amount of Federal Student Financial Aid (FSA) Funds a student has earned when he or she completely ceases attendance without finishing the payment period (semester or summer term) for which the funds were awarded. Federal funds are: the Federal Pell Grant, Federal SEOG Program, Federal Work/Study Program, and the Direct Loan Program. Up through the 60% point in each payment period, this formula (see “amount of federal student assistance earned” below) is used to determine how much federal financial assistance the student has earned at the time of withdrawal. After the 60% point in the payment period, a student is considered to have earned 100% of the federal financial aid program funds.

This schedule applies only to the amount of FSA funds that a student, who withdraws from all courses they enrolled in during any payment period, may keep. The schedule does not apply to how much the College may charge for these courses.

The calculation of amount of federal assistance earned shall be:

1. The full amount of the unearned funds or
2. The total institutional charges multiplied by the “unearned percentage.”

The student’s withdrawal date shall be:

• The date the student began the College’s official withdrawal process, or
• The date the College registrar received official notification from the student of her/his intent to withdraw. This can be in the form of a letter from the student, or another individual with written authorization from the student.
• Or if the student does not follow the College’s official withdrawal process nor provide satisfactory official notification of withdrawal, then the date of withdrawal shall be set as the mid-point of the payment period.

The calculation of the percentage of the payment period completed shall be:

• Total number of calendar days in the payment period for which the assistance is awarded divided into the number of calendar days completed as of the day the student withdrew.

The calculation to determine who pays the repayment:

• If the student has not received a refund of FSA funds, the College repays the entire amount due.
• If the student has received FSA funds, the College must repay the lesser of:
  1. The full amount of the unearned funds or
  2. The total institutional charges multiplied by the “unearned percentage.”

The student pays the remainder. Order of the return of FSA funds:

• Unsubsidized Direct Loan
• Subsidized Direct Loan
• Federal Pell Grant
• Federal Supplemental Educational Opportunity Grant

Leave of Absence Policy

Delaware County Community College does not permit students to take an extended leave of absence during a semester. If a student experiences a sudden, unforeseen circumstance making it temporarily impossible for her/him to continue her/his studies during a particular semester, that student must formally withdraw from the College for that semester through the Student Records Office. If the student is unable to come to the Student Records Office, the student’s parent or spouse may initiate the withdrawal with written authorization from the student.

Timing of the withdrawal will affect the amount of charges/refund accessed by the College and may affect the amount of federal Title IV financial aid that the student will be able to retain. See the section of the college catalog titled “Tuition and Fees” for further details.
Financial Aid Programs

NEED-BASED PROGRAMS

Federal Pell Grant

A Federal Pell Grant does not have to be repaid. Pell Grants are awarded only to undergraduate students who have not earned a bachelor’s degree. To determine if a student is eligible financially, the U.S. Department of Education uses a standard formula, established by Congress, to evaluate the information you report on your FAFSA. The formula produces an Expected Family Contribution (EFC) number. Delaware County Community College will tell you the amount you are eligible for on your award notification on delGATE.

How much you get will depend on your EFC, on your cost of attendance, whether you’re a full-time or part-time student, and whether you attend school for a full academic year or less. You may not receive Pell Grant funds from more than one school at a time. The College will credit the Pell Grant funds to your tuition account. Your Award Notification will tell you when your grant will be paid and how much your award will be. If you’re otherwise eligible, you may receive a Pell Grant by enrolling less than half-time (1 to 5 credits); however, you won’t receive as much as if you were enrolled full time.

Federal SEOG Program

A Federal Supplemental Educational Opportunity Grant (FSEOG) is for undergraduates with exceptional financial need—that is, students with the highest demonstrated need—and gives priority to students who receive Federal Pell Grants. An FSEOG doesn’t have to be paid back. The U.S. Department of Education guarantees that each participating school will receive enough money to pay the Federal Pell Grants of its eligible students. There’s no guarantee every eligible student will be able to receive a FSEOG; students at the College may be awarded an FSEOG based on the availability of funds. FSEOG awards will be between $500 and $1000 a year, depending on when you apply, your level of need, the availability of funds and our awarding policies. When all the conditions of the award are met, the Financial Aid Office will credit your account.

Federal Work-Study Program

The Federal Work-Study Program provides jobs for students with financial need, allowing them to earn money to help pay education expenses. The program encourages community service work and work related to your course of study. Your Federal Work-Study wages will be at least the current federal minimum wage, but in most jobs at the College it will be higher. Your total Federal Work-Study award depends on when you apply, your level of need, and the funding level at the College. Student Workers will be paid by the hour on a bi-weekly basis. Your Federal Work-Study job may be on campus or off campus. If you work off campus, your employer will usually be a private nonprofit organization or a public agency, and the work performed must be in the public interest. The amount you earn can’t exceed your total Federal Work-Study award. When accepting work hours you should consider your class schedule and your academic progress as well as your financial need.

PHEAA State Grant

The State Grant Program provides grants to eligible Pennsylvania residents who are in need of financial aid to attend a PHEAA-approved post-secondary school as undergraduate students. Students enrolled in summer study may also be eligible for a summer State Grant, provided they are registered in both Summer I and II sessions. Major eligibility requirements are:

• Meet financial need criteria
• Be enrolled at least half-time in a PHEAA-approved undergraduate two-year program of study leading to an associate degree
• Be a high school graduate or the recipient of a GED
• Demonstrate academic progress for continued aid
• Be a Pennsylvania resident
• Be taking at least 50% of coursework through classroom instruction

Application procedure and deadlines:

To be eligible a student must file a Free Application for Federal Student Aid (FAFSA) by the appropriate date:

• May 1 immediately preceding the academic year for all renewal applicants and new applicants who plan to enroll in an undergraduate associate degree, college transfer program.
• August 1 immediately preceding the academic year if you are a first-time applicant who plans to enroll in an Associate in Applied Science, terminal non-transferable, program.

All students are urged to apply even if the deadlines have passed, since late applications are considered if funds permit.

For more information about the Pennsylvania State Grant visit www.pheaa.org.

Definition of an Academic Year for Federal Student Financial Aid

For federal Financial Aid purposes, the College defines its Academic Year as at least 24 credit hours and 30 weeks of instruction time. If you are enrolled in a Certificate Program of less than 24 credits, Federal Regulations require that the College’s Financial Aid Office pro-rate the freshman annual loan limit based on the number of credits in the program of study. Note: Regardless of the length of time it takes you to complete your program of study, you can never exceed this pro-rated annual loan limit.

Federal Direct Loan

A student loan is a serious obligation that must be repaid. We encourage you to carefully consider the amount of loan funds you request—please borrow wisely! Direct Loans are low-interest loans for students and parents to help pay for the cost of a student’s education after high school. The lender is the U.S. Department of Education, though the entity you deal with, your loan servicer, can be a private business. With Direct Loans you:

• Borrow directly from the federal government and have a single contract—your loan servicer—for everything related to repayment, even if you receive Direct Loans at different schools.
• Can choose from several repayment plans that are designed to meet the needs of almost any borrower, and you can switch repayment plans if your needs change.
• Visit www.direct.ed.gov/student.html or delaGATE for more information.

Federal Direct Loan Disbursement

All Federal Direct Loans are disbursed in two nearly equal disbursements during a loan period. For the traditional academic year, the Fall Semester and Spring Semester, the most common borrowing period, the first disbursement will occur during the Fall semester and the second disbursement will occur during the Spring semester. For a single semester or term, Summer II, Fall, Spring or Summer I, the first disbursement will occur at the beginning of the semester and the second disbursement will occur at the half-way point of the semester.

Our Cashier’s Office will be notified that the loan is in process and they will wait for payment for tuition and fees (up to the amount of the loan) until your loan is disbursed.

When your funds arrive we will send you a ‘Notice of Disbursement’ email. This notice directs you to the Student Records Access on our website, where you can see what type of loan was credited to your account and what amount is being disbursed. YOU MAY CANCEL THE LOAN WITHIN 14 DAYS OF THE DATE OF THIS DISBURSEMENT. To cancel you must submit written notification to the Financial Aid Office on the Marple Campus that you want to cancel your loan.

If the disbursement exceeds the charges on your account the Cashier will make a check payable to you fourteen days after your account is credited, or fourteen days after the beginning of the semester, whichever is greater and mail it to your permanent address.
These processes apply whether the loan is subsidized or unsubsidized. Disbursement dates may be affected by the time that the application process is completed. You may not receive Direct Loan funds from two schools in the same semester or term.

**Subsidized Direct Loan vs. Unsubsidized Direct Loan**

Eligibility for a Subsidized Direct Loan is calculated as:

Cost of Education minus EFC minus other aid = eligibility.

If the student has eligibility the federal government will pay the interest on their Direct Loan while they are in school as at least a half-time student.

For the Unsubsidized Direct Loan the calculation is:

Cost of Education minus other aid = eligibility

The EFC is not part of the calculation (although the student must still submit the FAFSA form). With the unsubsidized Direct Loan the student is expected to pay the interest while the student is enrolled.

**NON-NEED BASED PROGRAMS**

**Federal PLUS Loan**

The PLUS loan is a loan to the parent(s) of a student; it is not the student’s loan as are the two Stafford Loans mentioned above. Parents who do not have a bad credit history can borrow a PLUS Loan to pay the education expenses of a child who is a dependent student enrolled at least half time in an eligible program at Delaware County Community College. Parents will fill out an application, which is available in the Financial Aid Office 610-359-5330. To be eligible to receive a PLUS Loan, parents generally will be required to pass a credit check. Parents cannot be turned down for having no credit history-only for having an adverse one. Parents who don’t pass the credit check might still be able to receive a loan if someone, such as a relative or friend who is able to pass the credit check, agrees to endorse the loan. An endorser promises to repay the loan if your parents fail to do so. Parents might also qualify for a loan even if they don’t pass the credit check as long as they can demonstrate that extenuating circumstances exist. Students and parents must also meet other general eligibility requirements for federal student financial aid. The yearly limit on a PLUS Loan is equal to a student’s cost of attendance minus any other financial aid. The College will receive the money in at least two installments. No one payment may exceed half of the loan amount. Parents will be required to endorse a disbursement check and send it back to the College. The college will then apply the money to your tuition, fees and other charges. If any loan money remains, parents will receive the amount as a check. The interest rate is variable (adjusted annually), but it will never exceed 9%. Parents will be notified of interest rate changes throughout the life of their loan. Interest is charged on the loan from the date the first disbursement is made until the loan is paid off. Your bank will tell you a loan repayment schedule before the loan process is completed. There is no grace period for these loans. Interest begins to accumulate at the time the first disbursement is made, and parents will begin repaying both principal and interest while their student is enrolled.

For more information about the Federal PLUS Loan Program visit www.studentaid.ed.gov or www.pheaa.org or call the Financial Aid Office at 610-359-5330 and request The Student Guide booklet.

**Other Financial Aid Programs**

**Office of Vocational Rehabilitation**

This agency provides educational assistance to qualified disabled residents of Pennsylvania. For information call 610-525-1810, (610-525-5835 TTY), or visit www.dli.state.pa.us.

**Scholarships**

There are a number of privately funded scholarships available to our students, each with its own requirements and criteria for eligibility. More information can be obtained through the Delaware County Community College Educational Foundation or the Financial Aid Office. Examples of scholarships include:

- ACCA Endowed Scholarship
- Act 101 Scholarship
- Aqua Engineering Scholarship
- Marjorie Alles Memorial Endowed Scholarship
- Dr. Luli Akinfiresoye and Family Scholarship
- Allied Health-Emergency Services-Nursing Scholarship
- Alpha Delta Kappa Scholarship
- American Association of University Women-Eastern Delaware County Scholarship
- American Association of University Women-Valley Forge Scholarship
- American Foodservice Corporation Endowed Scholarship
- Thomas J. Anderson Endowed Scholarship
- David J. Andrien Memorial Scholarship
- Benita E. Baghy Scholarship
- David Baldwin Memorial Endowed Scholarship
- Barday Square B Park Lane Apts. Scholarship
- Marc A. Bender Endowed Scholarship
- Big Poppa’s Helping Hand Scholarship
- Bishop Dillon Stearly Nursing Scholarship
- Boeing Scholarship Program
- John and Marge Bogosian and Family Memorial Endowed Scholarship
- Dr. Mary Jo Boyer and Family Scholarship
- Robert Cellin Memorial Scholarship
- Denis A. Cannon Scholarship
- Cannon Self-Storage Scholarship
- Dr. John T. Carroll Memorial Endowed Scholarship
- Chester Pike Rotary Club Endowed Scholarship
- William Christopher Clark Memorial Scholarship
- Jonathan C. Coia Memorial Scholarship
- Kevin T. Coleman Memorial Endowed Scholarship
- Compass Group/Canteen Dining Scholarship
- Madalene Hayes Conner Scholarship
- Charles W. Crist Memorial Endowed Scholarship
- Anthony D’Angelo Business Society Scholarship
- Richard D. DeCosmo Presidential Scholarship
- Delaware County Business and Professional Women's Club Scholarship
- DCCC Alumni Legacy Scholarship
- DCCC Educational Foundation Scholarship
- DCCC Memorial Scholarship
- DCCC Phantom Pride Scholarship
- DCCC Psychology Faculty Scholarship
- DCCC Student Government Association Scholarship
- Delaware County Community College Support Staff Scholarship
- Delaware County Tavern Association Endowed Scholarship
- DCTMA Engineering Scholarship
- Maryann DiGiandomenico Memorial Scholarship
- Dollars For Scholars Scholarship
- Donnelly-Barnes Scholarship
- Dowd-Durkin International Studies Scholarship
- Maureen Dragoni Memorial Nursing Scholarship
- The Dream Today Scholarship
- Drexelbrook Community Scholarship
- Eganey Kauffman Memorial Scholarship
- Eisenman-Sebastian Scholarship
- Ellucian Scholarship
- EPWCOA Wastewater Program Scholarship
Matt Evoli Scholarship
J.R. Finio & Sons Endowed Scholarship
Dolores Finnigan Memorial Scholarship
Teresa K. Freda Endowed Scholarship
Future Citizens Scholarship
Garrett C. Gallagher Memorial Scholarship
General Federation of Women’s Clubs of Delaware County Nursing Scholarship
D. Barry Gibbons Scholarship
John & Loretta Glavin Family Scholarship
Glen Riddle Rotary Scholarship
Mimi Greenwood Memorial Endowed Scholarship
The Gureghian Family Scholarship
Marie T. Haindl Memorial Scholarship
Hearts for Hardship Scholarship
James S. Herr Foundation Scholarship
Timothy Finian Hickey Memorial Scholarship
IMS Technology Services Scholarship
Independence Blue Cross Nurse Scholars Program
Independence Foundation Endowed Nursing Stipend
George A. Jackson Memorial Scholarship
Henry J. Jackson Memorial Scholarship
Frank and Mary Jelinek Endowed Scholarship
Professor Michael R. Johnson Internship Scholarship
Edward M. Kavjian, M.D. Scholarship
Ourania Kontopoulos Endowed Memorial Scholarship for Students of Greek Heritage
Ourania Kontopoulos Endowed Memorial Scholarship for International Students
Ourania Kontopoulos Endowed Memorial Scholarship for Latino/African American Students Pursuing Advanced Technology
Kreitzberg Family Endowed Scholarship
Kuehner-Oyler Endowed Nursing Scholarship
John Lazarich Foundation Scholarship
Harry L. Le Fever Scholarship
LeTourneau Family Scholarship
Brian J. Maguire Memorial Scholarship
Ellen and Paul Makowski Scholarship
The Malvern School Scholarship
Masterson Family Scholarship
Carolyn M. McKinley Scholarship
Thomas P. McNicholas Scholarship
Eva Miller Nursing Scholars
Monarch Staffing Scholarship
Michael and Teresa Morochko Endowed Scholarship
Murphey Family Memorial Endowed Scholarship
Nazira Simone Obeid Scholarship
Newby-Pretlow Family Scholarship
Office Depot Scholarship
Steve P. Pahides Endowed Business Scholarship
Paralegal Studies Program Scholarship
Jerome S. Parker Presidential Endowed Scholarship
Jenny Ann Parton Memorial Scholarship
PECO Scholars Program
Pennocks Bridge Scholarship
Pennsylvania Machine Works Manufacturing Scholarship
Priscilla Fox Pitzenmayer Communications Arts Endowed Scholarship
Phantom Pride Scholarship
Phi Theta Kappa Undergraduate Endowed Scholarship
Phil-Hanna Memorial Endowed Scholarship
Phoenixville Community Health Foundation Scholarship
Quest for Success

Ellen Ann Roberts Scholarship
James F. and Sadie Rooney Scholarship
Dr. Jane Rothrock Scholarship
Dennis Ryan-Paul Motta Endowed Scholarship
Sagle-Perkins Scholarship
SAP Endowed Scholarship for Business and Technology
The Scholler Foundation Challenge Scholarship
Louis W. Scott III Memorial Scholarship
Sheriff’s Reserve Unit Stephen Mauger Memorial Scholarship
Joseph M. Sherlock, Jr. Memorial Endowed Scholarship
Frances X and Donna Shields Family Scholarship
Labron K. Shuman Most Improved Scholarship
Robert Slough Memorial Endowed Scholarship
Ethel Sergeant Clark Smith Scholarship
Meghan E. Smith Scholarship and Discretionary Fund
W.W. Smith Charitable Trust Scholarship
Social Work Faculty Scholarship
William E. Sockwell Memorial Scholarship
Southco Scholarship
Spelina-McAfee Memorial Scholarship
Jean Ellen St. Clair Memorial Scholarship
Sun East Charitable Foundation Scholarship
Sunoco Scholarship
Charles Sweeney Memorial Endowed Scholarship
Sweet Future Scholarship
Nancy L. Taylor Memorial Scholarship
Robert Wetherill Trainer Scholarship
Gilberta M. Trani Memorial Endowed Scholarship
Upper Darby High School Challenge Grant Scholarship
Ann Marie Vitale Memorial Scholarship
VWR Charitable Trust Scholarship
Sam Walker Scholarship
Phyllis Wexler Memorial Endowed Scholarship
Frances A. White Memorial Scholarship
Wong Moss Scholarship
Wyman’s Well Scholarship

U.S. military representatives present at STEM Career Night.
Tax Credits for Higher Education Expenses

Hope Scholarship
A Hope Scholarship Credit is not a scholarship. It is a credit against federal taxes, which may be claimed for the tuition and related expenses of each student in the taxpayer’s family (i.e., taxpayer, taxpayer’s spouse, or an eligible dependent). These students must be enrolled at least half-time in one of the first two years of post-secondary education, in a program leading to a degree, certificate, or other recognized educational credential. The amount that may be claimed is generally equal to 100% of the first $1,000 of out-of-pocket expenses plus 50% of the next $1,000 of out-of-pocket expenses, up to a maximum of $1,500 per year per student.

Lifetime Learning Credit
The Lifetime Learning Credit is another tax credit for higher education. The amount of the credit is equal to 20% of the first $10,000 of qualified tuition and related expenses paid by the taxpayer. This tax credit is being phased in gradually. For tax years beginning before January 1, 2003, the tax credit is limited to the first $5,000 of qualified tuition and related expenses. Thus the credit is up to $1,000 through the year 2002 and $2,000 thereafter. The Lifetime Learning credit does not vary according to the number of students.

This is in contrast with the HOPE tax credit, which is based on the number of eligible students in the household. This means that if you have multiple children in school at the same time and your tuition bills total more than $10,000, you only get the credit for the first $10,000 paid. You don’t get another credit for each additional child. The credit is relative to the total amount of tuition paid, irrespective of the number of children in school. Qualified tuition and related expenses includes expenses for any course of instruction at an eligible educational institution to acquire or improve job skills. This means that the credit may be used for part-time study, not just students enrolled half-time. Unlike the HOPE tax credit, the Lifetime Learning tax credit may be claimed for an unlimited number of years.

For more information about these tax credits please go to www.irs.gov.

Flexible Payment Options
Delaware County Community College accepts American Express, VISA, MasterCard, Discover, cash, money orders and personal checks for payment of tuition and fees.

Tuition Payment Plan
Students in credit courses may take advantage of the tuition payment plan. This plan divides tuition into two, three, or four (depending on the date of enrollment) payments rather than requiring one lump sum. A $30 non-refundable enrollment fee is charged for this plan. Information about the plan is available from Enrollment Central or by calling 610-359-5118.

High school dual enrollment students and students enrolled in non-credit courses are not eligible for the tuition payment plan.
GRADING SYSTEM

Letter grades will be distributed on delAGATE at the end of each semester. Student achievement is measured by the student’s grade point average. The GPA is an indication of the quality of the work a student has done at the College.

The following letter grades are included in the computation of a student’s grade point average (GPA).

<table>
<thead>
<tr>
<th>Letter Grades</th>
<th>Meaning</th>
<th>Grade Points Per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Above Average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Below Average</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failing for lack of attendance</td>
<td>0</td>
</tr>
<tr>
<td>FA</td>
<td>Failing for lack of attendance</td>
<td>0</td>
</tr>
<tr>
<td>NP</td>
<td>No Pass</td>
<td></td>
</tr>
<tr>
<td>NPA</td>
<td>No Pass</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Withdraw</td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>HP</td>
<td>High Pass</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>No Pass</td>
<td></td>
</tr>
<tr>
<td>NPA</td>
<td>No Pass</td>
<td></td>
</tr>
</tbody>
</table>

Letter grades that do not count in computation of a student’s GPA:

- **AU** . . . . . Audit
  - The only grade given when a course is audited and carries no credit.
- **IN** . . . . . Incomplete
  - This grade is given when extenuating circumstances prevent the student from completing the coursework during the regular session. The incomplete work must be completed before the end of the next College session. Do not re-register for the class. "Incomplete" changes to "F" if not completed by the next semester.
- **HP** . . . . . High Pass
  - The student has completed the course requirements and has demonstrated excellence in meeting the course competencies.
- **P** . . . . . Pass
  - The student has completed the course requirements and has demonstrated proficiency in meeting the course competencies.
- **NP** . . . . . No Pass
  - The student has not completed the course requirements and/or has not demonstrated proficiency in meeting course competencies.
- **NPA** . . . . No Pass
  - Lack of attendance.

*Note: Instructors of transitional and developmental courses will define in their course syllabi the grading criteria that constitute an HP, P, NP or NPA.

IN PROGRESS GRADE FOR INDIVIDUALIZED COURSES ONLY

- **IP** . . . . In Progress
  - Only students enrolled in individualized classes may receive the IP grade. Students receiving this grade have partially met course requirements in a satisfactory manner but must re-register and pay the tuition in order to complete the course. If the student does not register and successfully complete the course in the following semester, excluding summer sessions, the IP grade will change to an NP grade.
- **W** . . . . Withdraw
  - The grade given to a student who is authorized to withdraw from a course during the authorized withdrawal period.
- **T** . . . . Transfer
  - The grade is given for a course that is transferred into the College.
- **CR** . . . . Credit
  - Credit awarded for passing courses by assessment.
- **NR** . . . . No Record
  - Grade not reported by instructor.

Developmental and transitional courses will be awarded the following grades: HP, P, IP, NP, NPA, W, IN and CR.

These grades do not count in the computation of a student’s GPA, Grade Point Average.

A student’s grade point average is calculated as follows:
1. Determine the quality points earned in each course: multiply the number of points by the number of credits given for each course.
2. Divide the sum of the grade points by the total number of graded or GPA credit hours.

The result is the grade point average.

Auditing a Course

Persons eligible to enroll in a course for credit may also enroll in that course as auditors, if they receive the approval of the appropriate dean. Auditors pay the regular tuition and fee charge applicable to the credit students. They are expected to attend all lecture and laboratory classes but are not required to take examinations or submit term papers. Students auditing a course will receive only the grade of “AU” and no credit. The Petition to Audit must be submitted prior to the end of the first week of class.

Academic Bankruptcy

A returning student who has not attended Delaware County Community College for two consecutive years may request that “F” and/or “D” grades of courses taken prior to readmission be excluded from their grade point average. However, courses and grades will remain on their transcript.

1. A student makes a request to the provost’s office in writing for Academic Bankruptcy. This request must specify that the student does not expect any excluded grades to be used in any way toward fulfilling degree requirements.
2. This request will be considered only after the returning student has completed at least 24 credits of graded course work with a grade point average of 2.7 or above. The College, in return for this declaration of academic bankruptcy, will exclude grades and courses as requested.

Federal Title IV guidelines require that all grades (course) applicable to a student’s major whenever taken be used in evaluating a student’s satisfactory academic progress for financial aid.

Delaware County Community College

Policy on Student Confidentiality

As outlined in the Family Education Rights and Privacy Act (FERPA), a student has the right to have his or her educational records remain confidential. FERPA affords students certain rights with respect to their educational records. They are:

1. The right to inspect and review the student’s education records within 45 days of the day the College receives request for access. Students must submit to the Student Records Office a written request specifying the record(s) they want to inspect. The Registrar will make arrangements for access and notify the student of the time and place to inspect the record. If the Student Records Office does not maintain the records the student requested, the Registrar will advise the student of the correct official to contact.
2. The right to request the amendment of education records that students believe are inaccurate.
Students may ask the College to amend a record they believe is inaccurate or misleading. They should write to the College official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate.

FERPA was not intended to provide a process to question substantive judgments, which are properly recorded. The rights of challenge do not apply, for example, to an argument that a student deserved a higher grade in a course if the grade recorded is the grade submitted by the faculty member. See the Student Handbook for policies applying to grade appeals. If the College decides not to amend the record as requested by the student, the College will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Students who wish to appeal the decision should direct their request for an appeal to the Office of the Associate Vice President for Enrollment Management. The College will provide the student with specific information regarding the hearing procedures upon the receipt of a request for a hearing.

3. The right to consent to disclosures of personally identifiable information contained in a student’s education records, except to the extent that FERPA authorizes disclosure without consent. One exception that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the College in an administrative, supervisory, academic, research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the College has contracted (such as an attorney, auditor, collection agent, insurance agent, or official of the National Student Loan Clearing House); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

The College may disclose education records without consent in certain other circumstances:

- to comply with a court order or certain types of subpoenas
- to appropriate parties in a health or safety emergency
- to officials of another school, upon written request, in which a student seeks or intends to enroll
- in connection with a student’s request for or receipt of financial aid, as necessary, to determine the eligibility, amount or conditions of the financial aid, or to enforce the terms and conditions of the aid
- to certain officials of the U.S. Department of Education, the Comptroller general, to state and local educational authorities, in connection with certain state or federally supported programs
- to accrediting organizations to carry out their functions
- to organizations conducting studies for or on behalf of the College
- the results of an institutional disciplinary proceeding against the alleged perpetrator of a crime of violence may be released to the alleged victim of that crime with respect to that crime

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures of the College to comply with the requirements of FERPA. Contact the office that administers FERPA at: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Ave. SW, Washington DC, 20202-4605.

5. The College designates the following as public or Directory Information that may be released without a student’s written consent, unless the student specifies to the contrary as described below:

- student name, address, phone number and email address
- major field of study and degree sought or completed dates of attendance degrees and awards received
- expected date of completion of degree requirements and graduation
- full or part time enrollment status and classification (freshman or sophomore)
- most recent previous education agency or institution attended
- participation in officially recognized activities and sports
- height and weight of athletic team members
- date of birth

Delaware County Community College will release only the following directory information to telephonic requests: student name, degree sought or completed, expected dates of completion of degree requirements or graduation, and enrollment status.

6. Students may restrict the release of Directory Information, except to school officials with legitimate educational interest and those listed in #3 above. A student must make the request in writing at the Student Records Office within two weeks of the beginning of the semester. Requests are valid for one year from the date of submission. Students must understand that withholding directory information prevents the College from verifying attendance or graduation to potential employers, publishing the student’s name in a graduation program or dean’s list, and makes athletes ineligible to participate in any activity requiring publication of a team roster.

For purposes of compliance with FERPA, the College considers all students independent.

Notification of Rights under FERPA

The College notifies students of their rights under FERPA through the Delaware County Community College Catalog, the Delaware County Community College Student Handbook and communications to new students from the Vice Provost for Student and Instructional Support Services. FERPA information is also on the College’s website: www.dccc.edu.

Notice of Publication of Campus Crime Statistics and Graduation Rates

As required by the College and University Security Information Act, security information and campus crime statistics are published every year. They are also available from the Security Office.

In addition, as required by Student Right to Know legislation, graduation and transfer rates are available on the College’s website.
Many Delaware County Community College students transfer to four-year colleges and universities. The College’s Transfer Office is set up to help students with the transfer process. Advisors can answer your questions or guide you step-by-step through the transfer process. If you are planning to transfer, you are strongly encouraged to meet with a transfer advisor within your first two semesters (or before you reach 30 college transferable credits from all institutions attended).

Each year over 1,200 Delaware County Community College students transfer successfully to hundreds of colleges and universities throughout the United States. It is important to begin planning for transfer as soon as you enroll at the College. Many courses you take at the College will fill general education requirements for graduation at your transfer school. Depending on the major you select at your transfer institution, it will be important for you to take your prerequisites here so you can move into your chosen major with ease. The Transfer Office has course equivalencies and transfer guides to many colleges and universities, transfer agreements with the schools most often selected for transfer by Delaware County Community College students, transfer advisors and a wealth of other information to assist you.

In particular, the College has Dual Admission and Core-to-Core transfer agreements with a variety of colleges and universities within the Philadelphia, Delaware and Chester County areas. These programs were designed to facilitate the student’s ease of transfer into many undergraduate majors. Dual Admission entitles students to be admitted into another college or university provided they complete an approved A.A., A.S., A.F.A. or A.A.S. degree from the College and meet the minimum GPA requirement. Students who choose to participate in the Dual Admission program receive distinct advantages, such as waived application fees, scholarship eligibility, and invitations to college sponsored events. An Intent to Enroll form must be completed to participate in Dual Admission, so meet with a transfer advisor before you reach 30 college credits. The colleges and universities that offer Dual Admission programs at Delaware County Community College are Albright College, Alvernia University, Arcadia University, Cabrini University, Chestnut Hill College, Delaware Valley University, Drexel University, Eastern University, Gwynedd Mercy University, Immaculata University, La Salle University, Neumann University, Peirce College, Pennsylvania College of Art & Design, Rosemont College, Saint Joseph’s University, Temple University, Villanova University, West Chester University and Widener University. Under the Core-to-Core agreement, students who complete an approved A.A., A.F.A. or A.S. degree will satisfy the transfer institution’s general education requirements, unless a specific course or two are required. Students may take advantage of the Core-to-Core program with Albright College, Arcadia University, Cabrini University, Chestnut Hill College, Delaware Valley University, La Salle University, Temple University and West Chester University.

In addition to Dual Admission programs, the College has special partnerships with The American Business School of Paris, Cheyney University, Strayer University, University of the Sciences and Wilmington University called Guaranteed Admission agreements. These programs guarantee admission, provided all requirements are met.

Twenty programs are specifically designed to parallel the first two years at a four-year college or university: Administration of Justice, Business Administration, Communication Arts, Computer Information Systems, Computer Science, Early Childhood Education, Education, Engineering, English, Global Studies, Graphic Design, History, Liberal Arts, Mathematics/Natural Science, Photography, Political Science, Psychology, Science for Health Professions, Social Work, Sociology and Studio Arts. Career programs, with planning, can also prepare students for possible transfer. Check out the Pennsylvania Transfer and Articulation Center (www.PATRAC.org) to search for transferable courses, find information about participating institutions and get step by step instructions for transferring to Pennsylvania’s State Universities and Community Colleges.

Visit the Transfer Office website at www.dccc.edu/transfer for more information. You can contact the Transfer Office, Room 1335 on the Marple Campus, at 610-359-5060. Transfer Services at Exton can be reached at 610-450-6510 and 484-327-6210 for the Downingtown Campus; 610-957-5700 for the Southeast Center; 610-723-1250 for the Upper Darby Center; or 484-237-6400 for Pennocks Bridge.

TransferCheck

TransferCheck is a web-based application developed exclusively for the College. It assists students in smoothly completing and then transferring a Delaware County Community College associate degree to a local four-year college or university. Prospective students can use the application to explore agreements with area colleges and universities and see what programs and majors offer a seamless transition from the College to area four-year institutions.

Current students can stay on track with their progress toward degree completion and transferring credits by running a real-time progress check with their delaGATE login credentials to see their courses applied to specially selected agreements. Visit www.dccc.edu/transfercheck to access the application.

PA TRAC

Statewide Program-to-Program (P2P) Agreements allow students who graduate with specified associate degrees to transfer as juniors into bachelor degrees in similar fields of study at designated public four-year institutions. P2P Agreements serve as pathways into undergraduate majors at participating four-year institutions and help minimize loss of credits when transferring from one institution to another. To search for Statewide P2P Agreements that may apply to you, visit: www.patrac.org
Administration of Justice, Associate in Arts (ADJ)

The Administration of Justice curriculum is designed to meet the needs of current and prospective students interested in transferring to a four-year institution for the purpose of receiving a Bachelor’s Degree in Administration of Justice/Criminal Justice and that students will have a smooth transition from the College to the four-year institution of their choice. Additionally, the program is also designed for students who want to receive an Associates Degree. A student in the AADJ program will learn several important aspects of the criminal justice system to include: the role and functions of the various components of the criminal justice system, various theories of criminological behaviors, ethical standards for criminal justice professionals, juvenile justice issues, and criminal law and procedure.

Upon successful completion of this program, students should be able to:
- Differentiate between the three main segments of the Criminal Justice System.
- Compare and contrast the main theories of criminological behavior.
- Identify the impact of Juvenile Justice issues on Law Enforcement, Courts, and Corrections.
- Compare and contrast the major ethical issues confronting criminal justice professionals with an emphasis on encouraging students to explore their own ethical and moral systems.
- Illustrate the role of technology in the Criminal Justice System.
- Demonstrate critical thinking on global issues affecting the criminal justice system.
- Examine the importance of constitutional and statutory rights.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 101 - Introduction to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120 - Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 151 - College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MAT 152 - Precalculus</td>
<td>4</td>
</tr>
<tr>
<td>MAT 160 - Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MAT 210 - Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 241 - Criminal Law Procedure and Adjudication</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 120 - Principles of Investigation</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Social Science Elective (3 credits)

Third Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ 225 - Ethics in Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 240 - Criminology</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- ADJ Elective - (3 credits)
- Social Science Elective - (3 credits)
- Humanities Elective - (3 credits)

Fourth Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJ 202 - Terrorism</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 250 - Policing in America</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 260 - Corrections-Probation-Parole</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 261 - The Youthful Offender</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- BIO 100 - Biological Sciences               | 4       |
- BIO 110 - General Biology I                 | 4       |
- BIO 150 - Human Anatomy and Physiology I    | 4       |
- CHE 101 - Introduction to General Chemistry | 4       |
- CHE 110 - General Chemistry I               | 4       |
- PHY 110 - College Physics I                 | 4       |

Notes
- ADJ Electives:
  - ADJ 203 - Contemporary Issues in Criminal Justice
  - ADJ 262 - US Courts
  - ADJ 280 - Organized Crime

Social Science Elective:
- HIS 110 or higher
- POL 120 - American National Government
- PSY 140 - General Psychology

Also note that graduates of the Municipal Police Training Academy will receive twelve (12) credits for successful completion of MPT and the credit will be for the following courses: ADJ 101, ADJ 120, ADJ 241, and ADJ 250.

Total Credits: 61-62

Business Administration - General Business, Associate in Science (BUAD)

The Business Administration program provides students with the necessary courses to transfer to a four-year college or university to pursue a baccalaureate degree in business. This curriculum is fully compliant with Pennsylvania Statewide Program-to-Program Articulation Agreement (TAOC) as promulgated by the Pennsylvania Department of Education. This Agreement assures that the BUAD student can transfer their full degree into a baccalaureate program at a participating Pennsylvania affiliated institution, transferring with full Junior class standing. (This includes all PASSHE institutions) Transfer Students in this program may emphasize accounting, marketing or sport management, by following the guidelines below. Students enrolled in BUAD are strongly recommended to choose their transfer school as soon as a practical, then consult that institution, their BUS Division Faculty advisor or the DCCC Transfer Office to ensure that their course of study will be consistent with the requirements of their transfer institution. The Associate in Science degree is awarded at the completion of the program.

Upon successful completion of this program, students should be able to:
- Demonstrate an understanding of critical business and accounting concepts and the functions of business.
- Analyze business challenges using critical thinking and quantitative methods.
- Utilize technology to research and explore business concepts as well as produce functional work product.
- Examine various cultural, political, economic, competitive and technological influences and their impact on the global business environment.
- Demonstrate effective oral and written communication skills.
- Examine the principles of leadership, human behavior, collaboration, ethics and social responsibility.
First Semester (15 credits)

Courses Credits
ENG 100 - English Composition I 3
DPR 100 - Introduction to Information Technology 3
BUS 100 - Introduction to Business 3
ACC 111 - Financial Accounting 3

Electives
- Any Diversity and Social Justice designated course (3 credits)

Second Semester (15 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature 3
ECO 210 - Macroeconomic Principles 3
MAT 135 - Business Precalculus 3
ACC 112 - Managerial Accounting 3
BUS 230 - Principles of Marketing 3

Third Semester (16 credits)

Courses Credits
ECO 220 - Microeconomic Principles 3
BUS 243 - Legal Environment of Business 3
BUS 210 - Principles of Management 3
BUS 130 - Business Communication 3

Electives
- Any Scientific Inquiry designated Science course (4 credits)

Fourth Semester (15-16 credits)

Courses Credits
MAT 136 - Business Calculus 3
BUS 220 - Elementary Statistics 3

Electives
- Humanities Elective (3 credits)
- BUS or Open Elective (3 credits)
- Science Elective (3-4 credits)

Total Credits: 61-62

Communication Arts, A.A. - Communication Studies Option (COMM)

The Communication Arts major at Delaware County Community College blends the theoretical with the practical by providing students with a foundation in the study of human communication that prepares them to continue academic study in the field. In particular, students select specialized programs and related electives by choosing one of three degree program options: Communication Studies, Journalism, or Theatre. When selecting a Communication Arts program option, including courses and electives, the student should consult four-year transfer institution requirements.

The Communication Studies option is designed for students who wish to continue academic study in human communication including, but not limited to, interpersonal, intercultural, public speaking, and media studies.

Upon successful completion of this program, students should be able to:
- Apply basic theories and principles of human communication.
- Construct messages that demonstrate use of critical thinking and organizational skills.
- Identify, evaluate, and apply ethical principles as a communicator.
- Demonstrate and adapt appropriate forms of verbal, nonverbal, and mediated expression.

First Semester (15 credits)

Courses Credits
ENG 100 - English Composition I 3
COMM 100 - Interpersonal Communication 3

Please pick one of the following courses:
DPR 100 - Introduction to Information Technology 3
DPR 101 - Introduction to Computer Science 3

Please pick one of the following courses:
HIS 110 - American History I 3
HIS 120 - American History II 3
HIS 150 - World Civilizations I 3
HIS 160 - World Civilizations II 3

Electives
- Humanities Elective (foreign language recommended) (3 credits)

Second Semester (16-17 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature 3
COMM 104 - Introduction to Mass Communication 3

Please pick one of the following courses:
MAT 120 - Modern College Mathematics 3
MAT 121 - Introduction to Probability and Statistics 3
MAT 151 - College Algebra 4
MAT 152 - Precalculus 4
MAT 160 - Calculus I 4

Electives
- Any transferable Scientific Inquiry designated science course (4 credits)
- Humanities Elective (foreign language recommended) (3 credits)

Third Semester (15-16 credits)

Courses Credits
COMM 100 - Interpersonal Communication 3

Please pick one of the following courses:
COMM 102 - Communication Across Cultures 3
ENG 112 - English Composition II: Writing About Literature 3

Electives
- Humanities Elective (3 credits)
- Any PSY or SOC course (3 credits)
- Humanities Elective (foreign language recommended) (3 credits)

Fourth Semester (15 credits)

Electives
- Program Electives (6 credits)
- Social Science Elective (3 credits)
- Humanities Elective (3 credits)
- Open Elective (3 credits)

Notes
Program Option Electives: COMM 102, COMM 105, COMM 115, COMM 200, HUM 141, HUM 142, BUS 230, BUS 231

Total Credits: 61-63
Communication Arts, A.A. - Journalism Option (JOUR)

The Communication Arts major at Delaware County Community College blends the theoretical with the practical by providing students with a foundation in the study of human communication that prepares them to continue academic study in the field. In particular, students select specialized programs and related electives by choosing one of three degree program options: Communication Studies, Journalism, or Theatre. When selecting a Communication Arts program option, including courses and electives, the student should consult four-year transfer institution requirements.

The Journalism option is designed for students who wish to continue academic study in journalism, public relations, and/or mass communication. Students contemplating a career in print media, electronic media, photojournalism, or public relations should select this program.

Upon successful completion of this program, students should be able to:

- Apply basic theories and principles of human communication.
- Explain the general theory and practices of mass communication, including media forms.
- Gather, evaluate, synthesize and accurately present and attribute content (text, images, video or sound) from a variety of sources, according to industry standards.
- Explain and adhere to important legal and ethical guidelines followed by journalists and public relations practitioners.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- HIS 110 - American History I                | 3       |
- HIS 120 - American History II               | 3       |
- HIS 150 - World Civilizations I             | 3       |
- HIS 160 - World Civilizations II            | 3       |

Please pick one of the following courses:

- MAT 120 - Modern College Mathematics        | 3       |
- MAT 121 - Introduction to Probability and Statistics | 3 |
- MAT 151 - College Algebra                   | 4       |
- MAT 152 - Precalculus                       | 4       |
- MAT 160 - Calculus I                        | 4       |

Electives

- Humanities Elective (foreign language recommended) (3 credits)

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG 130 - Fundamentals of Journalism I</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- DPR 100 - Introduction to Information Technology | 3 |
- DPR 101 - Introduction to Computer Science    | 3       |

Electives

- Any PSY or SOC course (3 credits)
- Humanities Elective (foreign language recommended) (3 credits)

Third Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>ENG 131 - Fundamentals of Journalism II</td>
<td>3</td>
</tr>
<tr>
<td>COMM 104 - Introduction to Mass Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Humanities Elective (3 credits)
- Program Option Elective (3 credits)
- Any transferable Scientific Inquiry designated science course (4 credits)

Fourth Semester (15-16 credits)

Electives

- Program Option Electives (3 credits)
- Humanities Elective (3 credits)
- Science or Mathematics Elective (3-4 credits)
- Social Science Elective (3 credits)
- Open Elective (3 credits)

Notes

Program Option Electives: ART 236, ENG 215, ENG 205, ENG 206, IMM 110, IMM 120, IMM 201

Total Credits: 61-63

Communication Arts, A.A. - Theatre Option (THEA)

The Communication Arts major at Delaware County Community College blends the theoretical with the practical by providing students with a foundation in the study of human communication that prepares them to continue academic study in the field. In particular, students select specialized programs and related electives by choosing one of three degree program options: Communication Studies, Journalism, or Theatre. When selecting a Communication Arts program option, including courses and electives, the student should consult four-year transfer institution requirements.

The Theatre option is designed for students who wish to continue academic study in theatre, acting (for stage or film), directing, and/or technical theatre (lights, sound, set construction, etc.). Students who wish to continue to a four-year degree in theatre or performance art should choose this option.

Upon successful completion of this program, students should be able to:

- Apply basic theories and principles of human communication.
- Apply the multiple skill sets which collaborate in the production of theatre and drama.
- Explain the history of theatre and acting and how these reflect and absorb the political and social history of the world.
- Apply theories of voice, movement and speech to the analysis and performance of a written text.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- DRA 100 - Introduction to Theatre           | 3       |
- DRA 110 - Acting I                         | 3       |

Please pick one of the following courses:

- HIS 110 - American History I                | 3       |
- HIS 120 - American History II               | 3       |
- HIS 150 - World Civilizations I             | 3       |
- HIS 160 - World Civilizations II            | 3       |

Electives

- Any transferable Scientific Inquiry designated Science course (3-4 credits)

Second Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- MAT 120 - Modern College Mathematics        | 3       |
- MAT 121 - Introduction to Probability and Statistics | 3 |
- MAT 151 - College Algebra                   | 4       |
- MAT 152 - Precalculus                       | 4       |
- MAT 160 - Calculus I                        | 4       |

Electives

- Humanities Elective (foreign language recommended) (3 credits)

Notes

Program Option Electives: ART 236, ENG 215, ENG 205, ENG 206, IMM 110, IMM 120, IMM 201

Total Credits: 61-63
Please pick one of the following courses:
DPR 100 - Introduction to Information Technology .................. 3
DPR 101 - Introduction to Computer Science .......................... 3

Please pick one of the following courses:
DRA 100 - Introduction to Theatre ...................................... 3
DRA 110 - Acting I ............................................................ 3

Electives
• Any PSY or SOC course (3 credits)

Third Semester (15-16 credits)

Courses Credits
DRA 116 - Stagecraft ..................................................... 3

Electives
• Program Option Elective (3 credits)
• Humanities Elective (3 credits)
• Humanities Elective (foreign language recommended) (3 credits)
• Science or Mathematics Elective (3-4 credits)

Fourth Semester (15 credits)

Electives
• Program Option Elective (3 credits)
• Social Science Elective (3 credits)
• Humanities Elective (3 credits)
• Humanities Elective (foreign language recommended) (3 credits)
• Open Elective (3 credits)

Notes
Program Option Electives: DRA 105, DRA 111, DRA 130, ENG 207, ENG 222, HUM 141, HUM 142

Total Credits: 61-63

Computer Science, Associate in Science (CIS)

The Computer Science program is a two-year preparatory curriculum for students who plan to continue their education at a four-year institution and complete their major in the computer science field. This curriculum is fully compliant with Pennsylvania Statewide Program-to-Program Articulation Agreement (TAOC) as promulgated by the Pennsylvania Department of Education. This Agreement assures that the Computer Science student can transfer their full degree into a baccalaureate program at a participating Pennsylvania affiliated institution, transferring with full junior class standing. Students enrolled in this degree are strongly encouraged to choose their transfer school as soon as practical, then consult that institution, their Faculty Advisor and the College’s Transfer Office to ensure that their course of study will be consistent with the requirements of their transfer institution.

Upon successful completion of this program, students should be able to:
• Implement algorithms and data structures using fundamental programming skills.
• Identify and use current industry standards in the field of computer science.
• Apply analytical skills to assess how to solve problems.
• Apply the process of software development including design, implementation, documentation, and testing.
• Describe the professional, cultural, legal, and ethical issues related to computer science.
• Identify career paths available in computer science and determine professional education and training standards.

First Semester (16 credits)

Courses Credits
ENG 100 - English Composition I .................................... 3
MAT 160 - Calculus I .................................................... 4
DPR 100 - Introduction to Information Technology .......... 3
DPR 101 - Introduction to Computer Science ................. 3

Electives
• Social Science elective (choose any transferable Diversity and Social Justice (DJ) and Global Understanding (GU) designated social science course (3 credits)

Second Semester (16 credits)

Courses Credits
DPR 110 - Introduction to C++ ...................................... 3
MAT 161 - Calculus II ................................................... 4
ENG 112 - English Composition II: Writing About Literature ... 3
DPR 104 - Introduction to Java Programming .................. 3

Electives
• Humanities elective/Social Science elective (3 credits)

Third Semester (16 credits)

Courses Credits
NET 110 - Network Communications ................................ 3
DPR 204 - Intermediate Java Programming ...................... 3

Electives
• Science elective with a lab (choose from any transferable Scientific Inquiry (SI) designated science course (4 credits)
• Social Science elective (3 credits)
• Business/Mathematics elective (choose from BUS 220, MAT 210 or MAT 230) (3 credits)

Fourth Semester (17 credits)

Courses Credits
DPR 212 - Data Structures and Algorithms ....................... 4

Electives
• Any transferable Oral Communication (OC) designated course (3 credits)
• Science elective with a lab (4 credits)
• Humanities electives (6 credits)

Total Credits: 65

Creative Writing, Associate in Fine Arts (CW)

This curriculum is designed for students who wish to hone their skills in the field of creative writing. Students will develop their craft in fundamental and advanced level courses necessary to become competent practitioners, ultimately pursuing concentrations in poetry, play/screenwriting, memoir or short story writing. This program serves students who are firmly committed to pursuing careers in which creative writing is the foundational element. While students in English courses utilize literary artifacts as occasions to exercise critical thought, students pursuing this degree concern themselves with the production of literary artifact itself, a related but very different enterprise.

Upon successful completion of this program, students should be able to:
• Consistently produce prose and poetry in a manner reflecting rigorous knowledge of central concepts and methods of execution.
• Critically discuss various literary traditions and authors as to more insightfully envision, contextualize, and create their own contributions.
• Constructively provide and receive critique of projects in small and large group settings in order to improve work and appreciate artistry as both a collective and individualistic enterprise.
• Utilize interdisciplinary knowledge (learned in general education courses and electives) to cultivate meaningful enterprise.
• Insightfully discuss and productively utilize concepts and procedures involved in revision.
• Utilize technology to research writers, artistic traditions, literary forums, productions, publications and other relevant topics of inquiry.
• Demonstrate understanding of skills learned in course work via a comprehensive portfolio.

First Semester (16-17 credits)
Courses Credits
ENG 100 - English Composition I .................................................. 3

Electives
• Any transferable Quantitative Reasoning (QR) designated MAT course (MAT 120 or higher) (3-4 credits)
• Any transferable Scientific Inquiry (SI) designated BIO, CHE, ESS or PHY course (4 credits)
• Any transferable Diversity and Social Justice (DJ) designated 100-level HIS course (3 credits)
• Any transferable Oral Communication (OC) designated COMM course (3 credits)

Second Semester (15 credits)
Courses Credits
ENG 112 - English Composition II: Writing About Literature .................. 3
ENG 205 - Creative Writing: Introduction ............................................. 3

Electives
• Any transferable Information Technology (TC) designated course (DPR 100 or DPR 101 recommended) (3 credits)
• Any transferable Diversity and Social Justice (DJ) designated 100-level HIS course (3 credits)
• Any transferable Global Understanding (GU) designated Social Science course (3 credits)

Third Semester (15 credits)
Electives
• ENG 206/207/208/209 (Pick one genre) (3 credits)
• ENG 220/221/230/231/240/241 (survey) (3 credits)
• ENG Elective (see list below) (3 credits)
• Any transferable Global Understanding (GU) designated Social Science course (3 credits)
• Humanities Elective (recommended foreign language) (3-4 credits)

Notes
NOTE: ENG 206: Creative Non-Fiction and Memoir; ENG 207: Playwriting; ENG 208: Short Fiction; ENG 209: Poetry


Fourth Semester (15-16 credits)
Electives
• ENG 206/207/208/209 (Pick second genre) (3 credits)
• ENG 206/207/208/209 (Pick third genre) (3 credits)
• ENG 220/221/230/231/240/241 (survey) (3 credits)
• Humanities Elective (recommended foreign language) (3-4 credits)
• Open Elective (3 credits)

Notes
NOTE: The English elective above may include the fourth genre course, an additional literature survey course, ENG 115: Research for English Majors, ENG 130: Fundamentals of Journalism I, or any of the multicultural literature classes offered on a rotating basis

Total Credits: 61-63

Early Childhood Education, Associate in Arts (ECED)

The Early Childhood Education program of study prepares students to work with young children in a variety of early care and education settings. Graduates will be able to provide high quality educational environments that are inclusive of all children ages birth to 9. They will gain the necessary knowledge and skills to provide a developmentally appropriate, culturally responsive and inclusive early learning experience.

At the completion of this degree, students are prepared to enter the early care and education workforce. Opportunities include working in childcare, young school age childcare, nursery schools and as teacher’s aides in public schools.

This program of study also serves as a transfer pathway to earn teacher certification, Pre-kindergarten through 4th grade. Students wishing to earn teacher certification must transfer to a 4 year institution to earn a Bachelor’s degree, Prekindergarten through 4th grade.

All students will be required to have Pennsylvania Child Abuse Clearance, Pennsylvania Criminal Clearance, FBI clearance and documentation of current immunizations and TB screening. The results of the background clearances could have an impact on the student’s ability to continue in the degree. There are additional fees to obtaining clearances and students may have to get their clearances renewed.

The Early Childhood Education program at Delaware County Community is accredited by the National Association for the Education of Young Children as an early childhood professional preparation program. Graduates will be awarded the Associate in Art in Early Childhood Education.

Upon successful completion of this program, students should be able to:
• Promote child development and learning (NAEYC Standard 1)
• Develop strategies for building family and community relationships (NAEYC Standard 2)
• Observe, document and assess to support young children and families (NAEYC Standard 3)
• Use developmentally effective approaches for teaching and learning. (NAEYC Standard 4)
• Use content knowledge to build meaningful curriculum. (NAEYC Standard 5)
• Act as an early childhood education professional. (NAEYC Standard 6)

First Semester (16 credits)
Courses Credits
ENG 100 - English Composition I .................................................. 3
ECE 100 - Principles of Early Childhood Education ............................... 3
ECE 112 - Developing a Professional Portfolio and Resource File for ECE .... 1
ECE 130 - Early Childhood Development ............................................ 3

Please pick one of the following courses:
HIS 110 - American History I ...................................................... 3
HIS 120 - American History II ...................................................... 3

Please pick one of the following courses:
COMM 100 - Interpersonal Communication ...................................... 3
COMM 111 - Public Speaking ....................................................... 3

Total Credits: 61-63
Second Semester (16-17 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature 3
ECE 140 - Integrated Curriculum and Assessment 3

Please pick one of the following courses:
ECE 120 - Early Childhood Education Laboratory I 4
EDU 215 - Theory and Field Experience in Elementary Education, Pk-4 3

Electives
• SOC/PSY Elective (3 credits)
• Science Elective: Any transferable Scientific Inquiry designated BIO, CHE, ESS or PHY course (4 credits)

Third Semester (15 credits)

Courses Credits
EDU 220 - Introduction to Special Education 3
ECE 110 - Infant/Toddler Care and Education 3
ECE 111 - Methods and Materials for Teaching 3
MAT 125 - Mathematics for Teachers of Children I 3
ENG 250 - Children's Literature 3

Fourth Semester (16 credits)

Courses Credits
ECE 201 - Children Families and Community 3
ECE 121 - Early Childhood Education Laboratory II 4
EDU 208 - English Language Learners 3
MAT 126 - Mathematics for Elementary Teachers II 3

Electives
• Humanities/BCSS/Laboratory Science Elective (ENG, COMM, DPR, HUM, POL, ART, MUS, DRA, PHI, SOC, SPA, SWO or Laboratory Science (3 credits)

Total Credits: 63-65

Education, Associate in Arts (EDUC)

The Education curriculum was developed to meet the needs of current and prospective students interested in transferring to a four-year institution for the purpose of receiving a PA Public School Teacher’s Certification. This degree is designed to transfer to middle grades, secondary education, special education, or other four year certification degree programs. Among colleges and universities there are variances within the first two years at some schools contingent upon the area of PA Public School Certification pursued. Additionally, each of these areas of certification involves different course selections. All of these conditions necessitate working closely with a transfer counselor in the Career and Counseling Center to ensure a seamless transfer process to a four-year institution.

All students will be required to have Pennsylvania Child Abuse Clearance, Pennsylvania Criminal Clearance, FBI clearance and documentation of current immunizations and TB screening. The background checks should be acquired prior to starting coursework.

Upon successful completion of this program, students should be able to:
• Comprehend the practical aspects of education, including governance, politics, funding, history, law, psychology, and philosophical and societal effects.
• Understand the diversity of students and student needs (educational, social, cultural, behavioral, academic) and the responsibility of a classroom teacher to meet these needs.
• Develop the ability to evaluate, analyze, and synthesize ideas from a variety of sources and formulate a preventative model of classroom management.
• Identify various elements, methods, and resources of effective teaching and learning and utilize them in planning instruction.

• Understand the role that assessment plays in instruction.
• Evaluate appropriate resources to plan instruction based on students’ needs.
• Develop an understanding of teaching as a career choice, including job requirements, responsibilities, advantages and disadvantages.

First Semester (16-17 credits)

Courses Credits
ENG 100 - English Composition I 3
PSY 140 - General Psychology 3

Electives
• Any transferable Scientific Inquiry (SI) designated science course (3-4 credits)
• Any transferable Quantitative Reasoning (QR) designated MAT course (MAT 120 or higher, but not MAT 128) (3-4 credits)
• Open Elective (3 credits)

Second Semester (15-16 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature 3

Electives
• History Elective (3 credits)
• Mathematics Elective (MAT 120 or higher, but not MAT 128) (3-4 credits)
• Humanities Elective (3 credits)
• Open Elective (3 credits)

Third Semester (15 credits)

Courses Credits
EDU 206 - Teaching with Technology 3
EDU 220 - Introduction to Special Education 3

Please pick one of the following courses:
PSY 235 - Educational Psychology 3
PSY 242 - Adolescent Psychology 3

Electives
• Social Science Elective (3 credits)
• Education Elective or Open Elective (3 credits)

Fourth Semester (16 credits)

Courses Credits
COMM 111 - Public Speaking 3

Electives
• Literature Elective (ENG 220 or ENG 221 or ENG 230 or ENG 231 or ENG 250) (3 credits)
• Laboratory Science Elective (4 credits)
• Open Elective (3 credits)
• Education Elective or Open Elective (3 credits)

Notes
Education Electives: EDU 110, EDU 207, EDU 208, EDU 215
Students are strongly encouraged to consult with both the DCCC Transfer Office as well as their academic advisor when selecting Mathematics Electives, Literature Elective, Open Electives, and Education/Open Electives.

Total Credits: 62-64
Engineering, Associate in Science (EGR)

The Engineering program is a two-year preparatory curriculum for students who plan to continue their education at a four-year institution and complete their major in an engineering science field. Upon successful completion of this program, students should be able to:

- Demonstrate an understanding of key concepts in the physical, mathematical, and computational sciences.
- Apply mathematical and scientific concepts and principles to engineering problems.
- Present technical information in written or graphic form.
- Demonstrate an understanding of the academic and career aspects of various disciplines within engineering or engineering technology, select a particular discipline, and develop an academic plan consistent with the chosen discipline.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I.</td>
<td>3</td>
</tr>
<tr>
<td>MAT 160 - Calculus I.</td>
<td>4</td>
</tr>
<tr>
<td>CHE 110 - General Chemistry I.</td>
<td>4</td>
</tr>
<tr>
<td>EGR 150 - Engineering Topics</td>
<td>1</td>
</tr>
<tr>
<td>DPR 101 - Introduction to Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>MAT 161 - Calculus II.</td>
<td>4</td>
</tr>
<tr>
<td>CHE 111 - General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>PHY 131 - University Physics I.</td>
<td>4</td>
</tr>
</tbody>
</table>

Third Semester (17-19 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 260 - Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHY 132 - University Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives

- Any transferable Diversity and Social Justice designated Social Science course (3 credits)
- Any transferable Global Understanding designated Social Science course (3 credits)
- Engineering Curriculum Elective (3-5 credits)

Fourth Semester (15-18 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 261 - Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
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</tr>
</thead>
<tbody>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Engineering Curriculum electives (6-9 credits)
- Humanities elective (3 credits)

For chemical engineering: CHE 200, CHE 201, EGR 200, EGR 201, EGR 210, EGR 220

English, Associate in Arts (ENG)

The A.A. in English has been designed for students who plan to transfer to a four-year institution and earn a bachelor’s degree in English. This degree is comprised of core Liberal Arts courses and English electives which are intended to provide students with the necessary foundation to be successful in more advanced courses. Students in this program are strongly encouraged to consult with their English advisor and a transfer counselor for appropriate guidance in the choice of their electives. Upon successful completion of this program, students should be able to:

- Demonstrate an understanding of different literary genres, literary periods, and styles of writing.
- Apply different critical approaches to various pieces of literature.
- Compose and present original literary analyses in both print and multimedia forms.
- Write literary research papers which employ current information literacy techniques and utilize standard MLA formatting.
- Explore and examine the language used by and about historically marginalized / under-represented people and the impact of that language on historical and contemporary audiences.
- Identify and discuss major authors and their contributions to English studies.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I.</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 135 - Business Precalculus</td>
<td>3</td>
</tr>
<tr>
<td>MAT 151 - College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MAT 152 - Precalculus</td>
<td>4</td>
</tr>
<tr>
<td>MAT 160 - Calculus I.</td>
<td>4</td>
</tr>
<tr>
<td>MAT 210 - Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
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</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>DPR 101 - Introduction to Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- HIS Elective (3 credits)

Second Semester (16-17 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 115 - Research for English Majors</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Any MAT course 120 or higher (not MAT 125 or MAT 126 or MAT 128) (3-4 credits)
- HIS Elective 3 credits
- Any transferable Scientific Inquiry Science course (not PHY 100 or PHY 107) (4 credits)
### Global Studies, Associate in Arts (GLOS)

The major in Global Studies will give students interdisciplinary perspectives on the interplay of local and global communities as well as prepare students to participate effectively in this global environment. The program is designed for students planning to earn at least a bachelor's degree in areas such as International Relations, International Studies, Global Affairs, National Security Studies, and Peace and Conflict Studies.

Upon successful completion of this program, students should be able to:

- Locate regions of the world accurately and understand their environmental, anthropological, sociological and cultural attributes
- Demonstrate knowledge of the history of human culture, including the effects of the interrelationships between various cultures
- Recognize various cultural organizations; such as political, religious, economic, or philosophical, and how they influence their native culture and other cultures
- Discuss the impact of artistic expression within specific cultures and across cultures
- Demonstrate at least an elementary ability to speak and understand a foreign language in both oral and written form
- Understand the concept of globalization in its environmental, anthropological, sociological, or cultural connotations and consider the benefits and detriments attached
- Demonstrate a self-awareness and an understanding of other's cultural values, beliefs, and communication styles and an appreciation for this diversity

### First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>HIS 150 - World Civilizations I</td>
<td>3</td>
</tr>
</tbody>
</table>

### Second Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
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<tr>
<td>MAT 151 - College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MAT 152 - Precalculus</td>
<td>3</td>
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</tbody>
</table>

### Third Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>ENG 220 - British Literature I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 221 - British Literature II</td>
<td>3</td>
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</tbody>
</table>

### Fourth Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 230 - American Literature I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 231 - American Literature II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Notes

- Open Electives: See Advisor or Counselor
Graphic Design, Associate in Fine Arts (GRA)

The Associate of Fine Art degree program in graphic design teaches students how to develop design concepts and aesthetically arrange type and image in order to plan and produce intelligent visual communication solutions to client problems or self-authored work. Visual communication skills are developed within the constraints of time, budget, and technology. These solutions may include a variety of print based and digital media materials. The Associate in Fine Arts degree program in graphic design will challenge students and prepare them to transfer to a four-year Bachelor of Fine Art programs while still supporting students who seek career positions such as entry-level designers, freelance designers, and print production artists.

Students will be provided with all foundation-level studio courses with a primary concentration in graphic design. First-year requirements must be satisfied before beginning second-year course work. Any remediation in Reading, English or Mathematics must be completed before beginning third semester courses.

Upon successful completion of this program, students should be able to:

- Use the basic tools and techniques of the graphic designer.
- Demonstrate knowledge of the elements and principles of two and three-dimensional design, color theory, drawing and art historical references.
- Demonstrate the ability to meet deadlines and incorporate critique recommendations in the work.
- Use computer technology in the execution of design projects.
- Practice critical thinking skills through the production and evaluation of artwork.
- Produce a portfolio demonstrating the ability to solve design problems.
- The degree Associate in Fine Arts is awarded upon successful completion of the graphic design course sequence with a grade of “C” (2.0 GPA) or better in all graphic design courses. A graphic design course with a grade lower than “C” must be repeated.

The faculty advisor may approve the Co-op/Internship as additional credits beyond the 64-65 curriculum credit requirement.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 130 - Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ART 122 - Two Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 110 - Art from the Ancient Worlds through the Middle Ages</td>
<td>3</td>
</tr>
<tr>
<td>ART 111 - Art History II to Art from the Renaissance through Contemporary Times</td>
<td>3</td>
</tr>
<tr>
<td>ART 115 - History of Graphic Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
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</thead>
<tbody>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
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<tr>
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<td>4</td>
</tr>
<tr>
<td>MAT 152 - Precalculus</td>
<td>4</td>
</tr>
<tr>
<td>MAT 160 - Calculus I</td>
<td>4</td>
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</tbody>
</table>

Second Semester (18 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 123 - Color and Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 124 - Three Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 208 - Computer Illustration</td>
<td>3</td>
</tr>
<tr>
<td>ART 211 - Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 131 - Drawing II</td>
<td>3</td>
</tr>
<tr>
<td>ART 136 - Drawing as a Design Process</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 213 - Page Layout</td>
<td>3</td>
</tr>
<tr>
<td>ART 215 - Typography</td>
<td>3</td>
</tr>
<tr>
<td>ART 225 - Prepress and Printing Processes</td>
<td>3</td>
</tr>
<tr>
<td>ART 230 - Graphic Design I</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Any transferable Diversity and Social Justice (DJ) designated Social Science course (3 credits)

Fourth Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 227 - Web Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ART 228 - Motion Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ART 231 - Graphic Design II</td>
<td>3</td>
</tr>
<tr>
<td>ART 232 - Portfolio Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Any transferable Scientific Inquiry (SI) designated Science course (4 credits)

Total Credits: 64-65

Students are strongly advised to consult with both the DCCC Transfer Office and their academic advisor when selecting courses.

History, Associate in Arts (HIS)

The History Program is designed primarily but not limited to those students who wish to pursue a Baccalaureate Degree in History. The program of study will provide students with the foundational history courses as well as those courses that meet their general education requirements. Upon successful completion of an Associate in Arts Degree in History they will be able transfer into parallel programs.

Upon successful completion of this program, students should be able to:

- Students will be able to explain multiple aspects of the history of the United States from pre-colonial times to the present, such as cultural, social, political, economic, diplomatic, and military variables, and recognize the local and regional factors associated with these developments.
- Students will be able to explain multiple aspects of the history of the world from the dawn of civilization to the present, such as cultural, social, political, economic, diplomatic and military variables, and recognize the local, regional and national factors associated with these developments.
- Students will be able to explain the racial, ethnic, socio-economic, sexual, and religious diversity involved in the historical development of the United States and the world and recognize its relevance to events in their own place and time.
- Students will be able to recognize the difference between historical evidence and interpretation and utilize critical and analytical thinking to examine the causes and ramifications of historical events, topics and themes.
- Students will be able to develop their own perspective on history and provide evidence from both primary and secondary sources to support their viewpoints in written and oral form.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>HIS 110 - American History I</td>
<td>3</td>
</tr>
<tr>
<td>POL 120 - American National Government</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>
Electives
- Any transferable Quantitative Reasoning (QR) designated MAT course (MAT 120 or higher, but not MAT 125 or MAT 128 or MAT 135) (3 credits)

Second Semester (15 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature .................... 3
HIS 120 - American History II ................................................. 3
COMM 111 - Public Speaking .................................................. 3

Electives
- Social Science Elective - (3 credits)
- Any transferable Technology (TC) designated course (3 credits)

Third Semester (16 credits)

Courses Credits
HIS 150 - World Civilizations I ............................................... 3
ECO 220 - Microeconomic Principles ....................................... 3

Electives
- Any transferable Scientific Inquiry (SI) designated science course (4 credits)
- Humanities Elective (3 credits)
- Foreign Language elective - (3 credits)

Fourth Semester (15 credits)

Courses Credits
HIS 160 - World Civilizations II ............................................ 3

Electives
- Humanities Elective (3 credits)
- Social Science Elective (3 credits)
- Open Elective (3 credits)

Notes
Any 200 level History Course (3 credits)

Students are strongly advised to consult with both the DCCC Transfer Office and their academic advisor when selecting courses.

Total Credits: 61-62

Liberal Arts, Associate in Arts (LA)

The Liberal Arts curriculum provides the core liberal arts component of most bachelor's degree programs and prepares students for transfer to four-year colleges or universities. The interdisciplinary curriculum is well-suited for students who are either undecided about their major or who are seeking a broad, general education before narrowing the focus of their course of study. After completing this program, students will be well-positioned to pursue any number of different Bachelor of Arts programs at four-year institutions. Since curriculum requirements of other institutions vary, students should meet with a transfer advisor at DCCC to obtain information concerning entrance requirements for the specific school and program in which they are interested.

Upon completion of this curriculum, students should be able to:
- Critically engage with aesthetic expressions of human experience.
- Analyze and reflect on human behavior from theoretical and empirical perspectives.

First Semester (15-16 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature .................... 3
Please pick one of the following courses:
COMM 100 - Interpersonal Communication ................................... 3
COMM 111 - Public Speaking .................................................. 3

Electives
- Any transferable Global Understanding designated History course (3 credits)
- Any transferable Technology designated DPR course (3 credits)
- Any transferable Quantitative Reasoning designated MAT course (not MAT 128 or 125 or MAT 151) (3-4 credits)

Second Semester (16 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature .................... 3
Please pick one of the following courses:
PSY 140 - General Psychology ................................................. 3
SOC 110 - Introduction to Sociology ......................................... 3
Please pick one of the following courses:
POL 110 - Introduction to Political Science ................................... 3
POL 120 - American National Government .................................. 3
POL 130 - American State and Local Government ......................... 3
ECO 210 - Macroeconomic Principles ....................................... 3
ECO 220 - Microeconomic Principles ....................................... 3

Electives
- Any transferable Scientific Inquiry designated Science course (4 credits)
- Any transferable Global Understanding designated History course (3 credits)

Third Semester (15-16 credits)

Courses Credits
Please pick one of the following courses:
PSY 225 - Experiences in Diversity ........................................... 3
SOC 215 - Experiences in Diversity ........................................... 3

Electives
- MAT/Natural Science Elective (3-4 credits)
- Humanities Elective - Foreign Language Recommended (3 credits)
- Social Science Elective (3 credits)
- Humanities Elective: Choose one from ART110,ART111, ART112, ART115, ART116, ART122, ART130, ART133, ART140, ART145, DRA100, DRA110, ENG205, ENG220, ENG221, ENG230, ENG231, ENG240, ENG241, MUS101, MUS120, HUM100, HUM141, HUM142 (3 credits)

Notes
PSY 130 is recommended for Social Science Elective, unless another course better meets the students transfer objectives.

Fourth Semester (15 credits)

Electives
- Open Elective (15 Credits)

Notes
All Electives should be selected with aid of an advisor.

Total Credits: 61-63
Mathematics/Natural Science Associate in Science (MNS)

The Mathematics and Natural Science Program provides a strong foundation for students who plan to attend a four-year institution and major in mathematics or one of the natural sciences. Students who complete the program requirements will be prepared to continue their education in order to pursue academic, research, or industrial careers in such diverse areas as biology, biotechnology, ecology, wildlife biology, chemistry, biochemistry, astronomy, geology, physics, mathematics, and applied mathematics. Students are strongly encouraged to meet with a mathematics or natural science faculty advisor and consult with the DCCC Transfer Office prior to course selection to determine the appropriate sequence and level of courses.

Upon successful completion of this program, students should be able to:

- Demonstrate an understanding of mathematical principles and concepts.
- Apply mathematical principles and concepts to the solution of problems.
- Demonstrate an understanding of scientific principles and concepts.
- Apply scientific principles and concepts to the solution of problems.
- Perform selected tasks relative to laboratory experiments in the natural sciences.

First Semester (17 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
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Please pick one of the following courses:

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<tbody>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
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</tr>
<tr>
<td>DPR 101 - Introduction to Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Scientific Inquiry Elective: BIO 110 or CHE 110 or ESS 110 or PHY 110 or PHY 131 (4 credits)
- Quantitative Reasoning Mathematics Elective: (MAT 151 or MAT 152 or MAT 160) (3-4 credits)
- Any transferable Diversity and Social Justice (DJ) designated Social Science course (3 credits)

Second Semester (16-17 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
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</tbody>
</table>

Electives

- Laboratory Science Elective (4 credits)
- Mathematics Elective (3-4 credits)
- Any transferable Global Understanding designated Humanities course (3 credits)
- Social Science Elective (3 credits)

Third Semester (15-18 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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<tbody>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Mathematics/Laboratory Science Elective (3-4 credits)
- Mathematics/Laboratory Science Elective (3-5 credits)
- Social Science Elective (3 credits)
- Open Elective (3-4 credits)

Fourth Semester (12-17 credits)

Electives

- Mathematics/Laboratory Science Elective (3-4 credits)
- Mathematics/Laboratory Science Elective (3-5 credits)
- Open Electives (6-8 credits)

Total Credits: 60-69

Notes

- **Mathematics Electives** (3-4 credits) from: MAT 151, MAT 152, MAT 160, MAT 161, MAT 200, MAT 210, MAT 230, MAT 260, MAT 261
- **Laboratory Science Electives** (4 credits) from: BIO 110, BIO 111, BIO 115, BIO 200, BIO 210, BIO 240, BIO 250, CHE 110, CHE 111, ESS 110, ESS 112, PHY 110, PHY 111, PHY 131, PHY 132
- **Mathematics/Laboratory Science Electives** (12-18 credits) from: BIO 110, BIO 111, BIO 115, BIO 200, BIO 210, BIO 240, BIO 250, CHE 110, CHE 111, CHE 200, ESS 110, ESS 112, MAT 151, MAT 152, MAT 160, MAT 161, MAT 200, MAT 210, MAT 230, MAT 260, MAT 261, PHY 110, PHY 111, PHY 131, PHY 132, PHY 230
- **Open Electives** (9-12 credits for at least 60 total program credits) from any transferable college level course.

Requirements vary between transfer institutions. Students are strongly encouraged to consult with both the DCCC Transfer Office as well as their academic advisor BEFORE registering for classes.

Photography, Associate in Fine Arts (PHO)

The Photography program develops professional image-makers through student-centered inquiry and practice in visual communication. Studies in Photography encompass the history, critical and aesthetic theory, and varied practices of photography as a medium of visual communication and expression in a diverse cultural society. Students explore a variety of photographic formats, including 35mm, medium format, and 4x5 view cameras and acquire experience in black-and-white, color, alternative, and digital imaging processes using state of the art methods, tools and facilities. The Associate of Fine Arts Degree in Photography encompass the history, critical and aesthetic theory, and varied practices of photography as a medium of visual communication and expression in a diverse cultural society. Students explore a variety of photographic formats, including 35mm, medium format, and 4x5 view cameras and acquire experience in black-and-white, color, alternative, and digital imaging processes using state of the art methods, tools and facilities. The Associate of Fine Arts Degree will prepare students to transfer into a 4 year Bachelor of Fine Arts program. Students will be provided with all foundation-level studio courses with a primary concentration in photography. First-year requirements must be satisfied before beginning second-year course work.

Any remediation in Reading, English or Mathematics must be completed before beginning third semester courses.

Upon successful completion of this program, students should be able to:

- Demonstrate proficiency with camera skills sufficient to produce consistent quality photographic imagery.
- Demonstrate advanced skills in materials and processes used in photography.
- Demonstrate a general knowledge of the history of photography from the 19th century to present day and its function in visual culture in the context of global art.
- Demonstrate knowledge of the elements and principles of two and three dimensional design, color theory, drawing and art historical references.
- Practice critical thinking skills through the production and evaluation of artwork.
- Produce a portfolio demonstrating a coherent personal vision and visual literacy.

The degree Associate in Fine Arts is awarded upon successful completion of the photography course sequence with a grade of “C” (2.0 GPA) or better in all ART courses. ART courses with a grade lower than “C” must be repeated.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 122 - Two Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 130 - Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ART 133 - Photography I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Mathematics Elective (3-4 credits) see list below

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 123 - Color and Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 124 - Three Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 134 - Photography II for A.F.A. Majors</td>
<td>3</td>
</tr>
<tr>
<td>ART 131 - Drawing II</td>
<td>3</td>
</tr>
</tbody>
</table>
Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 110 - Art from the Ancient Worlds</td>
<td>3</td>
</tr>
<tr>
<td>ART 111 - Art History II to Art from the Renaissance through Contemporary Times</td>
<td>3</td>
</tr>
</tbody>
</table>

**Third Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 211 - Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>ART 236 - Digital Photography I</td>
<td>3</td>
</tr>
<tr>
<td>ART 237 - Alternative Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

- Social Science/Humanities elective (3 credits) see list below
- Laboratory Science Elective (4 credits) see list below

**Fourth Semester (15 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 239 - Digital Photography II</td>
<td>3</td>
</tr>
<tr>
<td>ART 240 - Medium and Large Format Photography</td>
<td>3</td>
</tr>
<tr>
<td>ART 241 - Portfolio Presentation</td>
<td>3</td>
</tr>
<tr>
<td>ART 116 - History of Photography</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

- Mathematics Elective (3 credits)

**Total Credits: 61-63**

**Mathematics Elective: Choose 1 from:**

- MAT 120 - Modern College Mathematics
- MAT 121 - Introduction to Probability and Statistics
- MAT 151 - College Algebra
- MAT 152 - Precalculus
- MAT 160 - Calculus I
- MAT 210 - Statistics

**Social Science/Humanities Elective: Choose 1 from:**

- HIS 110 - American History I
- HIS 120 - American History II
- HIS 150 - World Civilizations I
- HIS 160 - World Civilizations II
- HUM 160 - Introduction to World Religions
- SOC 110 - Introduction to Sociology
- SOC 120 - Social Problems
- SOC 180 - Sociology of Marriage and The Family

**Laboratory Science Elective: Choose 1 from:**

- BIO 100 - Biological Sciences
- BIO 102 - Humans and the Environment
- BIO 110 - General Biology I
- BIO 150 - Human Anatomy and Physiology I
- CHE 101 - Introduction to General Chemistry
- CHE 110 - General Chemistry I
- ESS 100 - Earth Science
- ESS 110 - Physical Geology
- PHY 110 - College Physics I
- PHY 131 - University Physics I

**Political Science, Associate in Arts (POL)**

The Political Science Program is designed for but not limited to, students who wish to attain a Baccalaureate Degree in Political Science. This program will provide students with the basis and development of the discipline of Political Science in general and then delve into substantive study of each of the major fields within the discipline. Students will also complete courses that meet their general education requirements. Upon successful completion of an Associate in Arts degree in Political Science, students will be able to transfer into parallel programs.

Upon successful completion of this program, students should be able to:

- Describe the theoretical principles that underlie the Constitution from which the government and politics of the United States emanate.
- Identify and assess the US Federal system in terms of its economic basis, structure and functions.
- Compare and contrast international political systems, cultures, economics, and histories.
- Analyze political factors and the dynamics of democracy and actors within the system: citizens, political parties, interest groups, the media, and electoral process.

**First Semester (15-16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 110 - Introduction to Political Science</td>
<td>3</td>
</tr>
<tr>
<td>POL 120 - American National Government</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- MAT 120 - Modern College Mathematics
- MAT 121 - Introduction to Probability and Statistics
- MAT 151 - College Algebra
- MAT 152 - Precalculus
- MAT 160 - Calculus I
- MAT 210 - Statistics

**Electives**

- History Elective (3 credits)

**Second Semester (15 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 130 - American State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- DPR 100 - Introduction to Information Technology
- DPR 101 - Introduction to Computer Science

**Electives**

- Any transferable Scientific Inquiry (SI) designated Science Course (3 credits)

**Third Semester (15 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 200 - World Affairs</td>
<td>3</td>
</tr>
<tr>
<td>SOC 260 - Research Methodology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- ECO 210 - Macroeconomic Principles
- ECO 220 - Microeconomic Principles

**Electives**

- Foreign Language Elective (3 credits)
- Political Science Elective (3 credits)
Psychology, Associate in Science (PSY)

The Psychology program is designed for students planning to earn at least a Bachelor’s degree in Psychology or a closely related field. The curriculum focuses on developing a solid foundation of knowledge regarding human thought, behavior, and emotion, both individual and collective. The various courses are intended to foster the development of cultural, personal, and professional awareness. Additionally, students are encouraged to strengthen critical thinking, technological, and communication skills.

Upon successful completion of this program, students should be able to:
- Describe the discipline of psychology, differentiating the various sub-fields.
- Understand the major methodologies for studying human behavior.
- Differentiate the nature of the affective, cognitive, and biological domains as they apply to human behavior.
- Describe major theories concerning human development across the lifespan.
- Explain the causes, classification, and treatment of psychological disorders.
- Recognize major influences that impinge socially and psychologically on the individual in today’s complex and diverse society.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>MAT 210 - Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Any Global Understanding designated Social Science course - 3 credits
- Humanities Elective - 3 credits
- Social Science Elective - 3 credits

Third Semester (16-17 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 220 - Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 260 - Research Methodology</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Open Elective - 3-4 credits
- Psychology Elective - 3 credits
- BIO 110 or Any Scientific Inquiry designated Laboratory Science course - 4 credits

Total Credits: 62-64

Science for Health Professions, Associate in Science (HSCI)

The Science for Health Professions Program is designed for students who plan to transfer and continue their education in an allied health or pre-medical field at another institution. It provides the basic sciences and mathematics needed for a variety of programs, including Physical Therapy, Occupational Therapy, Baccalaureate Nursing, Physician Assistant, Pharmacy, Medicine, Dentistry, Veterinary Medicine, Optometry, and Podiatry. Since admission requirements to other institutions vary, students should obtain information on entrance requirements for the specific school and program in which they are interested. Students are strongly encouraged to consult with both the Transfer Office at DCCC and their advisor regarding the best course selections for their transfer.

Upon successful completion of this program, students should be able to:
- Demonstrate an understanding of biological and chemical principles and concepts applicable to the health sciences.
- Perform selected tasks relative to laboratory experiments in the biological and chemical sciences.
- Use the scientific method to gather and interpret data and draw conclusions.
- Demonstrate an understanding of mathematical principles and concepts.

Total Credits: 60-61

Electives
- Psychology Elective - 9 credits

At least 6 credits in two of the following categories:

**Human Development**
- PSY 210 - Lifespan Human Development - 3 credits
- PSY 241 - Child Psychology - 3 credits
- PSY 242 - Adolescent Psychology - 3 credits
- PSY 290 - Adulthood and Aging - 3 credits

**Individual and Sociocultural Differences**
- PSY 200 - Personality Theories - 3 credits
- PSY 202 - Theories of Counseling - 3 credits
- PSY 203 - Counseling Skills - 3 credits
- PSY 204 - Foundations of Addictions - 3 credits
- PSY 205 - Human Sexuality - 3 credits
- PSY 215 - Industrial Psychology - 3 credits
- PSY 221 - Social Psychology - 3 credits
- PSY 225 - Experience in Diversity - 3 credits

**Learning and Cognition**
- PSY 235 - Educational Psychology - 3 credits

Electives determined by Transfer school. Psychology majors should meet with a Transfer counselor to choose electives accordingly. All electives, including those listed above in the General Education Courses, should be selected with careful consideration to Transfer school requirements.
### Social Work, Associate in Arts (SWO)

The Social Work Associate in Arts curriculum was developed to meet the needs of current and prospective students interested in transferring to a college or university and eventually earning a Bachelor in Social Work degree. The curriculum provides students with the introductory-level knowledge in the field of social work study and supports a seamless transfer to the junior level status at a four-year college or university offering a Council of Social Work Education-Accredited Bachelor in Social Work degree (BSW).

Social Workers serve some of the most vulnerable populations; therefore this degree addresses the significant history, policies, theories and applied practices utilized when working with marginalized individuals, families, groups and communities. Social Workers use a person and environment construct that views human challenges through a diverse, multi-systemic lens. An overarching goal of the program is to prepare students to demonstrate the basic knowledge, values and skills that are required of a beginning social work practitioner.

Various transfer institutions require differing elective courses; therefore students are highly encouraged to work closely with a transfer counselor, from the DCCC Career and Counseling Center, to ensure a seamless transfer process to a four-year institution.

Upon successful completion of this program, students should be able to:
- Demonstrate self-awareness of who one is and why one is choosing to pursue the profession of social work.
- Understand and apply the knowledge, values and skills of the Social Work Profession at the introductory level.
- Identify the historical development of the knowledge and values of the Social Work profession at the introductory level.
- Analyze the impact of key societal systems that have supported the systemic devaluation of and discrimination toward certain groups in our society.
- Describe the relationship between the knowledge and values of a culturally competent social worker at the introductory level.
- Demonstrate the introductory level skills necessary to work from a strengths perspective with diverse individuals, families, groups, organizations and communities.
- Identify and explain the concepts, assumptions and critiques of developmental theories, especially related to experiences at the intersection of people and their environments, within a multicultural context.

<table>
<thead>
<tr>
<th>First Semester (15-16 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAT 100 - College Algebra</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAT 151 - College Algebra</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Mathematics Required Elective (3-4 credits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory Science Required Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any transferable Diversity and Social Justice and Global Understanding designated Social Science course (3 credits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIS Elective: HIS 110 or higher (HIS 110 recommended)</td>
<td>3</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester (15 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DPR 101 - Introduction to Computer Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Mathematics /Science Required Electives (6-8 credits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td></td>
<td></td>
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<tr>
<td>Social Science Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Elective</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 61-66

### Mathematics (3-4 credits):  
Select from: MAT 100 or 128, 121, 151, 152, 160, 161, 200, 210, 230, 260, 261

### Laboratory Science (8 credits):  
Select from: BIO 110, 111, 150, 151, 200, 210, 230, 240, 250; CHE 101, 102, 110, 111, 200, 201; PHY 110, 111, 131, 132

### Mathematics/Science (9-12 credits):  
Select from: MAT 100 or 128, 121, 151, 152, 160, 161, 200, 210, 230, 260, 261; BIO 110, 111, 150, 151, 200, 210, 230, 240, 250; CHE 101, 102, 110, 111, 200, 201; PHY 110, 111, 131, 132
Program, but also develops students' analytical skills and provides them with the skills, practices, and values required for transfer to a bachelor's degree-bearing programs. These programs are excellent choices for students who desire a more comprehensive understanding of social behavior, as well as those who plan to practice in one of the social sciences. Concentration in the curriculum develops student understanding of group dynamics, social interactions, including their genesis and evolution, and environmental factors that shape human perceptions and behavior. The curriculum focus is not only paramount to learning the theories, skills, practices, and values required for transfer to a bachelor's degree-bearing program, but also develops students' analytical skills and provides them with an enriched educational experience.

Upon successful completion of this program, students should be able to:

- Understand the important characteristics of the science of sociology.
- Describe the major methodologies for studying human behavior.
- Differentiate the major theoretical approaches to examining group behavior in society.
- Examine significant sociological aspects of human development over the life cycle.
- Demonstrate an understanding of the socialization process.
- Analyze the causes and remedies of social disruption.
- Recognize the major influences that socially impinge upon groups in today's complex and diverse society.

**Sociology, Associate in Science (SOC)**

The associate's degree in Sociology is designed for students planning to earn at least a bachelor's degree in Sociology. The program's curriculum is also an excellent choice for students who desire a more comprehensive understanding of social group behavior, as well as those who plan to practice in one of the social science professions. Concentration in the curriculum develops student understanding of group dynamics, social interactions, including their genesis and evolution, and environmental factors that shape human perceptions and behavior. The curriculum focus is not only paramount to learning the theories, skills, practices, and values required for transfer to a bachelor's degree-bearing program, but also develops students' analytical skills and provides them with an enriched educational experience.

Upon successful completion of this program, students should be able to:

- Understand the important characteristics of the science of sociology.
- Describe the major methodologies for studying human behavior.
- Differentiate the major theoretical approaches to examining group behavior in society.
- Examine significant sociological aspects of human development over the life cycle.
- Demonstrate an understanding of the socialization process.
- Analyze the causes and remedies of social disruption.
- Recognize the major influences that socially impinge upon groups in today's complex and diverse society.

**Third Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWO 220 - Social Welfare Policy</td>
<td>3</td>
</tr>
<tr>
<td>BIO 100 - Biological Sciences</td>
<td>4</td>
</tr>
<tr>
<td>PHI 110 - Contemporary Moral Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- PSY 225 - Experiences in Diversity
- SOC 215 - Experiences in Diversity

**Electives**

- POL Elective: POL 120 or higher (POL 120 recommended) (3 credits)

**Fourth Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 210 - Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- PSY 203 - Counseling Skills
- SWO 203 - Counseling Skills

**Electives**

- Science Elective/Laboratory Science (4 credits)
- Humanities Elective (Literature or Foreign Language) (3 credits)
- Social Science Elective (3 credits)

**Notes**

Social Science Elective (3 credits) See Advisor/Counselor.

**Total Credits: 62-63**

**First Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- HIS 150 - World Civilizations I
- HIS 160 - World Civilizations II

**Second Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>SOC 210 - Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- SOC 215 - Experiences in Diversity
- PSY 225 - Experiences in Diversity
- SOC 219 - The Sociology of Race And Immigration

**Electives**

- Humanities Elective (3 credits)

**Third Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIS 150 - World Civilizations I</td>
<td>3</td>
</tr>
<tr>
<td>MAT 210 - Statistics</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120 - Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- DPR 100 - Introduction to Information Technology
- DPR 101 - Introduction to Computer Science

**Fourth Semester (15 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>SOC 180 - Marriage and The Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 220 - Social Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

- Humanities Elective (3 credits)
- Open Elective (3 credits)

**Total Credits: 62**
Studio Arts, Associate in Fine Arts (STU)

The Studio Arts program stresses a concentration in both Painting and Drawing but allows students to utilize a diversity of mixed media to be infused within traditional approaches of the genre. Students in this program will be encouraged to explore and develop a variety of techniques within a range of media. Personal growth and the development of both technical skills and conceptual ideation will be encouraged.

The Associate in Fine Arts Degree in Studio Arts will prepare students to transfer into a 4-year Bachelor of Fine Arts program. Students will be provided with all foundation-level studio courses as well as a broad choice of art history courses.

The Associate of Fine Arts in Studio Arts is awarded upon successful completion of the ART course sequence with a grade of “C” (2.0) or better in all ART courses. An ART course with a grade lower than “C” must be repeated.

Upon successful completion of this program, students should be able to:

- Demonstrate knowledge of visual literacy in regard to drawing and or painting utilizing perceptual means.
- Demonstrate knowledge of visual literacy in regard to the understanding and application of the elements and principles of two and three dimensional design principles.
- Demonstrate knowledge of visual literacy in regard to the dynamics of basic color theory including the manipulation of hue, value
- Demonstrate knowledge of visual literacy in regard to the manipulation of the concept of the picture plane.
- Demonstrate knowledge of visual literacy in regard to the understanding of the forms and concepts associated with the history of art.
- Demonstrate knowledge of visual literacy in conjunction with the application of digital technology and or digital photographic technology.
- Demonstrate knowledge of visual literacy in the application of objective and non-objective subject matter in addition to utilizing traditional figurative motifs.
- Practice critical thinking skills through the production and evaluation of artwork.
- Produce a portfolio of artworks that demonstrates all of the above principles.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 130 - Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ART 122 - Two Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ART 124 - Three Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 110 - Art from the Ancient Worlds through the Middle Ages</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 140 - Painting I</td>
<td>3</td>
</tr>
<tr>
<td>ART 131 - Drawing II</td>
<td>3</td>
</tr>
<tr>
<td>ART 123 - Color and Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 111 - Art History II to Art from the Renaissance through Contemporary Times</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Any transferable Diversity and Social Justice designated SOC course 3 credits

Third Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 141 - Painting II</td>
<td>3</td>
</tr>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ART 142 - Life Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 211 - Digital Imaging</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
Accounting, Associate in Applied Science (ACCT)
The career program in Accounting prepares students for various entry-level positions in the field of accounting. It is strongly recommended that students who plan to pursue further studies at a four-year institution immediately after graduation to major in Accounting take the Business Administration with the Accounting Concentration program. Upon successful completion of this program, students should be able to:
- Perform all steps in the accounting cycle for business entities.
- Analyze financial statements, recognize potential problem areas, and suggest appropriate actions to alleviate or eliminate problems.
- Prepare a federal income tax return and other tax forms for representative individuals including the person who is operating the business as a single proprietorship.
- Record representative cost accounting transactions and subsequently reflect the effect of these transactions in appropriate financial statements.
- Recognize special needs of business.
- Prepare various operating budgets leading to the preparation of a master budget.
- Prepare variance reports.
- Demonstrate a knowledge of capital budgeting.
- Discuss the importance of ethical behavior in business operations.
- Demonstrate efficient utilization of appropriate accounting software.
- Apply basic economic principles in the business decision-making process.
- Describe the contemporary legal environment in business.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 104 - Mathematics for Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 100 - Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>ACC 111 - Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>ACC 112 - Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 115 - Computerized Accounting</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives
- BUS/DPR Elective (3 credits)
- Any Diversity and Social Justice designated Social Science course (3 credits)

Third Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 201 - Introduction to Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 130 - Business Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- ACC 202 - Introduction to Tax Accounting | 3       |
- ACC 210 - Federal Income Tax Accounting | 3       |

Electives
- Any Scientific Inquiry designated Science course (4 credits)
- Social Science Elective (3 credits)

Fourth Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 243 - Legal Environment of Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- ECO 210 - Macroeconomic Principles | 3       |
- ECO 220 - Microeconomic Principles | 3       |

Electives
- Humanities Elective (3 credits)
- BUS/DPR Elective (3 credits)
- Open Elective (3 credits)

Total Credits: 62

BUS/DPR Electives
Student is to select 2 of the following recommended BUS/DPR courses: Computer Applications (DPR 111), Database Management Systems (DPR 113), Principles of Management (BUS 210), Supervision (BUS 211), Organizational Behavior (BUS 214), Human Resource Management (BUS 215), Elementary Statistics (BUS 220), Principles of Marketing (BUS 230), Principles of Advertising (BUS 231), Principles of Finance (BUS 232).

Advanced Technology, Associate in Applied Science (ADVT)
The Advanced Technology Program is designed to serve individuals who desire hands-on training and education for the acquisition or advancement of a technical career in areas such as manufacturing, electronics, industrial production, process control, computer aid design and drafting, facilities management, and CNC operations.

The program is flexible enough that it can serve those both at entry level and those with established skills who seek technical growth or advancement through continued education. The program provides for up to 24 credits to be awarded toward the Associate of Applied Science Degree for technical courses or certificates completed at the college. The curriculum includes general education and information technology cores that will develop skills in communication, computer applications and applied science while strengthening problem solving and critical thinking skills essential to career advancement.

This program is designed primarily to serve students who have completed the Advanced Technology Certificate programs at the college. Ideally, students would pursue this program as continuing education after beginning employment as a trainee following certificate completion.

Upon successful completion of this program, students should be able to:
- Demonstrate competencies in the technical skills and knowledge required for careers in manufacturing and other advanced technology industries.
- Demonstrate effective professional communication skills.
- Apply appropriate problem solving tools and/or mathematical knowledge to industry tasks and processes.
- Demonstrate proficiency and implement appropriate project management methods to industry-related situations.
- Demonstrate knowledge of required industry safety standards and practices.
First Semester (17 credits)

Courses |
---|---|
CHE 101 - Introduction to General Chemistry | 4 |
ENG 100 - English Composition I | 3 |
TCC 111 - Technical Communications | 3 |

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 128 Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MAT 151 - College Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives

- Program Elective 3 credits

Second Semester (17 credits)

Courses |
---|---|
ENG 112 - English Composition II: Writing About Literature | 3 |

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 152 - Precalculus</td>
<td>4</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 107 - Technical Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHY 110 - College Physics I</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives

- Any Oral Communication (OC) designated course 3 credits
- Program Elective 3 credits

Third Semester (15 credits)

Courses |
---|---|
TCS 141 - Construction First Aid/Safety | 3 |

Electives

- Any Diversity and Social Justice (DJ) and Global Understanding (GU) designated Humanities/Social Science course 3 credits
- Program Electives 9 credits

Fourth Semester (12 credits)

Courses |
---|---|
TCC 112 - Project Management Processes | 3 |

Electives

- Program Electives 9 credits

Notes

Program Electives (24 credits): Any courses from ARC, IST, MTT, PCT, TCC, TCS, TDD, TEL, TME

Total Credits: 61

**Culinary Arts, Associate in Applied Science (CUL)**

The Culinary Arts, A.A.S program prepares students for employment in various segments of the foodservice industry in positions such as restaurant chef, banquet chef, sous chef, kitchen manager, production cook, line cook and prep cook. The program includes academic courses, skills development in kitchen lab courses, and practical internship experience.

Upon successful completion of this program, students should be able to:

- Demonstrate knowledge and use of foodservice and culinary terminology
- Exhibit the ability to identify various food products and their common uses.
- Demonstrate various cooking methods and appropriate presentation techniques.
- Demonstrate the ability to properly use and care for professional food service equipment and culinary tools.
- Produce foods that meet employers’ standards and satisfy consumer demands.
- Exhibit ability to produce various ethnic and regional cuisines.
- Demonstrate the ability to apply principles of good nutrition in producing foods that meet consumer demands.
- Demonstrate knowledge of safe and food handling practices; receive food handlers’ sanitation certification.
- Seek successful employment in a wide variety of commercial and non-commercial food service operations.
- Demonstrate accepted practices and procedures required for planning, operation and record keeping as applied in a restaurant, catering or food service operation.

First Semester (15-16 credits)

Courses |
---|---|
HRM 110 - Food Sanitation and Safety Supervision | 3 |
CUL 115 - Professional Cooking I | 3 |
CUL 150 - Baking and Pastry Foundations I | 3 |
ENG 100 - English Composition I | 3 |

Electives

- BUS 104 or Any Quantitative Reasoning designated course 3-4 credits

Second Semester (15 credits)

Courses |
---|---|
CUL 210 - Foodservice Purchasing | 3 |
CUL 215 - Menu Planning and Cost Control | 3 |
CUL 230 - Professional Cooking II | 3 |

Electives

- DPR 100 or Any Information Technology designated course 3 credits
- Any Global Understanding designated course 3 credits

Third Semester (16 credits)

Courses |
---|---|
HRM 100 - Introduction to Hospitality | 3 |
CUL 151 - Baking and Pastry Foundations II | 3 |
CUL 231 - Garde Manger | 3 |

Electives

- BUS 130 or Any Oral Communication designated course - 3 credits
- Any Scientific Inquiry designated science course - 4 credits

Fourth Semester (15 credits)

Courses |
---|---|
CUL 199 - Culinary Externship | 3 |
HRM 253 - Restaurant Management | 3 |
CUL 220 - Nutrition and the Hospitality Industry | 3 |
CUL 232 - International Cuisine | 3 |

Electives

- SOC 110 or Any Diversity and Social Justice designated course - 3 credits

Total Credits: 61-62
Emergency Management and Planning, Associate in Applied Science (EMER)

The Emergency Management and Planning associate degree program is designed for individuals who are seeking careers that are related to management of emergency and catastrophic situations that are accidental, provoked or natural disasters. The primary focus of the program is to provide an educational vehicle and skill set for professionals such as Emergency Managers, Firefighters, Law Enforcement Officers or Medical or Allied Health personnel to approach emergency situations in a uniform fashion. The technical core of the program focuses on the knowledge and skills required to effectively manage and mitigate emergency and disaster incidents. Individuals employed in the private sector as safety officers or security professionals can also develop and strengthen their skills and effectiveness by completing this program. The competencies and course content has been developed with significant consideration of the coursework developed by the Federal Emergency Management Agency (FEMA), state emergency management agencies and local emergency planning committees.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a 'C' or better in all AHESN courses.

Upon successful completion of this program, students should be able to:
- Implement principles and best practices in incident management.
- Develop plans and procedures for dealing with various emergency situations.
- Identify the dangers associated with various emergency situations and apply the proper safety procedures for oneself and the public at large.
- Recognize the role of first responders in emergency situations.
- Explain the psychology of terrorism. Implement appropriate procedures in dealing with terrorism threats and incidents.
- Perform procedures and protocol for search and rescue operations.
- Communicate procedures effectively to mitigate emergency situations with first responder colleagues.
- Employ critical thinking and problem solving techniques relevant to emergency situations.

First Semester (16 credits)

Courses Credits
ENG 100 - English Composition I. 3
EMER 105 - Incident Management. 3

Electives
- Any Science Inquiry designated Science course 4 credits
- Program electives (Any FST, EMS, EMTP, AHM, AHN, NUS, ADJ, MPT courses) 6 credits

Second Semester (15 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature 3
EMER 110 - Emergency Planning 3
DPR 100 - Introduction to Information Technology 3

Electives
- Program Electives (Any FST, EMS, EMTP, AHM, AHN, NUS, ADJ, MPT courses) 6 credits

Third Semester (18-19 credits)

Courses Credits
EMER 130 - Search and Rescue 3

Electives
- MAT 120 or MAT 121 or any Quantitative Reasoning designated Mathematics course 3-4 credits
- Any Diversity and Social Justice designated Social Science or Humanities course 3 credits
- Any Oral Communication designated course 3 credits
- Program Electives (Any FST, EMS, EMTP, AHM, AHN, NUS, ADJ, MPT courses) 6 credits

Fourth Semester (13 credits)

Courses Credits
EMER 120 - Leadership and Influence 3
EMER 140 - Emergency Management Seminar 1
ADJ 202 - Terrorism: 3

Electives
- Program Electives (Choose from FST, EMS, EMTP, AHM, ADJ, AHN, NUS, MPT) 6 credits

Total Credits: 62-63

General Business, Associate in Applied Science (BGEN)

The General Business (BGEN) program is a career designed for individuals who are interested in developing the knowledge and skills that are essential in current global business environment. Students are introduced to theory and the application of theory to management practices and principles. Students explore the functional areas of business and the processes, policies, and strategies related to these areas. The program also provides students with the competencies to write and speak effectively, and to communicate interpersonally. This program prepares graduates for entry-level positions in the private and public sectors. The program is also appropriate for individuals who hold a bachelor degree in a discipline other than business and who are interested in developing their business acumen for the workplace.

Upon successful completion of this program, students should be able to:
- Apply management theories to management practice.
- Use technology to complete common business functions, processes and communication.
- Examine forces in the global business environment and analyze their impact on the organization and its stakeholders.
- Exhibit competent and effective communication skills.
- Demonstrate an understanding of the key practices and processes related to the functional areas within an organization.

First Semester (15 credits)

Courses Credits
ENG 100 - English Composition I. 3
DPR 100 - Introduction to Information Technology 3
BUS 104 - Mathematics for Business 3
MAT 135 - Business Precalculus 3

Please pick one of the following courses:
- BUS 104 - Mathematics for Business 3
- MAT 135 - Business Precalculus 3

Please pick one of the following courses:
- COMM 100 - Interpersonal Communication 3
- COMM 111 - Public Speaking 3

Second Semester (16 credits)

Courses Credits
BUS 130 - Business Communication 3
BUS 210 - Principles of Management 3
BUS 213 - Leadership 3

Please pick one of the following courses:
- ACC 100 - Applied Accounting 3
- ACC 111 - Financial Accounting 3

Electives
- Any Scientific Inquiry (SI) designated course - 4 credits
Third Semester (15 credits)
Courses  
BUS 214 - Organizational Behavior  ........................................ 3  
BUS 215 - Human Resource Management  .................................... 3  
Electives  
- Any Diversity and Social Justice (DJ) designated course - 3 credits  
- Program Electives - 6 credits

Fourth Semester (15 credits)
Courses  
BUS 230 - Principles of Marketing  ........................................... 3  
Electives  
- Any Global Understanding (GU) designated course - 3 credits  
- Program Electives - 9 credits

Notes
Recommended Program Electives:  
- ACC 100 Applied Accounting or ACC 111 - Financial Accounting (3 credits)  
- ACC 112 Managerial Accounting (3 credits)  
- ACC 115 Computerized Accounting (3 credits)  
- BUS 216 - Training and Development (3 credits)  
- BUS 217 - Compensation and Benefits (3 credits)  
- BUS 218 - Labor Relations (3 credits)  
- BUS 231 Principles of Advertising (3 credits)  
- BUS 243 Legal Environment of Business (3 credits)  
- DPR 101 Introduction to Computer Science (3 credits)  
- DPR 105 Management Information Systems (3 credits)  
- DPR 111 Advanced Office Software (3 credits)  
- COMM 100 - Interpersonal Communication or COMM 111 - Public Speaking (3 credits)  
- COMM 104 - Introduction to Mass Communication (3 credits)  
- COMM 115 - Introduction to Public Relations (3 credits)

Total Credits: 61

General Studies, Associate in Applied Science (GEN)

The General Studies program is designed for those students who wish to earn an associate in applied science degree which meets the College's Academic Learning Goals and allows the maximum flexibility in course selection. Students who wish to broaden their cultural backgrounds or increase their understanding of global issues and concerns may choose to select this program. Students who were previously awarded a certificate of competency or proficiency may be permitted to apply those college level credits to this program. While General Studies is not designed to be a transfer program, careful course selection can facilitate transfer to another academic program or institution. General Studies may not be awarded as part of a dual degree. Depending on a student's interest in either a particular field of study or a specific four-year transfer institution, it is recommended that 18 credits within the General Studies program be devoted to aiding the student either in developing his/her knowledge in that field of study or in achieving seamless transfer to a four-year college. Students may elect to take 3 or 6 credits through the college's Co-Op/Internship Program (CSEL). Students should meet with their advisors and/or transfer counselor to determine which courses best meet their goals for this focused concentration of study.

Upon successful completion of this course, students should be able to:  
- Demonstrate the ability to compose coherent, evidence-based academic writing.  
- Demonstrate the ability to communicate orally by delivering and receiving messages competently.  
- Demonstrate the ability to apply mathematical concepts and quantitative reasoning to solve problems.

• Demonstrate a conceptual and a quantitative understanding of natural science disciplines and develop scientific inquiry skills.  
• Demonstrate critical reasoning.  
• Demonstrate the ability to find, evaluate, and communicate information found in the course of their research.  
• Demonstrate the ability to use information technology.  
• Demonstrate an understanding of inequality, oppression, power, privilege, and the struggle for social justice faced by historically marginalized people.  
• Demonstrate the ability to recognize and analyze global topics and issues.

First Semester (15-16 credits)
Courses  
ENG 100 - English Composition I  ......................................... 3  
Electives  
- Any Oral Communication designated course (3 credits)  
- Any Quantitative Reasoning designated course (3-4 credits)  
- Any Diversity and Social Justice designated course (3 credits)  
- Open Elective (3 credits)

Second Semester (15-16 credits)
Courses  
ENG 111 - English Composition II: Writing About Literature  ........ 3  
Electives  
- Any Global Understanding designated course (3 credits)  
- Any Scientific Inquiry designated science course (4 credits)  
- Any Technology designated course (3 credits)  
- Open Elective (3 credits)

Third Semester (15 credits)
Electives  
- Electives designed to complete an Area of Concentration

Fourth Semester (15-18 credits for at least 61 total program credits)
Electives  
- Electives designed to complete an Area of Concentration

Total Credits: 61-62

Note: Students are strongly encouraged to consult with their academic advisor BEFORE registering for classes.

Health Care Management, Associate in Applied Science (AHM)

The Health Care Management curriculum prepares students for management roles in a rapidly changing health care environment. Once focused on episodes of treatment for acute disease, the health care industry now emphasizes lifelong health maintenance and wellness promotion. The program is intended for health care workers who require new knowledge and skills to compete in the changing health care marketplace. It will also be useful for those individuals with no previous health care experience who seek non-clinical entry-level positions in health care, or who plan to continue their education in the field of health care administration.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a "C" or better in all AHESN courses.
Health Studies - Neurodiagnostic Technology, Associate in Applied Science (HSNT)

The Delaware County Community College/Crozer Chester Medical Center Health Studies - Neurodiagnostic Technology Program (HSNT) is designed for individuals seeking a career as a Neurodiagnostic Technologist. Through classroom and clinical experiences, students will receive the instruction necessary to perform Neurodiagnostic Technology (NDT) procedures which are essential for the clinical investigation of many neurological, neurosurgical and sleep disorders. These disorders include: epilepsy, brain injury, stroke, headache, brain tumor, “brain death,” insomnia, excessive daytime sleepiness, sleep apnea, narcolepsy, and spinal cord and nerve dysfunction. Students will gain the technical skills necessary to operate sophisticated NDT equipment in a variety of settings including operating rooms and intensive care units. The Neurodiagnostic Technology Program is accredited by the Commission on Accreditation of the Allied Health Education Program (CAAAHP).

An information packet outlining the admission process for the HSNT program can be obtained in Admissions and the Allied Health, Emergency Services and Nursing (AHESN) office. Prospective students are also encouraged to attend an information session. Please check the DCCC website for session dates and times.

Background Checks and Criminal Convictions - A student who has been convicted of a prohibitive offense contained in Act 13 and/or Act 169 may not be able to complete their studies because clinical experiences needed for course/program success may be prohibited. If student cannot complete his/her clinical studies, he/she will not be accepted into the HSNT program. A detailed list is available for review in the AHESN office. All HSNT applicants are required provide a Criminal History Record Information Report, Federal Criminal History Report (FBI) and a Child Abuse Clearance prior to admission. Students must be free of prohibitive offense convictions. Specific guidelines as to how to obtain, store, and submit background clearances and reports is contained in the Neurodiagnostic Technology Program information packet.

Admission Standards - To be considered for the HSNT program, an applicant must meet one of the following standards: DCCC College placement test (remediation must be completed prior to applying to the program) and Health Occupations Basic Entrance Test (HOBET) (Composite Total: 50%, Reading: 54%, Science: 33%, Math: 46% and English: 46% or Previous Associate, Bachelor’s or higher degree). Please refer to the HSNT admission procedures packet (available in the AHESN office) for detailed information concerning the admission process. Seating for this program is limited. Depending on the number of applicants, students may be ranked for placement into the program.

Health Screening, CPR, and Health Insurance - Prior to beginning the Neurodiagnostic Technology Practicum I (NDT 101), all accepted students must have on file the results of a complete physical examination. This will include: a complete blood count, documented seasonal influenza vaccine, compliance with recommendations for the Hepatitis B vaccine, Measles (Rubella), Mumps, Rubella (German Measles), Varicella (Chicken pox), Tdap (Tetanus, Diphtheria and Pertussis), documentation of a two-step Matoix PPD must be current within one year of start date and a 10-panel urine drug screen. Additionally, students must provide documentation of medical insurance, and full CPR certification. Students must submit a photocopy (both sides) of the CPR Certification Card. Acceptable CPR courses are the Health Care Provider (American Heart Association) or the Course for the Professional (American Red Cross). These are both renewable every two years.

Certain manual dexterity and sensory abilities, that will enable the student to competently perform the required technical skills, are necessary for successful completion of the HSNT program. A detailed list is available in the AHESN office and will be reviewed with each student upon acceptance to the program. Health problems that can interfere with the applicant’s ability to meet program competencies are considered on an individual basis.

Program Guidelines - Students must achieve a ‘C’ or better in BIO 150 Human Anatomy and Physiology I, BIO 151 Human Anatomy and Physiology II, and in each program required NDT course. Students may be removed from the program for violation of patient safety, confidentiality, or behavior incompatible with acceptable standards pending outcome of appeal process. Information can be found in the DCCC Student Handbook and the HSNT Program policy and procedure manual. Selected clinical practicums will be provided under the supervision of the HSNT program faculty. These are learning experiences for which the student receives no monetary remuneration or other reimbursement.

Upon successful completion of this program, students should be able to:
- Use correct terminology related to the health care setting, patient care, and health care management.
- Identify forces impacting health care and their effect on delivery, financing practice patterns, and utilization of personnel and services.
- Examine the priorities, trends, and issues of managed care, managing risk and quality improvement, and measuring outcomes.
- Describe the ethical, legal and regulatory framework of the health care environment.
- Practice effective communication skills for the health care environment.
- Explain roles, functions, and tools of a manager in the health care setting.
- Demonstrate knowledge of computer technology and its use in the health care setting.
- Demonstrate an understanding of the issues and practices applicable to health information.
- Apply economic and business practices to the health care setting.
- Solve problems related to health care management using critical thinking skills.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 102 - Introduction to Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 100 - Introduction to Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>ECO 220 - Microeconomic Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Any Global Understanding and Diversity and Social Justice designated course 3 credits
- MAT 120 (or higher must be Quantitative Reasoning (QR) designated MAT course 3-4 credits

Third Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHA 209 - Philosophy of Managed Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 130 - Medical Coding Concepts for Allied Health</td>
<td>3</td>
</tr>
<tr>
<td>BUS 230 - Principles of Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- BUS 130 - Business Communication
- COMM 100 - Interpersonal Communication

Electives
- Any Scientific Inquiry designated Science course 4 credits

Fourth Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHA 206 - Reimbursement and Financing in Managed Care</td>
<td>3</td>
</tr>
<tr>
<td>AHA 217 - Health Care Quality, Outcomes and Accreditation</td>
<td>3</td>
</tr>
<tr>
<td>AHM 140 - Professional and Communication Issues in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>BUS 210 - Principles of Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Allied Health/Business Elective 3 credits

Total Credits: 61-62
**CAREER PROGRAMS, ASSOCIATE DEGREE**

Electives - Additional Expenses - In addition to normal tuition and fees, HSNT students are required to purchase books, uniforms, Neurodiagnostic Society student membership, and miscellaneous supplies. The students are also responsible for commuting and/or parking expenses to reach clinical rotations and classes.

Certifications - The Neurodiagnostic Technology Program is accredited as the Crozer-Chester Medical Center School of Clinical Neurophysiology by the Commission on Accreditation of the Allied Health Education Program (www.CAAHEP.org). After the first six months of enrollment, the students are eligible to take Part I of the Electroencephalographic Written Exam (R.EEG.T). Sitting for Part I of this exam is a requirement of the program and should be scheduled prior to the final semester. HSNT program graduates, who successfully pass Part II of the exam, will be awarded the R.EEG.T credential. Graduates are immediately eligible to apply for registration in Evoked Potential (R.E.P.T.). After employment in a field of advanced monitoring, technologists who hold the R.E.E.G.T credential, can become certified in Long Term Monitoring (CLTM) or Neurophysiologic Intraoperative Monitoring (CNIM).

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a ‘C’ or better in all AHESN courses.

Upon successful completion of this program, students should be able to:
- Demonstrate competence in obtaining standard and specialized electroencephalogram (EEG) studies.
- Demonstrate competence in performing polysomnogram (PSG) studies.
- Comply with professional ethics, maintain patient safety and confidentiality.
- Demonstrate knowledge of Neurodiagnostic Technology (NDT) equipment and instrumentation.
- Comply with recommended electrode application and removal techniques.
- Clinically correlate Neurodiagnostic Technology studies to neurological disorders and anatomy.
- Demonstrate effective communication skills for the health care environment.
- Recognize how political, cultural and socio-economic forces impact the health care system.
- Demonstrate basic math skills needed for Neurodiagnostic Technology testing procedures.

**First Semester (17 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDT 100 - Foundations of Neurodiagnostic Technology</td>
<td>3</td>
</tr>
<tr>
<td>NDT 101 - Neurodiagnostic Technology Practicum I</td>
<td>7</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 150 - Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
</tbody>
</table>

**Second Semester (18 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDT 102 - Neuroanatomy and Physiology of the Nervous System</td>
<td>3</td>
</tr>
<tr>
<td>NDT 103 - Neurodiagnostic Technology Principles and Practicum II</td>
<td>8</td>
</tr>
<tr>
<td>BIO 151 - Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- MAT 120 - Modern College Mathematics
- MAT 121 - Introduction to Probability and Statistics

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Third Semester (3 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDT 104 - Neurodiagnostic Technology Practicum III</td>
<td>3</td>
</tr>
</tbody>
</table>

**Fourth Semester (6 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDT 105 - Neurodiagnostic Technology Practicum IV</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**
- Any Oral Communication designated course (3 credits)

**Fifth Semester (14 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDT 200 - Neurological Disorders</td>
<td>3</td>
</tr>
<tr>
<td>NDT 201 - Neurodiagnostic Technology Practicum V</td>
<td>8</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Sixth Semester (14 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDT 202 - Neurodiagnostic Technology Practicum VI</td>
<td>8</td>
</tr>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**
- Any Global Understanding AND Diversity and Social Justice designated course (3 credits)

**Total Credits: 72**

**Health Studies - Pre-Nursing Option, Associate in Applied Science (HSTN)**

The Associate of Applied Science in Health Studies is designed to offer students interested in working within the health care field an opportunity to attain the associate degree. Students acquiring this degree would be able to pursue advancement opportunities within varied health care settings. Examples of positions that would be applicable include: Billing Supervisor, Patient Service Representative, Medical Administrative Assistant, Medical Supply Manager, and Allied Health Instructor. This program is especially advantageous for students who have completed certificates of competency and proficiency programs offered by the Allied Health and Nursing department and wish to complete a degreed course of study. The program offers a broad view of health care related topics while providing a basic liberal study foundation.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a ‘C’ or better in all AHESN courses.

Upon successful completion of this program, students should be able to:
- Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems.
- Perform the administrative duties required in a health care setting.
- Describe the ethical and legal issues related to health care delivery.
- Define the roles and responsibilities of various providers and disciplines throughout the continuum of health care.
- Demonstrate an understanding of the issues and practices applicable to health information including electronic health records.

**First Semester (14 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 150 - Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>NUS 102 - Nursing Mathematics: Dosage Calculation and Drug Preparation</td>
<td>1</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- MAT 121 - Introduction to Probability and Statistics
- MAT 210 - Statistics

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 210 - Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester (16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 151 - Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>PSY 210 - Lifespan Human Development</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**
- Any Global Understanding designated Humanities course (3 credits)
Notes

Nursing Students:
Students accepted into DCCC’s Nursing Program who have completed all of the above courses will need to complete 41 additional credits in nursing coursework (below) to complete the Associate of Applied Science in Nursing.
Fall Semester NUS 110
Spring Semester NUS 111, NUS 221
Fall Semester NUS 210
Spring Semester NUS 211
Total Program Credits: 71
Students not accepted into DCCC nursing program who decide to transfer to a BSN program may change major to HSCI for 2nd year.

Health Studies Students:
Students not accepted into the Nursing Program who opt to complete the Associate of Associate in Health Studies (HSTN) can do so by completing the following two semesters:
Summer AHM 233
Semester 3 DPR 100, AHM 130, AHM 102, AHM 140, AHA 207
Semester 4 AHM 241, AHM 185, AHM 202, BIO 100
Total Program Credits: 62

An associate degree in applied science will be awarded upon completion of the required program with a 2.0 GPA and a ‘C’ or better in all Allied Health courses.

Total Credits: 62 or 71

Health Studies, Associate in Applied Science (HSTU)
The Associate of Applied Science in Health Studies is designed to offer students interested in working within the health care field an opportunity to attain the associate degree. Students acquiring this degree would be able to pursue advancement opportunities within varied health care settings. Examples of positions that would be applicable include: Billing Supervisor, Patient Service Representative, Medical Administrative Assistant, Medical Supply Manager, and Allied Health Instructor. This program is especially advantageous for students who have completed certificates of competency and proficiency programs offered by the Allied Health and Nursing department and wish to complete a degree course of study. The program offers a broad view of health care related topics while providing a basic liberal study foundation.
An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a ‘C’ or better in all AHESN courses.

Upon completion of this program, students should be able to:
• Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems.
• Perform the administrative duties required in a health care setting.
• Describe the ethical and legal issues related to health care delivery.
• Define the roles and responsibilities of various providers and disciplines throughout the continuum of health care.
• Demonstrate an understanding of the issues and practices applicable to health information including electronic health records.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 102 - Introduction to Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 140 - Professional and Communication Issues in Health Care</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 104 - Body Structure and Function I</td>
<td>3</td>
</tr>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
MAT 120 - Modern College Mathematics        | 3       |
MAT 121 - Introduction to Probability and Statistics | 3 |
MAT 210 - Statistics                        | 3       |

Third Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 105 - Body Structure and Function II</td>
<td>3</td>
</tr>
<tr>
<td>AHM 202 - Fundamentals of Health Information Technology Science</td>
<td>3</td>
</tr>
<tr>
<td>AHM 130 - Medical Coding Concepts for Allied Health</td>
<td>3</td>
</tr>
<tr>
<td>BIO 100 - Biological Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives
• (2) Open Elective (6 Credits)

Fourth Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 241 - Revenue Cycle Management and Reimbursement Methodologies</td>
<td>3</td>
</tr>
<tr>
<td>AHM 185 - Medical Office Management</td>
<td>4</td>
</tr>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
• Open Elective (3 credits)

Notes
An associate degree in applied science will be awarded upon completion of the required program with a 2.0 GPA and a ‘C’ or better in all Allied Health courses.

BIO 150 and BIO 151 can be substituted for AHM 104 and AHM 105

Upon completion of this curriculum students are eligible to sit for the CMRS (Certified Medical Reimbursement Specialist) exam. The CMRS designation is awarded by the Certifying Board of the American Medical Billing Association (CBAMBA).

Total Credits: 62

Hotel and Restaurant Management, Associate in Applied Science (HRM)
The Hotel/Restaurant Management (HRM) program is designed for individuals seeking specialized training and knowledge as preparation for a career in the vast hospitality industry. The successful graduate can enter the industry at a supervisory level and perform management functions and duties to this industry.

Upon successful completion of this program, students should be able to:
• Apply federal, state and local laws and regulations specific to this industry.
• Use generally accepted accounting practices in the efficient and cost effective operation of the enterprise.
• Communicate effectively with employers, employees, customers, vendors and the community using appropriate technology.
• Awareness of terminology, common supervisory skill-sets and the need for life-long career planning for success.
• Use of sales and marketing techniques to enhance acceptance of the product/service the industry provides.
First Semester (15 credits)

Courses Credits
ENG 100 - English Composition I. ................................. 3
HRM 100 - Introduction to Hospitality .............................. 3
HRM 110 - Food Sanitation and Safety Supervision .................. 3

Please pick one of the following courses:
BUS 104 - Mathematics for Business ................................. 3
MAT 135 - Business Precalculus ........................................ 3

Please pick one of the following courses:
DPR 100 - Introduction to Information Technology .................. 3
DPR 101 - Introduction to Computer Science .......................... 3

Second Semester (15 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature ................................. 3
HRM 155 - Managing Lodging Operations .................................. 3
HRM 162 - Laws of Innkeepers ............................................. 3

Please pick one of the following courses:
ACC 100 - Applied Accounting ............................................ 3

Please pick one of the following courses:
HRM 162 - Laws of Innkeepers ............................................. 3
HRM 155 - Managing Lodging Operations .................................. 3
ENG 112 - English Composition II: Writing About Literature ................................. 3

Electives
• Any Diversity and Social Justice and Global Understanding designated Social Science course (3 credits)

Third Semester (16 credits)

Courses Credits
HRM 253 - Restaurant Management ....................................... 3
BUS 130 - Business Communication ....................................... 3

Please pick one of the following courses:
HRM 255 - Beverage Management ......................................... 3
HRM 140 - Tourism: Principles, Practices, Philosophies .................. 3

Please pick one of the following courses:
HRM 145 - Sales and Marketing in Hospitality ......................... 3
BUS 230 - Principles of Marketing. ......................................... 3

Please pick one of the following courses:
HRM 199 or HRM Elective (3 credits)

Fourth Semester (15 credits)

Courses Credits
HRM 254 - Catering & Event Planning ..................................... 3

Please pick one of the following courses:
HRM 165 - Managing Hospitality Human Resources .................. 3
BUS 215 - Human Resource Management .................................. 3

Electives
• Open Elective (3 credits)
• Humanities Elective (3 credits)
• HRM 199 or HRM Elective (3 credits)

Total Credits: 61

Information Technology, Computer Programming, Associate in Applied Science (DPRP)

The Computer Programming specialization is intended to prepare students for a career or further study in computer programming. A computer programmer works with a computer analyst and computer engineer to analyze, design, develop, test, implement and maintain computer applications to meet the functional objectives of a business. It is the job of the computer programmer to design and update the software that runs on the computer. A programmer generally works with an analyst to help determine the best way to approach a problem or implement a desired feature for a new version of a software package. A programmer codes the changes and then tests and debugs the software. The Computer Programming specialization emphasizes the more popular computer programming languages used in business today.

The Associate in Applied Sciences in the Information Technology (IT) Career Degrees at Delaware County Community College blends the theoretical with the practical. Students are offered a choice of specializations: Computer Programming, Game Development, Help Desk/Technical Support, Interactive Multimedia, Network Engineering, and Web Development. Students have the benefit of classroom or online instruction, dedicated laboratory facilities and participation in co-curricular activities. Students in the IT Career Degrees are required to take program courses and related electives in their specialization as well as four IT core courses. In addition, students are required to take general education courses.

Upon successful completion of this program, students should be able to:
• Analyze problems with respect to the requirements of the computer and the required results.
• Plan detailed program logic to solve problems and convert the logic to a well-structured applications program using an industry standard language and providing program documentation.
• Demonstrate the ability to use debugging techniques.
• Use mathematical equations in the creation of a computer program.
• Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario.

First Semester (15-16 credits)

Courses Credits
DPR 100 - Introduction to Information Technology .................. 3
NET 110 - Network Communications ..................................... 3
DPR 101 - Introduction to Computer Science .......................... 3
ENG 100 - English Composition I. ................................. 3

Please pick one of the following courses:
MAT 135 - Business Precalculus ............................................. 3
MAT 151 - College Algebra ............................................... 4
MAT 160 - Calculus I. .................................................... 4

Electives
• Any Scientific Inquiry designated Science course (4 credits)

Second Semester (15-16 credits)

Courses Credits
DPR 100 - Introduction to Information Technology .................. 3
IMM 120 - Web Page Design and Development ............................. 3
DPR 104 - Introduction to Java Programming ........................... 3
ENG 112 - English Composition II: Writing About Literature ................................. 3

Electives
• Mathematics Elective (3-4 credits)

Notes
Mathematics Elective: MAT 135 and MAT 136 or MAT 151 and MAT 152 or MAT 160 and MAT 161. (3-4 credits)
Information Technology, Game Development, Associate in Applied Science (ITGD)

The Game Development specialization is intended to prepare students for a career or further study in game development. Courses emphasize the specific skills necessary for the design, development, marketing and testing of computer games. Industry standard programming languages and development tools are utilized in this specialization.

The Associate in Applied Sciences in the Information Technology (IT) Career Degrees at Delaware County Community College blends the theoretical with the practical. Students are offered a choice of specializations: Computer Programming, Game Development, Help Desk/Technical Support, Interactive Multimedia, Network Engineering, and Web Development. Students have the benefit of classroom or online instruction, dedicated laboratory facilities and participation in co-curricular activities. Students in the IT Career Degrees are required to take program courses and related electives in their specialization as well as four IT core courses. In addition, students are required to take general education courses.

Upon successful completion of this program, students should be able to:

• Demonstrate the use of web and programming languages relevant to game development.
• Apply the computer video game development process to create games using a variety of current tools and technologies.
• Create computer games using industry standard development tools.
• Utilize industry standard tools to create audio and/or visual elements.
• Develop a game portfolio.

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 210 - Object Oriented C++</td>
<td>3</td>
</tr>
<tr>
<td>DPR 204 - Intermediate Java Programming</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>• Any transferable Oral Communication (OC) designated course (3 credits)</td>
<td></td>
</tr>
<tr>
<td>• Any transferable Diversity and Social Justice (DJ) and Global Understanding (GU) designated Social Science course (3 credits)</td>
<td></td>
</tr>
<tr>
<td>• DPR/IMM/NET Course - choose two (6 credits)</td>
<td></td>
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</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mathematics Elective (3-4 credits)</td>
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</table>

Fourth Semester (17-19 credits)

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 212 - Data Structures and Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>• Any transferable Scientific Inquiry (SI) designated Science course (3-4 credits)</td>
<td></td>
</tr>
<tr>
<td>• Humanities Elective (3 credits)</td>
<td></td>
</tr>
<tr>
<td>• DPR/IMM/NET course - choose two (6 credits)</td>
<td></td>
</tr>
</tbody>
</table>

Notes

Students are required to complete a total of three (3) Program Electives from DPR/IMM/NET. Recommended DPR/IMM/NET courses to choose from include the following options: DPR 206, DPR 213, DPR 214, DPR 222, DPR 224, DPR 241, IMM 100, IMM 110, IMM 201, IMM 202, NET 115, NET 116, NET 117, NET 230, NET 231, and NET 232. The Computer Science faculty suggest seeing an advisor when selecting elective courses to ensure alignment with career goals.

Total Credits: 62-67
Information Technology, Help Desk/Technical Support, Associate in Applied Science (DPM)

The Help Desk/Technical Support specialization provides students with the necessary skills for employment at a help desk or as a technical support person in a computer environment. The program reflects the growing emphasis on assessment of skills and skill levels. The learning sequence established by this curriculum is designed to prepare students to qualify to take certification examinations including, Net+, Microsoft Office Specialist (MOS), Service Technician (A+), Microsoft Certified Professional (MCP), Novell Certified Netware Administrator (CNA), and Cisco (CCNA).

The Associate in Applied Sciences in the Information Technology (IT) Career Degrees at Delaware County Community College blends the theoretical with the practical. Students are offered a choice of specializations: Computer Programming, Game Development, Help Desk/Technical Support, Interactive Multimedia, Network Engineering, and Web Development. Students have the benefit of classroom or online instruction, dedicated laboratory facilities and participation in co-curricular activities. Students in the IT Career Degrees are required to take program courses and related electives in their specialization as well as four IT core courses. In addition, students are required to take the general education courses listed below:

Upon successful completion of this program, students should be able to:
- Demonstrate proficiency in the use of application software.
- Demonstrate proficiency in the use of integrated office software.
- Communicate effectively using appropriate computer terminology.
- Demonstrate the skills necessary to support customers and troubleshoot microcomputers.
- Install and troubleshoot microcomputers in a networked environment.
- Maintain the hardware and software in a networked environment.
- Discuss the hardware and software needs found in a modern business environment.

First Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to IT</td>
<td>3</td>
</tr>
<tr>
<td>NET 110 - Network Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

| MAT 120 - Modern College Math. | 3 |
| MAT 121 - Introduction to Probability and Statistics | 3 |
| MAT 135 - Business Precalculus | 3 |
| MAT 151 - College Algebra      | 4 |
| MAT 152 - Precalculus         | 4 |
| MAT 160 - Calculus I          | 4 |

Electives
- Social Science/Humanities Elective (choose from any transferable Diversity and Social Justice (DJ) and Global Understanding (GU) designated social science or humanities course (3 credits)

Second Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 105 - Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>DPR 227 - Introduction to PC Support</td>
<td>3</td>
</tr>
<tr>
<td>DPR 228 - PC Repair and Maintenance</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

| COMM 100 - Interpersonal Communication | 3       |
| COMM 111 - Public Speaking             | 3       |

Electives
- Mathematics Elective (3-4 credits)

Information Technology, Interactive Multimedia, Associate in Applied Science (IMM)

The Interactive Multimedia specialization prepares students for the design and development of multimedia programs and websites that combine a variety of audio-visual elements including text, graphics, audio, animation and video. The Interactive Multimedia specialization emphasizes the more popular multimedia development tools and programming languages used in industry today.

The Associate in Applied Sciences in the Information Technology (IT) Career Degrees at Delaware County Community College blends the theoretical with the practical. Students are offered a choice of specializations: Computer Programming, Game Development, Help Desk/Technical Support, Interactive Multimedia, Network Engineering, and Web Development. Students have the benefit of classroom or online instruction, dedicated laboratory facilities and participation in co-curricular activities. Students in the IT Career Degrees are required to take program courses and related electives in their specialization as well as four IT core courses. In addition, students are required to take general education courses.

Upon successful completion of this program, students should be able to:
- Utilize essential steps of the multimedia design and development process including but not limited to needs assessment, target audience profile, media selection, storyboarding, materials development, and evaluation.
- Determine the appropriate hardware, software, and equipment specifications for multimedia programs or websites.
- Use industry standard applications to create text, graphics, audio, animation, and/or video for multimedia programs or websites.
- Use scripting, programming and markup languages required for multimedia programs or websites.
- Create multimedia programs or websites that illustrate appropriate use of text, color, sound, video, and/or interactivity.
- Examine requisite skills and careers related to multimedia and web development.

Notes

Mathematics Elective: Choose second course from one of the following sequences:
- MAT 120 and MAT 121, or MAT 121 and MAT 210, or MAT 135 and MAT 136, or MAT 151 and MAT 151, or MAT 152 and MAT 160, or MAT 160 and MAT 161

Total Credits: 60-64
First Semester (15-16 credits)

Courses Credits
DPR 100 - Introduction to Information Technology 3
IMM 200 - UX Design 3
DPR 101 - Introduction to Computer Science 3
ENG 100 - English Composition I 3

Please pick one of the following courses:
MAT 120 - Modern College Mathematics 3
MAT 121 - Introduction to Probability and Statistics 3
MAT 135 - Business Precalculus 3
MAT 151 - College Algebra 4
MAT 160 - Calculus I 4

Second Semester (15-16 credits)

Courses Credits
ENG 112 - English Composition II: Writing About Literature 3
IMM 110 - Multimedia Graphics & Design 3
NET 110 - Network Communications 3

Please pick one of the following courses:
DPR 110 - Introduction to C++ 3
DPR 104 - Introduction to Java Programming 3

Electives
• Mathematics Elective (3-4 credits)

Third Semester (15 credits)

Courses Credits
IMM 120 - Web Page Design and Development 3
IMM 201 - Audio and Video for Multimedia 3

Please pick one of the following courses:
DPR 210 - Object Oriented C++ 3
DPR 204 - Intermediate Java Programming 3

Electives
• Any transferable Diversity and Social Justice (DJ) and Global Understanding (GU) designated course (3 credits)
• Any transferable Oral Communication (OC) designated course (3 credits)

Fourth Semester (16 credits)

Courses Credits
DPR 241 - Mobile Web Development 3
DPR 250 - Digital Portfolio Development 3

Electives
• DPR course (3 credits)
• Any transferable Scientific Inquiry (SI) designated science course (4 credits)
• Humanities Elective (3 credits)

Notes
Note: Students are required to complete one (1) Program elective from DPR. Recommended DPR courses to choose from include the following options: DPR 206, DPR 213, DPR 214, DPR 222, DPR 224, DPR 234, DPR 236, and DPR 238.

Total Credits: 61-63

Information Technology, Network Engineering, Associate in Applied Science (DPRN)

The Network Engineering option prepares students for employment as networking specialists in the communications industry. The material presented in the Network Engineering curriculum provides students with the knowledge and skills necessary to successfully complete many of the exams required for Computing Technology Industry Association (CompTIA) and Microsoft (MS) certifications.

The Associate in Applied Sciences in the Information Technology (IT) Career Degrees at Delaware County Community College blends the theoretical with the practical. Students are offered a choice of specializations: Computer Programming, Game Development, Help Desk/Technical Support, Interactive Multimedia, Network Engineering and Web Development. Students have the benefit of classroom or online instruction, dedicated laboratory facilities and participation in co-curricular activities. Students in the IT Career Degrees are required to take program courses and related electives in their specialization as well as four IT core courses. In addition, students are required to take the general education courses listed below. Upon successful completion of this program, students should be able to:

• Install and configure a Linux network operating system.
• Install and configure a MS Windows Network operating system.
• Administer, manage, and troubleshoot a Linux operating system.
• Administer, manage, and troubleshoot a MS Windows operating system.
• Analyze, test, and propose solutions for problems relating to network cabling, hubs, servers, workstations, and other physical network devices.
• Analyze, test, and propose solutions relating to network printing.
• Analyze, test, and propose solutions for problems relating to network protocols, including the Internet protocol suite (TCP/IP).

First Semester (16 credits)

Courses Credits
ENG 100 - English Composition I 3
DPR 100 - Introduction to Information Technology 3
NET 110 - Network Communications 3
NET 115 - Microsoft Windows 7 4

Electives
• Social Science Elective (choose from any transferable Diversity and Social Justice (DJ) and Global Understanding (GU) designated social science course (3 credits)

Second Semester (16-17 credits)

Courses Credits
DPR 227 - Introduction to PC Support 3
DPR 228 - PC Repair and Maintenance 3
NET 230 - Network Operating Systems Concepts 4

Please pick one of the following courses:
COMM 100 - Interpersonal Communication 3
COMM 111 - Public Speaking 3

Please pick one of the following courses:
MAT 120 - Modern College Mathematics 3
MAT 121 - Introduction to Probability and Statistics 3
MAT 135 - Business Precalculus 3
MAT 151 - College Algebra 4
MAT 152 - Precalculus 4
MAT 160 - Calculus I 4

Total Credits: 61-63
Third Semester (15 credits)

Courses
IMM 120 - Web Page Design and Development ..............................................3
NET 116 - Managing Microsoft Windows Server 2008 ..................................4
NET 231 - Network Systems Administration ..............................................4

Electives
• Science Elective (choose from any transferable Scientific Inquiry (SI) designated science course (4 credits)

Fourth Semester (17-18 credits)

Courses
NET 117 - Microsoft Window Server 2008 Active Directory ........................4
NET 210 - CISCO Network Support ..........................................................6
NET 242 - Network Security Concepts .....................................................4

Electives
• Mathematics Elective (3-4 credits)

Total Credits: 64-66

Mathematics Elective: Choose second course from one of the following sequences:
MAT 120 and MAT 121, or MAT 135 and MAT 136, or MAT 151 and MAT 152, or
MAT 152 and MAT 160, or MAT 160 and MAT 161.

Information Technology, Web Development, Associate in Applied Science (ITWD)

The Associate in Applied Sciences in the Information Technology (IT) Career Degrees at Delaware County Community College blends the theoretical with the practical. Students are offered a choice of specializations: Computer Programming, Game Development, Help Desk/Technical Support, Interactive Multimedia, Network Engineering and Web Development. The Web Development degree is designed for students interested in pursuing a career as a web professional. Completion of this program option will provide students with the skills needed for entry-level positions as web designers/developers. Concepts covered include information design, network administration, database management, interface design, and programming. Students learn to create websites using current industry standard software and technologies. In addition, students learn how to incorporate media technologies such as sound, video and animation into websites.

Upon successful completion of this program, students should be able to:
• Develop a professional website including graphics design, structural analysis, and data gathering.
• Design and create intuitive, usable interfaces for desktop and mobile devices.
• Create websites using current HTML and CSS standards.
• Create responsive web applications that display appropriately on a variety of mobile, tablet, laptop, and desktop screens.
• Upload files to a web server and update and maintain websites.
• Incorporate scripting languages into web documents to add control and interactive elements.
• Support current Unix systems.

First Semester (15-16 credits)

Courses
ENG 100 - English Composition I ...............................................................3
DPR 100 - Introduction to Information Technology ....................................3
DPR 101 - Introduction to Computer Science ...........................................3

Please pick one of the following courses:
MAT 120 - Modern College Mathematics .................................................3
MAT 121 - Introduction to Probability and Statistics ..................................3
MAT 135 - Business Precalculus ...............................................................3
MAT 151 - College Algebra ........................................................................4

Electives
• Any Diversity and Social Justice and Global Understanding designated course (3 credits)

Second Semester (16-17 credits)

Courses
ENG 112 - English Composition II: Writing About Literature ....................3
IMM 120 - Web Page Design and Development ........................................3
IMM 110 - Multimedia Graphics & Design ..............................................3

Please pick one of the following courses:
MAT 120 - Modern College Mathematics .................................................3
MAT 121 - Introduction to Probability and Statistics ..................................3
MAT 136 - Business Calculus .....................................................................3
MAT 152 - Precalculus ..............................................................................4

Electives
• Any Scientific Inquiry (SI) designated Science course (4 credits)

Third Semester (16 credits)

Courses
DPR 207 - Intro to Oracle:SQL .................................................................4
DPR 241 - Mobile Web Development .......................................................3
NET 110 - Network Communications .......................................................3
DPR 141 - UNIX Operating Systems .......................................................3
DPR 214 - JQuery/JavaScript ...................................................................3

Fourth Semester (13 credits)

Courses
NET 230 - Network Operating Systems Concepts .....................................4
DPR 206 - PHP/MySQL ...........................................................................3
IMM 200 - UX Design .............................................................................3

Electives
• Any Oral Communication designated course (3 credits)

Total Credits: 60-62

Machine Tool Technology, Associate in Applied Science (MTT)

The associate in applied science degree in Machine Tool Technology emphasizes the advanced manufacturing technologies. Students are prepared to work in precision tooling, machining, and manufacturing. Graduates could qualify for positions as machine tool operators; machinists; Computerized Numerically Controlled (CNC) machinists and programmers; Electrical Discharge Machine (EDM) operator/programmers; computer-aided drafting/design and computer-aided machining/manufacturing (CAD-CAM) programmers, toolmakers, mold makers and inspectors.

Upon successful completion of this program, students should be able to:
• Demonstrate knowledge of the processes and operations of conventional/ manual machines; Computer Numerically Controlled (CNC) and Electrical Discharge Machining (EDM) tools and equipment.
• Demonstrate competency in programming and operating Computer Aided Manufacturing (CAM) systems, machines and tool.
• Communicate advanced technological concepts and practices in oral, written, and graphical formats.
• Accurately perform conversions, computations and calculations needed for parts production.
• Demonstrate knowledge of project management processes related to machining operation.
• Demonstrate knowledge in understanding of machine shop safety as well as industry safety principles and practices.

First Semester (17 credits)

Courses  | Credits
---|---
MTT 110 - Print Layout and Measurement for Machining  | 4
MTT 111 - Introduction to Manufacturing  | 3
MTT 112 - Lathe Operations I  | 3
TCC 111 - Technical Communications  | 3

Second Semester (15-16 credits)

Courses  | Credits
---|---
ENG 100 - English Composition I  | 3
MTT 122 - Lathe Operations II  | 3
MTT 124 - Milling Operations I  | 3
MTT 129 - Solids (CAM) Modeling  | 3

Please pick one of the following courses:

MAT 120 - Modern College Mathematics  | 3
MAT 121 - Introduction to Probability and Statistics  | 3
MAT 135 - Business Precalculus  | 3
MAT 151 - College Algebra  | 4

Third Semester (15 credits)

Courses  | Credits
---|---
ENG 112 - English Composition II: Writing About Literature  | 3
MTT 210 - CNC Machine Tool Operations  | 3
MTT 214 - Milling Operations II  | 3
MTT 219 - CAM Solids I  | 3

Electives

• Any Oral Communication (OC) designated course 3 credits

Fourth Semester (17 credits)

Courses  | Credits
---|---
PHY 107 - Technical Physics  | 4
MTT 220 - CNC Programming  | 3
MTT 229 - CAM Solids II  | 3
MTT 230 - Electrical Discharge Machining  | 4

Electives

• Any Diversity and Social Justice (DJ) and Global Understanding (GU) designated Social Science course 3 credits

Total Credits: 64-65

Medical Assistant, Associate in Applied Science (MED)

The Medical Assistant program prepares students as multi-skilled health care workers who function as assistants to physicians and other health care professionals in a variety of ambulatory care settings. The responsibilities of the medical assistant include administrative and clinical duties. The Delaware County Community College Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org), upon the recommendation of the Medical Assisting Education Review Board (MAERB).

Medical assistant applicants are required to take college placement tests in math, reading and English. Any deficiencies must be remedied prior to registering for Medical Assistant Techniques and Practicum I (AHM 106). This course requires departmental approval as students must progress through the curriculum in sequence.

Certain functional abilities that will enable the student to competently perform required technical skills are necessary for successful completion of the Medical Assistant program. Students may be removed from the program for violation of patient safety, confidentiality or behavior incompatible with acceptable standards pending outcome of the appeal process.

In addition to the normal tuition and fees, medical assistant students are required to purchase uniforms, miscellaneous supplies, personal health insurance, and a program package from Certified Background to be cleared for clinical site placement.

All Medical Assistant applicants are required to submit a clear FBI Criminal Background check (which includes fingerprinting), a Criminal Background check and a Child Abuse Clearance form from the state of residency. Students who have been convicted of a prohibitive offense contained in Act 13 and/or Act 169 (a detailed list is available for review in the Admissions and Allied Health Office) may not be able to complete their studies because clinical experiences needed for course/program success may be prohibited. Students must be free of all prohibitive offenses contained in the Act for 10 years prior to the beginning of the externship. Individual situations will be evaluated on a case by case basis. If a student cannot complete their clinical studies, they will not be able to complete the Medical Assistant program. Students who are in the Medical Assistant program are required to immediately divulge any misdemeanor or felony convictions or pending charges [any criminal charges as yet unresolved by the courts] that may occur while in the program to the Medical Assistant Program Director.

Selected clinical externships will be provided in local medical offices under the supervision of the allied health faculty. These externships are work/learning experiences for which the student receives no monetary remuneration or other reimbursement. Students are required to carry liability insurance during the externship period and the cost is included in the tuition.

All medical assistant students will need to have on file the results of a complete physical examination including: laboratory tests, seasonal influenza vaccine, a 10-panel urine drug screen and a two-step Mantoux PPD prior to beginning the clinical externship component of the program. Please refer to the pre-entrance medical record health form requirements from the Program Director. Additionally, students must have medical health insurance for the duration of the externship and be in compliance with recommendations for the Hepatitis B vaccine. Full CPR Certification is required and you must submit a photocopy (both sides) of the CPR Certification Card. For example, an acceptable CPR course is the "BLS" (Basic Life Support) from the American Heart Association which is renewable every two years. Documentation of completion of the above must be on file in the Allied Health, Emergency Services and Nursing Department prior to entering the Medical Assistant Practicum (AHM 199). Additional fees are required to gain clearance for the above clinical site placement.

BIO 150 and BIO 151 can be substituted for AHM 104 and AHM 105.

Medical assistant students are required to sit for the national certification examination offered by the American Association of Medical Assistants (AAMA) at a designated time during enrollment in the Medical Assistant Practicum (AHM 199). The cost of the exam is included in the program’s tuition.

Commission on Accreditation of Allied Health Education Programs
25400 US Highway 19 N, Suite 158
Clearwater, FL 33763
An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a 'C' or better in all AHESN courses.

Upon successful completion of this program, students should be able to:

- Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems.
- Perform the administrative and clinical duties necessary to serve as a medical assistant, assistant to a physician, and other health care professionals.
- Describe the ethical and legal issues associated with the medical assistant profession.
- Communicate effectively with patients and other health care professionals to provide care to patients in an outpatient setting.
- Apply clinical reasoning skills to accurately triage patients with acute and chronic disease processes in the clinical setting.
- Demonstrate an understanding of how to safely prepare and administer proper dosages of medications.
- Demonstrate an understanding of the issues and practices applicable to health information including electronic health records.

First Semester (15 credits)
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 104 - Body Structure and Function I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (12 credits)
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 140 - Professional and Communication Issues in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 102 - Introduction to Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 105 - Body Structure and Function II</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- MAT 120 - Modern College Mathematics | 3 |
- MAT 121 - Introduction to Probability and Statistics | 3 |

Third Semester (14 credits)
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 106 - Medical Assistant Techniques and Practicum I</td>
<td>4</td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 185 - Medical Office Management</td>
<td>4</td>
</tr>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Semester (15 credits)
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 107 - Medical Assistant Techniques and Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>AHM 130 - Medical Coding Concepts for Allied Health</td>
<td>3</td>
</tr>
<tr>
<td>AHM 220 - Applied Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>AHM 208 - Pathophysiology and Pharmacology</td>
<td>4</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- COMM 100 - Interpersonal Communication | 3 |
- COMM 111 - Public Speaking | 3 |
- BUS 130 - Business Communication | 3 |

Fifth Semester (6 credits)
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 199 - Medical Assistant Externship</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 62

Medical Coding and Billing, Associate in Applied Science (MCBA)

The Medical Coding and Billing A.A.S. Degree provides students with the skills necessary to function as Physician-Based Coders, Hospital Coders, or Medical Claims Reviewers. Today, there are many demands for coding specialists and accurately coded data from the medical record in all types of health care institutions. Coded data is used on claims for reimbursement, patient care management, and healthcare evaluation and research. The curriculum includes medical terminology, human anatomy, pathophysiology, pharmacology, administrative medical office management, electronic health records, and CPT and ICD coding. The graduate of this degree may take the Certified Coding Associate (CCA) Certification Exam offered by AHIMA (American Health Information Management Association). After completing CCA exam and/or working in the field, students qualify to take the Certified Coding Specialist (CCS) or Certified Coding Specialist - Physician Based (CCS-P) exam offered by AHIMA.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a 'C' or better in all AHESN courses.

Upon successful completion of this program, students should be able to:

- Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems.
- Describe the ethical and legal concepts of concern as they apply to reimbursement in health care and health information management.
- Apply and identify appropriate coding systems as they pertain to the identification of diagnoses and procedures in medical practices and hospital settings.
- Evaluate the revenue cycle management process.
- Demonstrate ability to successfully complete the necessary health record documentation approved by private and governmental medical reimbursement systems.
- Identify the routes of administration, indications, adverse effects, and related laboratory studies for commonly used medications.
- Explain the disease process and concepts of pain assessment and management.
- Compare and contrast coding specialties to determine similarities and differences of the different body systems.
- Create a portfolio to demonstrate professional skills to enhance marketability for employment.
- Verify documentation in the health record is timely, complete and accurate.
- Define the roles and responsibilities of various providers and disciplines throughout the continuum of healthcare.
- Identify and use secondary data sources.

First Semester (16-18 credits) - Fall
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 104 - Body Structure and Function I</td>
<td>3</td>
</tr>
<tr>
<td>AHM 105 - Body Structure and Function II</td>
<td>3</td>
</tr>
<tr>
<td>AHM 220 - Applied Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes:
BIO 150 and BIO 151 may be taken in place of AHM 104 and AHM 105. The BIO courses are 4 credits each.

Second Semester (16 credits) - Spring
Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 231 - Introduction to CPT Coding</td>
<td>3</td>
</tr>
<tr>
<td>AHM 208 - Pathophysiology and Pharmacology</td>
<td>4</td>
</tr>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- MAT 120 - Modern College Mathematics | 3 |
- MAT 121 - Introduction to Probability and Statistics | 3 |
Students must progress through the curriculum in sequence. All nursing students who have a course with a clinical component will need to have a complete physical examination including: laboratory tests, a complete blood count, a 10 panel drug screen, serology and TB testing. A complete physical examination is required prior to taking the first nursing course. Additionally, these students must have medical health insurance and be in compliance with recommendations for the Hepatitis B vaccine. Certain manual dexterity and sensory skills that enable the student to competently perform required technical skills are necessary for successful completion of the nursing program. Health problems that can interfere with the applicants ability to demonstrate achievement of program competencies are considered individually.

Credits for BIO 150 and BIO 151 must be current within five academic years of the date of beginning the first clinical nursing course and students must achieve a "C" grade in BIO 150 and BIO 151. Any remediation in English and reading must be satisfied before beginning Fundamentals of Nursing (NUS 110). All NUS 110 students must meet a math requirement either by passing a Math Equivalency Test or by passing NUS 102, Nursing Mathematics. It is required that Nursing Mathematics (NUS 102) be taken prior to Nursing 110. NUS 102 requires mathematics at the developmental level (MAT 050).

Students can repeat the following nursing courses (NUS 110, NUS 111, NUS 210 or NUS 211) at a specific level only once! Students who fail or withdraw from a nursing course and wish to repeat said course must: Have a GPA of 2.5 or greater.

The number of times for readmission to the nursing program will be once for each level of the program (either NUS 110 or 111; either NUS 210 or 211). A student will be kept on the readmission waiting list for no longer than three years.

CPR certification is required for all students in the program. You must take "Health Care Provider" (American Heart Association at 610-940-9540, which is renewable every two years) or "Course for the Professional" (American Red Cross at 610-566-4580, which is renewable annually). "BLS" and "Heart Saver" are not acceptable! Certification must be inclusive at the end of May. Certifications that expire prior to May will not be accepted even if recertification prior to May is provided by an employer.

Students are responsible for purchasing uniforms and other related materials deemed necessary for the clinical laboratory experiences of the program. Each semester students are assessed additional costs for standardized tests to compare achievement against national norms. In addition, each student must carry professional liability insurance to protect him/herself and the health agency in the event of any legal action following any error in nursing practice. A $5.00 fee will be added to your tuition bill each semester in which you participate in a clinical experience.

Special Option - Licensed Practical Nurses, corpsmen, and candidates who have had one year of successful previous nursing school experience may qualify for advanced placement in the program. In addition, an advanced placement option is available to LPNs who have graduated from an ACEN accredited program. Contact a counselor in the Assessment Center for additional information.

Program of Study and Graduation Requirements - The degree of associate in applied science is awarded upon successful completion of the nursing course sequence with a grade of "C" or better in all nursing courses; a satisfactory grade for related clinical experiences and satisfactory completion of performance practicums and course requirements; attainment of a grade point average of 2.0 ("C" average) and completion of 71 credit hours. A "C" grade in nursing is equivalent to the numerical grade of 75. Upon successful completion of this program, students should be able to:

- Implement safe and effective patient centered care within the patient’s environment in a variety of settings for diverse populations.
- Use skills of scientific inquiry, analysis, and evidence based knowledge to provide quality patient care.
- Use critical reasoning to offer insights to improve the quality of patient care.
- Use information literacy and technology to communicate, manage knowledge, ensure quality/safety and support decision-making.
- Demonstrate appropriate teambuilding and collaborative strategies when working with interprofessional teams.
- Value the principles of lifelong learning to support excellence in nursing practice.
- Demonstrate effective oral and written communication skills to build relationships with individuals, families and communities.
- Advocate for social justice while fostering quality, safe patient outcomes, demonstrating professional standards for ethical, moral and legal conduct, and supporting diversity and cultural needs.
Paralegal Studies, Associate in Applied Science (PLG)

Paralegal Studies is an associate degree program intended to train a generalist paralegal. Graduates from the associate degree program will have a strong foundation in the areas of legal research and writing, contracts, torts, criminal law, and property law. Associate degree program graduates are likely to find employment as paralegals under the direction of attorneys (to do otherwise would be practicing law without a license) in law firms, legal departments of large corporations, insurance companies, title companies, legal service companies and federal, state or local courts and governmental agencies.

Students who wish to pursue additional education in law or in other disciplines as part of their future plans should consult with an advisor before selecting courses. Upon successful completion of the associate degree program in Paralegal Studies, students should be able to:

- Conduct legal research to identify the appropriate laws, judicial decisions, regulations and other legal literature to specific legal problems, and use critical thinking to analyze results of such research.
- Draft memoranda, briefs, and other legal documents applicable to the field of law being studied.
- Demonstrate knowledge of the paralegal’s role in (i) trial preparation, (ii) trial proceedings, and (iii) settlement negotiations.
- Investigate and develop the facts of a case, maintain relevant case files, and maintain and organize relevant case file documents, such as correspondence, pleadings, reports and briefs.
- Identify and analyze the ethical issues that arise for the Paralegal Professional.
- Apply modern technology to the performance of legal work and tasks.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUS 110 - Concepts and Practice I</td>
<td>8</td>
</tr>
<tr>
<td>BIO 151 - Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>PSY 210 - Lifespan Human Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUS 111 - Concepts and Practice II</td>
<td>10</td>
</tr>
<tr>
<td>NUS 221 - Pharmacology for Health Care</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- Open elective (3 credits)

Third Semester (13 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUS 210 - Concepts and Practice III</td>
<td>10</td>
</tr>
</tbody>
</table>

Electives
- Any Oral Communication designated Communication course (3 credits)

Fourth Semester (13 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUS 211 - Concepts and Practice IV</td>
<td>10</td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes
- Program Electives
- NUS 220 - Clinical Enhancements Skills - 3 credits
- NUS 222 - Holistic Advanced Physical Assessment and Pathophysiology - 3 credits

Total Credits: 71
Paramedic - Advanced Life Support, Associate in Applied Science (EMTP)

The Associate in Applied Science Degree: Paramedic - Advanced Life Support program is designed for individuals who are seeking careers as paramedics. Paramedic careers include 9-1-1 emergency response, inter-facility and critical care transport via ground and aero-medical vehicles. The primary focus of the program is to provide the education, skills and clinical experiences to best prepare the entry level paramedic. The National Emergency Medical Services Education Standards: Paramedic Instructional Guidelines were used in developing the competencies and course content for the Paramedic - Advanced Life Support degree program.

The Delaware County Community College is an accredited Emergency Medical Services Training Institute with the Pennsylvania Department of Health, Bureau of Emergency Medical Services. The program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).

An Associate of Applied Science will be awarded upon completion of the Paramedic-Advanced Life Support curriculum with a 2.0 GPA and a 'C' or better in all Emergency Medical Services (EMTP and EMS) courses, Anatomy and Physiology I (BIO 150), Anatomy and Physiology II (BIO 151), and Nursing Mathematics: Dosage Calculation and Drug Preparation (NUS 102). Students in this degree program must maintain a ‘C’ or better in all EMTP courses and BIO 150 and BIO 151 to remain in the program and must progress through the curriculum in sequence. Students who do not maintain a ‘C’ or better in BIO 150 and BIO 151 and all EMTP courses, in accordance with the program retest policy, will be dismissed from the program and must reapply to the program in a subsequent year.

Students will be allowed a total of one (1) retest for each written or practical final exam. A student is permitted to retest a total of three (3) retests of written or practical final examinations throughout the entire paramedic program. Failure to pass a 4th retest examination (written or practical) will result in dismissal from the Paramedic Program. Students will be allowed one (1) retest for the Program Summative Exam. There will be no opportunity to retest a quiz, group assignment, clinical assignment or research paper.

Upon successful completion of the 40 credits of EMTP and EMS core classes and 8 credits of BIO 150, BIO 151 and NUS 102, with a ‘C’ or better, students are eligible to sit for the National Registry exam to become certified as a Paramedic. This national certification exam consists of twelve psychomotor (skills) stations as well as a computer-based cognitive exam. Completion of the A.A.S. degree does not guarantee the student a National Registry certification as a paramedic.

Students may be dismissed from the program for violation of patient safety, confidentiality or behavior incompatible with acceptable standards pending outcome of the appeal process.

Students are expected to attend all scheduled classes. If a student is absent for more than 24 hours in the ENTIRE program they will be dismissed from the program.

Students wishing to re-enter the program must re-apply.

Students who are accepted into the Paramedic – Advanced Life Support program are required to immediately divulge any misdemeanor or felony convictions that may occur while in the program to the Director of Emergency Services Education. Failure to do so will result in dismissal from the program in accordance with the Department of Health, Bureau of Emergency Medical Services policies. In addition, upon review by the Bureau of Emergency Medical Services, the student may be dismissed from the program and denied paramedic certification.

NOTE: Students who are currently certified Paramedics wishing to obtain the Paramedic – Advanced Life Support A.A.S. degree may be awarded 36 credits for prior learning by DCCC upon evaluation of current documentation as required by the Assessment Center. Students who are awarded the credit for prior learning will be required to take two three-credit Emergency Management and Planning (EMER) courses in lieu of EMS 100.

Students are required to submit the following documentation to the Director of Emergency Services Education by the fourth week of the first spring semester of the program:

- Submit clear Criminal Background checks. Students living in Pennsylvania are required to submit a PA State Police background check as well as a FBI background check. Students living outside Pennsylvania are required to submit a PA State Police background check, a FBI background check and a criminal background check from their state of residence. If student has a prior criminal history, he/she will be required to petition to the PA Bureau of EMS and be approved for admissions prior to acceptance into the Paramedic program. Students with a prior criminal history are encouraged to contact their Regional EMS office to determine their eligibility for state certification as a paramedic.
- Submit a clear Child Abuse background check.
- Successfully complete a physical examination, including drug testing.
- Submit verification of current medical health insurance, which must be maintained throughout the program.
- Be 18 years of age or older
- Be currently certified as a Pennsylvania Emergency Medical Technician or have a reciprocity application in process for PA EMT certification. This certification must be maintained throughout the program.
- Be currently certified as a CPR provider by one of the third-party accreditation bodies approved by the PA Department of Health, Bureau of Emergency Medical Services. This certification must be maintained throughout the program.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a ‘C’ or better in all AHESN courses.

Upon successful completion of this program, students should be able to:

- Demonstrate communication skills.
- Record documentation accurately.
- Perform pharmacology mathematical skills.
- Demonstrate the ability to comprehend, apply, and evaluate clinical information.
- Demonstrate technical proficiency in all skills necessary to fulfill the role of a paramedic.
- Demonstrate personal behaviors consistent with professional and employer expectations.
- Demonstrate proficiency in EKG interpretation, medication administration, intubation procedures and intravenous initiation.
- Demonstrate entry level competencies in all clinical situations.
- Discuss and demonstrate the ability to differentiate the severity of illness.

First Semester (17 credits) - Fall

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 100 - Emergency Medical Technician</td>
<td>9</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 150 - Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>NUS 102 - Nursing Mathematics: Dosage Calculation and Drug Preparation</td>
<td>1</td>
</tr>
</tbody>
</table>

Second Semester (13-14 credits) - Spring

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 151 - Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 111 - Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Any Diversity and Social Justice and Global Understanding designated Humanities or Social Science course 3 credits
- MAT 120 or MAT 121 or any Quantitative Reasoning designated Mathematics course 3-4 credits

Third Semester (6 credits) - Summer I

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 100 - Introduction and Patient Assessment</td>
<td>6</td>
</tr>
</tbody>
</table>
achieve a grade of "C" or better in BIO 150 or BIO 151, ENG 100 and CHE 110.

Students must maintain a GPA of 2.0 to remain in the program. Credits for BIO 150 and BIO 151 must be current within five academic years of the date of beginning the program. Students must demonstrate achievement of program competencies are considered individually. Health problems that can interfere with the applicant's ability to demonstrate achievement of program competencies are considered individually. 

Certain manual dexterity and sensory skills are necessary for successful completion of the Respiratory Therapy program. Health problems that can interfere with the applicant's ability to demonstrate achievement of program competencies are considered individually. 

Students who have been convicted of a prohibitive offense contained in Act 13 and/or ACT 169 (detailed list available for review in the Admissions and Allied Health, Emergency Services and Nursing offices) may not be able to complete their studies because clinical experiences needed for the program success may be prohibited. If a student cannot complete their clinical studies, they will not be accepted into the Respiratory Therapy Program.

In addition to normal tuition and fees, respiratory therapy students are required to purchase uniforms, personal health insurance and other miscellaneous supplies necessary for the clinical experience.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a 'C' or better in all AHSN courses.

Upon successful completion of this program, students should be able to:
- Administer therapeutic medical gases.
- Administer cardiopulmonary resuscitation.
- Provide appropriate mechanical assistance to support respiration when necessary.
- Administer drugs that are given through inhalation procedures.
- Maintain all equipment used in respiratory support.
- Perform diagnostic pulmonary function testing and blood-gas analysis.
- Exercise judgment and accept responsibility in therapeutic procedures based on observation of patients and knowledge of anatomy, physiology, pharmacology and clinical medicine.

### Respiratory Therapy, Associate in Applied Science (RESP)

The mission of the Delaware County Community College/Crozer-Chester Medical Center Advanced-Practitioner level Respiratory Therapy Program is to provide a curriculum where students can develop the competencies and skills essential to deliver safe, effective respiratory care in a variety of health care settings. The Respiratory Therapy curriculum prepares allied health specialists for the management, treatment, testing and care of patients with breathing abnormalities.

Upon completion of the two-year program with a grade of "C" or better in all respiratory therapy courses the degree of associate in applied science is awarded. The graduate is immediately eligible for the Therapist Multiple-Choice Exam. Upon successful completion of this exam, the graduate is eligible to take the Clinical Simulation Exam. When both sections are successfully completed, the Registered Respiratory Therapist credential is awarded. These exams are administered by the National Board for Respiratory Care.

All Respiratory Therapy applicants are required to submit a “Criminal History Record Information Report,” including FBI, Pennsylvania, state of residence, and Child abuse clearance. A positive criminal history report may prevent a graduate from obtaining a Pennsylvania license from the Department of Medicine which is necessary to practice in the field of Respiratory Care.

All Respiratory Therapy students will need to have on file in the Allied Health, Emergency Services and Nursing Department the results of a complete physical examination including: laboratory tests, a complete blood count, a 10 panel drug screen, serology and a two-step Mantoux PPD. Additionally, these students must have personal medical health insurance and be in compliance with recommendations for the Hepatitis B vaccine. Certain manual dexterity and sensory skills are necessary for successful completion of the Respiratory Therapy program. Health problems that can interfere with the applicant’s ability to demonstrate achievement of program competencies are considered individually.

Students must progress through the curriculum in sequence. Students must maintain a GPA of 2.0 to remain in the program. Credits for BIO 150 and BIO 151 must be current within five academic years of the date of beginning the program. Students must achieve a grade of "C" or better in BIO 150 or BIO 151, ENG 100 and CHE 110.

Students who fail or withdraw from a respiratory therapy course and wish to repeat said course must have a GPA of 2.5. Due to the sequential nature of the program, the student must petition for readmission to the program or a Respiratory Therapy course through the Respiratory Therapy department at Crozer-Chester Medical Center (not the College Admission Office). Readmission to the program is on a space available basis and only possible if the student can graduate within two years of his/her initial class graduation. If a student is granted reentry into the program at his/her exit point, an objective evaluation will be used to determine if the placement of the student within the curriculum is appropriate. If a student will be re-entering the program in the sum-

### Fourth Semester (6 credits) - Summer II

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 101 - Pharmacology and Airway Management</td>
<td>6</td>
</tr>
</tbody>
</table>

### Fifth Semester (14 credits) - Fall

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 102 - Trauma Assessment and Management</td>
<td>5</td>
</tr>
<tr>
<td>EMTP 103 - Cardiology</td>
<td>4</td>
</tr>
<tr>
<td>EMTP 104 - Medical Assessment and Management</td>
<td>3</td>
</tr>
<tr>
<td>EMTP 105 - Clinical Rotations I</td>
<td>2</td>
</tr>
</tbody>
</table>

### Sixth Semester (14 credits) - Spring

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 200 - Summative Field Clinical</td>
<td>8</td>
</tr>
<tr>
<td>EMTP 201 - Operations and Special Patient Populations</td>
<td>4</td>
</tr>
<tr>
<td>EMTP 205 - Clinical Rotations II</td>
<td>2</td>
</tr>
</tbody>
</table>

### Total Credits: 70-71

### Respiratory Therapy, Associate in Applied Science (RESP)

The mission of the Delaware County Community College/Crozer-Chester Medical Center Advanced-Practitioner level Respiratory Therapy Program is to provide a curriculum where students can develop the competencies and skills essential to deliver safe, effective respiratory care in a variety of health care settings. The Respiratory Therapy curriculum prepares allied health specialists for the management, treatment, testing and care of patients with breathing abnormalities. 

Upon completion of the two-year program with a grade of "C" or better in all respiratory therapy courses the degree of associate in applied science is awarded. The graduate is immediately eligible for the Therapist Multiple-Choice Exam. Upon successful completion of this exam, the graduate is eligible to take the Clinical Simulation Exam. When both sections are successfully completed, the Registered Respiratory Therapist credential is awarded. These exams are administered by the National Board for Respiratory Care.

All Respiratory Therapy applicants are required to submit a “Criminal History Record Information Report,” including FBI, Pennsylvania, state of residence, and Child abuse clearance. A positive criminal history report may prevent a graduate from obtaining a Pennsylvania license from the Department of Medicine which is necessary to practice in the field of Respiratory Care.

All Respiratory Therapy students will need to have on file in the Allied Health, Emergency Services and Nursing Department the results of a complete physical examination including: laboratory tests, a complete blood count, a 10 panel drug screen, serology and a two-step Mantoux PPD. Additionally, these students must have personal medical health insurance and be in compliance with recommendations for the Hepatitis B vaccine. Certain manual dexterity and sensory skills are necessary for successful completion of the Respiratory Therapy program. Health problems that can interfere with the applicant’s ability to demonstrate achievement of program competencies are considered individually.

Students must progress through the curriculum in sequence. Students must maintain a GPA of 2.0 to remain in the program. Credits for BIO 150 and BIO 151 must be current within five academic years of the date of beginning the program. Students must achieve a grade of "C" or better in BIO 150 or BIO 151, ENG 100 and CHE 110.

Students who fail or withdraw from a respiratory therapy course and wish to repeat said course must have a GPA of 2.5. Due to the sequential nature of the program, the student must petition for readmission to the program or a Respiratory Therapy course through the Respiratory Therapy department at Crozer-Chester Medical Center (not the College Admission Office). Readmission to the program is on a space available basis and only possible if the student can graduate within two years of his/her initial class graduation. If a student is granted reentry into the program at his/her exit point, an objective evaluation will be used to determine if the placement of the student within the curriculum is appropriate. If a student will be re-entering the program in the sum-

### First Semester (10-11 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 110 - General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- MAT 128 - Algebra | 3 |
- MAT 135 - Business Precalculus | 3 |
- MAT 151 - College Algebra | 4 |
- MAT 152 - Precalculus | 4 |
- MAT 160 - Calculus I | 4 |

### Second Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 110 - Respiratory Therapy Principles and Practicum I</td>
<td>8</td>
</tr>
<tr>
<td>BIO 150 - Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- COMM 100 - Interpersonal Communication | 3 |
- COMM 111 - Public Speaking | 3 |
### Skilled Trades, Associate in Applied Science (SKTR)

The Skilled Trades Program is designed to serve individuals who have a background or interest in pursuing a skilled trade such as automotive, electrical, plumbing, heating, ventilation and air conditioning, carpentry and welding and who desire to advance their career, through continued education, into a supervisory or management role. The program provides for up to 30 credits to be awarded toward the Associate in Applied Science Degree for a trade or technical certificate completed at the college, and may include equivalent work or training experiences assessed as Credit for Prior Learning. The curriculum includes general education courses that will strengthen communication, problem solving and critical thinking skills essential to career advancement.

Upon successful completion of this program, students should be able to:
- Build on acquired technical skills required in a relevant skilled trade.
- Communicate in an effective and professional manner both verbally and in writing.
- Apply the knowledge of mathematics to skilled trades problems.
- Develop skills for supervising work in a skilled trade work environment.
- Demonstrate mastery of required industry safety and health standards and practices.

<table>
<thead>
<tr>
<th>Third Semester (15 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 102 - Respiratory Therapy Principles II</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>RTH 103 - Respiratory Therapy Practicum II</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BIO 151 - Human Anatomy and Physiology II</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Any Diversity and Social Justice and Global Understanding designated course (3 credits)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth Semester (5 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 104 - Respiratory Therapy Summer Clinical I</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fifth Semester (6 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 105 - Respiratory Therapy Summer Clinical II</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>AHI 220 - Applied Microbiology</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sixth Semester (11 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 200 - Respiratory Therapy Principles III</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>RTH 201 - Respiratory Therapy Clinical Practicum III</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>RTH 204 - Pulmonary Pathophysiology Clinical Rounds I</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seventh Semester (11 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 202 - Respiratory Therapy Principles IV</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>RTH 203 - Respiratory Therapy Practicum IV</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>RTH 205 - Pulmonary Pathophysiology Clinical Rounds II</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eighth Semester (4 credits)</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTH 206 - Respiratory Therapy Summer Clinical III</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 77-78

**First Semester (17 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>CHE 101 - Introduction to General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>TCC 111 - Technical Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- MAT 128 - Algebra
- MAT 151 - College Algebra

**Electives**

- Skilled Trades Elective (3 credits)

**Second Semester (15-16 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

**Please pick one of the following courses:**

- MAT 120 - Modern College Mathematics
- MAT 121 - Introduction to Probability and Statistics
- MAT 135 - Business Precalculus
- MAT 151 - College Algebra
- MAT 152 - Precalculus

**Electives**

- Any Oral Communication designated course (3 credits)
- Any Diversity and Social Justice and Global Understanding designated Social Science course (3 credits)
- Skilled Trades Elective (3 credits)

**Third Semester (15 credits)**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCS 108 - Construction Supervision</td>
<td>3</td>
</tr>
<tr>
<td>TCS 141 - Construction First Aid/Safety</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

- (3) Skilled Trades Electives (9 credits)

**Fourth Semester (15 credits)**

**Electives**

- (5) Skilled Trades Elective (15 credits)

**Notes**

**Skilled Trade Electives:**

- Select 30 credits of courses from AUT, CPT, ELT, HVA, PLB, TCC or WLD, as well as OCS 102, TCS 100.

(Recommended: Establish an “Area of Concentration” by following prescribed Skilled Trades Certificate programs)

Total Credits: 62-63
Surgical Technology, Associate in Applied Science (ORT)

The goal of this Surgical Technology program is to prepare students with the opportunity to develop the skills and knowledge necessary to gain employment as entry-level surgical technologists and become contributing members of the health care team to function under the supervision of professional registered nurses or licensed physicians. This will be accomplished by (1) preparing competent graduates in the cognitive, psychomotor, and affective learning domains and (2) meeting or exceeding the criteria set forth in the current Commission on Accreditation of Allied Health Education Program (CAAHEP) Standards and Guidelines for the Accreditation of Educational Programs in Surgical Technology. The program includes courses in general and technical education. Selected clinical experiences are provided in local hospitals under the supervision of a member of the surgical technology clinical faculty. The Surgical Technology program is accredited by CAAHEP, 25400 US Highway 19 N, Suite 158, Clearwater, FL 33763 Phone: 727-210-2350, Fax: 727-210-2354.

All Surgical Technology applicants are required to submit a "Criminal History Record Information Report," Federal Criminal History Report (FBI) and a Child Abuse Clearance form. An applicant with any history of conviction of a misdemeanor or felony crime or pending charges [any criminal misdemeanor or felony charges as yet unresolved by the courts] cannot be placed in the position of working in a health care environment and may not petition for acceptance to the Surgical Technology Program.

Students who are not free of convictions of a prohibitive offense prior to petitioning may not be able to complete their studies because clinical experiences needed for course/program success may be prohibited. If a student cannot complete their clinical studies, they will not be accepted into the Surgical Technology Program.

This program prepares graduates for beginning level positions in the operating room, central processing department, dialysis unit, ambulatory surgery center, endoscopy or interventional procedure unit. In addition to normal tuition and fees, the surgical technology student is required to purchase regulation shoes. Students who fail or withdraw from a surgical technology course and want to repeat that course must:

- Have a GPA of 2.5.
- Petition for readmission through the Surgical Technology department, not the College Admissions office. Students may repeat the surgical technology courses only once. Students may "wait out" of the program only a total of three years beginning with the last semester attended in surgical technology.

All Surgical Technology students who have a course with a clinical component will need to have on file the results of a complete physical examination including: laboratory tests, a complete blood count, serology, a 10-panel drug screen, and TB testing. A complete physical examination is required of all Surgical Technology students prior to starting the first surgical technology courses (AHS 100 and 101). Additionally, students must have medical health insurance and be in compliance with recommendations for the Hepatitis B vaccine. Students are responsible for their own transportation to and from the clinical area. Full CPR certification is required for all students before entry into clinical courses. Students must submit a photocopy (both sides) of "Health Care Provider" or "Course for the Professional", (which is renewable every two years) prior to the first day of class. Certification must be inclusive from September 1 through August 1 of each year. Certain manual dexterity and sensory skills that enable the student to competently perform required technical skills are necessary for successful completion of the Surgical Technology program. Health problems that can interfere with the applicant's ability to demonstrate achievement of program competencies are considered individually.

An associate in applied science degree will be awarded upon successful completion of the required program with a "C" or better in all surgical technology courses. Students may be dismissed from the program for violation of patient safety and/or behavior inconsistent with professional standards pending the outcome of the appeal process.

Upon completion of all required course in the program and immediately following successful completion of AHS 200 and AHS 201, each student is required to sit, with their cohort for the National Certification Examination for Surgical Technologists offered by the National Board of Surgical Technology (NBSTSA) as a condition of program graduation without exception. Students are required to complete Certification Exam application and fee by mid-term of AHS 102 and 103 to progress to AHS 200 and 201.

To complete the Delaware County Community College Surgical Technology Program, Surgical Technology students are required to complete 120 surgical cases. 30 cases are required to be in General Surgery. 90 procedures may be in various surgical specialties. An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a "C" or better in all AHESN courses.

Upon successful completion of this program, students should be able to:

- Identify the preoperative patient care concepts and nonsterile and sterile responsibilities of the surgical technologist in the care of surgical patient during preoperative case management.
- Apply intraoperative patient care concepts during basic, intermediate and advanced surgical interventions.
- Actively engage in the nonsterile and sterile responsibilities of the surgical technologist in the intraoperative care of the surgical patient.
- Identify the postoperative patient care concepts and nonsterile and sterile responsibilities of the surgical technologist during postoperative case management.
- Integrate concepts of professional management, self-management and workplace management into the role of the surgical technologist.

First Semester (16-17 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHS 220 - Applied Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>PSY 140 - General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>SOC 110 - Introduction to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 150 - Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>AHM 104 - Body Structure and Function I</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (15-16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>COMM 100 - Interpersonal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 151 - Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>AHM 105 - Body Structure and Function II</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

- Humanities Elective (3 credits)

Third Semester (13 credits)

Fall only and Acceptance of petition for Admission

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHS 100 - Surgical Technology I</td>
<td>5</td>
</tr>
<tr>
<td>AHS 101 - Surgical Technology Practicum I</td>
<td>5</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Semester (10 credits) - Spring Only

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHS 102 - Surgical Technology II</td>
<td>4</td>
</tr>
<tr>
<td>AHS 103 - Surgical Technology Practicum II</td>
<td>6</td>
</tr>
</tbody>
</table>

Fifth Semester (7 credits) - Summer I Only

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHS 200 - Surgical Technology III</td>
<td>1</td>
</tr>
<tr>
<td>AHS 201 - Surgical Technology Practicum III</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 61-63
Technical Studies, Associate in Applied Science (TSTU)

The Technical Studies degree program is designed to provide recognition for work and life experience while assisting individuals in their preparation for career advancement or change. This program is designed to provide skills for personal, professional and community improvement. The program is highly individualized and flexible. As many as 20 credits may be awarded for work and life experience including military experience, trade/proprietary school preparation, apprenticeship programs, structured on-the-job training and the like. Graduates will be awarded the associate in applied science degree upon successful completion of this program. Technical Studies has been designed as a first-degree program and therefore cannot be pursued as a second degree at DCCC.

Upon successful completion of this program, students should be able to:
• Develop a plan designed to accomplish a personal/professional goal.
• Demonstrate increased technical knowledge and skills.
• Demonstrate the mathematical skills necessary for personal and career growth.
• Apply scientific principles and concepts to problem-solving.
• Communicate in an effective and professional manner both verbally and in writing.

First Semester (21-31 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MAT 128 - Algebra</td>
<td>4</td>
</tr>
<tr>
<td>CHE 101 - Introduction to General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>TEC 280 - Technical Study Assessment</td>
<td>1-5</td>
</tr>
<tr>
<td>TEC 281 - Technical Study Assessment</td>
<td>1-5</td>
</tr>
<tr>
<td>TEC 282 - Technical Study Assessment</td>
<td>1-5</td>
</tr>
<tr>
<td>TEC 283 - Technical Study Assessment</td>
<td>1-5</td>
</tr>
</tbody>
</table>

Notes
May take TEC 282 and/or TEC 283 (5-10 credits). Students receive TEC credits based on Prior Learning Assessment.

Second Semester (9-10 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCC 111 - Technical Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- COMM 100 - Interpersonal Communication | 3 |
- COMM 111 - Public Speaking | 3 |

Please pick one of the following courses:
- MAT 120 - Modern College Mathematics | 3 |
- MAT 121 - Introduction to Probability and Statistics | 3 |
- MAT 135 - Business Precalculus | 3 |
- MAT 151 - College Algebra | 4 |

Notes
May take TEC 282 and/or TEC 283. (5-10 credits). Students receive TEC credits based on Prior Learning Assessment.

Third Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 - English Composition II: Writing About Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- HIS 110 - American History I | 3 |
- HIS 120 - American History II | 3 |
- HIS 150 - World Civilizations I | 3 |
- HIS 160 - World Civilizations II | 3 |

Electives
- Program Elective (3 credits)
- Program Elective and/or BCSS Electives (6 credits)

Fourth Semester (11-15 credits)

Electives
- Program Elective and/or BCSS Elective (5-9 for at least 61 total program credits)

Notes
Program Electives: Choose from ARC, AUT, CPT, ELT, HVA, IST, MTT, PCT, PLB, TCC, TCS, TDD, TEL, TME, or WLD
BCSS Electives from BUS, DPR, PSY, or SOC

Personal Education Plan (PEP) Component: in consultation with a Technical Studies advisor, a student may select other approved courses to fulfill the Humanities elective.
Mathematics Elective requires consultation with a Technical Studies advisor.
In consultation with a Technical Studies advisor, a student may select other approved courses to fulfill the Social Science elective.

Total Credits: 61-67
Accounting (Professional), Certificate (ACC)

This program is designed for qualified college graduates interested in a career in accounting. The demand for qualified people in public accounting is great. Advancement in the field is limited only by the individual’s ability and is very rapid for the highly qualified. This program offers students the specific education needed to sit for the Certified Public Accountant’s examination. Those individuals without a bachelor’s degree may enroll in this program, however, the bachelor’s degree is required to sit for the CPA exam.

Upon successful completion of this program, students should be able to:
- Explain the importance of recognizing, measuring and reporting income and the content, purposes and limitations of a balance sheet.
- Identify and explain the accounting significance of transactions and events that cause the balance in owner’s equity to change.
- Discuss the environmental factors and underlying theoretical structures related to the accounting discipline.
- Develop an audit program and perform each of the steps in that program.
- Discuss the ethical considerations facing the professional accountant in today’s business environment.

This program requires 18 to 19 credits of course work consisting of four core courses (12 credits) and two elective courses (6 credits). Students who lack adequate foundation courses are required to take the following courses:

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 251 - Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACC 252 - Intermediate Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ACC 253 - Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC 254 - Auditing</td>
<td>3</td>
</tr>
</tbody>
</table>

Program Electives

<table>
<thead>
<tr>
<th>Program Electives</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 120 - Computerized Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ACC 121 - Federal Income Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 220 - Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 243 - Legal Environment of Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes


Total Credits: 25

Automotive Technology I, Certificate (AUT)

This certificate is designed to prepare the student for entry level positions in the occupational specialty of automotive technician. The Certificate of Competency in Automotive Technology I will be awarded upon successful completion of the minimum competencies as outlined below. Program completers will be prepared to seek positions as entry-level automotive service technicians and automotive mechanics.

Upon successful completion of this program, the student should be able to:
- Identify tool and equipment nomenclature.
- Adhere to tool safety regulations.
- Explain the Occupational Safety and Health Act (OSHA) and the “right to know”.
- Utilize electronic and service manuals.
- Define the overview of the automobile and its major components.
- Install electronic pollution controls.
- Test, service and repair electronic pollution controls requirements.
- Repair electronic braking systems.
- Explain testing, service and repair requirements for electronic braking systems.
- Identify electronic controlled trip computers.
- Install warning, security, and sound systems.
- Prepare engines for removal. Disassemble, inspect, and clean engine parts.
- Inspect and measure crankshaft.
- Install bearing, pistons, piston rings, and crankshaft.
- Perform reconditioning of valve seats and valve stem seals.
- Remove the camshaft. Install timing components, gears chain, and belts.
- Inspect and service oil pumps.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT 100 - Introduction to Automotive Service Operation and Shop Practices</td>
<td>2</td>
</tr>
<tr>
<td>AUT 101 - Automotive Electricity and Electronics</td>
<td>4</td>
</tr>
<tr>
<td>AUT 102 - Automotive Engines</td>
<td>4</td>
</tr>
<tr>
<td>AUT 103 - Brake Systems</td>
<td>4</td>
</tr>
<tr>
<td>AUT 114 - Steering and Suspension</td>
<td>4</td>
</tr>
<tr>
<td>AUT 115 - Fuel I and II</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 20

Automotive Technology II, Certificate (AUTC)

This certificate is designed to prepare the student for above entry-level positions in the automotive service industry. The Certificate of Competency in Automotive Technology II will be awarded upon successful completion of the competencies outlined below.

Upon successful completion of this program, the student should be able to:
- Define OBD (On-Board Diagnostics).
- Utilize testing tools to retrieve malfunction codes from the computer system.
- Identify importance of emission controls and emission control procedures.
- Test input sensors, and actuator sensors.
- Identify EGR (Exhaust, Gas, and Recirculation) Systems.
- Measure, assemble and install new parts as required.
- Differentiate between 4-wheel drive and all-wheel drive vehicles.
- Service 4-wheel drive and all-wheel drive vehicles.
- Identify hydraulic systems.
- Remove, overhaul and reinstall transmission/transaxle in vehicles.
- Restore units back to manufacturer’s specifications.
- Demonstrate using two or more O2 sensors.
- Solve case studies of vehicle engine parts and malfunctions.
- Utilize AC and DC test instruments.
- Recognize delayed lighting and running lamps.
- Install and repair automatic locks, security and anti-theft devices.
- Install and repair radios and speakers systems.
- Replace and repair electronic heat grids on rear windows.
- Utilize automatic vehicle leveling systems.
Required Courses | Credits
--- | ---
AUT 121 - Engine Performance | 3
AUT 201 - Automotive Chassis and Security Systems | 2
AUT 150 - Air Conditioning | 2
AUT 151 - Ignition Systems | 2
AUT 152 - Computer and Emissions Systems | 3
AUT 153 - Automotive Manual Transmission/Transaxle and Chassis | 3
AUT 200 - Automotive Automatic Transmission/Transaxle | 4
AUT 123 - Power Train Controls | 2

Total Credits: 21

Carpentry (Residential), Certificate of Proficiency (CPT)

This certificate is designed to prepare the student for entry-level positions in the occupational specialty of residential carpentry. Students are offered learning experiences in the basics of blueprint reading, design concepts as well as the building, installing, and repairing residential structures.

Upon successful completion of this certificate, students should be able to:
- Demonstrate knowledge of the different structural components of residential buildings.
- Demonstrate basic competencies in preparing and presenting construction drawings and designs.
- Read and interpret blueprints, building plans and specifications.
- Demonstrate skills constructing structures and their components parts.
- Demonstrate technical skills required to install and finish interiors or exteriors.
- Demonstrate understanding and competencies of energy efficient construction.
- Apply the knowledge of mathematics to carpentry tasks.
- Demonstrate knowledge of safety practices.

First Semester (14 credits)

Courses | Credits
--- | ---
TME 115 - Basic Technical Skills | 3
TCS 105 - Workplace Safety | 2
CPT 102 - Carpentry Fundamentals | 3
CPT 105 - Framing and Roofing | 3
TCS 100 - Construction Blueprint Reading | 3

Second Semester (16 credits)

Courses | Credits
--- | ---
CPT 110 - Exterior Finishing | 3
CPT 115 - Interior Finishing | 3
CPT 120 - Energy Efficiency | 2
OCS 102 - International Code Council (Uniform Construction Code) | 3
TCC 112 - CADD Graphics | 3

Please pick one of the following courses:
- CPT 194 - Carpentry Co-Op Internship (1 credit) | 2
- AUT 100 - Introduction to Automotive Service Operations and Shop Practices | 2
- HVA 100 - Introduction to Heating, Ventilating, Air Conditioning and Refrigeration Electrical Fabrication | 2
- WLD 100 - Introduction to Welding | 2

Total Credits: 30

Child Development Associate, Certificate of Competency (ECA)

The Child Development Associate Certificate of Competency (ECA) is intended for students who wish to earn the national Child Development Associate Credential (CDA) from the Council for Professional Recognition. Earning the national credential will prepare the student for entry-level positions in early care and education programs. The ECA certificate meets the required professional development for earning the CDA and prepares the student to complete their Professional Portfolio and Resource file. There are optional internships available to assist the student in acquiring the 480 hours of professional experience required to earn the CDA. There are additional requirements for assessment that are outside the scope of this certificate. See the Council for Professional Recognition website for more information on earning the CDA, www.cdacouncil.org.

The ECA Certificate seamlessly articulates into the Associate of Arts in Early Childhood Education program of study.

Upon successful completion of this certificate, students should be able to:
- Identify the characteristics of a safe, healthy learning environment
- Describe how child development, curriculum and assessment interact to advance children’s physical and intellectual competence
- Describe positive guidance strategies to support social and emotional development
- Describe strategies to establish positive and productive relationships with families
- Describe how professionals contribute to a well-run, purposeful program responsive to participant needs
- Articulate a commitment to professionalism

First Semester (3 credits)

Courses | Credits
--- | ---
ECE 100 - Principles of Early Childhood Education | 3

Second Semester (3 credits)

Courses | Credits
--- | ---
ECE 130 - Early Childhood Development | 3

Third Semester (4 credits)

Courses | Credits
--- | ---
ECE 110 - Infant/Toddler Care and Education | 4
ECE 140 - Integrated Curriculum and Assessment | 3

Fourth Semester (0-10 (optional) credits)

Courses | Credits
--- | ---
ECE 120 - Early Childhood Education Laboratory I | 4
ECE 190 - ECE Internship (1 credit) | 1
ECE 194 - ECE Internship (2 credits) | 2
ECE 199 - ECE Internship (3 credits) | 3

Total Credits: 10-20

CNC Programming - Lathe & Mill, Certificate of Proficiency (CNC)

This certificate is designed to prepare students for Computer Numerical Control (CNC) machining and is also ideal for students who need to upgrade prior machine shop training to comply with the current needs of industry. Students learn the techniques, hardware, software menus and computer system practices associated with a Computer-Aided Machining/Distributed Numerical Control (CAM/DNC) system to manually write, save, retrieve and transfer CNC machine tool programs. The curriculum is designed to prepare students to sit for NIMS certification upon completion of the program. NIMS
(National Institute for Metalworking Skills) credentials signifies a person can perform the work of a CNC Machine Operator according to recognized national standards. Upon successful completion of this program, students should be able to:

• Perform basic Computer Numerical Control (CNC) programming, set up and operations of CNC, conventional machine tools, precision tools and general tools.
• Demonstrate knowledge of print reading.
• Use mathematical knowledge to solve machining problems.
• Develop, document and implement project plan for machining parts.
• Demonstrate effective communication skills.
• Demonstrate an understanding of safety principles and practices used in modern machining facilities.

First Semester (14 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 128 - Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MTT 110 - Print Layout and Measurement for Machining</td>
<td>4</td>
</tr>
<tr>
<td>MTT 111 - Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>MTT 112 - Lathe Operations I</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (12-13 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTT 122 - Lathe Operations II</td>
<td>3</td>
</tr>
<tr>
<td>MTT 124 - Milling Operations I</td>
<td>3</td>
</tr>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>MTT 210 - CNC Machine Tool Operations</td>
<td>3</td>
</tr>
<tr>
<td>TME 210 - CNC Operations</td>
<td>3</td>
</tr>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 135 - Business Pre calculus</td>
<td>3</td>
</tr>
<tr>
<td>MAT 151 - College Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

Third Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTT 214 - Milling Operations II</td>
<td>3</td>
</tr>
<tr>
<td>MTT 220 - CNC Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 32-33

Computer-Aided Drafting, Certificate of Competency (DDTC)

In this program, students will learn to manage computer systems for drawing production, information storage, retrieval and communication in the engineering and design workplace. As they develop computer aided drafting skills, they will explore manufacturing, mechanical, and architectural engineering and construction applications.

This program is intended, primarily, to serve as computer training for individuals who have previous experience as manual "board" drafters and who already possess a working knowledge of technical drawings. However, though there is no requirement of prior technical experience, individuals desiring an elementary introduction to the fields of engineering drafting, and design will be well served by this curriculum.

Students may, through the use of specified course alternatives, choose to pursue a basic 2D option with added emphasis in elementary blueprint reading and construction applications, or a 3D parametric modeling option with emphasis on advanced software features and mechanical / manufacturing applications.

All credits earned in this certificate are applicable to the Associate of Applied Science Degree in Computer Aided Drafting and Design.

Upon successful completion of this program, students should be able to:

• Create two- and three-dimensional technical design models and drawings to document solutions for defined customer problems.
• Use CAD tools in applying the principles of descriptive geometry and the techniques of graphic construction to the process of documenting design intent.
• Execute computer generated plane and 3D geometric forms, as well as object viewing techniques, to describe and present a design concept.
• Apply CAD tools and techniques in the execution of working, multiview, assembly and 3D model drawings.

First Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTT 129 - Solids (CAM) Modeling</td>
<td>3</td>
</tr>
<tr>
<td>MTT 219 - CAM Solids I</td>
<td>3</td>
</tr>
<tr>
<td>MTT 229 - CAM Solids II</td>
<td>3</td>
</tr>
<tr>
<td>MTT 230 - Electrical Discharge Machining</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives

• MTT/199

Total Credits: 16

Computer-Aided Machining Lathe, Mill and EDM, Certificate (CAM)

This advanced certificate is designed for students who have completed the CNC Programming-Lathe and Mill Certificate and also have prior machining experience. The Program prepares the student for entry-level positions in the occupational specialty of Computer Aided Manufacturing/Machining in Lathe, Mill and EDM programming and operations. Concepts covered in the program include CAM as a design, management and operational tool, principles of EDM technology, and production utilizing EDM equipment. The students will learn how to maximize efficiencies and effectiveness via software and equipment integration. Departmental approval is required to enroll in the Program.

Upon successful completion of this program, students should be able to:

• Interact with hardware/software in order to create and manipulate various views as a means for appropriately displaying a model.
• Plan and demonstrate steps for creating and modifying (manufactured) part models.
• Structure a plan for approaching multi-part, same set-up, tool path generation for difficult to machine piece-parts.
• Generate tool paths for creating cross drilling, face contouring, and c-axis contours on mill-turn machine tool.
• Set-up and operate a ram and a wire EDM machine tool in order to achieve desired inspection/quality characteristics on a finished part.
• Utilize CAM software programming options to modify cutting parameters and settings, part geometry at various points on a contour.

First Semester (15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCC 112 - CADD Graphics</td>
<td>3</td>
</tr>
<tr>
<td>TCC 121 - Project Management Processes</td>
<td>3</td>
</tr>
<tr>
<td>TCC 122 - 2-D CADD</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCS 100 - Construction Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>ARC 121 - Architectural Graphics I</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDD 216 - Three-dimensional CADD</td>
<td>3</td>
</tr>
<tr>
<td>TDD 227 - Advanced CADD</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15
Construction Supervision, Certificate (CSUP)

The Construction Supervision program is designed for individuals with an established background in the construction trades who are seeking advancement to supervisory leadership positions. The core courses will develop an appreciation of the importance of good communication skills, human relations skills, and the fundamental challenges of achieving organizational goals through the efforts of others. Emphasis is placed on understanding the legal, contractual and organizational practices that form the basis of an effective construction organization. The Construction Supervision electives provide an additional component of focused activity relevant to the students particular trade background and professional goals. Typical job titles serviced by this curriculum include Construction Foreman, Construction Group Leader and Site Superintendent.

Upon successful completion of this program, the student should be able to:

- Manipulate technical information related to methods and materials of construction.
- Explain the functions of standard construction documents and procedures.
- Follow a standard protocol for the preparation of project data.
- Discuss characteristics of effective leadership in achieving results through the effort of others.
- Track time duration information for the completion of an activity.
- Explain the application of common laws and regulations pertaining to job-site activity.
- Define the elements of effective human relations on the job site.
- Identify the specific components of a site management system.
- Describe the critical elements of a job site safety program.
- Define construction closeout procedures.

**First Semester (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCC 111 - Technical Communications</td>
<td>3</td>
</tr>
<tr>
<td>TCS 100 - Construction Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>TCS 108 - Construction Supervision</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

- Construction Supervision Elective 3 Credits

**Second Semester (13 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCC 112 - CADD Graphics</td>
<td>3</td>
</tr>
<tr>
<td>TCC 121 - Project Management Processes</td>
<td>3</td>
</tr>
<tr>
<td>TCC 122 - 2-D CADD</td>
<td>3</td>
</tr>
<tr>
<td>TCS 111 - Technical Communications</td>
<td>3</td>
</tr>
<tr>
<td>TCC 112 - CADD Graphics</td>
<td>3</td>
</tr>
<tr>
<td>TCS 131 - Estimating I</td>
<td>3</td>
</tr>
<tr>
<td>TCS 132 - Estimating II</td>
<td>3</td>
</tr>
<tr>
<td>TCS 221 - Construction Survey and Layout</td>
<td>3</td>
</tr>
<tr>
<td>ARC 121 - Architectural Graphics I</td>
<td>3</td>
</tr>
<tr>
<td>ARC 226 - Mechanical and Electrical Systems in Buildings</td>
<td>3</td>
</tr>
<tr>
<td>TME 216 - Statics and Strength of Material</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Electives**

- Construction Supervision Elective 3 Credits

**Total Credits: 27**

Culinary Arts, Certificate of Competency (CUL)

The Culinary Arts Certificate of Competency prepares students for employment in various segments of the foodservice industry in positions such as restaurant chef, banquet chef, sous chef, kitchen manager, production cook, line cook and prep cook. The certificate includes courses providing skill development in kitchen lab courses, and is designed for a student who either wants to enter the field of Culinary Arts or pursue the Culinary Arts Associate in Applied Science Degree.

Upon successful completion of this certificate, students should be able to:

- Demonstrate knowledge and use of foodservice and culinary terminology.
- Exhibit the ability to identify various food products and their common uses.
- Demonstrate various cooking methods and appropriate presentation techniques.
- Demonstrate the ability to properly use and care for professional foodservice equipment and culinary tools.
- Exhibit ability to produce various ethnic and regional cuisines.
- Demonstrate the ability to apply principles of good nutrition in producing foods that meet consumer demands.
- Demonstrate knowledge of safe food handling practices and prepare students for food handlers' sanitation certification.
- Demonstrate accepted practices and procedures required for planning, operation and record keeping as applied in a restaurant, catering or food service operation.

**First Semester (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM 110 - Food Sanitation and Safety Supervision</td>
<td>3</td>
</tr>
<tr>
<td>CUL 115 - Professional Cooking I</td>
<td>3</td>
</tr>
<tr>
<td>CUL 150 - Baking and Pastry Foundations I</td>
<td>3</td>
</tr>
<tr>
<td>CUL 210 - Foodservice Purchasing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUL 220 - Nutrition and the Hospitality Industry</td>
<td>3</td>
</tr>
<tr>
<td>CUL 230 - Professional Cooking II</td>
<td>3</td>
</tr>
<tr>
<td>CUL 151 - Baking and Pastry Foundations II</td>
<td>3</td>
</tr>
<tr>
<td>CUL 215 - Menu Planning and Cost Control</td>
<td>3</td>
</tr>
</tbody>
</table>

**Third Semester (3 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUL 232 - International Cuisine</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits: 27**

Early Childhood Director, Certificate (ECD)

The Early Childhood Director Certificate of Competency from Delaware County Community College will prepare students for administrative and leadership positions in early care and education programs. Coursework will cover strategies for program administration, understanding of financial management and current issues facing early care and education programs. This certificate of competency also meets the educational requirements for Pennsylvania’s Director Credential that is awarded by the Pennsylvania Early Learning Keys to Quality. Students seeking this certificate must have an AAS or AS in ECE or related field or higher OR have completed 45 hours towards an AAS degree in Early Childhood Education.

Upon successful completion of this program, students should be able to:

- Develop leadership skills to enhance the student’s ability to effectively manage an early childhood program.
- Utilize governmental regulations and best practice guidelines to improve the quality of early care and education services.
- Evaluate current administrative strategies and develop more effective management skills.
• Identify and implement sound and proven business and financial management strategies.
• Identify current trends in early care and education and develop strategies for effectively implementing program policy to address these trends.
• Evaluate current practices in supervision of teaching staff and develop strategies to enhance the staff’s skill in providing high quality early care and education.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 290 - Administration and Supervision of Early Care and Education</td>
<td>3</td>
</tr>
<tr>
<td>ECE 291 - Current Issues and Trends in Early Care and Education</td>
<td>3</td>
</tr>
<tr>
<td>ECE 293 - Financial Strategies for the Business of Early Care and Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Electro-Mechanical Technologies, Certificate of Competency (ELTC)

Electro-Mechanical Technologies program is designed to prepare students for employment as electro-mechanical technicians who assemble, install, troubleshoot, and/or repair mechanical, electrical and fluid power systems. The program includes instruction in electrical controls and programmable controllers, manufacturing and operational testing, as well as system analysis and maintenance procedures.

Upon successful completion of this certificate, students should be able to:
• Demonstrate understanding and applications of AC/DC Electrical Theories.
• Demonstrate an understanding of electrical controls and programmable controllers.
• Demonstrate a working knowledge of the functions of components and devices used in mechanical, electrical and fluid power systems.
• Apply principles, knowledge and analysis skills in troubleshooting, repairing and maintaining mechanical, electrical and fluid power systems.
• Demonstrate computational skills to solve problems related to mechanical, electrical, electronic, and fluid power systems.

First Semester (14-15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL 101 - D C Analysis</td>
<td>4</td>
</tr>
<tr>
<td>TEL 110 - Electronics I</td>
<td>4</td>
</tr>
<tr>
<td>IST 105 - Industrial Systems Interpretations</td>
<td>3</td>
</tr>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>MTT 108 - Mathematics for Occupational Technologies</td>
<td>3</td>
</tr>
<tr>
<td>MAT 128 - Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

Notes

This program is offered in two schedules: Early College Enrollment and regular College Open Enrollment.

In the Open Enrollment Schedule, TEL 101 and TEL 110 are offered in sequence in accelerated format.

In the Early College Enrollment Schedule, students take MTT 108 in 11th Grade and MAT 128 in 12th Grade.

Second Semester (13-14 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL 102 - A C Analysis</td>
<td>4</td>
</tr>
<tr>
<td>TEL 200 - Electro and Mechanical Systems</td>
<td>3</td>
</tr>
<tr>
<td>ELT 204 - Introduction to Programmable Logic Controllers</td>
<td>3</td>
</tr>
<tr>
<td>Please pick one of the following courses:</td>
<td></td>
</tr>
<tr>
<td>TME 115 - Basic Technical Skills</td>
<td>3</td>
</tr>
<tr>
<td>MAT 128 - Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 27-28

Heating, Ventilation, Air Conditioning, Refrigeration, Certificate (HVA)

The Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC&R) occupations program prepares graduates for employment with HVAC&R installation and service contractors and/or facilities maintenance positions. Students completing the program also receive EPA Refrigerant Certification. Having achieved the competencies of this program, students are prepared for full-time employment at an entry-level position or, if already in the fields, to advance in their organization.

Upon successful completion of program requirements, students should be able to:
• Demonstrate knowledge of the principles, properties and functions of residential and light commercial HVAC&R components and systems.
• Use appropriate tools and materials to size, install, service and/or repair HVAC&R equipment and systems.
• Interpret and use pressure and vacuum charts, blueprints and wiring diagrams for HVAC&R systems.
• Troubleshoot and diagnose malfunctions in HVAC&R systems.
• Use computational skills to solve problems in electrical, heating, air conditioning and refrigeration systems.
• Employ occupational health and safety principles and practices.

First Semester (14 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVA 100 - Introduction to Heating, Ventilating, Air Conditioning and Refrigeration Electrical Fabrication</td>
<td>2</td>
</tr>
<tr>
<td>HVA 101 - Introduction to Refrigeration and Air Conditioning</td>
<td>2</td>
</tr>
<tr>
<td>HVA 103 - Advanced Refrigeration and Air Conditioning</td>
<td>2</td>
</tr>
<tr>
<td>HVA 104 - Practical Problems in Mathematics for HVAC&amp;R Technicians</td>
<td>3</td>
</tr>
<tr>
<td>HVA 200 - Advanced HVAC&amp;R Electrical Fabrication</td>
<td>2</td>
</tr>
<tr>
<td>HVA 201 - Refrigerant Certification</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (10 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVA 106 - Basic Piping for Contractors</td>
<td>2</td>
</tr>
<tr>
<td>HVA 202 - Oil and Gas Burner Service</td>
<td>2</td>
</tr>
<tr>
<td>HVA 203 - Heat Pumps</td>
<td>3</td>
</tr>
<tr>
<td>HVA 204 - Blueprint Reading for HVAC</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 24
Human Resource Management, Certificate (CHRM)

According to the 21st Century Report published by Columbia University, human resource management is the second most important indispensable component of corporate performance and competitive advantage today. (The first is strategic planning in which human resource management plays a vital role.) Today's rapidly changing business environment is forcing organizations to face many challenges such as workforce diversity, downsizing, shortages of skilled workers in the service industry, and the evolving roles of work and families. The ability to manage people and processes is essential for successful careers in all levels and types of organizations. Organizations realize that to be successful in today's complex business environment, they must have productive, motivated people. This program provides students with the theories, principles and skills necessary to find, develop and motivate today's excellent workforce.

This program is designed for those individuals interested in careers in management as well as those currently working in the field of human resource management. It is also designed for those individuals interested in people relations and general management. The focus of the program will be on developing a thorough understanding of the human resource processes of training, employee relations, staffing, and compensation and benefits.

Upon successful completion of the program, students should be able to:

- Demonstrate knowledge and skills in the functional areas of management and leadership including planning, organizing, controlling, problems solving and motivation.
- Demonstrate knowledge and skills in the specialized areas of human resource management including staffing, performance management, employee relations and commitment, compensation and employee development.
- Develop a personal leadership style based on situational, individual and organizational characteristics.
- Develop and implement human resource policies and practices concerning staffing, performance management, employee relations and commitment, compensation and employee development.
- Develop and implement organization change programs and policies.
- Explain and apply organizational behavior and management theories as the basis for effective management practice and policies.
- Develop career objectives and plans in the fields of general management and human resource management.

Information Technology, Web Programming, Certificate of Competency (CSWP)

The Web Programming Certificate is intended to prepare students to be an entry-level web developer or for further study in computer programming or web development. A junior-level web developer works within a team to create the vision for a client's website often utilizing design skills, HTML, CSS, and JavaScript. It is the job of the junior-level programmer to develop, troubleshooting and debug software programs. The Web Programming certificate emphasizes the more popular object-oriented programming languages as well as web development tools and techniques used in business today.

- Apply analytical skills to assess how to solve problems.
- Apply the process of software development including design, implementation, documentation and testing.
- Develop web applications using industry standard development tools, techniques, scripting, and mark-up languages.
- Demonstrate a working knowledge of standard HTML, CSS and responsive web design.

<table>
<thead>
<tr>
<th>First Semester (28 credits) Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 246 - Teamwork</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>INT 100 - Student Success</td>
<td>3</td>
</tr>
<tr>
<td>MAT 128 - Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MTT 108 - Mathematics for Occupational Technologies</td>
<td>3</td>
</tr>
<tr>
<td>MTT 213 - Manufacturing Processes</td>
<td>3</td>
</tr>
<tr>
<td>PCT 110 - Safety, Health and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>TCC 111 - Technical Communications</td>
<td>3</td>
</tr>
<tr>
<td>TME 115 - Basic Technical Skills</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 28

Industrial Production Technician, Certificate of Proficiency (IPT)

This program is designed to provide the student with skills and knowledge relevant for preparation and advancement within entry-level positions of employment as production workers, operators, helper trainees, or helpers in varied fields of employment in industry. The program is structured to also afford a currently employed student/worker (as well as employers) with a means for developing an opportunity to explore new job responsibilities, as well as to enhance current job skills and knowledge within a company. This effort will be designed to provide an opportunity for the individual to be better prepared to avail themselves of career advancement opportunities as they are encountered. The program provides for a formalized integration of collegiate level course work, and at the same time, compliments this education with formalized College Sponsored Experienced Learning (CSEL) “on-the-job” (OJT) learning/training. Experiential learning will consist of a formally structured training plan, having been developed with a respective employer, and an appropriately identified college advisor, as well as the student.

 Upon successful completion of this program, students should be able to:

- Assimilate personal, and diverse group job assignment activities in a meaningful way, for personal and work related decision making.
- Combine classroom learning with OJT experiences in order to become a more effective and efficient worker, as well as to demonstrate an ability to learn on the job; and, apply progressive thinking.
- Establish personal and workplace objectives, and develop a personal plan for goals attainment within the workplace.
- Identify personal and workplace objectives, and develop a personal plan for goals attainment within the workplace.
- Discuss aspects of workplace health, safety, and the environment.
- Demonstrate note taking techniques, applicable to specific workplace skills and knowledge.
- Complete written reports and record-keeping activities, to include job related observations, and evaluations.
- Perform basic mathematical calculations relevant to problem solving in industry.
- Relate varied processes typically found in an industrial production/manufacturing environment.

<table>
<thead>
<tr>
<th>First Semester (3 credits) Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 101 - Introduction to Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 104 - Introduction to Java Programming</td>
<td>3</td>
</tr>
<tr>
<td>IMM 120 - Web Page Design and Development</td>
<td>3</td>
</tr>
</tbody>
</table>
Third Semester (9 credits)

Courses | Credits
--|---
DPR 241 - Mobile Web Development | 3

Total Credits: 18

Interactive Multimedia, Certificate (IMMC)

The Interactive Multimedia Certificate prepares students for the design and development of multimedia programs and websites that combine a variety of audiovisual elements including text, graphics, audio, animation, and video.

Upon successful completion of this certificate, students should be able to:
- Utilize essential steps of the multimedia design and development process.
- Determine the appropriate hardware, software, and equipment specifications/networked environment for multimedia programs or websites.
- Use industry standard applications to create one or more media elements for multimedia programs or websites.
- Create multimedia programs or websites that illustrate appropriate use of text, color, sound, video, and/or interactivity.

First Semester (6 credits)

Courses | Credits
--|---
DPR 101 - Introduction to Computer Science | 3

Please pick one of the following courses:
DPR 121 - Game Art and Animation | 3
CS 121 - Game Art and Animation | 3

Second Semester (6 credits)

Courses | Credits
--|---
IMM 110 - Multimedia Graphics & Design | 3
IMM 120 - Web Page Design and Development | 3

Third Semester (6 credits)

Courses | Credits
--|---
IMM 201 - Audio and Video for Multimedia | 3

Please pick one of the following courses:
IMM 200 - UX Design | 3
CS 200 - UX Design | 3

Total Credits: 31

Medical Assistant, Certificate of Proficiency (CMED)

The Medical Assistant program prepares students as multi-skilled health care workers who function as assistants to physicians and other health care professionals in a variety of ambulatory care settings. The responsibilities of the medical assistant include administrative and clinical duties. The Delaware County Community College Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.cahep.org), upon the recommendation of the Medical Assistant Education Review Board (MAERB).

Medical assistant applicants are required to take college placement tests in math, reading and English. Any deficiencies must be remedied prior to registering for Medical Assistant Techniques and Practicum I (AHM 106). This course requires departmental approval as students must progress through the curriculum in sequence.

Certain functional abilities that will enable the student to competently perform required technical skills are necessary for successful completion of the Medical Assistant program. Students may be removed from the program for violation of patient safety, confidentiality or behavior incompatible with acceptable standards pending outcome of the appeal process.

In addition to the normal tuition and fees, medical assistant students are required to purchase uniforms, miscellaneous supplies, personal health insurance, and a program package from Castle Branch to be cleared for clinical site placement.

All Medical Assistant applicants are required to submit a clear FBI Criminal Background check (which includes fingerprinting), a Criminal Background check and a Child Abuse Clearance form from the state of residency. Students who have been convicted of a prohibitive offense contained in Act 13 and/or Act 169 (a detailed list is available for review in the Admissions and Allied Health Offices) may not be able to complete their studies because clinical experiences needed for course/program success may be prohibited. Students must be free of all prohibitive offenses contained in the Act for 10 years prior to the beginning of the externship. Individual situations will be evaluated on a case by case basis. If a student cannot complete their clinical studies, they will not be able to complete the Medical Assistant program. Students who are in the Medical Assistant program are required to immediately divulge any misdemeanor or felony convictions or pending
charges [any criminal charges as yet unresolved by the courts] that may occur while in the program to the Medical Assistant Program Director.

Selected clinical externships will be provided in local medical offices under the supervision of the allied health faculty. These externships are work/learning experiences for which the student receives no monetary remuneration or other reimbursement. Students are required to carry liability insurance during the externship period and the cost is included in the tuition.

All medical assistant students will need to have on file the results of a complete physical examination including: laboratory tests, seasonal influenza vaccine, a 10-panel urine drug screen and a two-step Mantoux PPD prior to beginning the clinical externship component of the program. Please refer to the pre-entrance medical record health form requirements from the Program Director. Additionally, students must have medical health insurance for the duration of the externship and be in compliance with recommendations for the Hepatitis B vaccine. Full CPR Certification is required and you must submit a photocopy (both sides) of the CPR Certification Card. For example, an acceptable CPR course is the “BLS” (Basic Life Support) from the (American Heart Association) which is renewable every two years.

Documentation of completion of the above must be on file in the Allied Health, Emergency Services and Nursing Department prior to entering the Medical Assistant Practicum (AHM 199). Additional fees are required to gain clearance for the above clinical site placement.

A Medical Assistant, Certificate of Proficiency will be awarded upon successful completion of the required program with a 2.0 G.P.A. and a ‘C’ or better in all allied health courses (AHM and AHA).

BIO 150 and BIO 151 can be substituted for AHM 104 and AHM 105.

Medical assistant students are required to sit for the national certification examination offered by the American Association of Medical Assistants (AAMA) at a designated time during enrollment in the Medical Assistant Practicum (AHM 199). The cost of the exam is included in the program’s tuition.

Commission on Accreditation of Allied Health Education Programs 25400 US Highway 19 N, Suite 158 Clearwater, FL 33763 727-210-2350 www.caahep.org

Upon successful completion of the curriculum, the student should be able to:

• Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems
• Perform the administrative and clinical duties necessary to serve as a medical assistant, assistant to a physician, and other health care professionals.
• Describe the ethical and legal issues associated with the medical assistant profession.
• Communicate effectively with patients and other health care professionals to provide care to patients in an outpatient setting.
• Apply clinical reasoning skills to accurately triage patients with acute and chronic disease processes in the clinical setting.
• Demonstrate an understanding of how to safely prepare and administer proper dosages of medications.
• Demonstrate an understanding of the issues and practices applicable to health information including electronic health records.

First Semester (16 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 104 - Body Structure and Function I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>AHM 106 - Medical Assistant Techniques and Practicum I</td>
<td>4</td>
</tr>
</tbody>
</table>

Second Semester (14 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 105 - Body Structure and Function II</td>
<td>3</td>
</tr>
<tr>
<td>AHM 107 - Medical Assistant Techniques and Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>AHM 130 - Medical Coding Concepts for Allied Health</td>
<td>3</td>
</tr>
<tr>
<td>AHM 220 - Applied Microbiology</td>
<td>1</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

- COMM 100 - Interpersonal Communication       3
- COMM 111 - Public Speaking                   3
- BUS 130 - Business Communication             3

Third Semester (7 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 140 - Professional and Communication Issues in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 185 - Medical Office Management</td>
<td>4</td>
</tr>
</tbody>
</table>

Fourth Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 199 - Medical Assistant Externship</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 43

Medical Billing, Certificate (MB)

The Medical Billing 19 college-credit certificate program provides students with the skills necessary to function as medical billers for all types of health care institutions. The curriculum includes medical terminology, health informatics, analysis of coded data used on claims for reimbursement, and principles of medical billing.

A Certificate of Competency in Medical Billing will be awarded upon completion of this curriculum with a 2.0 GPA and a ‘C’ or better in all allied health courses.

Upon successful completion of this program, the student should be able to:

• Correctly code procedures and diagnoses using correct medical terminology and correct ICD and CPT codes.
• Describe legal and ethical issues involved in medical billing.
• List different types of health insurance carriers and the reimbursement systems for each.
• Complete health insurance related forms and financial reports.
• Describe the follow up process with insurance companies and patients regarding unpaid bills.
• Describe the major health care organizations and agencies and their role in the health care delivery system.

First Semester (9 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AHM 102 - Introduction to Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (7 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 130 - Medical Coding Concepts for Allied Health</td>
<td>3</td>
</tr>
<tr>
<td>AHM 185 - Medical Office Management</td>
<td>4</td>
</tr>
</tbody>
</table>

Third Semester (3 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 241 - Revenue Cycle Management and Reimbursement Methodologies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 19
Medical Coding and Billing, Certificate (MC)

The Medical Coding and Billing Certificate of Proficiency provides students with the skills necessary to function as Physician-Based Coders, Hospital Coders, or Medical Claims Reviewers. Today, there are many demands for coding specialists and accurately coded data from the medical record in all types of health care institutions. Coded data is used on claims for reimbursement, patient care management, and healthcare evaluation and research. The curriculum includes medical terminology, human anatomy, pathophysiology, pharmacology, administrative medical office management, electronic health records, and CPT and ICD-10-CM coding and ICD-10-PCS coding.

The graduate of this certificate may sit for the Certified Coding Associate (CCA) certification offered by AHIMA (American Health Information Management Association). After completing CCA exam and/or working in the field, students qualify to take the Certified Coding Specialist (CCS) or Certified Coding Specialist - Physician Based (CCS-P) exam offered by AHIMA.

A Certificate of Proficiency in Medical Coding and Billing will be awarded upon completion of this curriculum with a 2.0 GPA and a ‘C’ or better in all Allied Health (AHA, AHM) courses, which is a departmental requirement of the Allied Health, Emergency Services and Nursing Department. The courses are listed with a start date of Spring semester but students may begin courses in Fall, Spring, or Summer semesters.

Upon successful completion of this program, students should be able to:

- Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems.
- Describe the ethical and legal concepts of concern as they apply to reimbursement in health care and health information management.
- Apply appropriate coding systems as they pertain to the identification of diseases and procedures in medical practices and hospital settings.
- Evaluate coding to ensure maximum reimbursement and compare and contrast coding specialties to determine similarities and differences amongst different body systems.
- Explain the disease process and concepts of pain assessment and management.
- Demonstrate ability to successfully complete the necessary health record documentation approved by private and government medical reimbursement systems and evaluate the revenue cycle management process.
- Verify documentation in the health record is timely, complete and accurate and use secondary data sources.
- Create a portfolio to demonstrate professional skills to enhance marketability for employment.

### First Semester (12 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 104 - Body Structure and Function I</td>
<td>3</td>
</tr>
<tr>
<td>AHM 105 - Body Structure and Function II</td>
<td>3</td>
</tr>
<tr>
<td>AHM 233 - Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 - English Composition I</td>
<td>3</td>
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</tbody>
</table>

### Second Semester (13 credits)

<table>
<thead>
<tr>
<th>Courses</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AHM 102 - Introduction to Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 208 - Pathophysiology and Pharmacology</td>
<td>4</td>
</tr>
<tr>
<td>AHM 231 - Introduction to CPT Coding</td>
<td>3</td>
</tr>
<tr>
<td>DPR 100 - Introduction to Information Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

### Third Semester (12 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 140 - Professional and Communication Issues in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>AHM 202 - Fundamentals of Health Information Technology Science</td>
<td>3</td>
</tr>
<tr>
<td>AHM 232 - Advanced CPT Coding</td>
<td>3</td>
</tr>
<tr>
<td>AHM 239 - Introduction to ICD-10-CM Coding</td>
<td>3</td>
</tr>
</tbody>
</table>

### Fourth Semester (9 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHA 207 - Ethical/Legal Aspects of Health Care Management</td>
<td>3</td>
</tr>
<tr>
<td>AHM 240 - Hospital Coding and Case Studies</td>
<td>3</td>
</tr>
<tr>
<td>AHM 241 - Revenue Cycle Management and Reimbursement Methodologies</td>
<td>3</td>
</tr>
</tbody>
</table>

### Fifth Semester (3 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHM 242 - Virtual Professional Practice Experience Capstone Course</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits: 49**

The Men’s Basketball team practices before a game.
Municipal Police Academy, Certificate (MPT)

All students successfully completing this certificate will earn thirty-six (36) credits, an ACT 120 certificate and be eligible to begin work as a Municipal Police Officer. Upon successful completion of this program, the student should be able to:

- Define reportable and non-reportable, traffic and non-traffic motor vehicle collisions.
- Apply appropriate provisions of the Motor Vehicle Code to specific factual situations.
- Define and identify major provisions of the Controlled Substance Act pertinent to their enforcement capacity.
- Define and identify major provisions of the Controlled Substance Act pertinent to their enforcement capacity.
- Define and apply standard accepted principles of police patrol.
- Delineate Miranda-warning requirements.
- Define a preliminary investigation.
- Apply principles of preliminary, crime site and follow-up investigation.
- Apply principles of interview and interrogation.
- Differentiate criminal investigation from civil investigation.
- Identify the impact of role awareness, reference groups and motivation of human behavior.
- Describe Constitutional and other legal requirements for arresting an individual or taking the individual into custody.
- Demonstrate procedures required for arrest of individuals and for searches of those taken into custody.
- Delineate unique problems involved in the detention of mentally ill, emotionally unstable and physically handicapped individuals.
- Illustrate proper procedures for use of pistols, shotguns and holsters.
- Operate police vehicles under normal and emergency circumstances.
- Describe the officer's responsibilities for civil and/or criminal penalty in case of police vehicle accident.
- Illustrate written reports and note-taking skills.
- Apply principles of emergency medical care to crisis situations.
- List emergency medical problems confronted by police officers.
- Describe various violent and dangerous situations, more particularly those involving domestic disputes, mentally ill individuals and violent criminals.
- Identify proper procedure to handcuff suspects or prisoners.

First Semester (23 credits)

**Courses** | **Credits**
--- | ---
MPT 100 - Introduction to Law Enforcement | 2
MPT 101 - Professional Development | 4
MPT 102 - Law and Procedures | 3
MPT 104 - Vehicle Code | 2
MPT 106 - Patrol Procedures and Operations | 3
MPT 107 - Principles of Criminal Investigation | 3
MPT 204 - Firearms | 3
MPT 207 - Emergency Response Training | 3

Second Semester (11 credits)

**Courses** | **Credits**
--- | ---
MPT 202 - Crisis Management | 2
MPT 205 - Operation of Patrol Vehicles | 2
MPT 206 - Report Writing and Case Preparation | 2
MPT 208 - Handling Arrested Persons | 1

Total Credits: 36

Network Engineering, Certificate of Competency (NETC)

This certificate option will provide students with a knowledge base and skill set aimed at exposing students to various types of computers and networking devices, network connectivity and communications, current industry standard client and server operating systems, and networking security concepts. The program is designed to prepare students for entry-level employment as Networking Support Technicians. Students will learn the components that make up a computing system and network, along with also learning how to utilize industry standard applications, operating systems, troubleshooting utilities, and security related hardware and software. The program will provide students with necessary skills allowing them to use and troubleshoot common applications and their problems, install and configure current industry standard operating systems, connect computers together through LAN and WAN technologies and devices, and provide an understanding of how to apply and implement secure network administration procedures and policies.

Upon successful completion of this program, students should be able to:

- Describe how the components of a computer system function
- Install and configure Windows 7
- Describe various network service and standards
- Install and configure Windows Server 2008
- Implement secure networks administration procedures

First Semester (7 credits)

**Courses** | **Credits**
--- | ---
DPR 100 - Introduction to Information Technology | 3
NET 115 - Microsoft Windows 7 | 4

Second Semester (11 credits)

**Courses** | **Credits**
--- | ---
NET 110 - Network Communications | 3
NET 116 - Managing Microsoft Windows Server 2008 | 4
NET 242 - Network Security Concepts | 4

Total Credits: 18

Office Administration, Certificate of Competency (OAC)

The Office Administration Certificate is best suited for those who seek to develop both hard and soft skills essential to work efficiently and effectively in today's modern office environment. Participants will gain practical experience implementing Microsoft Office applications including Word, Excel, Access and PowerPoint on a Microsoft Windows platform. In addition to the practical aspects of this program, emphasis is placed upon preparing graduates for positions in professional and public sector employment. Upon completion of the certificate requirements, students will be able to continue their studies in pursuing an Associate in Applied Science degree in General Business (BGEN).

Upon successful completion of this certificate, students should be able to:

- Communicate effectively and professionally implementing varied mediums (memorandums, letters, reports, presentations, spreadsheets, agendas, itineraries, electronic communication) using integrated office productivity software.
• Employ ethical practices, professional etiquette, and critical thinking to solve problems that arise in a contemporary office environment.
• Search and evaluate information in a variety of platforms.
• Use effective interpersonal skills to assist the completion of individual and team tasks.
• Demonstrate an understanding of various careers in business.

First Semester (12 credits)

Courses Credits
ENG 100 - English Composition I ........................................... 3
BUS 100 - Introduction to Business ........................................ 3
DPR 100 - Introduction to Information Technology .................... 3
DPR 111 - Computer Applications ........................................... 3

Second Semester (6 credits)

Courses Credits
BUS 130 - Business Communication ...................................... 3

Electives
• ACC/BUS/CS/DPR elective (3 credits)

Total Credits: 18

Paralegal Studies, Certificate of Proficiency (CPLG)

The Paralegal Studies, Certificate of Proficiency Program can only be completed by individuals who hold an associate or bachelor’s degree, as this is an advanced certificate. If you do not hold one of these degrees, we invite you to select our Associates in Applied Science, Paralegal Studies.

This program is approved by The American Bar Association (ABA). The Certificate in Paralegal Studies is intended to provide graduates with a strong foundation in the areas of legal research and writing, contracts, torts, criminal law, and property law. Graduates are likely to find employment as paralegals under the direction of attorneys (to do otherwise would be practicing law without a license) in law firms, legal departments of large corporations, insurance companies, title companies, legal service companies and federal, state or local courts and governmental agencies.

Unauthorized Practice Law: No person shall engage or assist a person who is not a member of the bar in the performance of activities that constitute the unauthorized practice of law. If you do not hold one of these degrees, we invite you to select our Associates in Applied Science, Paralegal Studies.

Use effective interpersonal skills to assist the completion of individual and team tasks.

First Semester (12 credits)

Courses Credits
PLG 100 - Introduction to the Paralegal Profession .................. 3
PLG 110 - Legal Research and Writing I ............................... 3
PLG 130 - Technology in the Law ......................................... 3
PLG 240 - Criminal Law and Procedure ................................ 3

Second Semester (12 credits)

Courses Credits
PLG 120 - Legal Research and Writing II ............................... 3
PLG 140 - Contract Law .................................................... 3
PLG 220 - Real Estate Law ................................................ 3

Electives
• PLG Elective (3 credits)

Third Semester (6-7 credits)

Courses Credits
PLG 210 - Civil Litigation and Tort Principles ......................... 3

Please pick one of the following courses:
• PLG 199 - Paralegal Experience and Legal Ethics .................. 4
• PLG 197 - Paralegal Practicum and Legal Ethics .................... 3

Fourth Semester (6 credits)

Courses Credits
PLG 211 - Civil Litigation and Tort Applications ..................... 3
ACC 100 - Applied Accounting ............................................ 3

Total Credits: 36-37

Paramedic, Certificate of Proficiency (MEDX)

The Paramedic, Certificate of Proficiency is designed for individuals who are seeking careers as paramedics. Paramedic careers include 9-1-1 emergency response, inter-facility and critical care transport via ground and aero-medical vehicles. The primary focus of the program is to provide the education, skills and clinical experiences to prepare the entry level paramedic for employment. The National Emergency Medical Services Education Standards: Paramedic Instructional Guidelines were used in developing the competencies and course content.

The Delaware County Community College is an accredited Emergency Medical Services Training Institute with the Pennsylvania Department of Health, Bureau of Emergency Medical Services. The program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP). A Certificate of Proficiency will be awarded upon completion of the Paramedic program to students who maintain a 2.0 GPA or better and earn a “C” or better in all EMTP classes. Students who do not maintain a “C” or better in all EMTP courses, in accordance with the program retest policy, will be dismissed from the program and must reapply to the program in a subsequent year. Students will be allowed a total of one (1) retest for each written or practical final exam. A student is permitted to retest a total of three (3) retests of written or practical final examinations throughout the entire paramedic program. Failure to pass a 4th retest examination (written or practical) will result in dismissal from the Paramedic Program. Students will be allowed one (1) retest for the Program Summative Exam. There will be no opportunity to retest a quiz, group assignment, clinical assignment or research paper.

Upon successful completion of the 40 credits of EMTP courses with a “C” or better, students are eligible to sit for the National Registry exam to become certified as a Paramedic. This national certification exam consists of twelve psychomotor (skills) stations as well as a computer-based cognitive exam. Completion of the certificate of proficiency does not guarantee the student a National Registry certification as a paramedic.

Students may be dismissed from the program for violation of patient safety, confidentiality or behavior incompatible with acceptable standards pending outcome of the appeal process.

Students are expected to attend all scheduled classes. If a student is absent for more than 24 hours in the ENTIRE program they will be dismissed from the program. Students wishing to re-enter the program must re-apply.
Students who are accepted into the Paramedic, Certificate of Proficiency program are required to immediately divulge any misdemeanor or felony convictions that may occur while in the program to the Director of Emergency Services Education. Failure to do so will result in dismissal from the program in accordance with the Department of Health, Bureau of Emergency Medical Services policies. In addition, upon review by the Bureau of Emergency Medical Services, the student may be dismissed from the program and denied paramedic certification.

A certificate will be awarded upon completion of the program with a 2.0 GPA and a ‘C’ or better in all AHESN courses.

Students are required to submit the following documentation to the Director of Emergency Services Education in order to be considered for the certificate of proficiency no later than the second week of February in the year they are applying:

• Submit clear Criminal Background checks.

Students living in Pennsylvania are required to submit a PA State Police background check as well as a FBI background check.

Students living outside Pennsylvania are required to submit a PA State Police background check, a FBI background check and a criminal background check from their state of residence.

If the student has a prior criminal history, he/she will be required to petition to the PA Bureau of EMS and be approved for admissions prior to acceptance into the Paramedic program.

Students with a prior criminal history are encouraged to contact their Regional EMS office to determine their eligibility for state certification as a paramedic.

Submit a clear Child Abuse background check.

Successfully complete a physical examination, including drug testing, by the students' physician using the physical form provided by DCCC.

Submit verification of current medical health insurance, which must be maintained throughout the program.

Be 18 years of age or older.

Be currently certified as a Pennsylvania Emergency Medical Technician (without restrictions or administrative actions) or have a reciprocity application in process or PA EMT certification. This certification must be maintained throughout the program.

Provide verifiable documentation of 25 patient interactions. This document must be submitted no later than the second week in February in the year you are applying.

Be currently certified as a CPR provider by one of the third-party accreditation bodies approved by the PA Department of Health, Bureau of Emergency Medical Services. This certification must be maintained throughout the program.

Upon successful completion of this certificate, students should be able to:

• Demonstrate communication skills.
• Record documentation accurately.
• Perform pharmacology mathematical skills.
• Demonstrate the ability to comprehend, apply, and evaluate clinical information.
• Demonstrate technical proficiency in all skills necessary to fulfill the role of a paramedic.
• Demonstrate personal behaviors consistent with professional and employer expectations.
• Demonstrate proficiency in EKG interpretation, medication administration, intubation procedures and intravenous initiation.
• Demonstrate entry level competencies in all clinical situations.
• Discuss and demonstrate the ability to differentiate the severity of illness.

### First Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 100 - Introduction and Patient Assessment</td>
<td>6</td>
</tr>
</tbody>
</table>

### Second Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 101 - Pharmacology and Airway Management</td>
<td>6</td>
</tr>
</tbody>
</table>

### Third Semester (14 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 102 - Trauma Assessment and Management</td>
<td>5</td>
</tr>
<tr>
<td>EMTP 103 - Cardiology</td>
<td>4</td>
</tr>
<tr>
<td>EMTP 104 - Medical Assessment and Management</td>
<td>3</td>
</tr>
<tr>
<td>EMTP 105 - Clinical Rotations I</td>
<td>2</td>
</tr>
</tbody>
</table>

### Fourth Semester (14 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMTP 200 - Summative Field Clinical</td>
<td>8</td>
</tr>
<tr>
<td>EMTP 201 - Operations and Special Patient Populations</td>
<td>4</td>
</tr>
<tr>
<td>EMTP 205 - Clinical Rotations II</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits: 40**

### Perioperative Nursing, Certificate of Competency (NURP)

The knowledge and techniques necessary to assume responsibilities of the perioperative nurse are emphasized in this broad-based yet comprehensive orientation to the operating room and the perioperative role. Standards of patient care in the operating room are explored and identified. Assessment of patient needs and implementation of nursing interventions are emphasized. Collaborative decision making is reviewed relative to total intraoperative care. Subject material guides the learner to provide for and contribute to patient safety through control of internal and external environment, biological testing and product evaluation, as well as to assist the patient with the management of anxiety through the principles of biological, physical and social sciences. The College recognizes the standards of perioperative nursing practice of the Association of periOperative Registered Nurses (AORN) as the conceptual basis of specialty practice in the operating room. All levels of registered nurses may attend the perioperative nursing classes with a current, valid nursing license in the state in which they will perform their perioperative nursing practice. NCLEX eligible graduate nurses may also apply to the perioperative nursing program.

A certificate will be awarded upon completion of the program with a 2.0 GPA and a ‘C’ or better in all AHESN courses.

Upon successful completion of this certificate, students should be able to:

• Analyze established standards and recommended practices for perioperative nursing.
• Identify processes for measuring the quality of patient care.
• Demonstrate knowledge and skills necessary to provide appropriate care given to surgical patients during the intraoperative period.
• Apply the nursing diagnosis as the prescriptive principle that guides perioperative nursing activity.
• Use the nursing process as the model for continuous and systematic data collection for the patient undergoing surgical intervention.
• Demonstrate an understanding of the surgical patient as the center of the broad scope of activities which encompass the professional practice of perioperative nursing.

### First Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUS 205 - Perioperative Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NUS 206 - Perioperative Preceptorship</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits: 6**
Plumbing Apprenticeship, Certificate (PLB)

The Plumbing Apprenticeship program is a four-year curriculum that provides essential skills needed in today’s plumbing occupations. The coursework covers a diverse range of skills and knowledge and helps develop maturity and independence of judgment. This apprenticeship training provides practical and theoretical aspects of the work required in this highly skilled occupation. This program is designed to be completed on a part-time basis only.

Upon successful completion of this program, students should be able to:
• Pass journey-level licensing examinations.
• Demonstrate proper safety practices.
• Lay out and install supply, drainage and heat piping systems.
• Specify and install various fixtures.
• Cite various requirements of the National Plumbing Code.
• Identify by sight supply and drainage materials and fittings.
• Read construction blueprints and specifications.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLB 100 - Plumbing Theory I</td>
<td>5</td>
</tr>
<tr>
<td>PLB 101 - Plumbing Theory II</td>
<td>5</td>
</tr>
<tr>
<td>PLB 102 - Math for Plumbers</td>
<td>5</td>
</tr>
<tr>
<td>PLB 103 - Installation &amp; Repair</td>
<td>5</td>
</tr>
<tr>
<td>PLB 104 - Bathroom Installation</td>
<td>1</td>
</tr>
<tr>
<td>PLB 200 - Heating Systems</td>
<td>2</td>
</tr>
<tr>
<td>PLB 202 - Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>PLB 207 - Cross Connection Control</td>
<td>3</td>
</tr>
<tr>
<td>PLB 208 - Philadelphia Plumbing Codes</td>
<td>3</td>
</tr>
<tr>
<td>PLB 209 - International Plumbing Codes</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits: 37

Process Control Technology, Certificate of Proficiency (PCT)

This certificate is designed to provide students with the necessary skills and knowledge to seek employment as Process Operators/Technicians in automated manufacturing and production facilities. The program provides students with an introduction to the concepts, theory, principles, and technical demands, as well as the hazards, and accident prevention aspects associated with the operation of processing equipment.

Upon successful completion of this program, students should be able to:
• Demonstrate knowledge of the monitoring and maintenance of processing systems.
• Demonstrate knowledge of troubleshooting processes.
• Demonstrate effective verbal and written communication skills.
• Apply knowledge of mathematics and science to solving process control problems.
• Demonstrate knowledge of safety practices and regulatory compliance.
• Demonstrate and understand the job responsibilities of various positions of employment with the (continuous flow) processing industries.

First Semester (14 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCT 100 - Plant Equipment</td>
<td>3</td>
</tr>
<tr>
<td>PCT 101 - Introduction to Process Technology</td>
<td>3</td>
</tr>
<tr>
<td>PCT 110 - Safety, Health and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>MAT 128 - Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

Second Semester (10-11 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 101 - Introduction to General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>TCC 111 - Technical Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 120 - Modern College Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 121 - Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MAT 135 - Business Precalculus</td>
<td>3</td>
</tr>
<tr>
<td>MAT 151 - College Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>
Third Semester (12 credits)

Courses                      Credits
PCT 111 - Process Control I    4
PCT 115 - Process Control II   4
PCT 120 - Unit Operations      4

Total Credits: 36-37

Residential Electrical, Certificate of Competency (ELT)

This hands-on training program is designed to prepare individuals to become residential electricians who can work in new home construction as well as do maintenance and repairs in existing homes. Students learn safe, proper and efficient installation, troubleshooting and servicing of electricity and its associated equipment and wiring. The curriculum has been approved by the U.S. Department of Labor, Bureau of Apprenticeship and Training, for the 144 hours of classroom training required in an electrical apprenticeship program.

Upon successful completion of this program, students should be able to:
- Demonstrate knowledge of OSHA requirements for the electrical profession.
- Interpret and apply the National Electrical Code (NEC).
- Lay out electrical installations for residential uses.
- Install various electrical components, devices, and circuits.
- Perform specified measurements and tests on current, voltage, resistance, and efficiency of electrical motors, power panels, lighting circuits, electrical outlets, transformers, as well as electrical devices and circuits.
- Troubleshoot and electrical components, devices, and circuits.

First Semester (14 credits)

Courses                      Credits
TME 115 - Basic Technical Skills   3
TCS 105 - Workplace Safety        2
ELT 110 - Introduction to Electricity  4
ELT 112 - Electrical Code         2
ELT 114 - Residential Wire        3

Second Semester (14 credits)

Courses                      Credits
TCS 100 - Construction Blueprint Reading  3
ELT 116 - Advanced Electrical Wire   3
ELT 118 - Troubleshooting and Old Work Wiring  2
ELT 206 - Commercial Wire          3
ELT 208 - Solar Photovoltaic System Design and Installation  3

Total Credits: 28

Theatre Arts, Certificate of Competency (THEC)

The Certificate of Competency in Theatre Arts is designed for students who wish to have sufficient theatre training to be able to pursue a career in the theatre, or who wish to apply for certain graduate level theatre training programs which accept students without a B.A. All Theatre Arts courses are transferable for those students who wish to pursue a B.A. in Theatre or Communication Arts. In the Theatre Arts Certificate of Competency program, students are given a strong background in a broad range of theatre skills, including acting, set construction and design, lighting design, costume and make-up design, and theatre history. Students may then choose from elective courses in Theatre Arts to complete the requirements for the Certificate of Competency.

Upon successful completion of this certificate, students should be able to:
- Demonstrate knowledge of the global history of Theatre, its major genres and trends, and most influential practitioners.
- Analyze and critique plays and scripts.
- Demonstrate a working knowledge of the basic theories and techniques of acting.
- Demonstrate a working knowledge of set, lighting, costume, and make-up design.
- Demonstrate a working knowledge of tool usage and safety.
- Demonstrate an ability to work collaboratively within a group of diverse talents and skills to bring play or script to performance.

First Semester (10 credits)

Courses                      Credits
ENG 100 - English Composition I    3
DRA 114 - Theatre Arts Practicum    1
DRA 116 - Stagecraft               3

Please pick one of the following courses:
DRA 105 - Acting Shakespeare       3
DRA 130 - Voice and Movement       3
ENG 207 - Creative Writing: An Introduction to Playwriting  3

RN First Assistant in Surgery, Certificate of Competency (NURR)

The knowledge and technique necessary to assuming responsibilities of the RN First Assistant in Surgery (RNFA) are emphasized. The role of the first assistant is explored in its interdependent relationship, as the nurse works both with the physician and for the benefit of the patient. The nursing diagnosis is used as the defining guide in planning and implementing patient care. Expanded functions are stressed and elaborated as the nurse is prepared to assume responsibility in scrubbing, draping, retracting, exposing, clamping, ligation and suturing. Intellectual and manual dexterity are combined to prepare the nurse with the essential skills necessary to this expanded professional role.

To qualify of the RN First Assistant Program, students must be a perioperative registered nurse with two (2) years of perioperative nursing experience, have achieved certification in perioperative nursing (CNOR) or be eligible to take the CNOR Exam, or be a certified Nurse Practitioner, or certified Nurse Midwife.

The College recognizes the Association of periOperative Registered Nurses (AORN) position statement on the role of the RNFA. The certificate program meets AORN Education Standards and is acknowledged by the Competency and Credentialing Institute for Perioperative Nursing.

An Associate in Applied Science will be awarded upon completion of the program with a 2.0 GPA and a "C" or better in all AHESEN courses.

Upon successful completion of this certificate, students should be able to:
- Describe the historical role of the operating room nurse as it relates to RNFA practice.
- Describe essential principles underlying RNFA practice.
- Describe the principle nursing behaviors encompassed in RNFA practice.
- Apply knowledge of surgical anatomy and physiology to surgical first assisting.
- Analyze approaches used in operative procedures.
- Identify surgical hazards and their management.

First Semester (3 credits)

Courses                      Credits
NUS 207 - RN First Assistant    3

Second Semester (3 credits)

Courses                      Credits
NUS 208 - RN First Assistant Internship  3

Total Credits: 6
Second Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRA 100 - Introduction to Theatre</td>
<td></td>
</tr>
<tr>
<td>DRA 110 - Acting I</td>
<td></td>
</tr>
</tbody>
</table>

Third Semester (3 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRA 111 - Acting II</td>
<td></td>
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</tbody>
</table>

Total Credits: 19

Web Development, Certificate of Competency (WEB)

This certificate option provides students with a multi-disciplinary approach to the design, networking, and programming areas of web development. Designed to prepare students for entry-level employment as: Web Site Designer, Web Developer, Web Programmer. Students learn to integrate client-side and server-side technologies to build and manage real-world web-based applications. The program provides students with necessary skills for creating and managing web sites using current industry standards. The design and development of responsive web applications is also covered. Students also gain a foundation in current networking technologies and supporting Linux/UNIX systems.

Upon successful completion of this certificate, students should be able to:
- Plan for a professional web site.
- Create web sites using current HTML and CSS standards.
- Create responsive web applications that display appropriately on a variety of mobile, tablet, laptop and desktop screens.
- Incorporate scripting languages into web documents.
- Support current Linux/UNIX systems.
- Identify and explain the fundamentals of networking.
- Upload files to web server and update and maintain web sites.
- Identify career paths, academic programs and training opportunities in the field of web development.

First Semester (13 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR 101 - Introduction to Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>NET 110 - Network Communications</td>
<td>3</td>
</tr>
<tr>
<td>DPR 207 - Intro to Oracle:SQL</td>
<td>4</td>
</tr>
<tr>
<td>IMM 120 - Web Page Design and Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester (12-15 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DPR 141 - UNIX Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>DPR 214 - jQuery/JavaScript</td>
<td>3</td>
</tr>
<tr>
<td>DPR 241 - Mobile Web Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Please pick one of the following courses:
- CS 206 - PHP/MySQL
- DPR 206 - PHP/MySQL

Optional Internship Opportunities

Please pick one:
- CS/DPR 190 - Computer Programming Internship - 1 credit
- CS/DPR 194 - Computer Programming Internship - 2 credits
- CS/DPR 199 - Computer Programming Internship - 3 credits

Total Credits: 25-28

Welding Technology, Certificate Competency

The Welding Technology Certificate provides training in the field of industrial welding. This Certificate offers practical training and relevant theory in Shielded Metal Arc Welding, Gas Tungsten Arc Welding, Gas Metal Arc Welding, Flux cored Arc Welding, Oxy-fuel Welding and Cutting, Plasma Cutting, as well Welding Inspection.

Upon successful completion of this program, students should be able to:
- Demonstrate basic competencies in the four primary welding processes used in industry today.
- Use welding electrodes in four positions.
- Interpret blueprints and welding symbols.
- Apply non-destructive testing required in industry.
- Demonstrate mastery of knowledge of basic metallurgy.
- Employ occupational safety and health principles and practices.
- Demonstrate knowledge of inspection principles and practices.

First Semester (8 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLD 100 - Introduction to Welding</td>
<td>2</td>
</tr>
<tr>
<td>WLD 101 - Introduction to Oxy-Fuel Welding and Cutting</td>
<td>2</td>
</tr>
<tr>
<td>WLD 103 - Shielded Metal Arc Welding I</td>
<td>2</td>
</tr>
<tr>
<td>WLD 104 - Shielded Metal Arc Welding II</td>
<td>2</td>
</tr>
</tbody>
</table>

Second Semester (9 credits)

<table>
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<tr>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>WLD 105 - Intermediate Shielded Metal Arc Welding I</td>
<td>2</td>
</tr>
<tr>
<td>WLD 106 - Intermediate Shielded Metal Arc Welding II</td>
<td>2</td>
</tr>
<tr>
<td>WLD 111 - Printing Reading and Shop Math for Fabricators</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Welding Elective (2 credits)

Third Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLD 200 - Gas Metal Arc I</td>
<td>2</td>
</tr>
<tr>
<td>WLD 202 - Advanced Shielded Arc Welding I</td>
<td>2</td>
</tr>
<tr>
<td>WLD 204 - Gas Tungsten Arc Welding I</td>
<td>2</td>
</tr>
</tbody>
</table>

Fourth Semester (6 credits)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLD 201 - Gas Metal Arc II</td>
<td>2</td>
</tr>
<tr>
<td>WLD 203 - Advanced Shielded Arc Welding II</td>
<td>2</td>
</tr>
<tr>
<td>WLD 205 - Gas Tungsten Arc Welding II</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 29
**ELECTIVES**

1. **Business Electives**
   A. For college transfer curricula*: ACC 111, ACC 112, ACC 210, BUS 100, BUS 101, BUS 130, BUS 210, BUS 214, BUS 215, BUS 220, BUS 230, BUS 231, BUS 232, BUS 243. Under special circumstances other courses in ACC, BUS and CIS/DPR may be permitted as electives when recommended by the advisor and approved by the dean.
   B. For career programs: courses listed as ACC, BUS, CIS/DPR, HRM, IMM, NET, and PLG

2. **Computer Electives**
   A. For college transfer curricula*: DPR 206/CS 206, DPR 232/CS 118, DPR 231/CS 119, DPR 238/CS 117, DPR 236/DPR 121
   B. For career programs: courses listed as CS, DPR, IMM and NET

3. **Humanities Electives**
   A. For college transfer curricula*: courses listed under ARB, ART, ASL, CHI, DRA, ENG 112 or above, ENG 113 or above, FRE, GER, HUM, ITA, MUS, PHI, RUS, SPA and COMM courses listed 100 or above.
   B. For career programs: courses listed under ARB, ART, DRA, ENG 113 or above, FRE, GER, HUM, ITA, MUS, PHI, RUS, SPA and COMM.

4. **Social Science Electives**
   A. For college transfer curricula*: ADJ 240, ADJ 260, ECO 210, ECO 220, EDU 110 or above, HIS 100 or above, INT 100, POL 110 or above, PSY 140 or above, SOC 110 or above, SWO 101 or above.
   B. For career programs: all ADJ, ECE, ECO, EDU, HIS, INT 100, POL, PSY, SOC, SWO courses.

5. **Science Electives**
   A. For the Mathematics/Natural Science Curriculum (as laboratory sciences): BIO 110, BIO 111, BIO 115, BIO 200, BIO 210, BIO 240, BIO 250, CHE 110, CHE 111, CHE 200, CHE 201, ESS 110, ESS 112, PHY 110, PHY 111, PHY 131, PHY 132, PHY 230.
   B. For the Science for Health Professions Curriculum (as laboratory sciences): BIO 110, BIO 111, BIO 150, BIO 151, BIO 200, BIO 210, BIO 230, BIO 240, BIO 250, CHE 101, CHE 102, CHE 110, CHE 200, CHE 201, PHY 110, PHY 111, PHY 131, PHY 132.

6. **Mathematics Electives**
   For the Science for Health Professions Curriculum: MAT 100 or MAT 128, MAT 121. MAT 151, MAT 152, MAT 160, MAT 161, MAT 200, MAT 210, MAT 230, MAT 260, MAT 261.

7. **Course 270**
   Courses numbered 270 through 279 designate credits that are transferred into DCCC as electives in that discipline. These courses do not directly equate to a specific DCCC course but meet requirements to be transferred in by the College.

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* The elective courses listed above for transfer curricula are generally transferable to most institutions. However, depending on the program at the transfer institution, the courses may only be accepted as free electives. Be sure to meet with a transfer advisor when planning to transfer.

7/2018
**ACC 100 Applied Accounting**

This course provides students with an understanding of the accounting cycle for service and merchandising firms. In addition, students reconcile bank accounts and maintain a manual payroll system. This course is intended for students in most career business curricula. This course is generally not transferable.

Upon successful completion of this course, students should be able to:
- Record representative journal entries, post them to the general ledger, foot and balance the accounts, prepare a trial balance and complete a work sheet, financial statements and the remainder of the accounting cycle for a single proprietorship.
- Record representative business transactions for a merchandising business utilizing the appropriate special journals.
- Prepare all documents necessary for the maintenance of a checking account and prepare a bank reconciliation.
- Maintain and reconcile accounts receivable and accounts payable ledgers with appropriate control accounts.
- Compute and record adjustments for plant assets, prepaid expenses, merchandise inventory and accrued expenses.
- Maintain a payroll system.

**Prereq.** ENG 050, REA 050, ENG 099, REA 075, MAT 050

**3 Credits**

**ACC 111 Financial Accounting**

This course provides students with a comprehensive treatmet of the complete accounting cycle for both service and merchandising businesses in accordance with Generally Accepted Accounting Principles (GAAP). The course also focuses on accounting systems, concepts, issues and the preparation and analysis of financial statements.

Upon successful completion of this course, students should be able to:
- Perform all the steps of the accounting cycle in accordance with GAAP for service and merchandising businesses.
- Prepare financial statements for sole proprietorships, partnerships and corporations.
- Calculate quantities and dollar amounts of merchandise inventory and cost of goods sold using GAAP and IRS methodologies.
- Provide for uncollectible accounts receivable and calculate the estimated amount of accounts receivable that will ultimately be collected.
- Calculate depreciation, depletion and amortization, and calculate the book value of plant and intangible assets.
- Broadly describe the principles of internal control over assets and the accounting profession’s Code of Ethics.

**Prereq.** ACC 100 or ACC 111 and DPR 100

**4 Credits**

**ACC 112 Managerial Accounting**

This course focuses on the use of accounting in the development of the managerial functions of planning, controlling and decision-making. Special emphasis is given to the various processes which assist managers to obtain optimum results. Students learn what kind of accounting information is needed by managers, where the information can be obtained, how to analyze the information and how to provide clear, concise and meaningful information to managers.

Upon successful completion of this course, students should be able to:
- Discuss the various environments in which managerial accounting functions.
- Describe situations where managerial and financial methods and payroll.

**Prereq.** ENG 050, REA 050, ENG 099, REA 075, MAT 050

**3 Credits**

**3 Weekly Lecture Hours**

**ACC 115 Computerized Accounting**

This course provides students with an understanding of computer applications of the accounting cycle using an accounting computer software program. In addition, students will utilize a spreadsheet program to perform a bank reconciliation, inventory costing, depreciation methods and payroll.

**Prereq.** ACC 111

**3 Credits**

**3 Weekly Lecture Hours**

Upon successful completion of this course, students should be able to:
- Discuss the income tax consequences resulting from the use of alternate GAAP methodologies.
- Describe the differences among cash, accrual and other comprehensive bases of accounting.
- Make calculations and prepare journal entries for various end-of-period adjustments.
- Make calculations and prepare journal entries for the issuance and redemption of debt and equity securities by corporations.

**Prereq.** ENG 050, REA 050, ENG 099, REA 075, MAT 050

**3 Weekly Lecture Hours**

**ACC 201 Introduction to Cost Accounting**

This course provides students with a thorough understanding of cost accounting concepts, cost behaviors, and cost accounting techniques as applied to manufacturing cost systems.

Upon successful completion of this course, students should be able to:
- Interprete the purpose of cost accounting and the uses of cost accounting data. Define the three basic elements of cost.
- Make calculations and prepare journal entries for various end-of-period adjustments.
- Make calculations and prepare journal entries for the issuance and redemption of debt and equity securities by corporations.

**Prereq.** ENG 050, REA 050, ENG 099, REA 075, MAT 050

**3 Credits**

**3 Weekly Lecture Hours**

**ACC 202 Introduction to Tax Accounting**

The primary objective of this course is to gain a practical understanding of the personal income tax, various payroll taxes and the Pennsylvania sales tax. Students will demonstrate an understanding of these taxes by making appropriate calculations and preparing current tax forms. This is a required course for students in the accounting curriculum and an elective for students enrolled in other career programs. Credit for this course will not be given to students who attain credit for Federal Income Tax Accounting (ACC 210).

Upon satisfactory completion of this course, students should be able to:
- Discuss the history and objectives of the U.S. tax system.
- Determine who must file a tax return, filing status, personal and dependent exemptions and the standard deduction.
- Identify items to be included in and excluded from gross income.
- Calculate capital gains and losses.
- Complete tax returns for the self-employed.
- Compute deductions for adjusted gross income.
- Identify and calculate itemized deductions.
- Compute the income tax liability using tax tables and tax rate schedules. Identify and calculate various tax credits and prepayments.
- Complete tax forms for the employer’s reporting of FICA, State and Federal Unemployment Compensation tax, and Pennsylvania sales tax.

**3 Credits**

**3 Weekly Lecture Hours**
ACC 210 Federal Income Tax Accounting

The objectives of this course are to explore the role of the personal income tax in the U.S. economy and to gain familiarity with income tax fundamentals. The course is intended as a business elective for students in the Business Administration curriculum and as a general elective for students enrolled in other transfer programs. Credit for this course will not be given to students who attain credit for Introduction to Tax Accounting (ACC 202).

Upon successful completion of this course, students should be able to:

• Discuss the revenue, social, and economic objectives of the U.S. income tax.
• Discuss the history of the income tax in the United States.
• Describe how tax changes become law, recent tax reforms and the tax-planning process.
• Gain familiarity with income tax fundamentals income concepts, exclusions, deductions, tax rates and credits.
• Calculate capital gains and losses and discuss their treatment.
• Calculate the deductions for medical expense, casualty losses, taxes, contributions, interest and expense of earning a living.
• Identify tax policies intended to contribute to full employment and national defense.
• Calculate depreciation and investment credit.
• Discuss common recognition postponement techniques.

PreReq: ACC 112
3 Credits 3 Weekly Lecture Hours

ACC 215 Intermediate Accounting I

This course is a comprehensive study of contemporary accounting theory, concepts, and procedures and their application to financial reporting. Intermediate problems pertaining to cash, receivables, inventories, and equipment, and investments in securities are presented. Understanding of the concepts covered in this course is crucial to successful completion of all subsequent financial accounting and courses in the accounting sequence.

Upon successful completion of this course, students should be able to:

• Discuss the need for a conceptual framework for accounting.
• Explain the importance of recognizing, measuring and reporting income and the content, purposes and limitations of a balance sheet.
• Define cash and identify those items that are properly classified as cash.
• Describe and apply generally accepted accounting principles for temporary and long-term investments.
• Discuss issues involved in valuation and reporting of accounts and notes receivable.
• Describe and explain the nature of inventories, the accounting for inventories, and effect of inventory accounting alternatives on the financial statements.
• Distinguish between tangible and intangible assets, and understand the types of problems and related solutions involved in recording the acquisition, utilization and retirement of real property, equipment and intangible assets.

PreReq: ACC 112
3 Credits 3 Weekly Lecture Hours

ACC 216 Intermediate Accounting II

This course is a continuation of Intermediate Accounting I. Intermediate problems pertaining to current and long-term liabilities, stockholders’ equity, pension, financial statement analysis, price-level accounting, and cash flow reporting are presented. Understanding of the concepts covered in this course is crucial to successful completion of all subsequent financial accounting and auditing courses in the accounting sequence.

Upon successful completion of this course, students should be able to:

• Define, classify and measure all types of liabilities.
• Explain various types of long-term debt securities and the procedures involved in accounting for bonds and long-term notes.
• Apply appropriate accounting procedures to the issuance of capital stock under a variety of different situations.

• Identify and explain the accounting significance of transactions and events that cause the balance in the retained earnings account to change.
• Calculate primary and fully diluted earnings per share under a variety of different circumstances.
• Discuss the economic, accounting and practical issues involved in revenue recognition.
• Explain and apply appropriate accounting procedures for interperiod and interperiod income tax allocation.
• Apply appropriate procedures to account for operating leases and capital leases by the leasee and lessor.
• Identify and describe the objectives and limitations of the cash flows statement.
• Discuss the objectives and the methods of financial statement analysis.

PreReq: ACC 215
3 Credits 3 Weekly Lecture Hours

ACC 253 Advanced Accounting

This course is an in-depth study of selected accounting topics, including partnerships, consolidations, business combinations, bank ruptcies, corporate reorganizations and multinational companies. It presents both the theoretical and applied aspects of these topics. CPA problems will be reviewed.

Upon successful completion of this course, students should be able to:

• Discuss the environmental factors and the underlying theoretical structure related to the accounting discipline.
• Prepare consolidated financial statements under a variety of circumstances.
• Properly record and report the domestic firms transactions that are denominated in foreign currency.
• Explain accounting for partnerships from formation to dissolution.
• Record events and exhibit results in the specialized area of governmental accounting.
• Explain the accounting procedures for nonprofit organizations such as universities, hospitals, and voluntary health and welfare organizations.
• Complete accounting procedures unique to estates and trusts.

PreReq: ACC 252
3 Credits 3 Weekly Lecture Hours

ACC 254 Auditing

An intensive course that integrates accounting standards, accounting systems, internal accounting controls, and the dual audit functions of investigating and reporting all within the context of the professional practices environment.

Upon successful completion of this course, students should be able to:

• Define and discuss the social functions of auditing, the structure of authoritative standards, professional ethics and legal liability.
• Discuss the conceptual structures that underlie the audit process by establishing the linkage between the risk of material misstatement of financial statements and the evidence that the auditor gathers to reduce audit risk to an acceptable level.
• Discuss the planning phase of the audit engagement.
• Describe the study and evaluation of internal accounting controls.
• Describe common substantive audit tests for items such as cash, inventory and accounts receivable.
• Prepare various types of reports that can be issued in an audit of financial statements.
• Prepare special reports such as forecasts and projections.
• Discuss compilations and review services for nonpublic companies.

PreReq: ACC 252
3 Credits 3 Weekly Lecture Hours

ADJ 101 Introduction to Criminal Justice

A study of the agencies, processes and people involved in the criminal justice administration. Legislatures, law enforcement, prosecutor and defense counsel, courts, corrections and private security are studied with respect to function, role and the problems of justice administration in a democratic society, with emphasis on intercomponent relations, checks and balances, and discretionary powers.

Upon successful completion of this course, students should be able to:

• Describe how the criminal law changes to help achieve the social order in our society.
• Evaluate the historical contributions to our present Anglo-American system of justice.
• Evaluate the various theories that have been proposed relative to crime as a social phenomenon.
• Identify, explain and evaluate the current process of each element of the criminal justice system in terms of their stated goals: crime prevention, arrest, prosecution and rehabilitation of the offender.
• Evaluate the historical contributions of Great Britain to our present American system of law enforcement and describe its major impact on the role, function, authority and mission of the U.S. Criminal Justice System.

PreReq: ENG 050, REA 050
3 Credits 3 Weekly Lecture Hours

ADJ 110 Criminal Law

Criminal Law, the foundation upon which the Criminal Justice System is built, encompasses theoretical concepts from sociology, psychology, political science, philosophy, theology and economics. It affects both the people it serves and those employed by the Criminal Justice System. The legal foundations of the U.S. Criminal Justice System are introduced to the student. Criminal offenses outlined by criminal statutes are examined with specific attention to the Pennsylvania Criminal Code.

Upon successful completion of this course, students should be able to:

• Explain the importance of the criminal law in maintaining social order.
• Describe the basic components of the Criminal Justice System.
• Analyze the concept of criminal liability.
• Define the elements of specific crimes.
• Recognize the requirements of various Pennsylvania criminal statutes.
• Identify the liabilities of individuals convicted of criminal violations.
• Identify and apply the most frequently used substantive defenses to charges of criminal acts.
• Investigate the impact of the U.S. Constitution to the Criminal Justice System.

PreReq: ENG 050, REA 050, ENG 099, REA 075 or pass test
3 Credits 3 Weekly Lecture Hours

ADJ 111 Criminal Procedure

This course gives the justice student an opportunity to explore the living law of the U.S. Constitution, and Federal and Commonwealth of Pennsylvania statutory law and their impact on the process of administration of justice. The course examines the powers and limitations of power as defined in the first seven Articles; the concept of federalism and the powers reserved to the states; and a detailed examination of the Bill of Rights guarantees and their applicability to federal and state rules of criminal procedure through the due process clause of the U.S. Constitution.

Upon successful completion of this course, students should be able to:

• Identify and explain the rights of the citizen in a legal proceeding.
• Provide an overview of the justice process and identify the Constitutional guarantees applicable at each step.
ADJ 120 Principles of Investigation

As an introduction to criminal investigations, this course is designed to serve students seeking careers in law enforcement, courts and corrections as well as private security. It includes professional conduct at the crime scene, interviews and interrogations of witnesses and suspects, the use of informants, the techniques of surveillance and presentation of the case in a court of law.

Upon successful completion of this course, students should be able to:

• Discuss the history and development of criminal investigation.
• Develop the concept of investigative leads based on information uncovered during the investigative process.
• Analyze the various procedures used in gathering and handling evidence at the crime scene.
• Discuss the impact of Supreme Court decisions on the ability to gather information in the investigative process and preparation of information for court testimony.

Prereq. ADJ 101
3 Credits 3 Weekly Lecture Hours

ADJ 190 Administration of Justice Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Analyze the culture of the host organization.
• Summarize the various definitions and typologies of both international and domestic terrorism.
• Identify the major international and domestic terrorist organizations.
• Outline the major reasons why the U.S. has become a target of terrorism.
• Describe the global impact of terrorism on social, economic, and political levels.
• Explain strategies and the tactics utilized by Law Enforcement and the international community in response to terrorism.

College Academic Learning Goal Designation: Global Understanding (GU)

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 194 Administration of Justice Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).

ADJ courses 3 Credits 3 Weekly Lecture Hours

ADJ 202 Terrorism:

This course is designed to provide students with an understanding of international and domestic terrorism. It will examine the social, political, religious and global issues of terrorism. It will also provide students with the methods and strategies of various terrorist groups as well as the impact of terrorism on US Law Enforcement agencies, the US Court System, and the international community.

Upon successful completion of this course, students should be able to:

• Summarize the various definitions and typologies of both international and domestic terrorism.
• Examine the major historical and political causes of terrorism.
• Identify the major international and domestic terrorist organizations.
• Outline the major reasons why the U.S. has become a target of terrorism.
• Describe the global impact of terrorism on social, economic, and political levels.
• Explain strategies and the tactics utilized by Law Enforcement and the international community in response to terrorism.

College Academic Learning Goal Designation: Global Understanding (GU)

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 203 Contemporary Issues in Criminal Justice

This course provides the advanced Administration of Justice student a focus on the leading issues confronting the various elements of the justice system, to research and develop possible remedies to address these issues, and to assist the student in making intelligent career decisions.

Upon successful completion of this course, students should be able to:

• Defend a position on the decriminalization of victimless crimes.
• Evaluate the merit of the several states individually defining crime and punishment.
• Justify uniformity in the standards, policies and procedures of our state justice systems.
• Detail the advantages and disadvantages of plea negotiation (bargaining).
• Evaluate the creation of a public service office entirely separate from the police force to provide social and human services.
• Summarize the major issues involved in police prosecutor and court discretionary powers.
• Depict the supervisory and enforcement functions of the probation/parole office.
• Analyze the current treatment of the youthful offender and suggest more viable alternatives.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 225 Ethics in Criminal Justice
This course is designed to examine the professional standards of conduct and the acceptable forms of behavior within organizations in the criminal justice system. Issues concerning corruption, perjury, false reporting, accepting of gratuities, excessive force and the code of silence will be examined. Personal and organizational integrity will be emphasized in this course.

Upon successful completion of this course, students should be able to:
• Define codes of conduct based on law and procedure.
• Identify personal beliefs as a source of personal conduct.
• Define social customs and its role in behavioral constraint.
• Identify philosophical-technical systems that define ethics.
• Organize a systematic way of clarifying ethical decisions.
• Understand the role of professional codes of ethics.
• Identify professional issues within the context of ethics.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 240 Criminology
An examination of the field of criminology, including classical and contemporary theories, nature and causes of crime and criminal behavior. Patterns of criminal behavior, including property crimes, violent crimes, organized crime, white-collar crime, and victimless crime are discussed. A critical assessment of criminal justice system and its ability to respond to crime as a social problem is conducted.

Upon successful completion of this course, students should be able to:
• Differentiate between the legal and non-legal definitions of crime and the criminal. Identify the various indices of crime in America.
• Trace the historical evolution of law and crime in western societies from a private to a public concern.
• Explain the major theories of crime causation.
• Identify the components, roles and functions of the criminal justice system in terms of the sociology of law and the administration of justice.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 241 Criminal Law Procedure and Adjudication
This course examines the historical background, traditions, and legal principles and foundations of the Criminal Justice System. Both differences and similarities inherent within the Federal and State court processes are analyzed and the procedures through which the Criminal Justice System upholds the rights and liberties of all, both victims and accused will be examined. The roles of all professionals within the Criminal Justice System will be explored. The powers and limitations of power in the Criminal Justice System demanded by the Bill of Rights and the due process clause of the U.S. constitution. An emphasis on Criminal Law will also be examined.

Upon successful completion of this course, students should be able to:
• Trace the history of the criminal courts from their respective foundations within English-based common law to the contemporary models that currently underlie judicial processes at both state and federal laws.
• Identify the fundamental philosophies, legal concepts, and terminology that underlie the contemporary American court system.
• Discuss and explain the import of individual constitutional and statutory rights upon the criminal justice system in the United States.
• Identify, examine and understand the respective professional roles of those persons who work within the criminal court system as well as those impacted by the court system: victims, defendants, and the general public.
• Discuss the major issues impacting upon the criminal court systems of today, and project how such issues will likely affect the criminal courts in the future.
• Understand and explain the procedural processes utilized by the American criminal court system.

Prereq. ENG 100, ADJ 101
3 Credits 3 Weekly Lecture Hours

ADJ 250 Policing in America
This course is designed to provide students with an understanding of the history and evolution of policing in the United States. It will provide students with a view of police power at the federal, state, and local levels of law enforcement and will focus on contemporary issues in policing including administration and management, policing in democracy, and community policing within the confines of existing laws. It will address officer training, use of force, investigatory methods, police discretion, and corruption.

Upon successful completion of this course, students should be able to:
• Discuss the historical development of policing in America.
• Understand the limits of police power in the United States.
• Recognize the varying responsibilities of the police at the federal, state, and local levels of law enforcement.
• Analyze the role of community policing, its strengths and limitations.
• Demonstrate critical thinking on issues of social diversity in policing in America.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 260 Corrections-Probation-Parole
This course exposes students to the process of corrections-probation and parole. It includes an in-depth study of the historical evolution of the institutions, functions, organization and problems from antiquity to the present as well as the attendant philosophies of justice and punishment. Probation and parole are integral parts of the corrections process, and the two major rehabilitative techniques are discussed separately.

Upon successful completion of this course, students should be able to:
• Analyze the various theories that have been proposed relative to crime causality.
• Identify and apply the various bases for corrections.
• Trace the development of the correctional system in the United States.
• Evaluate the rationale that corrections is one of society’s agencies of social control that attempts to rehabilitate or neutralize criminal and delinquent behavior.
• Identify and resolve the philosophical differences between custody and treatment of the offender.
• Explore and analyze the various career opportunities within the corrections process.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 261 The Youthful Offender
An in-depth study of factors that relate to juvenile delinquency, prevention, treatment and control; a multi-disciplinary orientation. The most popular interdisciplinary issues, ideas, principles and assumptions pertaining to delinquency are presented, as well as the duties, responsibilities and functions of the agencies in the criminal justice system that deal with the juvenile delinquent.

Upon successful completion of this course, students should be able to:
• Trace the history of the development of the concept of the delinquent child from World War II to the present.
• Demonstrate that delinquency has social, psychological and legal causes.
• Identify, describe and justify the major programs and processes that have been established by delinquency law.
• Analyze the concept of the Youth Services Bureau.
• Evaluate the legally required and discretionary responses of law enforcement agencies when dealing with the juvenile.
• Trace the juvenile justice process from police contact through the various stages of intake, pre-disposition investigation, the family court hearings, disposition and confinement.
• Analyze the strengths and weaknesses of incarcerating the adjudicated delinquent.
• Assess the value of present after-care strategies.
• Evaluate contemporary and future issues relevant to delinquency.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 262 U.S. Courts: Contemporary Issues and Problems
This course provides students, particularly students of criminal justice, an overview of the legal basis, structure, organization, policies and jurisdiction of the U.S. courts. The course examines the dynamics of the U.S. courthouse, the interaction of the key participants and the quality of justice dispensed there. Finally, contemporary issues and problems such as judicial discretion, sentencing, political influence, plea negotiation, and the usurpation of the lawmaking process and power by the courts through judicial review are presented from both a philosophical and applied perspective.

Upon successful completion of this course, students should be able to:
• Identify the pivotal role of the courts in justice administration.
• Provide an overview of the legal bases of the criminal courts, criminal procedure and criminal law.
• Identify and evaluate the actors who, on a daily basis, must make the critical decisions through ministerial duties and discretionary powers to further social ordering in the United States.
• List the most common functions of U.S. judges.
• Follow the stages through which a criminal case must pass from arrest to the verdict and explain how and why cases leave the process.
• Identify the competing theories of sentencing and discuss the legal basis for the wide range of discretionary power over sentencing by the judge.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours

ADJ 280 Organized Crime
A foundation course in systematic criminality that addresses those organizations whose method of operation includes fear, violence and corruption to achieve strategic and financial goals. These organizations are highly structured and staffed by hard-core, disciplined career criminals operating in secrecy and anonymity through the legal, quasi-legal and criminal activities. Governmental agencies responsible for investigating organized crime as well as legal sanctions employed by these agencies will also be examined.

Upon successful completion of this course, students should be able to:
• Define Organized Crime.
• Explain the history of organized crime in America.
• Identify and explain the areas of influence employed by organized crime.
• Prepare an overview of the international impact of organized crime.
• Discuss the tactical and strategic response of governmental entities to counter the influence of organized crime.

Prereq. ADJ 241
3 Credits 3 Weekly Lecture Hours
AHA 206 Reimbursement and Financing in Managed Care

Health care is the largest service industry in the United States. Healthcare managers are controllers of significant financial resources that must be managed with an eye toward the bottom line in a highly competitive marketplace. They must fully understand current financial trends in reimbursement for services provided. This course provides information on the impact of various forces on the financing of healthcare. It also explores reimbursement trends and issues from the perspective of providers, payers, and consumers of health. Special focus in this course is on managed care impact on reimbursements.

Upon successful completion of this course, students should be able to:
• Use correct terminology in discussing the financial aspects of health care.
• Develop a format for capital budget planning.
• Formulate a budget request.
• Identify the implications of managed competition and global budgeting on reimbursement initiatives.
• Analyze the impact of health care reform and changed governmental reimbursement strategies on department management.
• Evaluate the effects of cost containment measures used by multiple entities in the health care continuum.
• Describe the emerging methods of reimbursement in fee-for-service and managed care environments.

Prereq. MAT050 or placement test scores, AHA 209

3 Credits 3 Weekly Lecture Hours

AHA 207 Ethical/Legal Aspects of Health Care Management

Rapid advances in medical technology challenge legal and ethical standards, and lend to situations requiring moral decisions. This course provides the student with an introduction to law, ethics and bioethics as they apply to decision making in the health care setting. It is not the intent to provide the student with right or wrong answers for ethical issues. Emphasis is on use of appropriate language, application of ethical principles, and use of critical-thinking skills to articulate a point of view on current issues in health care.

Upon successful completion of this course, students should be able to:
• Use appropriate terminology to discuss ethical/legal issues in health care.
• Explain the nature of human value development.
• Analyze common theories and methods used in making ethical decisions.
• Explore ethical/legal positions that pertain to current controversies in health care.
• Describe legal concepts of concern to the health care manager.

3 Credits 3 Weekly Lecture Hours

AHA 209 Philosophy of Managed Care

Managed care is now mainstreamed in America’s healthcare system and has changed the delivery of healthcare services. Individuals working in the healthcare arena need to understand the impact of managed care on patients and providers. This course will review the evolution of managed care, explore how it works, contemplate its future and discuss the ethical issues surrounding it today. The roles and responsibilities of the case manager will be investigated as well.

The topic of Utilization Review will also be introduced in this course. It is essential for healthcare facilities to be able to control and manage the use of their services to minimize the risk of financial loss. Utilization Review monitors and provides appropriate incentives to influence the use of healthcare services. Managed care and Utilization Review are tools to coordinate and measure the delivery of cost effective quality care and have the potential to achieve significant containment of healthcare costs, an essential outcome in our present health care system.

Upon successful completion of this course, students should be able to:
• Describe key concepts of the philosophy of managed care.
• Explain the shift from the fee-for-service model to capitation.
• Use the specific terminology related to managed care models.
• Identify critical components in developing and implementing treatment plans.
• Explain the function of critical pathways and disease management strategies.
• Define the roles and responsibilities of the case manager and/or healthcare provider in client advocacy and ethical decision making.
• Trace the history and development of the utilization review process.
• Describe the requirements for utilization review procedures in relation to payer organizations, Managed Care, Medicare, Medical Assistance and private insurers.
• Examine the role of physician and other health care personnel in resource management.
• List the various mechanisms used in the resource management process by payer and provider organizations.
• Discuss the role of the health care manager in the utilization review process.

Prereq. ENG050 or ENG099, READ050, MAT050, AHA 102, AHA 233, AHA207

3 Credits 3 Weekly Lecture Hours

AHA 217 Health Care Quality, Outcomes and Accreditation

Quality of care is more than a vague concept; it is how an institution and its care providers perform. As the health care delivery environment changes, regulatory systems have continuously evolved to meet consumer mandate for objective measure of organizational performance, and the quality and effectiveness of health care services. Health-care providers are constantly gathering data to reach diagnostic conclusions and guide a patient through a treatment course that will optimize the eventual outcome. Measuring performance requires managing both processes and outcomes, quantifying performance results and taking action to improve results. The driving forces of health care economics mandate that practitioners monitor and evaluate clinical effectiveness as well as the performance of the health-care organization.

This course will present a design for performance assessment and improvement planning, using measurement as a basis for making decisions about outcomes, and will present a practical introduction to the requires and trends of the applicable regulatory and accrediting bodies. It will stimulate contemporary thinking about important dimensions and design of patient-centered frameworks for managing and improving care.

Upon successful completion of this course, students should be able to:
• Apply the concepts and identify methods of outcome measurement.
• Relate the interconnected processes that affect patient outcomes.
• Describe the current techniques in assessing clinical and organizational effectiveness.
• Identify important elements of ongoing data collection.
• Describe essential steps in developing performance-based assessment programs.
• Discuss techniques for comparing institutional performance to external performance data.

Prereq. AHA 209

3 Credits 3 Weekly Lecture Hours

(AHM) Allied Health Medical

AHM 102 Introduction to Health Care

This course provides an overview of the organization, financing, regulatory and delivery of different healthcare services. The role of various health care professionals is examined. The purpose, use, maintenance, and regulations associated with health information systems is emphasized throughout the course.

Upon successful completion of this course, students should be able to:
• Describe the major health care organizations and agencies and their role in the health care delivery system.
• Identify the role of members of the health care team.
• Describe the major components involved in the payment/reimbursement process.
• Identify government payment programs.
• Describe the role of information technology on practice management.
• Define the basic terminology associated with health information and health information technology.
• Identify the legal, ethical, privacy, and confidentiality issues and practices applicable to health information.
• List the data that are included in a health information record.
• List various measures of health care quality.

3 Credits

AHM 104 Body Structure and Function I

This course begins with an analysis of the structural foundation of the body and its ability to function integrating the levels of organization: chemical, cellular, tissue, organ, and system. The course then emphasizes the anatomical structure, physiology, and selective disease processes specific to the integumentary, skeletal, muscular, lymphatic, circulatory, and respiratory systems. Mechanisms by which the body maintains fluid and electrolyte balance and acid base balance are also emphasized.

Upon successful completion of this course, students should be able to:
• Analyze the architectural plan of the human body as a whole, the organization of its functional units, and the mechanisms by which it performs its various activities.
• Discuss the mechanisms and patterns of disease-causing pathogens and neoplasms, and the body’s response to threat of injury and disease.
• Explain the function and interrelationship of fluids and electrolytes, the mechanisms by which the constancy of total body fluids is maintained, and regulation of the acid-base balance.
• Describe the structure and function of the integumentary system and major disorders of this system.
• Describe the structure and function of the skeletal and muscular systems as well as disorders of these systems.
• Describe the structure and function of the circulatory and lymphatic systems as well as disorders of these systems.
• Describe the structure and function of the respiratory system as well as disorders of this system.

College Academic Learning Goal Designation: Scientific Inquiry (SI) when taken with AHM 105 and AHM 220

Prereq. or coreq. AHM 233

3 Credits 3 Weekly Lecture Hours

AHM 105 Body Structure and Function II

This course emphasizes the anatomical structure, physiology, and selective disease processes specific to the digestive system, urinary system, nervous system and sense organs, endocrine system, and reproductive systems. How nutrition, growth, development, aging, and genetics influence body structure and function is also emphasized.

Upon successful completion of this course, students should be able to:
• Describe the structure and function of the digestive system as well as disorders of this system.
• Describe adequate nutrition and the complex mechanism of metabolism, as well as disorders associated with eating and metabolism.
• Describe the structure and function of the urinary system and major disorders of this system.
• Describe the structure and function of the nervous system and disorders of this system.
• Describe the mechanisms by which the sense organs are able to sense changes in our external and internal environments as a requirement for maintaining homeostasis; and diseases commonly affecting the sense organs.
• Describe the structure and function of the endocrine system and major disorders of this system.
• Describe the structure and function of the male and female reproductive systems, and briefly describe the major disorders inherent to these systems as well as the major disorders associated with pregnancy.
• Describe the concept of development as a biological process characterized by continuous modification and change as well as the effects of aging on major body organ systems.
• Describe genetics, the scientific study of inheritance, and its relationship to human disease.
• Describe the physiology of congenital diseases and the roles that heredity and environmental factors play in the development of these conditions.

College Academic Learning Goal Description: Scientific Inquiry (SI) when taken with AHM 104 and AHM 220

Prereq. or Coreq. AHM 233

3 Credits  3 Weekly Lecture Hours

AHM 106 Medical Assistant Techniques and Practicum I

This course is structured to prepare the student to assist the physician in the clinic, outpatient office and ambulatory health care settings. The responsibilities include preparation of the client for examination, measurement of basic body functions, assistance in diagnostic testing and procedures, and general clinical procedures performed in the medical office.

Upon successful completion of this course, students should be able to:
• Understand the role and function of the medical assistant in the health care delivery system.
• Evaluate the impact of disease and disease causing organisms on man and his environment.
• Describe the role of the medical assistant in assisting with physical measurements.
• Perform the duties necessary to assist the physician with the health history and physical examination.
• Understand the role of the medical assistant in the collecting and handling of specimens.
• Analyze the role of the medical assistant in assisting the physician in minor surgery.
• Understand the importance of nutrition, exercise, and diet therapy to the well being of the patient.

Prereq. ENG 050, REA 050, ENG 099, REA 075, MAT 050

4 Credits  3 Weekly Lecture Hours  2 Weekly Lab hours

AHM 109 Medical Assistant Review Practicum I

This course is structured to provide the student with a review of the AHM 106 simulation laboratory experience in assisting the physician in the clinic, hospital or private office. Clinical skills covered include preparation of the client for examination, measurement of basic body functions, assistance in diagnostic testing and procedures, and general patient care procedures performed in the medical office.

Upon successful completion of this course, students should be able to:
• Understand the role and function of the medical assistant in the health care delivery system.
• Describe the role of the medical assistant in assisting with physical measurements.
• Analyze the role of the medical assistant in assisting the physician with the health history and physical examination.
• Understand the role of the medical assistant in the collecting and handling of specimens.
• Analyze the role of the medical assistant in assisting the physician in minor surgery.

Prereq. AHM 106

1 Credit  2 Weekly Lab Hours

AHM 110 Medical Assistant Review Practicum II

This course prepares students with simulation laboratory experience in assisting the physician in the clinic, hospital or private office. Responsibilities include preparation of the client for examination, measurements of body functions, aiding in diagnostic tests and procedures, and general operation of the office.

Upon successful completion of this course the student will be able to:
• Apply the principles of pharmacology and drug administration.
• Perform diagnostic laboratory procedures that are utilized in a physician’s office.
• Perform an EKG.
• Describe the role of the medical assistant in assisting with physical therapy.
• Evaluate the role of the medical assistant during a medical emergency and giving first aid.

Prereq. AHM 106 and AHM 107

1 Credit  2 Weekly Lab Hours

AHM 130 Medical Coding Concepts for Allied Health

This course, for non-coding majors, is designed to teach students general principles of ICD-9-CM (International Classification of Disease) And CPT-4 (Current Procedural Terminology) coding. Students will learn to translate medical terminology and descriptions into code numbers. In this course will focus on coding for both inpatient and outpatient procedures and diagnoses. Emphasis will be placed on accuracy of coding in a variety of settings.

Upon successful completion of this course, students should be able to:
• Identify and explain the organization of both the ICD-CM manual and CPT-4 manual.
• Transform descriptions of diagnostic terms and symptoms into correct ICD-CM codes.
• Transform outpatient procedures for laboratory (pathology), diagnostic testing and outpatient surgical procedures into valid CPT-4 codes.
• Follow rules and guidelines for selecting the current ICD-CM and CPT-4 codes.
• Use correct codes relating to health conditions and factors from the ICD-CM manual.
• Identify and use the HCPCS (Health Common Procedural Coding System) for Medicare patients.
• Describe the DRG system and why it is of importance.

Prereq. or coreq. AHM 233

3 Credits  3 Weekly Lecture Hours

AHM 140 Professional and Communication Issues in Health Care

This course is designed to provide the student with the knowledge and skills needed to communicate effectively in the health care setting. Emphasis is on development of interpersonal skills for workplace and therapeutic communication. Among the topics covered are basic communication skills, conflict resolution, cultural awareness, confidentiality, and professionalism.

Upon successful completion of this course, students should be able to:
• Apply basic principles of communication in responding to verbal and nonverbal communication.
• Respond appropriately to issues of confidentiality in the health care setting.
• Demonstrate knowledge of federal and state health care legislation and regulations.
• Describe professionalism in relation to the health care setting.
• Explain the role of alternative and complimentary medicine in health care.
• Develop transcultural communication skills.

3 Credits  3 Weekly Lecture Hours

AHM 185 Medical Office Management

This course is structured for the Medical Assisting and other Administrative Health Professions and introduces students to the administrative procedures commonly performed in a health care setting. Emphasis on medical ethics and legal considerations, a history of medicine, communication skills, managing accounts payable and receivable, electronic health records, receptionist responsibility, operational functions and workplace dynamics will help prepare the student for entry-level office management. Coursework will be presented and completed in both manual and computerized formats, so that the student will have a more comprehensive understanding of an administrative health care facility and its procedures.

Upon successful completion of this course, the student should be able to:
• Describe the ethical and legal responsibilities of a medical office administrator.
• Demonstrate effective oral and written communication both with professionals and patients.
• Utilize electronic health record software applications in the health care setting.
• Use and understand systems of maintaining patient clinical and financial records.
• Perform office tasks appropriate for computer solutions.
• Organize and maintain the physical requirements of a medical office.

Prereq. AHM 233 and DPR 100

4 Credits  3.5 Weekly Lecture Hours  1 Weekly Lab Hours

AHM 199 Medical Assistant Externship

Selected clinical experiences are provided in a medical office or health care facility. This is a planned activity that must be scheduled with the coordinator of the Medical Assistant Program. This course is offered spring, summer session I and II semesters.
Upon successful completion of this course, students should be able to:

- Demonstrate an understanding of the anatomical structure and physiological functioning of the human body and of medical terms descriptive of body systems.
- Apply the business/administrative and clinical duties of the medical assistant.
- Function as an assistant to the physician in a medical and/or other health care setting.
- Implement the ethical and legal responsibilities of the medical assistant in the health care delivery system.
- Apply selected principles of biophysical and psychosocial sciences in providing assistance to the physician.
- Maintain business and patient health records.
- Discuss the fundamental concepts of disease

6 Credits 30 Weekly Laboratory Hours

AHM 202 Fundamentals of Health Information Technology Science

This course is an introduction to the Health Information Management (HIM) profession and the patient health record. Some of the topics covered are functions of the health record, content and structure of the health record, analysis of health records, and presentation for both the paper-based and electronic health record.

Upon successful completion of this course, students should be able to:

- Describe the purpose, structure, Code of Ethics and certification processes of the American Health Information Management Association (AHIMA).
- Differentiate the roles of Health Information Management (HIM) professionals.
- Describe the workflow of records within a HIM Department.
- Differentiate between the functions and uses of primary and secondary health records.
- Identify the basic forms and formats for collection of patient information in various health care facilities.
- Evaluate and apply principles of forms design.
- Describe the purposes and techniques related to record analysis, including quantitative, qualitative, and legal analysis.
- Compare different storage and retrieval systems.
- Discuss what forces are driving the adoption of electronic health records.
- Identify the legal, ethical, privacy, security and confidentiality issues and practices as they apply to health information.

Upon successful completion of this course, students should be able to:

- Identify the routines of administration, indications, adverse effects, and related laboratory studies of commonly used medications.

Prereq: AHM 233 and AHM 104 or BIO 150 or AHM 105

4 Credits 4 Weekly Lecture Hours

AHM 220 Applied Microbiology

This is a survey course intended for allied health majors. This 1 credit course contains microbiological information and skills needed for the allied health professions. This course differs from a traditional 4 credit microbiology course in that the 4 credit course emphasizes general microbiology for science majors, whereas the 1 credit applied microbiology course emphasizes concepts for students entering health professions. The concepts of specimen collection and transport, identification of microorganisms, pathogenesis, and control, and treatment of infectious disease are the main emphasis of the course. Clinical laboratory experiences will emphasize application of concepts to skills.

Upon successful completion of this course, students should be able to:

- Explain the relationship between the structure and function of microorganisms.
- Describe techniques of microbial control.
- Apply principles of sterile technique in specimen collection and performing laboratory procedures in the microbiology lab.
- Describe the distribution of normal and pathogenic flora for different body sites.
- Discuss antibiotic treatment for disease.
- Classify and perform diagnostic procedures of body fluid specimens.
- Describe the structure and function of the skeletal and muscular systems as well as disorders of these systems.
- Describe the structure and function of the circulatory and lymphatic systems as well as disorders of these systems.
- Describe the structure and function of the respiratory system as well as disorders of this system.

College Academic Learning Goal Designation: Scientific Inquiry (SI) when taken with AHM 104 and AHM 105

1 Credit 0.33 Weekly Laboratory Hours

AHM 231 Introduction to CPT Coding

The primary focus of this course is to provide students the principles, guidelines and application of The Current Procedural Terminology (CPT) coding system. CPT is the coding system used to describe services provided by physicians. CPT is also used for services provided by hospital outpatient and ancillary departments, hospital emergency departments, and other health care facilities. In addition, students will be introduced to Procedural groupings such as APCs (Ambulatory Payment Classifications) and RUGs (Resource Utilization Groups). This course also addresses reimbursement and compliance issues related to physician-based coding as well as the purpose and application of the CMS (Center for Medicare and Medicaid Services) Healthcare Common Procedural Coding System (HCPCS). Upon successful completion of this course, students should be able to:

- Define terms, phrases and abbreviations related to medical coding.
- Apply specific volumes of Current Procedural Terminology (CPT) and Healthcare Common Procedural Coding Systems as they pertain to the identification of procedures, medications and medical equipment in healthcare facilities.
- Apply Current Procedural Terminology (CPT) coding as they pertain to identification of procedures, medications, and medical equipment in a variety of medical specialties, including but not limited to: Evaluation and Management Coding, Surgery Coding, Pathology and Laboratory Coding, and Radiology coding.
- Describe insurance carrier reimbursement systems, such as APCs, RUGs, Outpatient Prospective Payment System (OPPS), Fee-For-Service Payments and Capitation payments.
- Apply legal concepts to issues of medical coding.

Prereq: AHM 233, AHM 104 or BIO 150 and AHM 105 or BIO 151

3 Credits 3 Weekly Lecture Hours

AHM 232 Advanced CPT Coding

This course is designed for students who plan to work in the variety of healthcare facilities in departments including medical records, medical coding, medical billing, or other reimbursement and documentation departments. It is intended to provide additional in depth study of coding principles, clinical topics, and case studies to increase knowledge and skills in CPT (Current Procedural Terminology) coding. The use of CMS Healthcare Common Procedural Coding System (HCPCS) is also addressed. Extensive coding of case studies from various medical specialties will be completed in this course.

Upon successful completion of this course, students should be able to:

- Code accurately a medical or surgical operative report, physician office visit (Evaluation and Management) or outpatient procedural case study.
- Recognize the economic and ethical implications of coding assignments on reimbursement, and how these are impacted by reimbursement systems such as APC’s (Ambulatory Payment Classifications), ASC’s (Ambulatory Surgery Center) and RBRVS (Resource Based Relative Value Scale).
- Determine if coded data is of optimal quality and evaluate if coded cases require a single code or multiple codes (both CPT and HCPCS codes) as well as analyze sequencing of these codes.

Prereq: AHM 231

3 Credits 3 Weekly Lecture Hours

AHM 233 Medical Terminology

This course is designed to introduce the skills and knowledge needed to develop an understanding of the language of medicine. The mechanism of building a medical vocabulary, utilizing roots, prefixes, suffixes, and the combining forms, and the pronunciation are emphasized. A workbook/text, audiotapes, and computer software are used to give the student hands-on experience in the use of the language of medicine.

Upon successful completion of this course, students should be able to:

- Identify word parts and their meanings in medical terms.
- Utilize reference materials to determine meaning, usage, and spelling of medical terms.
- Describe the main functions of each body system.
- Define diagnostic, symptomatic, and therapeutic terms related to each system.
- Identify terms describing pathology affecting body systems.
- Define anatomical landmarks, directional, positional, and numeric medical terms.
- Recognize common classes of drugs and their actions.
- Recognize the correct spelling of medical terms.
- Develop a medical vocabulary.

3 Credits 3 Weekly Lecture Hours

AHM 239 Introduction to ICD-10-CM Coding

This course is designed to teach those interested in learning ICD-10-CM diagnosis coding, the basic skills required to accurately code diagnosis in ICD-10-CM. Students will learn how to interpret and apply the ICD-10-CM guidelines to properly assign diagnosis codes to patient encounters. The ICD-10-CM workbook, textbook class-work, homework activities, and lectures will provide students with hands-on experience in assigning accurate diagnosis codes in ICD-10-CM.

Students must obtain a grade of “C” or better in this course to successfully complete their program.
Upon successful completion of this course, students should be able to:

- Understand the format, convention and chapter specific guidelines to correctly assign ICD-10-CM codes.
- Apply general guidelines and chapter specific guidelines to correctly assign ICD-10-CM codes.
- Understand the code of ethics for coders.

Prereq. AHM233 and AHM104 or BI0150 and AHM105 or BI0151 and AHM208

3 Credits 3 Weekly Lecture Hours

AHM 240 Hospital Coding and Case Studies

This course is designed for students who plan to work in the Health Information Management (HIM) department of a hospital. It is intended to provide additional in-depth study of inpatient medical record case studies to increase knowledge and skills in ICD-10-CM diagnosis coding. This course will also provide students the opportunities to use and apply ICD-10-PCS coding classification system. Students will learn coding conventions, conventions and apply guidelines to identify and accurately assign codes to inpatient hospital procedures.

Students must achieve an overall grade of 'C' (70% or above) to receive credit for this course for Allied Health Programs or certificates.

Upon successful completion of this course, students should be able to:

- Given a scenario, extract the relevant diagnoses and/or procedures and then accurately and completely code them according to ICD-10-CM guidelines and ICD-10-PCS guidelines.
- Apply coding guidelines to accurately code principal diagnoses and procedures to determine the correct diagnosis related group assignments.
- Demonstrate the use of ICD-10-CM coding and ICD-10-PCS coding in DRG assignment.
- Recognize the economic and ethical implications of coding assignment on reimbursement.

Prereq. AHM 239

3 Credits 3 Weekly Lecture Hours

AHM 241 Revenue Cycle Management and Reimbursement Methodologies

This course is designed for students to learn the general principles of revenue cycle management and reimbursement methodologies. Students will learn how to complete and use insurance claim forms and insurance related forms (requisitions, pre-authorizations, registration forms). The class will provide students with hands-on experiences with a variety of insurance related issues as well as compliance strategies and reporting. Reimbursement systems including fee-for-service, capitation payments and capitation payments will be covered in detail as well as regulatory guidelines, management of denials of claims and chargemaster maintenance.

During this course students will have the opportunity to complete an exam offered through the American Medical Billing Association (AMB). Students who successfully pass the exam will earn the Certified Medical Reimbursement Specialist (CMRS) credential.

Upon successful completion of this course, students should be able to:

- Describe legal and ethical issues involved in revenue cycle management and compliance and identifying potential abuse and fraudulent trends through data analysis.
- Describe and explain different types of health insurance carriers and reimbursement systems as well as rules and regulations for each private insurance, managed care, Medicare, Medicaid, Workers Compensation,Military insurance.
- Recognize the economic and ethical implications of coding assignment on reimbursement, and how these are impacted by reimbursement systems such as APC’s (Ambulatory Payment Classifications, ASC’s (Ambulatory Surgery Center) and RBRVS (Resource Based Relative Value Scale).
- Accurately complete referral, preauthorization, registration and encounter forms.
- Submit claims in paper and electronic format.
- Document billing information using correct medical terminology and perform an internal and external chart audit.
- Accurately complete referral, preauthorization, registration forms, encounter forms, ICD-10-CM (International Classification of Diseases) review and analysis and ABN forms (Advanced Beneficiary Notices), and ensure appropriate coding as per CMS (Center for Medicare and Medicaid Guidelines).
- Resolve claim errors and learn how to resubmit claims that have been rejected.
- Generate patient bills when needed through interpretation of explanations of benefits/remittance advice statements.
- Describe the process of how to follow up with insurance companies and patients regarding unpaid bills.
- Record changes, payments and adjustments for patient scenarios provided.

Prereq. AHM 231 or AHM 130 and AHM 239

3 Credits 3 Weekly Lecture Hours

AHM 242 Virtual Professional Practice Experience Capstone Course

This course is designed to have students apply knowledge and skills from their Medical Coding and Billing classes in a comprehensive hands-on experiential learning setting. Through this AHIMA Virtual Practicum, students will have the opportunity to use various software application programs including ATHENS Electronic Health Records Software, Quadra Med Encoder Software, McKesson Horizon Master Patient Index Software and 3M Coding and Reimbursement Software. Various experts in the field will lecture on their specific subject areas. This course will also provide students with an opportunity to create a portfolio which will demonstrate employment skills to future employers.

Upon successful completion of this course, students should be able to:

- Demonstrate the ability to use computer applications and technology related to Medical Billing and Coding. (NC)
- Analyze, interpret and evaluate data in the medical record to determine correct clinical documentation to support codes used. (NC)
- Abstract data from electronic medical records and code these records with appropriate ICD-10-CM, CPT-4 and HCPCS codes and coding from source documents. (R)
- Interpret and evaluate data in the electronic medical record while searching for deficiencies in demographic and/or insurance information. (NC)
- Enter patient registrations and insurance information into a patient management system. (NC)
- Create new patients in the system and enter clinical and administrative data. (NC)
- Describe how compliance standards correlate with medical records and documentation guidelines. (NC)
- Evaluate various specialties of coding and compare and contrast the different specialties. (NC)
- Create a portfolio to demonstrate professional skills to enhance marketability for employment. (NC)

Prereq. AHM 230, AHM 231 and AHM 232, AHM 240 and AHM 241

3 Credits 1 Weekly Lecture Hours 4 Weekly Laboratory Hours

AHM 200 Excellence in Care-Nursing Assistant Program

Delaware County Community College’s “Excellence in Care” Nursing Assistant Program is a 133-hour intensive course in accordance with the regulatory guidelines established by the Commonwealth of Pennsylvania. It includes, 48 hours of didactic, 25 hours of simulation laboratory activities, and 60 hours of clinical experience at an approved long term care facility. This course prepares students for employment in acute care, acute rehab, hospice, home health care and long term care facilities. In addition to preparing students clinically, this course emphasizes leadership skills, service excellence values, problem solving/decision making, cultural sensitivity, interpersonal and civic skills in the workplace, professionalism/employability skills, conflict resolution, and time and stress management. Students completing this course are qualified to test with the American Red Cross and placed on the Pennsylvania Nurse Aide Registry. Departmental approval is required to enroll in the course to comply with federal and state legislative requirements- OBRA and Act 14, respectively.

Upon successful completion of this course, students should be able to:

- Function as an unlicensed individual in the role of a nurse aide within the legal and ethical standards set forth by the profession nursing as regulated by the State Board of Nursing for the Commonwealth of Pennsylvania.
- Demonstrate use of appropriate and effective communication skills.
- Apply the basic principles of infection control.
- Assist with basic emergency procedures.
- Demonstrate behavior that maintains client and/or client rights.
- Demonstrate behaviors and skills that promote client and clients independence and prevents abuse.
- Demonstrate knowledge and applies the principles of basic nutrition to prevent neglect and exploitation.
- Identify and report abnormal signs and symptoms of common diseases and conditions of the body systems.
- Provide for a safe, clean environment.
- Provide personal care as directed by the licensed professional/practitioner/supervisor.
- Provide care to client when death is imminent.
- Demonstrate skills that incorporate principles of restorative care under the direction of a licensed professional/practitioner/supervisor.
- Demonstrate basic skills by identifying the psychosocial characteristics of the populations being served in the nursing facility and/or by the health care agency including persons affected by intellectual disabilities, mental illness,
AHS 100 Surgical Technology I

The basic knowledge and fundamental techniques necessary for assuming the responsibilities of a surgical technologist are highlighted. Preoperative and intraoperative patient care concepts, with both nonsterile and sterile responsibilities, are emphasized. Workplace management concepts, such as medical-legal aspects, ethics, cultural sensitivity, the hospital and operating room environment, and scope of practice are introduced. This course also includes study and skill development relating to surgical instrumentation, devices, and equipment, modes of patient transport and safety precautions; variations and precautions in surgical positioning and care of surgical patients; preoperative patient preparation including surgical site antisepsis; consent for surgery; use of the Universal Protocol for surgical procedure, patient and site verification; and other important intraoperative risk management processes and procedures. Related patient care procedures such as taking vital signs, laboratory study review, wound healing, specimen management, intraoperative medication management; anesthesia, sterilization and disinfection are included.

Upon successful completion of this course, students should be able to:

- Describe the role, function and relationship of the surgical technologist to other members of the surgical team.
- Utilize a vocabulary of medical terms related surgical patient care.
- Identify microbial principles underlying the prevention and control of infection, sterilization and disinfection methods, and aseptic technique.
- Review common safety risks for surgical patients and the strategies to manage them before and during a surgical intervention.
- Discuss the preoperative nonsterile and sterile responsibilities of the surgical technologist in the preparation of a patient for a surgical procedure.
- Discuss the case management responsibilities of the surgical technologist in the preparation of the operating room for a surgical procedure.
- Discuss the intraoperative responsibilities of the surgical technologist in preparing the role of the scrubbed member during a surgical procedure.

AHS 101 Surgical Technology Practicum I

This course includes clinical assignment in operating room of affiliated health agencies. Selected learning experience in the application of preoperative and intraoperative patient care concepts, with both nonsterile and sterile responsibilities, are emphasized as the student integrates theory with practice during assignment to surgical patients undergoing basic surgical interventions.

Upon successful completion of this course, students should be able to:

- Demonstrate correct opening and preparation of supplies used in the operating room.

AHS 102 Surgical Technology II

This course is a continuation of Surgical Technology I. Knowledge and techniques basic to effective performance as a scrubbed team member in the operating room will be stressed. An intense review of the surgical specialties focuses on pathophysiology, diagnostic interventions, the surgical intervention (special considerations, position/postioning aids, incisions, supplies, equipment, instrumentation, procedural steps, counts and specimen care) and complications. The responsibilities of the surgical technologist in intraoperative case management during intermediate surgical interventions are emphasized. The role of the unsterile circulating team member is reviewed as the concepts of teamwork, consideration and cooperation of the surgical team are explored.

Upon successful completion of this course, students should be able to:

- Describe the responsibilities of the surgical technologist in assisting the registered nurse circulating during a surgical procedure.
- Identify surgical interventions, instruments, sutures and accessory items used during intermediate surgical interventions such as the following: hernia repair; breast surgery; thyroid and parathyroid surgery; surgery of the biliary tract, pancreas and spleen; gastrointestinal surgery; gynecological surgery; genitourinary surgery; thoracic surgery; vascular surgery; cardiac surgery; neurosurgery; ENT; and orthopedic surgery.

AHS 103 Surgical Technology Practicum II

Clinical assignment in operating room of affiliating agency. Knowledge and techniques basic to effective performance as a scrubbed member of general surgery and specialty surgery will be stressed. Developing and improving skills as the scrub person and in the organization of work is emphasized. Progression to solo scrub experiences is expected, enabling the student to focus on anticipating the needs of the surgical team. Students will be expected to display manual and mental dexterity in the use of surgical instruments in a step-by-step fashion for specific surgical interventions. Assignments will also be made with the anesthesia department and in the post anesthesia care unit (PACU), during which the student will correlate the actions and uses of anesthetic agents and recovery from them and as a second assistant to the registered nurse circulator, during which the student will focus on providing a safe, efficient environment for the surgical patient and respecting the patient’s inherent right to privacy, dignity, and cultural competence.

Upon successful completion of this course, students should be able to:

- Choose and assemble the instruments, supplies and accessory items used during intermediate surgical interventions such as hernia repair; breast surgery; thyroid and parathyroid surgery; surgery of the biliary tract, liver, pancreas and spleen; gastrointestinal surgery; gynecological surgery; genitourinary surgery; thoracic surgery; vascular surgery; cardiac surgery; neurosurgery; ENT; and orthopedic surgery.
- Demonstrate ability to function as a scrubbed member of the surgical team during intermediate surgical interventions such as hernia repair; breast surgery; thyroid and parathyroid surgery; surgery of biliary tract, liver, pancreas and spleen; gastrointestinal surgery; gynecological surgery; genitourinary surgery; thoracic surgery; vascular surgery; cardiac surgery; neurosurgery; ENT; and orthopedic surgery.

AHS 200 Surgical Technology III

This course is a continuation of Surgical Technology II. Knowledge and techniques basic to effective performance as a scrubbed member in the operating room is stressed. The responsibilities of the surgical technologist in the care and safety of the patient during and after the surgical intervention, in the general and specialty fields of surgery, are reviewed.

Upon successful completion of this course, students should be able to:

- Identify operative procedures, surgical instruments, accessory items and suture materials used in advanced surgical interventions such as surgery of the eye, plastic and reconstructive surgery, pediatric surgery, and surgery of the burn, trauma and transplant patient.

AHS 201 Surgical Technology Practicum III

Clinical assignment in the operating room of an affiliating agency. Selected learning experiences in advanced surgical interventions in general and specialty surgery are included. Focus is directed on independent role assumption as a surgical technologist to facilitate transition from student to graduate.

Upon successful completion of this course, students should be able to:

- Assemble the instruments and supplies necessary for advanced surgical interventions such as surgery of the eye; plastic and reconstructive surgery; pediatric surgery; burn surgery; trauma surgery, and transplant surgery.

ARBI 101 Elementary Arabic

This course introduces students to Arabic alphabets, articulation of sounds, basic grammar, reading and writing. Vocabulary words for cultural and social settings are introduced. Listening and speaking are emphasized in class and laboratory settings.

Upon successful completion of this course, students should be able to:

- Learn Arabic alphabets, sounds and articulation
- Recognize oneway and two-way connector letters
Sound and write accurately long and short vowels
Identify the Arabic marking system for long and short vowels
Develop basic vocabulary, reading and comprehension
Apply basic grammatical structure in writing
Understand social manners and behavior in Arabic culture

3 Credits 3 Weekly Lecture Hours

ARB 102 Elementary Arabic II
This course is to help students become more proficient in the four skills of Modern Standard Arabic: writing, reading, listening and speaking.

Upon successful completion of this course, students should be able to:

• Learn and write the Arabic Alphabets and marking system
• Read and pronounce the Arabic sounds correctly
• Take dictation and apply critical auditory and recognition skills for short and long vowels
• Write short sentences and paragraphs using basic grammatical structure
• Translate simple paragraphs and sentences from Arabic to English and English to Arabic
• Converse about oneself, family and other social/cultural settings using vocabulary and grammar accurately
• Develop awareness and understanding of the cultural, social, religious, political and geographical diversity of the Arab world

Upon successful completion of this course, students should be able to:

• Develop and apply techniques to motivate children of elementary school age to explore, discover, manipulate and create artworks in various art media reflective of their particular developmental stage.
• Distinguish basic principles of artistic design and color theory and to integrate these ideas into general curriculum planning and artistic production.
• Identify and describe a child’s art production in stages of creative, emotional and mental growth.
• Analyze student/children’s artwork according to aesthetic issues.
• Utilize a broad view of art historical content and how it relates to student/children’s artwork.
• Produce a wide range of projects applicable to curriculum planning within the elementary school but based on the cognitive and motor skills indicative of a university-level student.

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

ART 101 Mural Painting
This course examines contemporary mural painting through both theory and practice. Students will study the history and roots of contemporary mural painting within the context of public art. Students will execute a design for a mural each semester, providing the College with new artwork. This will be a collaborative effort. Students will also create a personal mural design project and choose and study a particular muralist. The visual language of art, including the principles and elements of design, color theory and aesthetics will be emphasized throughout the course.

Upon successful completion of this course, students should be able to:

• Distinguish basic principles of artistic design including unity/variety, balance, radial and crystallographic emphasis, rhythm, repetition, proportion-scale and figure ground relationship.
• Manipulate the general elements of visual language including line, shape, volume, texture and space.
• Manipulate properties of hue, value and chroma.
• Identify and describe various aesthetic patterns due to historical events, geographical issues and sociopolitical patterns within the context of mural painting in the modern and contemporary era
• Produce a small to medium size mural design and a collaborative group mural utilizing various techniques for enlarging designs and drawings.
• Prepare the materials for the process of painting and mural application.
• Integrate critical thinking skills through completed artworks and participation in the formal critique process.

3 Credits 3 Weekly Lecture Hours

ART 110 Art from the Ancient Worlds through the Middle Ages
This course analyzes and evaluates the artistic styles from prehistoric cave art to the fourteenth century in Europe. Painting, sculpture and architecture are studied as both individual works and as active participants in broader political, economic, socio-cultural, historical, and environmental systems.

3 Credits 3 Weekly Lecture Hours
Upon successful completion of this course, students should be able to:

- Identify representative art of a range of geographic and chronological periods, including Prehistoric Europe, Egypt, The Ancient Near East, The Aegean, Greece, Rome, Medieval Europe through the fourteenth century in Europe.
- Identify stylistic changes affected by political, economic, socio-cultural, historical, and environmental systems.
- Define the technical terms associated with the description of art.
- Explain the techniques used in painting, sculpture and architecture of the periods.
- Visually analyze and recognize any work(s) from the above periods.
- Analyze cultural, political, contextual, and stylistic interdependence between diverse regions studied, including the Ancient Near East, Egypt, The Aegean, Greece, Italy and Northern Europe.
- College Academic Learning Goal Designation: Global Understanding (GU)

Prereq. ENG 050, REA 050 or ENG 099 or REA 075
3 Credits 3 Weekly Lecture Hours

ART 111 History of Graphic Design

This course analyzes and evaluates the field of graphic design, typography and visual communications from the earliest written languages through contemporary graphic design practice. The course will help the student develop a visual vocabulary, introduce major design figures and movements, provide a historical context for design thought and practice while emphasizing the design profession as an artistic discipline. The work examined in each era will be discussed in terms of its aesthetic, socio-cultural, economic, political, historical and environmental systems impact.

Upon successful completion of this course, students should be able to:

- Analyze and identify the stylistic distinctions among the various historic design movements.
- Explain the techniques and tools used in the various design movements.
- Define the technical terms associated with the graphic design industry.
- Identify important historical artists and designers that contributed to the various historic design movements.
- Identify aesthetic, economic, historical and environmental changes that affected the visual appearance of the various design movements.
- Analyze cultural, political, contextual, and stylistic interdependence and differentiation between the diverse regions studied.
- College Academic Learning Goal Designation: Global Understanding (GU)

Prereq. ENG 050 and REA 050 or ENG 099 and REA 075
3 Credits 3 Weekly Lecture Hours

ART 112 Two Dimensional Design

This course is an introductory course that entails deliberate visual decision-making based on the elements and principles of design on a two-dimensional surface. A variety of media including wet, dry and or digital possibilities will be a focus of this course. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:

- Demonstrate the ability to apply the general principles of design including unity/variety, balance (symmetrical, asymmetrical, radial and crystallographic), emphasis, rhythm, repetition, proportion/Scale, and figure/ground relationship.
- Manipulate the general elements of visual language including line, shape, volume texture and space.
- Utilize the full grey scale including black and white.
- Practice critical thinking skills through the production and evaluation of artwork.

Prereq. (ENG 080, REA 080) or ENG 099 or REA 075 and MAT 050
3 Credits 5 Weekly Laboratory Hours

ART 123 Color and Design

This course will emphasize an in-depth study of the basic properties of color. Color-aid papers as well as pigment will serve as the basic media used in this course. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:

- Manipulate properties of hue, value and chroma.
- Understand the effects of light upon color within the context of warm and cool colors.
- Demonstrate knowledge and understanding of the 12-hue color wheel.
- Understand the psychological and expressive qualities of basic color relationships.
- Integrate critical thinking skills through completed artworks and critiques.

Prereq. ART 122
3 Credits 5 Weekly Laboratory Hours

ART 124 Three Dimensional Design

This course is an introductory course that entails deliberate decision-making based on the elements and principles of design within a three-dimensional space. A variety of media including traditional and non-traditional materials may be utilized through additive and subtractive methods. Historical and contemporary references may be used to investigate techniques and stimulate discussion toward conceptualizing, visualizing and execution. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:

- Demonstrate the ability to apply the general principles of design including unity/variety, balance (symmetrical, asymmetrical, radial and crystallographic), emphasis, rhythm, repetition, proportion/Scale, and figure/ground relationship within three dimensional space.
- Manipulate and fabricate a variety of materials.
- Articulate how design elements and principles may influence perception conceptually and aesthetically.
- Utilize site-specific location, light and space.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. (ENG 050, REA 050) or ENG 099 or REA 075 and MAT 050
3 Credits 5 Weekly Laboratory Hours

ART 130 Drawing 1
This course is an introductory level foundation course in drawing. A variety of media and subject matter including still life will be a focus in this course. Demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Demonstrate the ability to draw utilizing perceptual means incorporating the basic properties of light, value, scale, proportion, figure-ground relationship and texture.
• Demonstrate the ability to activate the concept of the picture plane.
• Produce cohesive composition.
• Diagram perspective.
• Create the illusion of three-dimensional forms and space on a two-dimensional plane.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. (ENG 050, REA 050) or ENG 099 or REA 075 and MAT 050
3 Credits 5 Weekly Laboratory Hours

ART 131 Drawing II
This course will continue to stress general foundation drawing skills. A variety of wet and dry media including color media will be a focus in this course. Subject matter will expand from still life to more conceptually based integration of various imagery. Demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Demonstrate the ability to draw utilizing perceptual means incorporating the basic properties of light, value, scale and proportion, figure-ground relationship, texture and color.
• Demonstrate the ability to activate the concept of the picture plane using traditional and non-traditional means.
• Produce cohesive composition.
• Manipulate the illusion of three-dimensional forms and spaces.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. ART 130
3 Credits 5 Weekly Laboratory Hours

ART 133 Photography I
This course introduces students to visual language utilizing the medium of photography. Problems and assignments are structured to develop a personal vision and working knowledge of photographic materials and methods. Contemporary and historical problems and composition will be introduced with an emphasis on aesthetic, technical, and conceptual practices. Demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Demonstrate the fundamental skills of camera and light meter operation.
• Demonstrate the fundamental skills of darkroom procedures for film processing and printing.
• Demonstrate an understanding of the photographic image in terms of light, shape, form and organization of the two-dimensional plane.
• Make informed choices about composition when photographing and editing images.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. (ENG 050, REA 050) or ENG 099 or REA 075 and MAT 050
3 Credits 5 Weekly Laboratory Hours

ART 134 Photography II for A.F.A. Majors
This course continues the exploration into conceptual and technical proficiency with an emphasis on photography as fine art. Advanced techniques with camera work, film developing, printing and presentation will be discussed as well as the departure from traditional photographic practices, conventions and materials. Lecture, demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Demonstrate camera skills that display a personal aesthetic approach to composition.
• Demonstrate technical control over darkroom procedures for film processing and printing consistent with a personal vision.
• Demonstrate experimental and manipulative techniques.
• Make informed choices about composition when photographing and editing images.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. ART 133
3 Credits 5 Weekly Laboratory Hours

ART 136 Drawing as a Design Process
This course will focus on specific freehand drawing skills needed to be successful in the daily requirements of the advertising and commercial design fields through structural analysis of manmade and natural forms. The elements of line, shape, value and spatial organization will be stressed to develop drawings suitable for inclusion in the student's design portfolio. Demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Draw from observation using elementary forms and linear methods to achieve structure.
• Analyze proportion and form to build complex geometric forms.
• Create drawings using one-point, two-point, three-point and intuitive perspective techniques.
• Employ the value scale to achieve volume and mass.
• Apply rapid visualization processes to draw objects from memory.
• Produce finished "symbol" drawings through the process of icon translation.
• Solve projects in a unique and creative manner.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. ART 130
3 Credits 2 Weekly Lecture Hours
3 Weekly Laboratory Hours

ART 140 Painting I
This course is a foundation level studio course in acrylic painting with instruction on the use of brush and palette knife. Still life subject matter will be the predominant source of visual imagery in this course. Demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Prepare the materials for the process of painting.
• Demonstrate knowledge and understanding of the 12-hue color wheel.
• Demonstrate the ability to activate the concept of the picture plane.
• Produce cohesive composition through the student’s direct observation of the subject.
• Demonstrate the ability to analyze how light creates form with the interplay of hue, value and chroma.
• Create the illusion of three-dimensional forms and space on a two-dimensional plane.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. (ENG 050, REA 050) or ENG 099 or REA 075 and MAT 050
3 Credits 5 Weekly Laboratory Hours

ART 141 Painting II
This course will continue to stress general foundation painting skills in the acrylic and or mixed media. Subject matter will expand from the still-life to more conceptual based integration of various imagery. Demonstration discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Prepare the materials for the process of painting.
• Demonstrate knowledge and understanding of the 12-hue color wheel.
• Produce cohesive composition.
• Demonstrate the ability to analyze how light creates form with the interplay of hue, value and chroma.
• Demonstrate the ability to activate the concept of the picture plane using traditional and non-traditional means.
• Manipulate the illusion of three-dimensional forms and space.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. ART 140
3 Credits 5 Weekly Laboratory Hours

ART 142 Life Drawing
This course will emphasize life drawing from the nude and draped model. The figure will be studied as a singular form and as part of the environment. Drawing with a variety of wet and dry media will be stressed in the course. Demonstration, discussion and formal critiques will augment studio work.
Upon successful completion of this course, students should be able to:
• Demonstrate the ability to draw the human figure utilizing perceptual means incorporating bold, gestural and quick mark-making skills.
• Demonstrate the ability to draw the human figure utilizing perceptual means within a sustained pose incorporating properties of line, value, scale and proportion, figure-ground relationship, texture and tone.
• Demonstrate the ability to draw the human figure incorporating basic knowledge of human anatomy and art historical connections.
• Demonstrate the ability to activate the concept of the picture plane.
• Produce cohesive composition.
• Practice critical thinking skills through the production and evaluation of artwork.
PreReq. ART 130 or departmental permission
3 Credits 5 Weekly Laboratory Hours

ART 144 Figure Painting
This course will emphasize painting from the nude and draped model. The figure will be studied as a singular form and as part of the environment. Painting in the acrylic medium utilizing “engrasse” techniques as well as utilizing the full color palette will be stressed in the course. Demonstration, discussion, and formal critiques will augment studio work.
Upon successful completion of this course, students would be able to:
• Demonstrate the ability to paint the human figure utilizing perceptual means incorporating bold, gestural and quick mark-making skills.
• Demonstrate the ability to paint the human figure utilizing perceptual means within a sustained pose incorporating the interplay of hue, value and chroma.
• Demonstrate the ability to paint the human figure incorporating basic knowledge of human anatomy and art historical connections.
• Demonstrate the ability to activate the concept of the picture plane.
• Produce cohesive composition.
ART 145 Watercolor Painting

This course is an introduction to the basic tools and techniques of the watercolor painter. Emphasis is placed upon transparent watercolor within the Western tradition in still life, landscape, figurative and non-objective subject matter. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
- Prepare the materials for the process of painting.
- Demonstrate the knowledge and understanding of the 12-hue color wheel.
- Demonstrate the ability to activate the concept of the picture plane.
- Produce cohesive composition.
- Apply the wash, glazing, graduated wash, wet into wet, lifting, scraping, resist, drops and splatter, and dry brush techniques within watercolor painting.
- Practice critical thinking skills through the production and evaluation of artwork.

Prereq. (ENG 050, REA 050) or ENG 099 or REA 075 and MAT 050

3 Credits 5 Weekly Laboratory Hours

ART 190 ART Internship (1 credit)

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5

Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe the knowledge, and understanding of the numerous new media in art what will be studied as individual works in relation to their cultural backgrounds. Issues of iconography, biography and other new methodologies will also be a focus of this course.

Upon completion of this course, students should be able to:
- Practice critical thinking skills through the production and evaluation of artwork.
- Produce content as an effective form of visual communication.
- Describe specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student's program/major to complete a project which articulates how the experience helps the student achieve program outcomes

2 Credits

Prereq. ENG 100 and ART 111

3 Credits 3 Weekly Lecture Hours

ART 199 ART Internship (3 credits)

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5

Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe the knowledge, and understanding of the numerous new media in art what will be studied as individual works in relation to their cultural backgrounds. Issues of iconography, biography and other new methodologies will also be a focus of this course.

Upon completion of this course, students should be able to:
- Practice critical thinking skills through the production and evaluation of artwork.
- Produce content as an effective form of visual communication.
- Describe specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student's program/major to complete a project which articulates how the experience helps the student achieve program outcomes

3 Credits 3 Weekly Lecture Hours

ART 208 Computer Illustration

This course is an introduction to the computer as a drawing, illustration, and design tool. Students will gain an understanding of the creation of drawings and illustrations and their practical applications in digital media and art. Students will be given hands-on instruction on Apple Macintosh computers using a current object-oriented drawing program. Contemporary and historic styles of illustration, composition, and typography will be introduced with an emphasis on aesthetic, technical, and conceptual practices. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
- Demonstrate the fundamental skills of object-based drawing and illustration through perspective, scale, weight and proportion.
- Utilize type as an expressive element.
- Print Postscript graphics on black 8 white and color printers.
- Solve projects in a unique and creative manner.
- Produce content as an effective form of visual communication.
- Practice critical thinking skills through the production and evaluation of artwork.

Prereq. ART 122 and ART 130

3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours
ART 211 Digital Imaging
This course is an introduction to the use of image editing software for the creation of dynamic images for print, web and multimedia applications. Special attention is given to scanning images, resolution formulas, appropriate file formats, color correction, organization of images, printing and prepress production, color management and image composition. Students will be given hands-on instruction on Apple Macintosh computers using current image editing software. Contemporary and historic styles in imaging, photography and composition will be introduced with an emphasis on aesthetic, technical, and conceptual practices. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:

- Demonstrate the fundamental skills of image manipulation, composition and compositing techniques.
- Use online search tools for college-level research using appropriate hardware and software.
- Print raster-based graphics on black and white and color printers.
- Produce content as an effective form of visual communication.
- Practice critical thinking skills through the production and evaluation of artwork.

Upon successful completion of this course, students should be able to:

- Use the principles of positive/negative space, rhythm, texture and composition in manipulating letterforms as design elements.
- Select appropriate typefaces that enhance verbal messages.
- Identify and categorize commonly used type families.
- Employ letter, word and line spacing that enhance the appearance and readability of type.
- Arrange and assemble display and test in a page layout relating it to other design elements.
- Apply typographic hierarchy to organize a page layout.
- Solve projects in a unique and creative manner.
- Produce content as an effective form of visual communication.
- Practice critical thinking skills through the production and evaluation of artwork.

Prereq: ART 122 and ART 130
3 Credits
2 Weekly Lecture Hours
3 Weekly Laboratory Hours

ART 225 Prepress and Printing Processes
In this course you will investigate digital file composition and the use of computing technology as it applies to the preparation of digital files for the printing industry. Printing and binding methods used to reproduce the work of the graphic designer will be studied. Technical, time and budget constraints are emphasized in order to relate design and production costs to real-world situations. Students will gain hands-on experience with a variety of graphics hardware and software commonly used for computer prepress. Coursework includes lecture, case study and field trips. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:

- Define design objectives and how work flows through the imaging process.
- Identify and define line art and halftone reproduction processes.
- Identify and define the most commonly used proofing methods and color systems.
- Identify, characterize and select appropriate paper stock for various types of printing jobs.
- Design and differentiate between the various commercial-printing methods.
- Identify and define printing-related processes such as engraving, embossing, diecutting, foil stamping and the most commonly used bindery methods.
- Identify and list the advantages, disadvantages and capabilities of different graphic media and use of file compression utilities for file transfer and storage.
- Perform font management activities.
- Understand, use and apply calibration techniques to computer monitors and desktop scanners.
- Apply troubleshooting techniques to hardware and software problems.
- Output digital files on Postscript and non-postscript printers.
- Solve projects in a unique and creative manner.
- Produce content as an effective form of visual communication.
- Practice critical thinking skills through the production and evaluation of artwork.

Prereq: ART 208, ART 211 and Coreq: ART 213
3 Credits
2 Weekly Lecture Hours
3 Weekly Laboratory Hours

ART 228 Motion Graphics
This course introduces students to time-based graphics through animation. The focus of the course will be on developing a beginner-to-intermediate vector and bitmap animation for web delivery and related presentation applications. Students will learn to design effective timeline sequences incorporating vector-drawing techniques, tweens, frame-by-frame animation procedures, bitmap imagery, typographic techniques and basic scripting. Design theory for interactive media is coupled with hands-on experience for creating visually rich animations, web pages and presentations. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:

- Develop a storyboard for time-based media.
- Design vector objects and raster images for motion graphics with emphasis on the visual aesthetic.
- Create basic animation sequences using vector-drawing tools.
- Execute frame-by-frame and tweens for animating using a timeline.
- Script basic commands for interactivity.
- Design a user-friendly environment with an emphasis on aesthetics.
- Create and utilize sound in a movie file.
- Deliver optimized movies to appropriate audiences.
- Solve projects in a unique and creative manner.
- Produce content as an effective form of visual communication.
- Practice critical thinking skills through the production and evaluation of artwork.

Prereq: ART 123, ART 208 and ART 211 Coreq: ART 215
3 Credits
2 Weekly Lecture Hours
3 Weekly Laboratory Hours

ART 230 Graphic Design I
This is an intermediate level course for graphic design majors. Through a series of projects students learn to employ basic design concepts in solving different types of visual communications problems. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion a student will be able to:

- Combine type and image in a layout to communicate an idea or message.
- Interpret and represent an idea by means of a mark or symbol.
- Interpret advertising copy and incorporate it in a design.
- Demonstrate visual gestalt principles in solving a design problem.
• Use traditional graphic design tools and techniques to develop a design concept from sketch to tight comprehensive layout.
• Evaluate visual solutions to design problems verbally and in writing.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.

PreReq. ART 123, ART 208 and ART 211 Coreq. ART 215
3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours

ART 231 Graphic Design II

This course is a continuation of Graphic Design I. In this course students refine skills and work habits related to the creative process for solving visual communication problems. Projects emphasize the development of design priorities and alternatives based on client need and production constraints. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
• Write and interpret the requirements of a design brief.
• Apply basic design principles to the organization and use of type, color and composition in a multi-page publication.
• Design and mock-up a basic package design.
• Solve a simple interface design problem.
• Present a design project to a client both verbally and visually.
• Solve projects in a unique and creative manner.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.

PreReq. ART 213 and ART 230
3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours

ART 232 Portfolio Seminar

This advanced-level course for graphic design majors covers the creation and selection of artwork required in job, college transfer and co-op interview situations. Demonstration, discussion, independent study and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
• Select, critique and refine a body of personal artwork that represents a range of artistic abilities and media.
• Mount and present artwork in a professional manner.
• Create a logical sequence for personal artwork presentation.
• Examine and select portfolio pieces appropriate for a specific audience.
• Archive two and three-dimensional work on appropriate media.
• Select a portfolio format appropriate for a specific audience.
• Design and produce a self-promotional leave-behind.
• Write and design a resume or intention letter.
• Define and solve a design problem that exhibits integration of studio skills from several courses.
• Make a portfolio presentation to a small group outlining project objectives, methods and materials.
• Solve projects in a unique and creative manner.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.

PreReq. ART 131, ART 215 and ART 230
3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours

ART 233 Portfolio Preparation

This course is intended for the aspiring fine arts major who needs to prepare a portfolio for entry into a four year program. Each student will be assessed on an individual basis at the beginning of the course. Following this assessment the student will be mentored on an individual and group basis in order to prepare a portfolio displaying a breadth of media, subject matter, design approaches and concept. Course work will include, individual and group studio work and critiques. Upon successful completion of this course, students should be able to:
• Produce, select, critique and refine a body of work that represents a breadth of media, subject matter, design approaches, and concept.
• Demonstrate the ability to activate the concept of the picture plane.
• Demonstrate the ability to work from direct observation incorporating the basic properties of line, value, figure-ground relationship, textures and color.
• Produce original works of art displaying cohesive composition.
• Create a logical and coherent body of work incorporating a high level of craftsmanship and professionalism indicative to the discipline.
• Practice critical thinking skills through the production and evaluation of artwork.

PreReq. ART 122, 123, 124, 130, 131, 140, 141, 142
3 Credits 5 Weekly Laboratory Hours

ART 236 Digital Photography I

This course introduces students to digital photography and the computer as a darkroom tool. Students will gain an understanding of how digital cameras work, image capturing, manipulation and the fine art of making a digital print. Contemporary and historic styles in photography and composition will be introduced with an emphasis on aesthetic, technical, and conceptual practices. Demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
• Demonstrate technical and aesthetic differences between analog and digital photography.
• Demonstrate the fundamental skills of camera and light meter operation.
• Demonstrate proper camera and digital processing techniques in production of a work of art.
• Demonstrate an understanding of the photographic image in terms of light, shape, form and organization of the two-dimensional plane.
• Make informed choices about composition when photographing and editing images.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.

College Academic Learning Goal Designation: Information Technology (TG)
PreReq. (ENG 050, REA 050) or ENG 099 or REA 075 and MAT 050
3 Credits 5 Weekly Laboratory Hours

ART 237 Alternative Processes

In this course students will explore a wide variety of alternative photographic processes that include formula’s for light sensitive materials to create hand-applied emulsions. Students will learn how to make images with and without cameras or negatives and how to print them on non-traditional materials. Lecture, demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of the photographic image in terms of light, shape, form and organization of the two-dimensional plane.
• Demonstrate technical control over darkroom and non-darkroom procedures, processing, and printing with alternative photographic materials.
• Demonstrate skills that display a personal aesthetic approach to alternative process materials.
• Make informed choices about composition when photographing and editing images.

PreReq. ART 123, ART 133
3 Credits 5 Weekly Laboratory Hours

ART 239 Digital Photography II

In this course students will explore digital photography in relation to fine art. Students will be given assigned lectures, writings and will produce artwork using a digital camera. Discussions and lectures will focus on the physical, conceptual and theoretical characteristics of the digital media as it pertains to art and art making. Emphasis will be placed on the students’ development of an understanding of the evolution of and the theory associated with art, photography and digital imaging.

Upon successful completion of this course, students should be able to:
• Demonstrate proper camera and digital processing techniques in production of a work of art.
• Understand technical and aesthetic differences between traditional and digital photography.
• Develop an understanding and knowledge of design concepts for Digital Media.
• Make informed choices about composition when photographing and editing images.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of art.

PreReq. ART 236
3 Credits 5 Weekly Laboratory Hours

ART 240 Medium and Large Format Photography

This course introduces the student to Medium and Large Format Photography including camera movements, the Scheimpflug principle and other techniques unique to medium and large format cameras as well studio lighting. The formal and aesthetic concerns of creating images in medium and large format will be emphasized throughout the class. Lecture, demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of medium and large format cameras and components.
• Demonstrate technical control over darkroom procedures for medium and large format film processing and printing consistent with a personal vision.
• Demonstrate how to correct distortions associated with the optical aberrations using large format equipment.
• Demonstrate the proper application and control over studio lighting.
• Make informed choices about composition when photographing and editing images.
• Produce content as an effective form of visual communication.
• Practice critical thinking skills through the production and evaluation of artwork.

PreReq. ART 123, ART 134
3 Credits 5 Weekly Laboratory Hours

ART 241 Portfolio Presentation

This course is a capstone experience for students completing the photography program. Students will produce a professional portfolio and self-promotional materials. Topics include researching transfer schools, refining a body of work, selecting works for the portfolio, strategies for different portfolio delivery and presentation methods, writing artist statements, cover letters, resumes, and interviewing skills. Lecture, demonstration, discussion and formal critiques will augment studio work.

Upon successful completion of this course, students should be able to:
• Demonstrate technical ability and aesthetic judgment by producing an individually selected portfolio project.

COURSE DESCRIPTIONS  91

Delaware County Community College
AUT 100 Introduction to Automotive Service Operation and Shop Practices

This introductory course is designed to provide the student with knowledge and skill in automotive service operations and shop practices. The student will interact with various automotive service organizations, dealerships, and independent service and repair contractors. Proper handling, parts departments, job classifications, training for a career in the automotive service and repair industry, and other automotive business related topics will be addressed. This course presents instruction in automotive terminology, use of service manuals, diagnostic equipment, use of shop tools, hand tools, and power tools in relation to shop practices and safety. Accident prevention practices, first aid tools and equipment, and personal environmental safety practices and procedures will be stressed throughout the course. In addition, an overview of the automotive engines, its major components, delivery units, preventive maintenance, and basic mathematics will be covered.

Upon successful completion of this course, students should be able to:
- Demonstrate personal and environmental safety practices.
- Apply basic first aid procedures. Identify tool and equipment nomenclature.
- Apply and utilize tool safety regulations.
- Explain Occupational Safety and Health Act (OSHA).
- Utilize service manuals/electronic media.
- Identify all data informational systems.
- Perform basic mathematical calculations.
- Identify the major components of the automobile.
- Perform calculations using the metric system.

2 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

AUT 101 Automotive Electricity and Electronics

This course is designed to prepare the student to work in the field of electricity and electronics as it relates to the modern day automobile. The course covers concepts in basic electricity, electrical terms, electrical circuits, and electronic systems protection. The student will be introduced to various types of batteries such as deep cycle batteries and hybrid batteries, their design, maintenance, size, selection, factors affecting the battery’s life, safety procedures, testing, charging, and jump-starting. Emphasis will be placed on the ignition system, its design, components, control circuits, testing, disassembly and assembly. The course is also designed to provide the student with a basic understanding of present and future developments in sophisticated automotive electronics. In addition, indicator systems, pollution control systems and other modern automotive accessory systems will be addressed.

Upon successful completion of this course, students should be able to:
- Perform electronic pollution controls testing, service and repair requirements. Identify basic electronic circuits used in the modern automobile.
- Identify system defects and troubleshooting procedures.
- Utilize various techniques to adjust electronic ignition systems.
- Recognize electronic braking systems.
- Test, service, and repair various systems according to requirements.
- Identify indicators and gauges.
- Repair power operated cruise control. Install warning, security, and sound systems.
- Identify electronic controlled tripm computers, and digital indicator systems. Troubleshoot warning, and warning indicators.

3 Credits 5 Weekly Laboratory Hours

AUT 102 Automotive Engines

This course is designed to provide the student with the fundamental theory, construction, inspection, measurement, performance, and identification of the automobile’s engine. Integrating theory and practical application in the lab is stressed throughout the course. The course covers topics such as preparing the engine for removal, lifting, disassembly, assembly, and inspection, as well as identifying, diagnosing, and evaluating engine parts. The student will gain skill in analyzing defects and the proper process to administer specific maintenance requirements. In addition, the student will be exposed to concepts in cylinder block reconditioning, crankshaft inspection and measurements, piston rings inspection, renewal, and installation.

Upon successful completion of this course, students should be able to:
- Prepare engines for removal.
- Disassemble, inspect, and clean engine parts. Install bearing, pistons, piston rings, and crankshaft.
- Assemble the cylinder head.
- Remove the camshaft.
- Install timing components, gears chain, and belts.
- Inspect and service oil pumps.
- Inspect aluminum cylinder heads; combustion chamber, and intake exhaust valves.
- Follow valves reconditioning guide for valve seats, and valve stem seals.
- Adjust hydraulic and manual valve clearance.
- Lubricate and test cooling system.
- Inspect air induction system and exhaust system components.
- Service turbochargers and superchargers.
- Utilize torque wrench and its components.
- Thread and repair gaskets and their sealing properties.
- Use adhesives, sealant and other sealing materials.
- Reassemble engine and install engine in the vehicle.
- Perform crankshaft inspection measurements.

4 Credits 2 Weekly Lecture Hours 4 Weekly Laboratory Hours

AUT 103 Brake Systems

This course is designed to introduce students to the principles of hydraulic brake systems and their components. The course will emphasize how to analyze and repair domestic and foreign brake systems to include shoe, disc, hydraulic, vacuum and air brake systems. Instruction will include an overview of hydraulic brake systems, its components, hydraulic system safety switches and valves, master cylinder operation, as well as inspection, machining, fitting, and adjustments of brake systems. Measurements required for brakes, rotors, brake lining, and brake-bleeding procedures will be addressed. Mathematical calculation requirements and the use of digital readout units will be covered. In addition, diagnostic testing of disc brake components and functions, two and four wheel equipped disc brakes, general brake inspection and service, rotor inspection and service, various antilock brake systems, ABS components and systems, automatic traction control and stability will be thoroughly presented.

Upon successful completion of this course, students should be able to:
- Identify hydraulic brake systems.
- Repair brake components and systems.
- Perform inspection, measurement and machining procedures.
- Diagnose, service and repair antilock brake systems and automated traction control.
- Service and repair four-wheel disc brake systems.
- Identify principles of hydraulic brake systems and components.
- Identify drum and disc brake assemblies.
- Diagnose and service brake drum and rotor components.
- Perform rotor inspection service and measurements.
- Diagnose and repair antilock brake systems for two wheel and four-wheel units.

4 Credits 2 Weekly Lecture Hours 4 Weekly Laboratory Hours

AUT 114 Steering and Suspension

This course is designed as an introduction to tire description, wheels, tire repairs, measurements; wheel run out, tires and wheels service, and wheel bearings. The course provides the student with methods of analyzing defects and the necessary preventive or corrective maintenance requirements. Tire wear patterns and remedies will be thoroughly covered. Emphasis will be placed on McPherson Strut Systems, independent suspension systems, general front suspension inspection, and repairs. Topics such as electronically controlled suspension, manual steering systems, power steering systems, electically controlled power steering systems, and steering system diagnosis will be covered. Visual inspection, four-wheel steering systems, alignment geometry, pre-alignment inspection, wheel alignment equipment, and alignment machines will also be presented.

Upon successful completion of this course, students should be able to:
- Identify tire descriptions and usage.
- Perform service on tires and wheels, wheel bearings, front and rear from tapered to retreaded.
- Identify tire wear patterns and remedies.
- Repair frames, suspension system components, and McPherson Strut Systems.
- Inspect and service front suspension components.
- Repair rear, independent, semi-independent, and live-axle rear suspension systems.
- Perform two- and four-wheel alignment procedures.
- Utilize alignment machines.

4 Credits 2 Weekly Lecture Hours 4 Weekly Laboratory Hours

AUT 115 Fuel I and II

This course introduces the student to gasoline and diesel fuels with emphasis on fuel performance, delivery systems, pumps, and fuel lines in major domestic and foreign automotive fuel systems. The course includes carburetor design, basic carburetor circuits, and various types of carburetors. It also covers fuel injection systems, fuel lines, and fuel pumps, detailed injection processes, and fuel tanks. The course also includes a complete diagnostic troubleshooting process, and an overall factory adjustment procedure of all major carburetor and fuel injection systems.

Upon successful completion of this course, students should be able to:
- Demonstrate safety in handling fuels.
- Evaluate uses of alternative fuels.
- Identify fuel delivery systems for gasoline and diesel engines.
- Determine alcohol and/or water levels in fuel tanks.
- Identify fuel systems pressure, relief, and fuel filters. Identify the sources of technical data for automotive fuel systems.
- Discuss diesel fuel injection systems for passenger cars.
- Operate and service hydraulic and mechanically controlled fuel injection systems. Explain the operation/service of electronically controlled fuel injection systems. Determine methods to analyze defects.

4 Credits 2 Weekly Lecture Hours 4 Weekly Laboratory Hours
AUT 121 Engine Performance

This course is designed to provide the student with theory, design, construction, inspection, and service of the automotive engine. The purpose of the course is to review engine operation and performance, the creation of vacuum during engine operation, comparison of engine vacuum to low voltages use with vehicle engine management computer. Concepts such as computer programming, diagnosing, and troubleshooting internal circuit boards will be presented. The purpose and operation of critical sensors in fuel economy, emission control and electronic spark timing will also be presented. Catalytic converters, their purpose in controlling exhaust gas emission and the use of two or more O2 sensors will also be covered. Case studies of the vehicle engine, spark and fuel malfunctions, the use of scan tools, AC and DC test instruments, and dynamometer operation to simulate on-road conditions will be explored. Moreover, the use of OBD (On-Board Diagnostics) to determine malfunctions within the overall engine fuel and electronic management parameters will also be reviewed. Hands on skills to determine malfunctions in the operation of the modern vehicle in real life scenarios will be practiced.

Upon successful completion of this course, students should be able to:

- Identify engine operation and performance, vacuums, and electronic devices.
- Perform computer programming.
- Process malfunction retrieval of diagnostic trouble codes.
- Test sensors and activators performance.
- Define the relationship of fuel management to electronic engine control.
- Utilize scan tools.
- Repair emission control and electronic spark timing.
- Utilize exhaust dynamometer operation to simulate on-road conditions.
- Recognize internal circuits malfunctions.
- Identify results using two or more O2 sensors.
- Define operation of exhaust analyzers and dynamometers.
- Solve case studies describing malfunctions of engine parts.
- Apply AC and DC test instruments.
- Define OBD.
- Determine malfunctions within the overall engine fuel and electronic management parameters.

Prereq. AUT 100

2 Credits

1 Weekly Lecture Hours
2 Weekly Laboratory Hours

AUT 150 Air Conditioning

This course is designed to provide the student with theory and skill in the design, operation, diagnostic, repair, and service procedures of the automotive heating and air conditioning combinations, individual controls, and refrigerants used in air conditioning systems. Manual and automatic operations of systems, basic and advanced control systems, and computer controlled air conditioning systems will be discussed. In addition, temperature controls systems, refrigerant control systems, proper maintenance procedures, and recommendations will also be addressed. Topics such as electrical, electronic diagnosis, troubleshooting, retrofitting R-12 systems to R-134A, and utilizing proper antifreeze protection will also be covered.

Upon successful completion of this course, students should be able to:

- Demonstrate safety and caution with refrigerants.
- Obtain EPA (Environmental Protection Agency) certification.
- Handle approved refrigerants.
- Diagnose heating and air conditioning system failures.
- Diagnose and repair electronic and electronic systems.
- Discharge, evacuate, and repair various systems.
- Repair and change various systems.
- Drain, flush and refill cooling systems.
- Operate combustion and individual controls.
- Identify refrigerants to be used in A/C systems.
- Apply basic and advanced control systems.
- Recommend maintenance procedures.
- Operate manual and automatic systems.

Prereq. AUT 100

2 Credits

1 Weekly Lecture Hours
2 Weekly Laboratory Hours

AUT 151 Ignition Systems

This course is designed to provide the student with a foundation in theory and skill in the field of ignition systems. Basic, primary and secondary circuits, ignition timing, spark timing systems, and the components and operation of the ignition system will be discussed. Visual inspection of components, wiring, and no-start diagnosis and general ignition system testing as well as the scope and effects of incorrect ignition timing will be included. Theory and practical application in the laboratory will be stressed.

Upon successful completion of this course, students should be able to:

- Define the purpose of the ignition system.
- Demonstrate safety, caution and proper use of tools.
- Install high voltage secondary wiring.
- Diagnose and troubleshoot primary and secondary ignition systems.
- Troubleshoot distributor equipped and direct spark ignition systems.
- Diagnoses and repair no start problems.
- Adjust ignition timing on engines.

Prereq. AUT 101

2 Credits

1 Weekly Lecture Hours
2 Weekly Laboratory Hours

AUT 152 Computer and Emissions Systems

This course is designed to provide the student with theory and skill in the design, repair, service, and testing procedures of emission systems, and as well as drivability problems. Electronic service precautions, computer outputs, primary sensors, monitoring capabilities, OBD (On-Board Diagnostics) systems and terms will be covered thoroughly. The use of various types of computers in diagnostic systems, as such as retrieving trouble codes, diagnosing computer voltage supply, and ground wires will be presented. The student will also be prepared to test input sensors, actuator sensors, and variable resistor type sensors, generate sensors, and test various computer circuits in the modern day automobile. The legislative history of emission controls, pollutants, evaporative emission control systems, PV emission control system, exhaust emission control system, EGR (Exhaust, Gas, and Recirculation) systems, catalytic converter systems, troubleshooting and diagnosing emission systems, and engine management by computer systems will be thoroughly covered.

Upon successful completion of this course, students should be able to:

- Explain computer operation, circuits, and design. Define OBD (On-Board Diagnostics) terms.
- Utilize testing tools to retrieve malfunction codes from the computer.
- Identify the importance of emission controls and emission control procedures.
- Interpret electronic service precautions.
- Perform basic diagnosis.
- Explain computer outputs and actuators.
- Retrieve trouble codes from various types of computers.
- Test input sensors and actuator sensors.
- Explain exhaust emission control system.
- Define EGR (Exhaust, Gas and Recirculation) systems.
- Troubleshoot and diagnose emission systems.
- Maintain control of emission and engine management by the computer.

Prereq. AUT 100

3 Credits

2 Weekly Lecture Hours
2 Weekly Laboratory Hours

AUT 153 Automotive Manual Transmis-

sion/Transaxle and Chassis

This course is designed to provide the student with knowledge and skill in manual transmission/transaxle and clutch units, used to move vehicles from a stop to full speed. It includes internal unit designs; power flows, gearing theory, internal nomenclature, overdrive, and gear ratio explanation. Disassembly, assembly, and removal of the transmission/transaxle, as well as inspection of the internal components will be covered. Service and replacement of CV joints and front wheel drive will also be included. Conventional and limited slip differentials provide the student with knowledge and skill in the operation and function of the clutch.

Upon successful completion of this course, students should be able to:

- Demonstrate safety in disassembly, removal, and assembly of units in the vehicle.
- Inspect components in a vehicle. Install units in the vehicle.
- Install gear ratio.
- Apply gearing theory.
- Inspect and measure internal components.
- Replace internal components.
- Demonstrate how varied gear combinations move a vehicle to highway speeds. Diagnose gearing and clutch problems during unit’s operation.
- Differentiate between manual transmissions and manual transaxles.
- Identify clutch components and determine replacement.

Prereq. AUT 101

3 Credits

1 Weekly Lecture Hours
2 Weekly Laboratory Hours

Delaware County Community College

COURSE DESCRIPTIONS 93
AUT 200 Automotive Automatic Transmission/Transaxle

This course is designed to provide the student with theory and skill in the design, construction, inspection, repair, and diagnostic testing of the automatic transmission/transaxle. The student will be prepared to perform diagnostic procedures during the evaluation of the component’s operation to determine if minor or major repairs are required to bring the automatic transmission/transaxle units back to manufacturer’s specifications. In addition, processes to disassemble, measure, inspect, and re-assemble automatic transmission/transaxle units correctly will be stressed. Electronic controls, hydraulic systems, locking and unlocking hubs, and operational modes will be discussed. Emphasis will be placed on servicing four-wheel drive and all-wheel drive systems; transmission clutches, automatic transmission/transaxle maintenance, oil, and filter change procedures will also be covered. Hands-on procedures will be stressed throughout the course.

Upon successful completion of this course, students should be able to:
- Demonstrate cautions and safety.
- Evaluate torque converters, bearings, bushings, and thrust washers.
- Disassemble, measure, and assemble units.
- Measure and install new parts as required.
- Differentiate between 4-wheel drive and all-wheel drive.
- Evaluate transfer cases, their operation, service, and maintenance.
- Service 4-wheel drive and all-wheel drive vehicles.
- Identify hydraulic systems.
- Lock and unlock hubs.
- Change transmission fluids and determine their proper usage in various manufacturers’ units.
- Apply proper procedures for oil and filter change.
- Remove, overhaul and re-install transmission/transaxle in vehicles.
- Adjust units back to manufacturer’s specifications.

PreReq. AUT 100
4 Credits 2 Weekly Lecture Hours 4 Weekly Laboratory Hours

BIO 100 Biological Sciences

Students in this course will explore the following aspects of biology: the organization of life, the development of living organisms, the transmission of traits, evolution, behavior and ecology. This course is intended for the non-science degrees. BIO 100 should not be taken in conjunction with BIO 110 or BIO 111.

Upon successful completion of this course, students should be able to:
- Analyze the characteristics of life as currently understood.
- Relate the life characteristics to the simplest level of existence: the single cell.
- Explain various patterns of reproduction among plants and animals.
- Evaluate various techniques of population control.
- Explore the mechanism by which traits are transmitted from parent to offspring.
- Summarize the causes and effects of various types of mutations.
- Trace the history of the modern concept of evolution.
- Survey the system of classification of plants and animals.
- Interpret behavior as an illustration of the modern concept of evolution.
- Relate the sources and the effects of pollutants to the quality of the environment.
- Demonstrate an understanding of laboratory experiments as they relate to the biological concepts presented in the above competencies.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
PreReq. BIO 100
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

BIO 102 Humans and the Environment

This course provides an introduction to the study of the design of the natural world and interactions between humans and their environment. It includes an investigation of the impact of human activities on biodiversity, natural resources, availability of energy, and contamination of the environment. The scientific, economic, and social issues that contribute to environmental problems are also examined. Sustainability principles, policies, and programs are explored on the local, national and global level. This course is an elective designed for non-science majors.

Upon successful completion of this course, students should be able to:
- Test chassis and security systems.
- Define air bag restraint systems.
- Remove and service air bag systems.
- Prevent deployment of air bag systems.
- Demonstrate precaution during the disconnecting of air bags for servicing.
- Repair restraint systems using conventional seat belts and roofline slider belts will be addressed. Moreover, radio and speaker installations, automatic vehicle leveling systems, and proper wiring for anti-theft device installation systems will also be covered.

Upon successful completion of this course, students should be able to:
- Adjust chassis.
- Troubleshoot chassis operation.

PreReq. AUT 151
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

BIO 110 General Biology I

General Biology I is designed for majors in biology, natural science and related fields. This course introduces students to the general principles of biology, emphasizing cell structure and function, molecular biology, genetics, and evolution. Students are expected to develop skills in utilizing the scientific method as a tool for problem solving.

Upon successful completion of this course, students should be able to:
- Utilize the scientific method to solve problems.
- Describe the chemical structure of biological molecules.
- Relate molecular structure to biological function.
- Describe prokaryotic and eukaryotic cell structure.
- Relate cellular structure to cell function.
- Explain the processes by which living systems convert solar energy to usable chemical energy.
- Identify the role of genetic material in transmission of traits from generation to generation.
- Relate variability in the transmission of genetic material to biological evolution.
- Critique current theories on the origin of life on Earth.
- Access, interpret, and evaluate peer-reviewed primary scientific literature.
- Demonstrate an ability to utilize modern biology laboratory skills.
- Demonstrate an ability to apply biological concepts to one’s life.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
PreReq. MAT050, REA050 or REA075 or ENG099 or placement test scores
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

BIO 111 General Biology II

General Biology II is designed for majors in biology, natural science, and related fields. This course focuses on the structure, function, and diversity of organisms with an emphasis on their evolutionary and ecological relationships.

Upon successful completion of this course, students should be able to:
- Relate taxonomic classification to biological evolution.
- Describe patterns and processes of embryological development in animals.
- Relate structure to function in animal organ systems.
- Relate reproductive patterns to classification of the major phyla of plants.
- Characterize the features of selected organisms in the Kingdom Fungi.
- Demonstrate the phylogenetic nature of the Kingdom Protista.
- Characterize the evolutionary and ecological significance of bacteria.
- Discuss the impact of viruses on organisms.
- Interpret the ecological significance of organisms within various taxa.
- Access, interpret, and evaluate peer-reviewed primary scientific literature.
- Demonstrate an ability to utilize modern biology laboratory skills.

PreReq. BIO 110
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours
BIO 111 Field Ecology
Field Ecology is designed primarily for majors in biology, natural science, and related fields, yet is open to students of all majors. This course introduces students to the general principles of field ecology pertaining to terrestrial, aquatic, and marine habitats. Emphasis will be placed upon regional conservation issues, biodiversity concepts, plant and animal interactions and adaptations, effects of human disturbance on native flora and fauna, and field research techniques. Students are expected to develop and apply skills in field research and in utilizing the scientific method.

Upon successful completion of this course, students should be able to:
• Apply the scientific method to test hypotheses
• Develop and apply skills used to identify, survey, and study plants and animals in a field setting
• Describe local, regional, and global trends in biodiversity
• Describe the processes and mechanisms that may affect biodiversity at local, regional, and global scales
• Develop an appreciation of the ecological and economic value of biologically diverse habitats
• Develop an appreciation of the value of diverse perspectives in a multicultural

BIO 115 Human Anatomy and Physiology I
The first course in a two-semester sequence that covers the basic structure and function of the human body using a systems approach. Major topics covered include biological chemistry, cell biology, histology, integumentary system, skeletal system, muscular system, and nervous system. Laboratory work includes dissection, microscopy, models and experimental demonstration of concepts covered in class. Dissection of preserved animal specimens is required. This course is designed primarily for students majoring in nursing or allied health fields. BIO 110 Introductory Biology II is suggested, but not required, before enrolling in Human Anatomy & Physiology I (4 credits).

Upon successful completion of this course, students should be able to:
• Demonstrate the correct usage of basic anatomical terminology.
• Describe how the body uses feedback systems to maintain homeostasis.
• Apply basic chemical concepts to the study of human physiology.
• Compare the major organic molecules found in the human body and describe their functions.
• Relate cell ultrastructure to the various functions performed by the cell.
• Compare the major tissues found in the human body and relate their structure and location to specific functions.
• Describe how the structure of the skin contributes to its function.
• Describe the organization and function of the skeletal system.
• Categorize joints according to their structure and function.
• Analyze the ultrastructure of skeletal muscle and explain the mechanism of muscle contraction.
• Demonstrate an understanding of the physiology of nerve impulse generation and propagation.
• Analyze the structure and function of the spinal cord and cranial nerves.
• Analyze the structure and function of the brain and cranial nerves.
• Demonstrate an understanding of how the autonomic nervous system functions to maintain homeostasis.
• Relate the structure and location of the various sensory receptors to the perception of specific sensations.
• Demonstrate an ability to perform modern laboratory skills, including dissection and microscopy.
• Collect and analyze experimental data, formulate appropriate conclusions, and compile lab reports.
• Apply concepts learned in this course to one’s personal health. 

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. MAT 050 or placement test score Coreq. ENG 100
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

BIO 151 Human Anatomy and Physiology II
The second course in a two-semester sequence that covers the basic structure and function of the human body using a systems approach. Major topics covered include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems along with immunity, metabolism, and fluid, electrolyte, and acid-base homeostasis. Laboratory work involves dissection, microscopy, models, and experimental demonstration of concepts covered during class. Dissection of preserved animal specimens is required. This course is designed primarily for students majoring in nursing or allied health fields.

Upon successful completion of this course, students should be able to:
• Evaluate the role of hormones in regulating body functions.
• Categorize the components of the blood and describe their functions.
• Demonstrate an understanding of cardiac anatomy and physiology.
• Relate the structure of the blood vessels to the hemodynamics of blood flow.
• Examine the structure and function of the lymphatic system.
• Analyze how the immune system functions to defend the body against disease.
• Demonstrate an understanding of respiratory anatomy and physiology.
• Demonstrate an understanding of digestive anatomy and physiology.
• Analyze how major metabolic pathways are used by the body.
• Examine the role of the urinary system in maintaining homeostasis.
• Assess the body’s ability to maintain fluid, electrolyte, and acid-base homeostasis.
• Relate the structure of the male reproductive system to its function.
• Relate the structure of the female reproductive system to its function.
• Demonstrate an understanding of conception, pregnancy, embryonic and fetal development, including an introduction to human inheritance.
• Demonstrate an ability to perform modern laboratory skills, including dissection and microscopy.
• Collect and analyze experimental data, formulate appropriate conclusions, and compile lab reports.

Prereq. BIO 150 with a ‘C’ or better
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

BIO 200 General Zoology
A survey of the major plant groups with an emphasis on basic structure, function, reproductive patterns, biological contributions, development and evolutionary relationships within each group.

Upon successful completion of this course, students should be able to:
• Describe basic comparative plant anatomy, morphology, and physiology.
• Describe and recognize the distinguishing characteristics of diverse groups within the Plant Kingdom including bryophytes, ferns and fern allies, gymnosperms, and angiosperms.
• Discuss the major evolutionary advances in plants and related organisms.
• Explain the importance of botany as a past, present, and future science.
• Describe concepts and theory pertaining to modern plant ecology.
• Demonstrate laboratory and field skills required of examination and identification of plant tissues and specimens.
• Access, interpret and evaluate peer-reviewed, primary scientific literature

BIO 111 is recommended but not required.

Prereq. BIO 110
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

BIO 220 Nutrition and Well Being
This is a one semester course covering the basic principles of human nutrition and their application to the maintenance of lifelong health and well-being. It is designed to fulfill the requirements of certain allied health and nursing programs, and is taught by a dietitian/nutritionist licensed by the Commonwealth of Pennsylvania. Essential dietary requirements are introduced along with digestive anatomy and physiology. Food sources, chemistry, and digestion of proteins, carbohydrates and fats are discussed.

Recommended vitamin and mineral intakes are covered, including the detrimental effects of deficient or toxic intakes. Energy balance issues and clinical problems associated with poor nutrition are considered. Students are required to complete an online nutritional assessment of their daily nutrient intake.

Upon successful completion of this course, students should be able to:
• Analyze the nutrient requirements for a healthy, balanced nutrition style.
• Perform and interpret an electronic nutritional analysis.
• Relate basic nutrients to various established dietary guidelines.
• Interpret the effects of nutrient deficiencies and megadoses.
• Demonstrate understanding of energy balance and problems associated with energy balance.
• Recognized conditions and diseases which can place patients/clients at nutrition risks.

Prereq. BIO 111 or BIO 151
3 Credits
3 Weekly Lecture Hours

BIO 200 General Zoology
A hands on survey of the animal kingdom, with emphasis on evolutionary relationships, form and function, and interactions of animals with their environments.

Upon successful completion of this course, students should be able to:
• Integrate evolutionary theory into the study of the phylogeny of animals.
• Distinguish, by comparative biology, the major groups of animals.
• List and describe the distinguishing characteristics of the Kingdom Animalia, including a comparison of the phyla Porifera, Cnidaria, Platyhelminthes, Nemata, Mollusca, Annelida, Arthropoda, Echinodermata, and Chordata.
• Describe the characteristics, comparative biology, and evolutionary relationships of extant vertebrate classes.
BIO 230 Introduction to Microbiology
Introduction to Microbiology is designed to examine the biology of microorganisms and their significance to human existence. Cellular structures, metabolic pathways and life strategies will be studied. The roles of microorganisms in disease, genetic engineering, and the environment will also be covered. The course is designed for students in the Science for the Health Professions curriculum.

Upon successful completion of this course, students should be able to:
- Examine the evolutionary relationships between microorganisms and macroorganisms.
- Describe the cellular biology of single-celled organisms.
- Analyze the impact of microorganisms on humans.
- Analyze the life strategies of various bacterial cells.
- Apply the standard techniques for the study of microorganisms in the laboratory.
- Apply the standard laboratory skills to identify unknown bacteria.
- Describe the properties of the genetic material in bacteria and viruses.
- Explain the role of microorganisms in genetic engineering.
- Examine the role of microorganisms in disease.
- Describe the various strategies used for control of infectious disease.

Prereq. BIO 110 and CHE 110
3 Credits

2 Weekly Lecture Hours
2 Weekly Laboratory Hours

BIO 240 General Microbiology
General Microbiology is intended for Mathematics, Natural Science majors. This course will provide an introduction to the basic concept of microbial evolution, physiology, ecology, genetics and pathogenesis. This course meets the competencies outlined in the Pennsylvania state-wide articulation agreement for preparation in Microbiology.

Upon successful completion of these courses, students should be able to:
- Describe the characteristics and classifications of various groups of microbes, including bacteria, archaea, protists, fungi, helminthes, prions, viruses and viroids.
- Describe the structure and function of the cellular structure of prokaryotes and eukaryotes.
- Describe the metabolic pathways utilized by prokaryotes including glycolytic pathways, fermentation, respiration, and photosynthesis.
- Describe methods of prokaryotic reproduction and interpret a bacterial growth curve.
- Describe gene expression, regulation and transfer in prokaryotes.
- Explain strategies of viral infection and replication.
- Explain the major steps in the evolution of life on Earth.
- Describe the symbiotic relationships the microbes have with other organisms, including mutualism, parasitism and commensalism.
- Explain the role of microbes in biochemical cycles and the production of commercially and medically important materials.
- Examine the role of microorganisms in disease.
- Access, interpret and evaluate peer-reviewed primary scientific literature.
- Demonstrate safe laboratory practices and competency in the use of aseptic procedures for the safe handling of live microbes.
- Use laboratory techniques to identify an "unknown" organism.
- Apply standard techniques used for the study of microorganisms in the laboratory.

Prereq. BIO 110 and CHE 110
4 Credits

3 Weekly Lecture Hours
3 Weekly Laboratory Hours

BIO 250 Genetics
Genetics examines how molecular information relates to the appearance and behavior of living things and how this information is transferred from one organism to another. Course topics include Mendelian genetics, DNA replication, gene expression, chromosomal structure, population genetics, evolutions, and current laboratory techniques used to study genetic material and heredity in living organisms. This course meets the competencies outlined in the Pennsylvania Statewide Program-to Program Articulation Agreement in Biology for preparation in Genetics and is designed for Mathematics-Natural Sciences (MNS) students.

Upon successful completion of this course, students should be able to:
- Relate the principles of Mendelian genetics to the underlying molecular mechanisms of inheritance.
- Apply the principles of Mendelian genetics to genetic crosses.
- Describe how the nucleic acid sequences (genotype) relates to the physical characteristics and abilities of an organism (phenotype).
- Examine the processes of DNA replication, mitosis, and meiosis and how these processes result in genetic variation between organisms.
- Describe the structure of chromosomes and how genetic information of organisms is packaged.
- Relate genetic principles to the process of evolution.
- Design, conduct, and evaluate a genetic cross.

Prereq. BIO 110 and CHE 110, or BIO 150 and BIO 151
4 Credits

3 Weekly Lecture Hours
2 Weekly Laboratory Hours

BUS 101 Introduction to International Business
This course details practical terminology, concepts, associations, relationships and issues that are unique to business operations in the international sector. Its focus is on general consideration for businesses operating simultaneously in many different and constantly changing environments.

Upon successful completion of the course, students should be able to:
- Discuss the historical growth of international trade.
- Distinguish between the major international trade theories.
- Determine what types of trading assistance international organizations offer.
- Explain the rationale for the international monetary system and how it affects exports/imports.
- Assess the physical and political forces that shape the foreign environment.
- Identify the necessary economic analyses that should be completed before trading or investing in another country.
- Discuss the various export practices and procedures.
- Examine East-West trade and its effect on economic relations.

Prereq. ENG 050 or ENG 099, MAT 075 and READ 075 or pass test
3 Credits

3 Weekly Lecture Hours

BUS 104 Mathematics for Business
This course utilizes mathematical operations to solve practical business application problems which will develop a strong business mathematics and personal finance foundation. Students use arithmetic skills and equation solving techniques, exponential functions, arithmetic and geometric progressions, summation notation, and statistical analysis. Students apply these to a variety of business-related tasks: banking services, payroll calculations, taxes, risk management, mathematics of retailing, time value of money, stocks, bonds, insurance, financial statements, depreciation, inventory costs, stocks, bonds, metric system and business statistics. The fundamentals of spreadsheet software will also be introduced.

Upon successful completion of this course, students should be able to:
- Use arithmetic operations to balance a checkbook and reconcile a bank statement, apply the base, rate, portion formula in solving business problems, calculate trade and cash discounts on a bill, calculate markup and markdowns based on cost and selling price, calculate gross and net payroll figures, create four types of depreciation schedules including double-declining balance, calculate methods for valuing inventory including LIFO, FIFO and Weighted Average, define a mutual fund and calculate net asset value.
- Use equation solving skills to solve business problems.
- Use arithmetic and geometric progressions to apply Time Value of Money (TVM) concepts to financial plans and decision making, compute finance charges in installment buying and revolving charge accounts, calculate simple interest, use equation solving skills to solve business problems.
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BUS 130 Business Communication

This course focuses on developing oral and written communication skills in the context of the contemporary business environment. Students apply skills in planning, composing, and revising a variety of messages delivered orally and through writing. In addition, students develop the competencies necessary to communicate effectively in a variety of professional situations that involve speaking, listening and writing.

Upon successful completion of this course, students should be able to:

• Apply the transactional model to make decisions related to communicating effectively in the business environment.
• Construct and deliver effective oral presentations using appropriately designed visual aids.
• Demonstrate the ability to adapt business messages to diverse audiences.
• Use the writing process to create business messages that are organized, logical, clear, and concise.
• Identify, evaluate, and incorporate information that supports proposals presented orally and through writing.
• Demonstrate the ability to listen empathetically, critically and actively.

College Academic Learning Goal Designation: Oral Communication (OC)

Prereq: ENG 100 and DPR 100 or pass test

3 Credits | 3 Weekly Lecture Hours

BUS 190 Business Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience.

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Demonstrate how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

COURSE DESCRIPTIONS 97

BUS 194 Business Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Demonstrate how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes

2 Credits

BUS 199 Business Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes

3 Credits | 3 Weekly Lecture Hours

BUS 210 Principles of Management

This course is designed to present the functions and responsibilities of middle-management positions.

Upon successful completion of this course, students should be able to:

• Review the historical development of management theories and relate them to current management thought.
• Use the planning process to accomplish both personal and organizational goals.
• Explain the importance of and the procedure for organizing the workplace and defining tasks, responsibilities and relationships.
• Describe the staffing process of recruitment, placement, training and development of organization members.
• Identify the leadership and motivational traits and qualities necessary to accomplish organizational goals.
• Discuss the tools and techniques used in the control process.
• Analyze the decision-making and problem-solving methods that managers use.
• Assess how the social, technological, economic and political/legal forces affect managers.

Prereq: BUS 100

3 Credits | 3 Weekly Lecture Hours

BUS 211 Supervision

The major thrust of the course is the supervisor’s relationship to employees at the first-level of management in day-to-day operations. It is an introductory approach to the understanding of basic skills and activities and skills required to supervise these workers effectively.

Upon successful completion of this course, students should be able to:

• Identify the supervisor’s role in the work organization.
• Apply the principles involved in planning, delegating, motivating, leading and communicating.
• Use techniques necessary for successful supervision, including those involved in staffing, training, compensating, evaluating and discipline.
• Relate problem-solving and decision-making to the challenges of the first-line supervisor.
• Be cognizant of time management and conflict management skills.
• Deal effectively with special problems such as stress, alcohol, drugs and employee theft.
• Review the laws and regulations applicable at the supervisory level, including those pertaining to labor relations, equal employment, safety and protected employees.

Prereq: ENG 050 or ENG 099, REA 050 or REA 075 or pass test

3 Credits | 3 Weekly Lecture Hours
BUS 213 Leadership

This course presents both theoretical and practical aspects of leadership functions needed to develop an effective and productive workforce. The major thrust of the course is student growth through reflection. Exercises introduce practical aspects of leadership in an organization.

Upon successful completion of this course, students should be able to:

• Differentiate between leadership and management.
• Demonstrate why leadership is important to companies and countries.
• Identify important leadership characteristics and behaviors.
• Explain the difference between an effective and an ineffective leader.
• Discuss how a leader attains goals through followers.
• Compare and contrast power and influence and why they are important.
• Analyze the leadership process in a framework of exercises and self-reflection.
• Articulate and examine leadership skills, values and behaviors.
• Illustrate how teams help leaders attain their goals.
• Describe how leaders are able to influence and motivate team members.

Prereq. ENG 050, REA 050, ENG 099 or REA 075 pass test
3 Credits 3 Weekly Lecture Hours

BUS 214 Organizational Behavior

An introduction to the study of human behavior in organizations; the purpose of this course is to increase the student’s understanding and awareness of individual, interpersonal, group and organizational activities and events, as well as to increase the ability to explain and manage such events. The course emphasizes principles, concepts and theories applicable to organizations of any type. Such knowledge will help students develop skills to manage successfully and influence today’s workers, teams and organizations.

Upon successful completion of this course, the student should be able to:

• Explain the organizational and social environments within which managers manage.
• Analyze the role managers play in contributing to organizational success.
• Demonstrate organizational and interpersonal skills needed by managers to function successfully.
• Explain the factors that determine an individual’s personality and his or her relationship to job performance.
• Explain how perception affects the decision-making process.
• Describe the relationship among individuals values, attitudes, behavior, and job satisfaction.
• Apply the major theories of motivation.
• Identify the key factors in explaining group behavior.
• Explain the reasons for the growing popularity of teams in organizations.
• Explain the importance of leadership and communication skills to effective management of people.
• Discuss the effects of power and politics on organizational behavior.
• Define the common characteristics making up an organization culture.
• Discuss the forces that affect change in organizations and the ways of managing individual and organizational resistance to change.
• Analyze the role managers play in contributing to organizational success.

Prereq. ENG 050 or ENG 099, REA 050 or REA 075, MAT 050
3 Credits 3 Weekly Lecture Hours

BUS 215 Human Resource Management

This course presents an in-depth study of the principles of human resource management. The course presents both the theoretical and practical aspects of the broad human resource functions which managers must understand in order to develop an effective and productive workforce. Computer simulations and exercises are used to introduce students to the practical aspects of human resource management.

Upon successful completion of this course, students should be able to:

• Discuss the importance of human resource management in today’s modern organization.
• Describe the major personnel functions.
• Identify the principles of the major laws and regulations that influence human resource management.
• Explain Equal Employment Opportunity and Affirmative Action programs.
• Define corporate culture and describe the factors that interact to affect corporate culture.
• Explain the various types of corporate culture.
• Explain the collective bargaining process and describe a sound union-management relations program.
• Describe an effective performance evaluation system and identify the important dimensions of performance that should be evaluated.
• List the major theories of motivation and explain the central components of each theory.
• Explain the importance of training and development in maintaining and developing an effective workforce.
• Define the three types of compensation and explain how they tie to the organizational strategy.
• Define a benefit and explain why benefits are important to both employees and employers.
• Use a Human Resource Information System (HRIS) to perform selected human resource activities.

Prereq. ENG 050 or ENG 099, REA 050 or REA 075 and MAT 050
3 Credits 3 Weekly Lecture Hours

BUS 216 Training & Development

This course introduces students to the importance of training and development in today’s organizations. As more organizations restructure and initiate strategic changes, training and development becomes more important. Training and development programs range from improving employee productivity to leadership development. The course focuses on training and development as an integrated strategic system comprised of the assessment of training needs, design and implementation of the training program, and evaluation. The legal and ethical considerations of training will also be discussed.

Upon successful completion of this course, students should be able to:

• Describe the components of an training and development model.
• Explain the roles and expectations of training and development to an organization.
• Describe the benefits of using a Human Resource Development perspective in strategy development.
• Identify the major factors in employee performance and their relationship to training.
• Describe the steps in a training needs assessment.
• Apply the principles derived from learning theory to design a training session and program.
• Describe the methods and the cost/benefits of evaluating training programs.
• Discuss the advantages and disadvantages of the different training methods.
• Describe the importance of management development programs and how they are influenced by changes in organizational strategy.

Prereq. ENG 050 or ENG 099, REA 050 or REA 075, MAT 050
3 Credits 3 Weekly Lecture Hours

BUS 217 Compensation & Benefits

This course is an introduction to compensation and benefits issues in today’s organizations. It is a practical approach to the systems, methods and procedures to establishing and managing an organizational compensation program. The course provides students with the concepts, principles and theories used in the design and implementation of compensation systems in all types of organizations. Compensation and benefits systems will be discussed as a means to effective recruitment, motivation and retention.

Upon successful completion of this course, students should be able to:

• Explain the different compensation philosophies used in organizations.
• Discuss the behavioral considerations affecting compensation and benefits.
• Describe the legal issues involved in compensation and benefits administration.
• Outline the process used in building a compensation system.
• Explain the job evaluation process and discuss the methods used in performing a job evaluation.
• Discuss methods of conducting and analyzing market pay surveys.
• Discuss the various ways of establishing a pay-for-performance system.
• Explain the importance of health-care, security, and retirement benefits.
• Discuss benefits communications and flexible benefits considerations in benefits administration.

Prereq. ENG 050 and ENG 099, REA 050 or REA 075, MAT 050
3 Credits 3 Weekly Lecture Hours

BUS 218 Labor Relations

For organizations to be successful today, the relationship between managers and employees must be handled effectively. Whether or not employees are represented by unions, issues such as employee health and safety, working conditions and security must be addressed. This course will discuss the development and application of policies and procedures in addressing employee rights issues. The course will focus on union-management relations in the union organizing, collective bargaining and grievance-arbitration processes. The course provides students with an understanding of the legal, ethical and practical issues in union/management relations.

Upon successful completion of this course, students should be able to:

• Explain employment-at-will and identify three exceptions to it.
• Discuss employee rights issues associated with access to employee records, free speech, workplace monitoring, investigations and drug testing.
• Discuss the stages in the unionization process.
• Apply the appropriate laws related to union/management relations.
• Identify labor relations strategies and how they affect operational and tactical labor relations.
• Describe the three major phases of union/management relations: union organizing, collective bargaining and contract administration.
• Discuss the rights, responsibilities and ethics of union/management relations.
• Apply conflict resolution practices and techniques in a work environment.
• Apply negotiation skills in work environment.

Prereq. ENG 050 or ENG 099, REA 050 or REA 075, MAT 050
3 Credits 3 Weekly Lecture Hours

BUS 220 Elementary Statistics

Introduction to the use of probability and statistical inference for business decision making. Various distributions and techniques are presented to prepare the student for parametric estimation and testing. The basic concepts of frequency and probability distributions, measures of central tendency and variance as well as hypothesis testing of means, variances and goodness of fit are presented. There is also brief discussion on non-parametric methods, regression analysis, correlation and price indices.
Upon successful completion of this course, students should be able to:

- Utilize the tools of communication to develop and effectively share information between buyer and seller.
- Demonstrate an awareness of international marketing and social responsibility.

Preq: BUS 100
3 Credits
3 Weekly Lecture Hours

BUS 231 Principles of Advertising
This course is a detailed study of media usage for mass selling. Philosophy and psychology of radio, television, newspaper and other mass communications are covered. Practical applications of current advertising techniques will be developed.

Upon satisfactory completion of the course, students will be able to:

- Demonstrate a knowledge of the theories of mass communications and their effect on the public.
- Use verbal and written motivational means in reaching people.
- Possess a practical understanding of operational hands-on advertising and of advertising program planning.
- Choose appropriate media and develop advertising strategies.
- Have a working knowledge of budgeting for advertising in various size enterprises.
- Develop promotional plans that coordinate with overall business activity.
- Show knowledge of evaluation of advertising effectiveness.

Preq: BUS 100
3 Credits
3 Weekly Lecture Hours

BUS 232 Principles of Finance
This course provides an examination of the goals of financial management within an analytical framework. Emphasis is given to techniques and methods used to manage the money supply by a business organization. Financial analysis and planning is explored. Techniques for managing working capital in a risk-return context are considered. Capital budgeting and related valuation concepts and long-term financing methods are included.

Upon successful completion of this course, students should be able to:

- State the goals and functions of financial management.
- Use financial ratios to evaluate chance for business success.
- Prepare projected statements for financial planning.
- Demonstrate how operating and financial leverage enables management to maximize profits.
- Determine optimum operating levels of working capital.
- Prepare calculations involving the time value of money to assist in making investment decisions.
- Measure financial risk through quantitative methods.
- Describe how financial managers decide to use debt and equity instruments for long-term financing.

Preq: BUS 230
3 Credits
3 Weekly Lecture Hours

BUS 233 Principles of Marketing
This is a survey course designed to introduce students to the total marketing process. The nature and scope of marketing as it relates to managing profitable business in today's society will be examined. Study will include the various factors affecting this process such as product, price, promotion, place (distribution), the environment, international factors affecting this process such as product, price, promotion, and legal restrictions.

Study will include the various factors affecting this process such as product, price, promotion, place (distribution), the environment, international factors affecting this process such as product, price, promotion, and legal restrictions.

Upon successful completion of this course, students should be able to:

- Demonstrate a comprehensive command of the statistical capabilities of Microsoft Excel.
- Produce statistical graphics, including scatter diagrams, and cumulative frequency polygons in Excel.
- Calculate parameters using the uniform, binomial and normal distributions.
- Develop and interpret simple and multiple regression equations and their correlation coefficients.
- Construct interval estimates for population means.
- Conduct hypothesis testing for one or two samples.
- Conduct simple variance testing using ANOVA F distribution principles.
- Calculate simple index numbers.
- Execute elementary goodness of fit testing using the chi-squared distribution.

Preq: BUS 220
1 Credit
1 Weekly Lecture Hours

BUS 243 Legal Environment of Business
This course introduces business and non-business majors to the legal environment as it relates to business. Among the topics covered are the origins of law and the legal system; ethics and social responsibility of business; contracts and non-contractual injury; agency relationships; governmental regulations of trusts, securities, employment and the environment; the Uniform Commercial Code; and international law affecting business.

Upon successful completion of this course, students should be able to:

- Describe how our law is derived from common and statutory law, constitutional interpretation and administrative regulations.
- Identify the federal and state court systems, jurisdiction and functions.
- Discuss the ethical and social responsibility of business.
- Discuss contracts including the formulation, dissolution and remedies for breach.
- Examine non-contractual injury, including negligence, strict liability, intentional torts and business-related torts.
- Describe the agency relationship and other business organizations, such as partnerships and corporations.
- Discuss the government regulations of business as they pertain to the anti-trust, securities, employment and the environment.
- Examine the Uniform Commercial Code with special emphasis on sales, personal property, commercial paper and secured transactions.
- Identify current legislation and trends in international law.

Preq: ENG 100
3 Credits
3 Weekly Lecture Hours

BUS 246 Teamwork
This course addresses the use of teamwork in a business environment both to identify and to solve problems. The course will emphasize examples, role playing and exercises for group participation.

Upon successful completion of this course, students should be able to:

- Analyze group dynamics and group process, and suggest interventions to improve them.
- Explain how problem solving differs in a group setting.
- Practice the interpersonal skills needed for effective teamwork.
- Demonstrate conflict-management skills.
- Perform the roles of leader, facilitator and participant on teams.
- Identify the key aspects of effective meetings.
- Demonstrate effective meeting skills.
- List and compare the stages of team development.
- Contrast the different roles played by members of teams and meeting participants.
- Describe personal impact in teams and personal reactions to team interactions.
- Discuss the management of diversity on teams.
- Describe various applications of teamwork within unit-based, cross-functional, customer and vendor organizations.

Preq: ENG 050 or ENG 099 and REA 050 or REA 075 or pass test
3 Credits
3 Weekly Lecture Hours

COURSE DESCRIPTIONS
CHE 101 Introduction to General Chemistry

CHE 101 is a one semester course covering the fundamentals of general chemistry. It is designed to fulfill the requirements of certain allied health and nursing programs. It also is appropriate as a basic chemistry course or as a science elective for students who are not science, engineering, or mathematics majors. Although not a prerequisite, this course may also serve as preparatory course for CHE 110 General Chemistry I. Topics include: atomic theory, chemical bonding, structure, reactivity, stoichiometry, basic chemical equilibrium, gas laws, solutions, acids and bases, and nuclear chemistry.

Upon successful completion of this course, students should be able to:
• Define chemistry as the study of matter. Describe its transformations and the energy associated with these transformations.
• Apply the concepts of atomic theory and atomic structure to describe elements and how they combine to form compounds.
• Predict and identify the products and reactants of a chemical reaction, and quantify the amounts of materials consumed and produced using basic stoichiometry.
• Apply the concepts of the kinetic molecular theory and the ideal gas law to predict the behavior of gases.
• Describe the basics of solution stoichiometry. Perform calculations including concentrations, dilution and simple acid base chemistry.
• Use nuclear chemistry to describe radioactive decay.
• Collect, analyze, and interpret experimental data from the performance of inorganic laboratory experiments.
• Apply safe laboratory skills to solve problems in a cooperative environment.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. REA 050, ENG 050 or REA 075 or ENG 099, MAT 050 or MAT 060 or pass test
4 Credits
3 Weekly Lecture Hours
3 Weekly Laboratory Hours

CHE 102 Introduction to Organic and Biological Chemistry

CHE 102 is a one semester course covering the fundamentals of organic and biological chemistry. It is designed to fulfill the requirements of certain allied health and nursing programs. It also is appropriate as a science elective for students who are not science, engineering, or mathematics majors. Although not a prerequisite, this course may also serve as a preparatory course for CHE 200 Organic Chemistry I. This course is the first part of a rigorous, mathematics based college chemistry sequence. This course is designed for students majoring in science or engineering fields. Basic laws and theories of chemistry including: chemical bonding, chemical reactions, the mole and stoichiometry, gas laws, solution chemistry, thermochemistry, chemical periodicity and atomic structure will be covered.

Upon successful completion of this course, students should be able to:
• Define chemistry as the study of matter, its properties and changes and the energy associated with these changes.
• Use the metric system as a tool for performing and applying scientific measurements.
• Identify and classify substances with regard to composition, state, purity, and modes of separation.
• Apply the knowledge of the periodicity of the elements toward the description of chemical bonding.
• Solve mathematical problems related to chemical reactions and the mole concept including solution stoichiometry.
• Apply the kinetic molecular theory to account for the properties of gases and use the gas laws in calculations.
• Describe and calculate heat in chemical reactions and physical processes.
• Explain the relationship between the Periodic Table and Atomic Structure.
• Describe chemical bonding using Lewis structures, VSEPR theory and the valence bond theory.
• Collect experimental data utilizing modern chemistry laboratory techniques, problem solve and analyze the data to formulate appropriate conclusions and compile lab reports.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. REA 050, ENG 050 or REA 075 or ENG 099, MAT 100 or MAT 128 or MAT 151 or MAT 135 or higher
4 Credits
3 Weekly Lecture Hours
3 Weekly Laboratory Hours

CHE 110 General Chemistry I

This course is the first part of a rigorous, mathematics based college chemistry sequence. This course is designed for students majoring in science or engineering fields. Basic laws and theories of chemistry including: chemical bonding, chemical reactions, the mole and stoichiometry, gas laws, solution chemistry, thermochemistry, chemical periodicity and atomic structure will be covered.

Upon successful completion of this course, students should be able to:
• Define chemistry as the study of matter, its properties and changes and the energy associated with these changes.
• Use the metric system as a tool for performing and applying scientific measurements.
• Identify and classify substances with regard to composition, state, purity, and modes of separation.
• Apply the knowledge of the periodicity of the elements toward the description of chemical bonding.
• Solve mathematical problems related to chemical reactions and the mole concept including solution stoichiometry.
• Apply the kinetic molecular theory to account for the properties of gases and use the gas laws in calculations.
• Describe and calculate heat in chemical reactions and physical processes.
• Explain the relationship between the Periodic Table and Atomic Structure.
• Describe chemical bonding using Lewis structures, VSEPR theory and the valence bond theory.
• Collect experimental data utilizing modern chemistry laboratory techniques, problem solve and analyze the data to formulate appropriate conclusions and compile lab reports.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. CHE 110 with a grade “C” or better and MAT 151
4 Credits
3 Weekly Lecture Hours
3 Weekly Laboratory Hours

CHE 111 General Chemistry II

This course is the second part of a rigorous, mathematics based college chemistry sequence. This course is designed for students majoring in science or engineering fields. Basic laws and theories of chemistry including: colligative properties, kinetics, chemical equilibrium, acid-based equilibria, solubility and complex ion equilibria, thermodynamics, oxidation-reduction reactions, electrochemistry and nuclear chemistry will be covered.

Upon successful completion of this course, students should be able to:
• Describe the major types of intermolecular forces and the role they play in the properties of solids and liquids.
• Describe the properties and behavior of solutions. Perform calculations involving solution concentrations and colligative properties.
• Apply the principles of kinetics to chemical systems.
• Apply the principles of chemical equilibrium to chemical systems.
• Evaluate and apply modern theories of acids and bases, especially the concept of pH.
• Apply the concepts of solubility and complex ion formation.
• Discuss and apply the fundamentals laws of thermodynamics, free energy and entropy.
• Discuss and apply the principles of electrochemistry to chemical systems.
• Describe the basic concepts of nuclear chemistry.
• Demonstrate an ability to utilize modern chemistry laboratory techniques and equipment.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. REA 050 or ENG 099 and REA 050 or REA 075 or ENG 099, MAT 050 or MAT 060 or pass test
4 Credits
3 Weekly Lecture Hours
3 Weekly Laboratory Hours

CHE 200 Organic Chemistry I

This course is the first part of a rigorous, mathematics based college chemistry sequence. This course is designed for students majoring in science or engineering fields. Basic laws and theories of chemistry including: chemical bonding, chemical reactions, the mole and stoichiometry, gas laws, solution chemistry, thermochemistry, chemical periodicity and atomic structure will be covered.

Upon successful completion of this course, students should be able to:
• Describe the chemical bonding in organic compounds.
• Analyze the thermodynamic and kinetic relationship in organic reactions.
• Describe the physical properties, stereochemistry, preparation, reactions and multistep synthesis of hydrocarbons.
• Demonstrate laboratory procedures for record keeping, separation, purification and identification using chromatography.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. CHE 111
5 Credits
4 Weekly Lecture Hours
3 Weekly Laboratory Hours

CHE 201 Organic Chemistry II

The study of organic compounds containing oxygen and nitrogen. The structure, stereochemistry, reactions, and multistep synthesis of organic nitrogen and oxygen will be studied. Syntheses and instrumental analysis (IR and NMR) will be emphasized in the laboratory.

Upon successful completion of this course, students should be able to:
• Analyze organic compounds using spectroscopy.
• Explain elimination and substitution reactions.
• Describe the physical properties, stereochemistry, preparation, reactions and multistep synthesis of organic nitrogen and oxygen compounds.
• Describe the general characteristics of carbohydrates, lipids and proteins.
• Prepare compounds using complex syntheses.
• Demonstrate a knowledge of scientific references and an ability to search the scientific literature.

College Academic Learning Goal Designation: Scientific Inquiry (SI)
Prereq. CHE 200
5 Credits
4 Weekly Lecture Hours
3 Weekly Laboratory Hours

COMM 100 Interpersonal Communication

This course focuses on the theory and the practice of human communication with an emphasis on one-on-one (dyadic) communication in diverse relationships and various contexts.

Upon successful completion of this course, students should be able to:
• Distinguish between interpersonal communication and other types of human communication.
• Describe the individual, cultural, and social factors that affect interpersonal communication.
• Explain the interconnectedness of communication and culture within interpersonal relationships.
• Explain the role of verbal and nonverbal expression in interpersonal relationships.
• Explain the role of technology in interpersonal communication.
• Describe the role of interpersonal communication in developing, negotiating, maintaining, and terminating relationships.
• Identify listening styles and barriers to active listening.
• Identify the consequences of different conflict management behaviors.
• Describe the ethical responsibilities of a communicator.

College Academic Learning Goal Designation: Oral Communication (OC)
Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 or pass test
3 Credits
3 Weekly Lecture Hours

COMM 101 Communication Studies

This course focuses on the theory and the practice of human communication with an emphasis on one-on-one (dyadic) communication in diverse relationships and various contexts.

Upon successful completion of this course, students should be able to:
• Distinguish between interpersonal communication and other types of human communication.
• Describe the individual, cultural, and social factors that affect interpersonal communication.
• Explain the interconnectedness of communication and culture within interpersonal relationships.
• Explain the role of verbal and nonverbal expression in interpersonal relationships.
• Explain the role of technology in interpersonal communication.
• Describe the role of interpersonal communication in developing, negotiating, maintaining, and terminating relationships.
• Identify listening styles and barriers to active listening.
• Identify the consequences of different conflict management behaviors.
• Describe the ethical responsibilities of a communicator.

College Academic Learning Goal Designation: Oral Communication (OC)
Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 or pass test
3 Credits
3 Weekly Lecture Hours

(DEL) Delaware County Community College
COMM 102 Communication Across Cultures
This course focuses on communication among and between people of different cultures. It is designed to introduce students to the basic concepts, theories, and research pertaining to intercultural communication. Students can also expect to engage in in-class exercises, activities, and discussions regarding everyday encounters with people from different socio-economic (class) backgrounds, racial, ethnicities, sexual orientations, gender, physical abilities and religious belief systems.
Upon successful completion of this course, students should be able to:
• Explain the interconnectedness of communication and culture
• Demonstrate a self-awareness and an understanding of others’ cultural values, beliefs, and communication styles
• Describe the influence of culture on one’s identity formation and identity management
• Explain the role of language in perception and culture
• Describe the characteristics of intercultural conflict and culturally-based conflict styles
• Explain the cultural value orientation patterns held by different cultures
• Analyze the way the history (e.g., political, intellectual, social, family, national, and cultural-group) informs an intercultural communication encounter
• Describe cultural shock and the various academic approaches to understanding it
Pre req. COMM 100
3 Credits 3 Weekly Lecture Hours

COMM 104 Introduction to Mass Communication
This course introduces students to both the print and electronic media systems. Students will review the history of the mass media and explore career options in this field. They will also study the techniques of media analysis and consider the effects of the various media on society.
Upon successful completion of this course, students should be able to:
• Explain how the mass media have developed
• Analyze the impact of print and electronic media upon society
• Explain media forms
• Understand the conceptual differences between the media and their practical applications
• Assess the various career opportunities available in the mass communications field.
Pre req. ENG 100 or pass test
3 Credits 3 Weekly Lecture Hours

COMM 105 Small Group Communication
A study of the techniques involved in effective group communication including: discussion, decision making, problem solving and resolving conflict in groups. Students learn theories of group dynamics and the nature of norms, goals, roles and leadership styles in small, task oriented groups. The class is a laboratory where students actively participate in structured group experiences requiring preparation and evaluation.
Upon successful completion of this course, the student should be able to:
• Identify the dynamics of effective group communication needed to maintain a small group
• Identify and manage interpersonal conflicts in group settings
• Recognize and identify differences in culture and communication styles as they apply to small group communication
• Distinguish between defensive and supportive group communication climates
• Recognize each of the following as they apply to small group communication: role, individual goal, group goal, norm, group cohesion, and feedback
• Explain the principles necessary to lead a discussion or group meeting
• Participate productively in small group contexts
Pre req. COMM 100
3 Credits 3 Weekly Lecture Hours

COMM 111 Public Speaking
This course enables students to deliver a variety of presentations. Students are introduced to various methods of delivery, organizational patterns, and types of presentational aids. Emphasis is placed on preparing presentations for multiple audiences and occasions.
Upon successful completion of this course, students should be able to:
• Recognize appropriate techniques for managing communication apprehension.
• Construct and deliver a variety of presentations.
• Construct and use appropriately designed visual aids.
• Locate and effectively incorporate supporting material drawn from a variety of sources.
• Organize content in a logical manner according to presentation type.
• Deliver a presentation employing effective stylistic techniques.
• Demonstrate effective listening skills as both a speaker and a listener of presentations.
• Demonstrate ethical responsibilities of a speaker.
• Adapt presentation message to audience and occasion.

College Academic Learning Goal Designation: Oral Communication (OC)
Pre req. ENS 050 or ENS 099 and REA 050 or REA 075 or pass test
3 Credits 3 Weekly Lecture Hours

COMM 115 Introduction to Public Relations
This course treats public relations as communication -the process of organizations relating to their various "publics." Students explore the theory, principles and techniques of contemporary public relations as practiced in business, government, nonprofit and civic groups, cultural organizations, education and the community. Students prepare press releases, public service announcements, speeches, slide programs or other appropriate communication vehicles. For students in all curricula and programs.
Upon successful completion of this course, students should be able to:
• Describe public relations as a communication function of organizations.
• List 10 basic principles of effective public relations.
• Identify and describe career opportunities/possibilities within the student’s field of study, interests or aptitude area in public relations.
• Cite examples from the American past of public relations campaigns or principles that changed a “public’s” view of an organization, a movement, an institution or a tradition.
• Anticipate and analyze critical and negative views of public relations.
• Identify the use of communicative art forms such as music, poetry, art, dance, film or story telling, in any public relations campaign mounted by a significant American organization.
• Use, where appropriate, contemporary technology such as desktop publishing or computer software or slide and sound show or photography or student-produced video in designing a public relations campaign on a contemporary American problem, organization or movement.

Pre req. ENS 050 or ENS 099 and REA 050 or REA 075 or pass test
3 Credits 3 Weekly Lecture Hours

COMM 199 Communications Internship
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty.
Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:
• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5

Pre req. COMM 100

COURSE DESCRIPTIONS 101

Obtain a written recommendation by a DCCC faculty within the discipline of the internship
Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

To be eligible for an internship, students must:
• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5

Pre req. COMM 100

Obtain a written recommendation by a DCCC faculty within the discipline of the internship
Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
COMM 199 Communications Internship
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.
To be eligible for an internship, students must:
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship.
Submit an current resume to the Office of Student Employment Services.
Upon successful completion of this hands-on work experience, the student should be able to:
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

COMM 200 Argumentation and Debate
To survive, compete, thrive and find success in an often-turbulent modern world requires a sound working knowledge of the rules of persuasion and the ability to use the tools of verbal reasoning, logic and evidence to support one’s position.
Upon successful completion of this course, students should be able to:
• Demonstrate that he/she can effect change through the use of persuasive skill.
• Debate both the affirmative and the negative positions of a current controversial proposition.
• Prepare a “brief” showing the supportable positions on any contemporary social, political or economic question.
• Use the principles of library research and nonprint media to support their persuasive position.

COMM 201 Communication Theory
This course examines the major paradigms within the study of human communication by introducing students to both historical and contemporary communication theories from various branches of the discipline. Students will evaluate and apply the theories in and across a variety of contexts.
Upon successful completion of this course, students should be able to:
• Define theory
• Demonstrate an understanding of theory/model development
• Distinguish between the major paradigms within the communication discipline
• Identify key branches of study within the communication discipline
• Apply major communication theories
• Collate and apply basic theories by identifying constructs and limitations

CPT 102 Carpentry Fundamentals
This course is designed for students preparing for a career in carpentry. Students are introduced to foundational concepts and principles of the carpentry trade. Students receive instruction in the use and care of hand and power carpentry tools; layout, measuring and cutting procedures, as well as selection and application of building materials.
Upon successful completion of this course, students should be able to:
• Demonstrate knowledge of hand and power tools and their practical applications.
• Demonstrate understanding of workplace safety requirements.
• Utilize measurement tools correctly and accurately.
• Demonstrate basic layout and cutting procedures.
• Read and apply basic blueprints for carpentry jobs.
• Identify the structural components in construction.

CPT 105 Framing and Roofing
This course provides students with the basic principles of framing and roofing. It includes terminology, print information, design, codes and systems. Students also receive hands on training in rough framing skills as well as the construction of common types of roofs.
Upon successful completion of this course, students should be able to:
• Demonstrate knowledge of the components of framing and roof structures.
• Estimate materials for framing and roofing.
• Frame structures using blueprint information.
• Install insulation.
• Demonstrate knowledge of the different types of roofing and materials.
• Construct simple roof rafters.
• Complete different types of roofing jobs.

CPT 110 Exterior Finishing
This course is designed to teach students the necessary skills needed to complete exterior finishing in residential construction. Instruction includes insulation, siding, window and door installations.
Upon successful completion of this course, students should be able to:
• Estimate materials for exterior finishing.
• Demonstrate knowledge of different types of sidings and exterior finishing.

CPT 115 Interior Finishing
This course is designed to teach students the necessary skills needed to complete interior finishing in residential construction. Topics covered include dry wall, doors, trim and paneling, as well as the layout, fabrication and installation of staircases.
Upon successful completion of this course, students should be able to:
• Apply different types of sidings.
• Select and install appropriate windows and doors based on rough openings and manufacturers specifications.
• Select and install various types of window casings and window glazing.
• Construct and set door frames.
• Identify and install door and window hardware.

CPT 120 Energy Efficiency
This course introduces students to the techniques and materials used in remodeling and new construction of homes. Topics covered in the class include green building and green building standard; energy conservation; weatherization and efficiency techniques.
Upon successful completion of this course, students should be able to:
• Demonstrate understanding of industry standards related to green building and energy efficiency.
• Demonstrate knowledge of areas of inefficiencies in homes.
• Demonstrate understanding of different types of insulation and their uses.
• Identify more efficient construction and landscaping designs.
• Conduct a general home energy audit.

CPT 150 Introduction to Cabinetmaking
This course introduces basic cabinetmaking skills. Topics covered include material selection, layout, design, proper use and application of hand and power tools, and finishing techniques. Course includes the design and construction of various projects.
Upon successful completion of this course, students should be able to:
• Describe cabinet design considerations.
• Make basic sketches and layouts.
• Generate a Bill of Material for a project.
• Identify woods by sight.
• Discuss applications for woods.
• List applications for each wood species.
• Apply veneers.
• Affix plastic laminates.
• Select and apply different fasteners.
• Use hand and power tools safely.
• Make up various wood joints.
• Fabricate fixtures.
• Prepare a project for finishing.
• Apply finishes to wood.

DELTA COUNTY COMMUNITY COLLEGE
COURSE DESCRIPTIONS

CPT 151 Furniture Building
This course presents the basic skills necessary to build furniture. Proper use of hand and power tools is covered. Wood joinery is covered along with different finishing techniques.
Upon successful completion of this course, students should be able to:
- Select wood for various applications.
- Make basic joints including mortise, tenon and dovetails.
- Demonstrate proper router applications.
- Perform proper clamping techniques.
- Apply finishes to achieve desired appearance.
- Utilize shop tools safely.
Prereq: CPT 151
2 Credits
1 Weekly Lecture Hours
2 Weekly Laboratory Hours

CPT 152 Home Remodeling/Additions
Introduces basic principles of framing structures, insulation, paneling, ceramic tile for floors and walls, and basic carpentry skills. Topics covered include: stairs, roofing, basic plumbing and wiring, finishing work, Skylights and windows and kitchens and bathrooms.
Upon successful completion of this course, students should be able to:
- Demonstrate proper applications of framing members including headers, beams, roof joist.
- Lay out a stairway.
- Apply ceramic tile with use of mastic or substrate.
- Explain the basic concepts involved of home wiring.
- Install a window into a new or existing opening.
- Solder 1/2” and 3/4” copper tubing.
- Construct a simple drainage branch using plastic pipe.
2 Credits
1 Weekly Lecture Hours
2 Weekly Laboratory Hours

CPT 153 Advanced Furniture Building
This course is designed for students who are ready to progress beyond The Basics of Furniture Building (CPT 151) course. It presents advanced techniques in wood bending using steam, laminate, freeform and coopering. The process of working with wood veneers and veneer inlays will be covered. Various methods in finishing and finishing materials will be emphasized.
Upon successful completion of this course, students should be able to:
- Select various types of wood for numerous application procedures.
- Build, setup and operate a steaming device for bending wood.
- Construct the appropriate form for bending procedures.
- Use wood laminates for the purpose of bending.
- Layout construction for coopering.
- Apply various techniques for staining and finishing.
Prereq: CPT 151
2 Credits
1 Weekly Lecture Hours
2 Weekly Laboratory Hours

CPT 194 Carpentry Co-Op Internship (1 credit)
This Carpentry Co-op/Internship course provide Carpentry students opportunity to gain practical field experience. During this experiential learning period students apply the skills learned in classroom and tabs to develop greater proficiency in real-world situations. Students participating in this 120 hour Carpentry Co-op/Internship will also earn 2 college credits for this experience.
Upon successful completion of this course, students should be able to:
- Demonstrate the ability to apply basic carpentry skills.
- Demonstrate the ability to perform in a professional setting in a professional manner with regard to attendance, punctuality, teamwork, attitude and ability to meet deadlines.
- Demonstrate the ability to journal your work experience including a log of duties performed, skills demonstrated, special project assignments, challenges encountered, supervisor reviews and self-reflections.
Prereq: CPT 102, CPT 105, CPT 110, CPT 115 and CPT 120
2 Credits
(CS) Computer Science

CS 117 Fundamentals of Game Design Theory and Practice
This course introduces students to the theory and practical aspects of the computer game development process. Students brainstorm a game idea, establish focus, determine the storytelling mode, and document the design. Upon successful completion of this course, students should be able to:
- Demonstrate an understanding of the vocabulary of game design theory and practice.
- Identify the techniques of top game designers.
- Analyze and identify the elements that make successful games.
- Apply the computer game development process to create a design document.
Prereq: REA 050 or REA 075 or appropriate placement test score
3 Credits
3 Weekly Lecture Hours

CS 118 Game Creation Development
This course focuses on designing, developing and testing computer games using game creation development tools. Students use an icon-based system of events and actions to program computer games. Principles of successful game design and techniques of top game designers are also explored.
Upon successful completion of this course, students should be able to:
- List requirements for a game development studio.
- Describe the basic elements of an image and how to manipulate it.
- Identify and describe game genres.
- Identify the elements of good game design.
- Utilize the computer game development process to create games using a game engine and design tool.
- Demonstrate the ability to use game creation development tools to develop games for inclusion in a portfolio.
Prereq: DPR 101 and CS/DPR 117
3 Credits
3 Weekly Lecture Hours

CS 121 Game Art and Animation
The focus of this course is to create 2D artwork, arrange U/V’s, generate textures, and create a 3D model. Students create 3D models and animations using industry standard computer graphics software.
Upon successful completion of this course, students should be able to:
- Identify the requirements of 2D artwork.
- Demonstrate the ability to design and develop 2D artwork.
- Identify the requirements of a 3D model.
- Use a 3D modeling software product to create models and animations.
Prereq: REA 050 or REA 075 and MAT 050
3 Credits
3 Weekly Lecture Hours

CS 190 Computer Programming Internship (1 credit)
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience.
To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years.
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
Obtain a written recommendation by a DCCC faculty within the discipline of the internship.
Submit an current resume to the Office of Student Employment Services
Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Analyze specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.
1 Credit

CS 194 Computer Programming Internship (2 credit)
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience.
To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years.
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
Obtain a written recommendation by a DCCC faculty within the discipline of the internship.
Submit an current resume to the Office of Student Employment Services
Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
2 Credits

Delaware County Community College
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

2 Credits

CS 199 Computer Programming Intern
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180-hour internship will earn 3 college credits for this experience.

To be eligible for an internship, students must:
• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5

Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from these below according to the number of credits to be awarded:
• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

3 Credits

3 Weekly Lecture Hours

CS 206 PHP/MySQL
Students learn to develop fully functional dynamic websites using PHP and a MySQL database. Topics include: setting up a development environment, using PHP to validate and process form data, sending email, creating regular expressions, implementing user authentication and security. Students will apply these concepts in the design of a MySQL relational database system and use PHP to create, read, update, search and delete records.

Upon successful completion of this course, students should be able to:
• Identify the differences between static and dynamic web design.
• Write scripts to validate and process form submission data.
• Build a relational MySQL database and write SQL queries to create, read, update, delete and search records.
• Identify security issues and implement best practices and solutions.
• Upload files to a web server and update and maintain web sites.
• Identify career paths, academic programs and training opportunities in the field of Web Design and Development

Prereq, IMM 110 and IMM 120

3 Credits

3 Weekly Lecture Hours

CS 250 Digital Portfolio Development
The focus of the Digital Portfolio Development course is to design a portfolio that makes evident a student’s knowledge and skills of their field of study. The portfolio is a collection of material that can be used as an interactive resume, an archive of work over time or a demonstration of proficiency. The contents of a student’s portfolio can include work samples, letters of recommendation, references, transcripts, GPA, accomplishments/awards, competency lists, certificates, curricular standards, instructor assessments/evaluations, reflections, and work experiences/employer evaluations. Thus, a student’s portfolio provides the ability to show work on demand and evidence of their preparation for a career or further education in their field of study.

The objective of this course is for students to demonstrate the theoretical as well as the technical skills they have acquired throughout their program. Students will assess personal strengths to establish a career goal and decide how to organize their design and production work in a graduation portfolio.

Upon successful completion of this course, students should be able to:
• Identify the need for a digital portfolio.
• Identify the target audience of a digital portfolio.
• Demonstrate the ability to organize, collect and prepare material for a digital portfolio.
• Explain copyright laws as it applies to acquiring and protecting intellectual property.
• Demonstrate the ability to design and develop work samples using industry standard tools and/or programming languages.
• Demonstrate the use of design and development tools to develop a digital portfolio.

Prereq, Depending on CS specialization, all required program courses

3 Credits

3 Weekly Lecture Hours

(CUL) Culinary Arts

CUL 115 Professional Cooking I
Students will be introduced to the use and care of professional foodservice equipment, basic cooking skills, basic cooking methods, weighing and measuring, culinary terminology and applying kitchen sanitation and safety. Students will practice hands-on development of these skills in a professional kitchen.

Upon successful completion of this course, students should be able to:
• Demonstrate the safe and proper use and care of commercial foodservice equipment.
• Demonstrate safe kitchen work habits and safe food handling.
• Demonstrate a proficiency in basic knife skills.
• Demonstrate a proficiency in accurate weighing and measuring of wet and dry food ingredients.
• Demonstrate a proficiency in production of Stocks and leading sauces.
• Demonstrate an understanding of the theory and practice of basic cooking techniques.
• Demonstrate a working knowledge of basic culinary terminology.
• Demonstrate the ability to identify various food products.

Prereq, MAT 050 or placement test

3 Credits

2 Weekly Lecture Hours

2 Weekly Laboratory Hours

CUL 150 Baking and Pastry Foundations I
Students are introduced to the principles of baking, and to the skills and techniques needed for production of baked goods and pastries for commercial foodservice. Topics include planning, selecting ingredients, scaling, mixing, baking, assembling, and decorating. Students will practice hands-on development of these skills in a professional kitchen.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of the theory and practice of basic baking techniques.
• Demonstrate an understanding of the science of ingredient interaction in baking.
• Demonstrate a proficiency in accurate weighing and measuring (scaling) of wet and dry ingredients.
• Demonstrate a proficiency in proper mixing of ingredients.
• Demonstrate a proficiency in basic baking skills.
• Demonstrate a proficiency in production of various baked goods.
• Demonstrate the ability to assemble and decorate a variety of baked goods and pastries.

Prereq, MAT 050 or placement test

3 Credits

2 Weekly Lecture Hours

2 Weekly Laboratory Hours

CUL 151 Baking and Pastry Foundations II
This course introduces the student to the fundamentals of Pastry Design and Plated Desserts. Students learn the basic and advanced methods that enable them to produce components for plated desserts, garnishes, and buffet presentations. Students will be introduced to the basic and advanced processes of creating four star desserts. Students will learn the art of creating classical desserts, sauces, pulled candy and sugar work as well as holiday/multi-cultural confections.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding and use of baking fundamentals to create dessert buffet items.
• Design and execute a dessert buffet presentation.
• Demonstrate an understanding of the use of chocolate in candy and garnish production.
• Prepare restaurant desserts such as Creme Brulee, Ice Cream, Souffles and frozen desserts.

3 Credits

2 Weekly Lecture Hours

2 Weekly Laboratory Hours
• Design and execute components for plated dessert presentations
• Calculate costing and yield of plated desserts
• Demonstrate the proper use of commercial baking equipment
• Prepare classical desserts and sauces

PreReq. CUL 150
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

CUL 199 Culinary Externship
Externship and/or Experiential Learning will provide an opportunity for Culinary Arts students, who have demonstrated a proficiency with basic skills to gain practical field experience. This field experience will allow the students to apply their acquired skills and develop greater proficiency in a real-world situation. Students participating in this 180-hour experience will also earn 3 college credits for this experience.

Upon successful completion of this course, students should be able to:
• Demonstrate the ability to apply kitchen safety and sanitation concepts learned in HRM.
• Demonstrate the ability to perform in a professional setting in a professional manner with regard to attendance, punctuality, teamwork, attitude, production volume and quality, and ability to meet prescribed deadlines.
• Demonstrate the ability to maintain a journal of their work experience including a log of duties performed, skills demonstrated, special project assignments, challenges encountered, supervisor reviews and self-reflections.
• Demonstrate the ability to apply basic cooking skills learned in CUL 115/230 or CUL 150/151.
• For Cooking Assignments (CUL 115/230)- Proper use of commercial foodservice equipment, safe kitchen work habits, safe food handling, proficiency in knife skills and the use of kitchen tools, proficiency in weights, measures and recipe conversions
• For Baking Assignments (CUL 150/151) Proper application of baking techniques, proficiency in proper mixing of ingredients, proficiency in production to various baked goods, proficiency in the use of kitchen tools, proficiency in weights, measures and recipe conversions.

PreReq. HRM 110 and CUL 230 or CUL 151
3 Credits

CUL 210 Foodservice Purchasing
This course provides an overview of the process of selection and procurement used in various foodservice operations. Main topics include: distribution systems; purchasing goals and options; financial considerations; receiving, storage and issuing of food and non-food products.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of the importance of effective purchasing
• Demonstrate knowledge of various purchasing options available in food service.
• Exhibit the ability to develop product specifications
• Demonstrate the ability to determine appropriate purchase amounts.
• Demonstrate an understanding of the financial responsibilities of a purchaser.
• Identify the key strategies for directing the purchasing function.
• Identify the elements representing value in purchasing
• Identify various selection factors when purchasing food and non-food items

PreReq. MAT 050 or placement test
3 Credits
3 Weekly Lecture Hours

CUL 215 Menu Planning and Cost Control
This course will present the menu as a vital management tool that influences all foodservice functions. It also presents various strategies for controlling costs with techniques for developing menu content, menu design and pricing.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of the history of foodservice and the development of various cuisines.
• Demonstrate an understanding of modern foodservice and how it meets current market demands.
• Exhibit the ability to plan and produce various types of menus, for commercial and non-commercial operations, to meet established criteria.
• Demonstrate the ability to follow strategies for effective cost control and profitability.
• Identify the key aspects of menu design and the importance of the menu as a merchandising tool.
• Demonstrate an understanding of various methods of menu analysis and exhibit the ability to use resulting data.

PreReq. MAT 050 or pass test
3 Credits
3 Weekly Lecture Hours

CUL 220 Nutrition and the Hospitality Industry
This course is designed for the student preparing for a career in the hospitality industry. The student will learn the basic concepts of nutrition and understand how to apply them when designing menus for a variety of consumers. The student will also become familiar with proper food safety as well as state and federal nutrition-related regulations.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of basic nutrition and nourishment concepts.
• Define vitamins, minerals, proteins, fats and carbohydrates.
• Demonstrate an understanding of current public health dietary issues, including identification of the underlying causes and possible solutions.
• Demonstrate the application of current FDA dietary guidelines when developing a menu.
• Define and demonstrate an understanding of the concept of exchange lists.
• Correctly identify the current trends and issues affecting food selection and menu planning for good nutrition practices.

PreReq. ENG 050 or ENG 099, REA 050 or REA 075 or pass test
3 Credits
3 Weekly Lecture Hours

CUL 230 Professional Cooking II
Students will practice and apply the skills and techniques learned in CUL 115 (Professional Cooking I) to the production of soups and compound sauces, meat and seafood fabrication, food preparation for commercial foodservice, basic garde manger production, plating and garnishing. Students will practice hands-on development of these skills in a professional kitchen.

Upon successful completion of this course, students should be able to:
• Demonstrate the production of compound sauces and soups.
• Demonstrate meat, poultry and seafood fabrication and portioning.
• Demonstrate a proficiency in food preparation skills and cooking techniques for commercial foodservice applications.
• Demonstrate basic techniques in garde-manger.
• Identify various spices, herbs and food stuff.
• Demonstrate how to prepare classical entrees.
• Demonstrate how to use culinary equipment and tools not normally found in American kitchens.
• Demonstrate an understanding of the theory and practice of advanced cooking techniques.
• Demonstrate a working knowledge of advanced culinary terminology.

PreReq. CUL 115
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

CUL 231 Garde Manger
Students will further develop the skills and techniques learned in CUL 230 (Advanced Culinary Skills and Techniques), with emphasis on volume cooking, plating techniques, plate presentation, and garnishing. Students will practice hands-on development of these skills in a professional kitchen.

Upon successful completion of this course, students should be able to:
• Demonstrate proficiency in classical and modern plate presentations.
• Demonstrate proficiency in production and safe handling of volume foods for banquets and catering including soups, sauces, proteins, starches and vegetables.
• Apply basic garde-manger skills in production of various cold foods.
• Prepare hot and cold foods for buffet presentation.

PreReq. CUL 230
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

CUL 232 International Cuisine
Students will learn to prepare Classical and International Cuisines, including Regional American, Asian, European, Latin and Middle Eastern foods. Students will practice hands-on development of these skills in a professional kitchen.

Upon successful completion of this course, students should be able to:
• Demonstrate proficiency in identifying ingredients from various world-wide cuisines.
• Prepare regional American cuisine.
• Prepare Classical French cuisine.
• Prepare traditional and modern Latin cuisine.
• Prepare a variety of Middle Eastern foods.
• Prepare a variety of traditional and modern Asian cuisines.
• Prepare a variety of European foods.
• Prepare a variety of Indian foods.

PreReq. CUL 230
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

(DPR) Computer Information Sys

DPR 100 Introduction to Information Technology
This course is designed to provide an introduction to Information Technology (IT) concepts and applications, and the impact of IT on individuals, organizations, and society. Core content includes computer hardware and software, digital communications, the Internet, databases, networking, programming, computer security, ethics in IT, and current and emerging digital technologies.

Upon successful completion of this course, students should be able to:
• Identify the types of computers and describe their purposes.
• Describe how the components of a computer system function.
• Use system software and utility programs for maintenance, security, and organization purposes.
• Use word processing software to create, edit, format and save various documents.
• Use spreadsheet, software to construct formulas, use functions, chart and analyze data; and to create, edit, format, and save a spreadsheet.
• Use database software to create a query, form and report.
• Use presentation software to create, edit, format and save a presentation.
• Describe the importance of computer programming.
• Describe the benefits of networks and computer security implications.

Delaware County Community College
DPR 101 Introduction to Computer Science

An engaging and approachable course that explores many of the foundational concepts of computer science and programming. Develop problem-solving, logic and critical reasoning skills as you learn basic programming structures and concepts common to all programming languages. Covers the fundamentals computer science as well as planning, coding and debugging computer programs. Learn about using computers to process information, find patterns and test hypotheses about digitally processed information to gain insight and knowledge. This is an introductory level course and previous programming experience is not necessary.

Upon successful completion of this course, students should be able to:
- Identify and select appropriate programming tools for application development.
- Design and implement algorithms in a programming language that involve the use of iteration and boolean logic.
- Develop programs that use variables, constants and arrays.
- Create programs that can perform basic arithmetic operations.
- Construct modular programs using functions.
- Use appropriate tools and strategies for debugging and avoiding errors.
- Summarize the professional, cultural, legal and ethical issues related to computer science.
- Identify career paths available in computer science and determine professional education and training standards.
- Apply the process of software development including design, implementation, documentation and testing.
- Learn about using computers to process information, find patterns and test hypotheses about digitally processed information to gain insight and knowledge.
- Explain how binary sequences are used to represent digital data.

College Academic Learning Goals Designations: Critical Reasoning (CR) and Information Technology (TC)

PreReq. EGN 099, REA 050 or REA 075 and MAT 050

3 Credits 3 Weekly Lecture Hours

DPR 104 Introduction to Java Programming

This course teaches the fundamentals of analyzing problems and designing, developing and testing computer programs to solve them utilizing Java in an Integrated Development Environment (IDE). The course introduces the fundamental concepts and techniques for programming including simple data structures, algorithms, variables, control structures (decision and looping), text files, method writing, and arrays as well as simple shapes and Graphical user Interface (GUI) basics.

Upon successful completion of this course, students should be able to:
- Define basic computing and programming terms.
- Navigate a Java IDE to write and debug Java programs.
- Identify and use the basic concepts and principles of structured programming.
- Explain and use data, operations, functions, and data types.
- Apply the correct control and iterative structures to a program.
- Implement simple GUIs and write programs that display simple shapes.
- Use mathematical equations in the creation of a computer program.
- Design, write, test and debug a Java program to implement a working solution to a given problem specification.
- Use documentation or a knowledge base to resolve technical issues.
- Implement the major steps in the analysis, design and development of a computer program.
- Explore career opportunities in computer science, personal computing and business applications programming.

PreReq. DPR 101

3 Credits 3 Weekly Lecture Hours

DPR 105 Management Information Systems

This introductory course in managing information systems defines business processes, integrates these processes with computer technology, explains the flow of information in a business, and examines the use of information in business management. Business topics are integrated with information systems concepts. The course is designed for students using computer technology in a business environment. This course provides a real world process-oriented component to business education. Selected exercises using MS Office, MIS software, and business simulation games on the Internet are used in this course.

Upon successful completion of this program, the student will be able to:
- Explain what a business information system is and identify key components.
- Outline the phases and steps in the information system development process.
- Define business and computer technology terminology.
- Give examples of how business information systems can break time, geographic, cost, and structural barriers in business.
- Identify how business information systems are affecting the structure and activities of organizations.
- Diagram typical flows of information in business operations.
- Examine specific ethical principles of conduct and apply an ethical analysis to a difficult business information system situation.
- Identify business software tools that complete word processing, prepare spreadsheets, perform research, design databases, and prepare presentations.
- Demonstrate a fundamental knowledge of how business processes and computer technology improve effectiveness of organizational goals.
- Explain how information systems can improve management decision-making effectiveness.

PreReq. DPR 100 or DPR 101

3 Credits 3 Weekly Lecture Hours

DPR 106 Computer Applications

This is a comprehensive hands-on personal computer applications course specifically designed for students to develop an intermediate knowledge of word processing software, spreadsheet software, database software and presentation software. Additional topics include an overview of the components of a microcomputer system; hardware and software; storage devices and media; interpretation of error messages, file management, files storage, and Internet research.

Upon successful completion of this course, students should be able to:
- Differentiate between hardware and software.
- Identify various storage devices and media.
- Manage files and folders.
- Navigate to information stored on the computer.
- Perform tasks using features common to integrated software programs.
- Demonstrate computer skills using application software on a personal computer.
- Use word processing software to create, edit and format documents.
- Apply intermediate word processing skills to solve application-type problems using word processing software.
- Design, create, modify, and format worksheets and workbooks using spreadsheet software.
- Design databases and create, edit and modify database objects.
- Design, create, enhance, organize, and view presentations using presentation software.
- Use the Internet to navigate the Web using URL and Hyperlinks, to create and delete bookmarks, to compose, view, send, receive, and print e-mail messages.

PreReq. REA 050 or REA 075 or pass test

3 Credits 3 Weekly Lecture Hours

DPR 111 Computer Applications

This course provides students with a practical introduction to Help Desk concepts. Topics covered include the different types of help desks and how they are measured by organizations; the roles and skills required to function in a Help Desk environment; and the processes and technologies commonly employed to ensure the Help Desk is operating efficiently and effectively.

Upon successful completion of this course, students should be able to:
- Discuss the components of a successful Help Desk.
- Discuss the emerging support center concepts.
- Distinguish between the different types of Help Desks, such as centralized, decentralized, internal, external.
- Use required business and technical skills.
- Discuss job responsibilities of Help Desk personnel.
- Discuss Help Desk processes and procedures.
- Apply the technological aspects of the Help Desk.
- Apply the informational aspects of the Help Desk.

PreReq. DPR 100

3 Credits 3 Weekly Lecture Hours

DPR 112 Database Management Systems

This course provides students with an introduction to data base concepts, data models and Data Base Management System (DBMS) software. The relational database model is examined. One or more of the common DBMS software is included as part of the hands-on activities associated with the course.
Upon successful completion of this course, students should be able to:

- Discuss general concepts of computer data base systems.
- Understand data models through an intuitive approach to data base design.
- Recognize the standards for data base design and apply them to the data base design of a specified application.
- Identify the main features of a relational data base model.
- Design, develop and manipulate a rudimentary relational data base.

Prereq. REA 050 or REA 075

4 Credits 4 Weekly Lecture Hours

DPR 114 Microsoft Word

This course is designed to develop students’ word processing skills on the computer using Microsoft Word for Windows. Basic, intermediate and advanced features of MS Word are stressed.

Upon successful completion of this course, students should be able to:

- Create, save, retrieve and print documents.
- Identify word-shortcut commands and function keys using the WORD Keyboard Template.
- Identify the various parts of the Word screen.
- Edit documents by use of insert and delete functions.
- Select and use character formatting features including all caps, bold, italic, underlining, double underlining, and line spacing, indenting and changing the case of letters.
- Enhance business memoranda and letters by changing the alignment, indents and line spacing of paragraphs as well as creating numbered and bulleted paragraphs.
- Manage documents by creating folders, copying, renaming, deleting and printing documents.
- Enhance the visual display of text in documents by changing the font.
- Apply formatting effects to text such as strikethrough, superscript, subscript, small caps and hidden text.
- Use writing tools by completing a spelling check on text in a document and proofing the grammar of text in a document using the grammar checker, adding words to and deleting words from the AutoCorrect dialog box, displaying synonyms and antonyms for specific words using Thesaurus and displaying information about a document such as the number of pages, words, characters, paragraphs and lines.
- Manipulate the length of lines in business documents, create a document more quickly with the date and AutoText features, and improve the visual appeal with drop caps and nonbreaking spaces.
- Manipulate tabs in documents with tab settings including left, right, center and decimal.
- Control printing features for simple business documents and print envelopes and mailing labels.
- Format and merge separate files to create a series of similar business documents such as personalized form letters, envelopes and labels.

Prereq. DPR 100

4 Credits 4 Weekly Lecture Hours

DPR 115 Microsoft Excel

This hands-on course provides a comprehensive presentation of Microsoft Excel. The more advance features of Microsoft Excel are stressed.

Upon successful completion of this course, students should be able to:

- Develop Excel worksheets that include formulas and functions.
- Develop professional-looking worksheets using Excel.
- Develop charts and graphs.
- Manage financial data using Excel.
- Create static and dynamic Web pages using Excel.
- Work with multiple worksheets and workbooks.
- Manipulate data with database functions, lookup function and templates.
- Enhance Excel worksheets with Visual Basic and Macros for applications.
- Demonstrate “What-if-Analysis” using Excel.
- Import data into Excel worksheets from other Microsoft applications.

Prereq. or Coreq. DPR 100

3 Credits 3 Weekly Lecture Hours

DPR 116 Introduction to Online Research Strategies

This course is designed to teach students effective research skills using the Internet. Students will learn effective research strategies for retrieving, evaluating and using information from internet web sites, internet-based subscription databases, and various Web 2.0 applications. The development of critical thinking skills for college level research assignments and lifelong learning will be stressed. Ethical and legal aspects regarding the use of information will be discussed.

Upon successful completion of this course, students should be able to:

- Distinguish free internet sites from fee-based internet subscription services.
- Use advanced features of internet search engines and fee-based internet subscription services.
- Evaluate web sites for reliability and relevancy.
- Choose the most effective resource and format for the specific information needed.
- Understand the legal and ethical issues regarding plagiarism and copyright.
- Compose a works cited list using MLA or APA format.
- Navigate services available through homepages of a public library and an academic library.

Coreq. DPR 100

3 Credits 3 Weekly Lecture Hours

DPR 117 Fundamentals of Game Design Theory and Practice

This course introduces students to the theory and practical aspects of the computer game development process. Students brainstorm a game idea, establish focus, determine the storytelling mode, and document the design.

Upon successful completion of this course, students should be able to:

- Demonstrate an understanding of the vocabulary of game design theory and practice.
- Identify the techniques of top game designers.
- Demonstrate the ability to design and develop 2D artwork.
- Analyze and identify the elements that make games successful.
- Apply the computer game development process to create a design document.

Prereq. REA 050 or REA 075 or appropriate placement test score

3 Credits 3 Weekly Lecture Hours

DPR 118 Game Creation Development

This course focuses on designing, developing and testing computer games using game creation development tools. Students use an icon-based system of events and actions to program computer games. Principles of successful game design and techniques of top game designers are also explored.

Upon successful completion of this course, students should be able to:

- List requirements for a game development studio
- Describe the basic elements of an image and how to manipulate it
- Identify and describe game genres
- Identify the elements of good game design
- Utilize the computer game development process to create games using a game engine and design tool
- Demonstrate the ability to use game creation development tools to develop games for inclusion in a portfolio

Prereq. DPR 100 and DPR 117

3 Credits 3 Weekly Lecture Hours

DPR 119 Introduction to Computer Game Programming

This course introduces students to the concepts of programming using an object-oriented programming language and game development tools. Students will create 2D and 3D games using game development tools as well as program a full-featured role-playing game (RPG) using an object-oriented programming language.

Upon successful completion of this course, students should be able to:

- Describe the elements of game programming.
- Create a 2D game using game development tools.
- Create a 3D game using game development tools.
- Use the basic programming constructs of an object-oriented programming language.
- Create animations for a game.
- Add sounds to a game.
- Create a game using a HTML5 game-based creation engine.
- Create a RPG using an object-oriented programming language.

Prereq. DPR 101 Coreq. DPR 117 or DPR 118

3 Credits 3 Weekly Lecture Hours

DPR 121 Game Art and Animation

The focus of this course is to create 2D artwork, arrange UI elements, generate textures, and create a 3D model. Students create 3D models and animations using industry standard computer graphics software.

Upon successful completion of this course, students should be able to:

- Identify the requirements of 2D artwork.
- Demonstrate the ability to design and develop 2D artwork.
- Identify the requirements of a 3D model.
- Use a 3D modeling software product to create models and animations.

Prereq. REA 050 or REA 075 and MAT 050

3 Credits 3 Weekly Lecture Hours

DPR 141 UNIX Operating Systems

This hands-on course aims to familiarize students with the Unix operating system. The course covers the installation, use, management and customization of Unix in a PC environment. Topics include notable and commonly used Unix commands; the Unix shell as both user interface and programming environment; the Unix file system; the Unix networking subsystem; and bandwidth management under Unix.

Upon successful completion of this course, students should be able to:

- Discuss the features and benefits of the Unix operating system.
- Log onto and out of a Unix system.
- Discuss the Unix file naming convention.
- Construct both simple and enhanced Unix command lines.
- Describe and distinguish between the concepts of kernel, shell and file system.
- Discuss the file hierarchical structure.
- Employ both user- and administrator-oriented Unix commands in an effective manner.
- Identify the most significant characteristics of the Unix networking subsystem and Unix bandwidth management.
- Recognize and describe widely-used Unix applications such as Apache.

Prereq. DPR 101

3 Credits 3 Weekly Lecture Hours
DPR 190 Computer Programming Internship
(1 credit)

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 1 college credit for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded:
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Develop a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

2 Credits

DPR 199 Computer Programming Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded:
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Develop a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

3 Credits

DPR 194 Computer Programming Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded:
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Develop a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

1 Credit

DPR 204 Intermediate Java Programming

This course teaches students how to create single-user applications using the Java programming language. Students learn the fundamentals of object-oriented programming (OOP) by designing, coding and testing simple applications. The course is designed for students who have an understanding of programming methods and techniques using the Java programming language. It incorporates the design, coding and use of programmer developed classes and objects. Simple container classes are used to build collections of newly defined objects.

Upon successful completion of this course, students should be able to:
- Define object-oriented programming terms.
- Explain the fundamentals of object-oriented structures and principle of programming.
- Design, implement and document Java classes to be used in a computer program.
- Demonstrate use of Java class libraries.
- Demonstrate use of methods and method overloading.
- Explain inheritance and polymorphism and use them for derived classes.
- Explain and use derived and abstract classes.
- Demonstrate use of object-oriented-oriented programming techniques to solve problems.
- Build and use container classes such as vector and list.
- Apply analytical skills to produce sample test cases, pseudocode or an incremental coding plan for a given problem specification.
- Write, test and debug a Java program to implement a working solution to a given problem specification.

Prereq. DPR 104

3 Credits 3 Weekly Lecture Hours
DPR 210 Object Oriented C++
This course teaches students how to create single-user applications using the C++ programming language. Students learn the fundamentals of object-oriented programming (OOP) by designing, coding, and testing simple applications. The course is designed for students who have an understanding of programming using the C++ language. The student must be able to design and code functions and use logic structures to accomplish specific tasks. Using the aforementioned functions and structures, the student is guided to employ object-oriented programming methods and techniques in the development of a modern OOP application. This course does NOT cover graphical designs or graphic user interfaces (GUI).
Upon successful completion of this course, students should be able to:
• Define object-oriented programming terms.
• Explain the fundamentals of object-oriented structures and principles of programming.
• Use a C++ compiler and Integrated Development Environment (IDE) to create, document and debug multi-file projects.
• Design, code and implement C++ classes.
• Design and use class methods.
• Instantiate and use class objects.
• Explain inheritance and polymorphism and use them for derived classes.
• Generate and handle exception objects to support error processing.
• Build and use function and class templates to provide generic processes for OOP applications.
• Declare and use pointer variables to generate dynamic data structures.
• Design, write, test and debug C++ program to implement a working solution to a given problem specification.
Prereq. DPR 110
3 Credits
3 Weekly Lecture Hours
3 Weekly Laboratory Hours

DPR 212 Data Structures and Algorithms
This course focuses on problem analysis, algorithm design and refinement, and computer programming. Complex data structures such as stacks, heaps, and trees as well as sorting and searching techniques are examined. Software engineering methods and structured style as well as object-oriented programming are emphasized.
Upon successful completion of this course, students should be able to:
• Develop programs using good programming style and object-oriented programming techniques to implement algorithms and data structures.
• Use simple and advanced data types including linked lists, stacks, queues, trees, heaps and sets.
• Analyze the efficiency of various algorithms for looping, recursion, sorting, and searching.
• Use abstract data types, containers and class templates, encapsulation, inheritance, and polymorphism.
• Evaluate simple systems concepts such as input/output buffers, parameter passing mechanisms, and memory management.
• Use documentation or a knowledge base to resolve technical issues.
• Apply the software development process to design, write, test, and debug computer programs using an object-oriented language.

Prereq. MAT 135 or MAT 152 and DPR 204 or DPR 210
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

DPR 213 iOS App Development
This course covers the tools and skills needed to create applications for the iOS mobile platform. Students will learn about the process of becoming an iOS app developer for Apple and registering and selling apps in Apple’s App Store. Students will use the core development tools developed by app developers, which include Xcode and Interface Builder, and experience in-depth use of the Cocoa Touch and Core Services frameworks. Students will automatically be enrolled in Apple’s iOS University Developer Program where students can download free versions of Xcode, access development tools, discussion forums, and code repositories. Therefore, students do not need to pay to enroll in Apple’s iOS Developer Program for this course. Students will need access to an Intel Macintosh computer with an operating system capable of running the most recent version of Xcode in order to complete assignments outside of class. Use of an iPhone or iPad in class is NOT a requirement. An onscreen simulator is available.
Upon successful completion of this course, students should be able to:
• Describe and use object-oriented principles in iOS app development.
• Create, edit, debug and compile iOS app projects in Xcode and Interface Builder.
• Develop apps that incorporate various User Interface (UI) components.
• Apply appropriate user interface design techniques and standards to create intuitive, usable and efficient designs that focus on user experience (UX).
• Use Cocoa Touch framework of classes to develop touch interfaces.
• Create clean, efficient applications using the Model-View Controller (MVC) and Delegation design patterns.
• Create navigation-based apps that implement multiple views, toolbars, tabs, and table views.
• Create apps which store and use user data and preferences.
• Create apps utilizing media frameworks for support of audio, video, and animation.
• Create apps implementing the Core Services layer to support system services such as the Address Book, Calendar, GPS, accelerometer and gyroscope features of iOS devices.
• Identify the graphics formats, resolutions and specifications required for various iOS devices.
• Use techniques for adaptive resizing, rescaling, and refactoring an app screen.
• Create internationalized apps which are ready to be localized for various languages.
• Use version control software to manage the code for large app projects.
• Describe the process of becoming an iOS app developer for Apple as well as registering and selling apps in Apple’s App Store.
Prereq. DPR 204 or DPR 210 with grade ‘C’ or better
Coreq. IMM 110
3 Credits
3 Weekly Lecture Hours

DPR 214 jQuery/JavaScript
jQuery is a fast, small, and feature-rich JavaScript library. In this course students learn to use jQuery, JavaScript and Ajax to build dynamic content and create feature-rich web sites. Also covers jQuery Mobile to build cross-platform mobile web pages.
Upon successful completion of this course, students should be able to:
• Develop dynamic Web 2.0 applications with jQuery, HTML, CSS and Ajax.
• Enhance HTML, forms using jQuery validation and call web services.
• Build cross-platform, cross-device mobile pages using jQuery Mobile.
• Create web pages using jQuery effects.
• Convert serialized server data to HTML using JSON.
• Design sophisticated user interfaces with jQuery UI.
• Use objects, methods and properties to manage and manipulate the elements of a web page using the Document Object Model.

Prereq. DPR 101 and IMM 120 with a grade of ‘C’ or better
3 Credits
3 Weekly Lecture Hours

DPR 220 Android App Development
Android is the first complete, open and free mobile platform. The rate of new Android devices reaching world markets has continued to increase. It can be found on phones, tablets, eBook readers, consumer electronics and many other upcoming devices. In this course, students will learn to use the freely available Android SDK, Android Development Tools (ADT) along with Java and Eclipse, a popular integrated development environment (IDE) to develop apps for Android devices. Students will learn fundamental programming concepts using Java to create, edit, debug and compile projects in Android. Also covers the process of preparing and publishing Android applications to the Android Market.
Upon successful completion of this course, students should be able to:
• Describe and use object-oriented principles in application development.
• Create, edit, debug and compile projects using Android SDK, Eclipse and Java.
• Integrate image media to an application.
• Use the camera and the gallery.
• Implement location-based services (LBS) and use geocoding services and maps.
• Incorporate audio, video and animation into applications.
• Create applications that effectively manage memory and system resources.
• Configure basic application settings and use the Android manifest file.
• Build applications with activity dialogs to react to user-driven events.
• Use common Android APIs.
• Apply appropriate user interface design techniques and standards to create intuitive, usable and efficient designs.
• Learn about the process of preparing and publishing Android applications to the Android Market.

Prereq. DPR 101
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

DPR 222 Visual Basic Programming
This course familiarizes students with ways to create single-use applications using Microsoft’s Visual Basic (VB.NET) programming language. Students learn the fundamentals of Object Oriented Programming (OOPS) by designing, coding and testing simple Windows-based applications. The course is designed for students with an understanding of object-oriented design and logical but who need to understand event-driven programming methods and techniques.
Upon successful completion of this course, students should be able to:
• Describe the differences between event-driven programs and procedure-driven programs.
• Define objects, properties, methods and events.
• Create applications that correctly declare and use variables, accept user input, use subscripts, and functions, and use code loops and control structures.
• Locate and correct coding problems using de-bugging tools.

Prereq. DPR 101
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

DPR 225 Introduction to PC Support
This is the first part of the hands-on hardware preparation for students whose goal is to develop an understanding of operating systems to maintain and manage a personal computer. The course prepares students to understand the terminology and technically support ports, motherboards, microprocessors, memory, interrupt requests, basic power needs, chips, cables, troubleshooting and hardware resource discovery both to find information and help in troubleshooting devices.
Upon successful completion of this course, the student should be able to:
• Identify the components of a typical microprocessor system.
• Demonstrate a knowledge of components such as ports, motherboards, microprocessors, memory, interrupt requests, basic power needs, chips, and cables.

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COURSE DESCRIPTIONS 109
• Be able to:
  • Use jQuery Mobile for designing and developing mobile web sites that function like native applications
  • Use media queries to optimize pages for display on different sized devices
  • Create cache manifests to make sites available offline
  • Use HTML, CSS, JavaScript and jQuery to build and deploy a mobile web app.

 DPR 228 PC Repair and Maintenance

This course is a continuation of the hands-on course for students whose goal is to work with personal computer operating systems. The course prepares students to technically support personal computer repair and maintenance.

Upon successful completion of this course, students should be able to:
  • Apply knowledge of SCSI, IDE, and similar hard drive configurations.
  • Utilize knowledge of partitioning, formatting, fragmentation and defragmentation, disk caching, and troubleshooting of hard drives.
  • Apply knowledge of IDE, SCSI, and other similar hard drive utilities.
  • Construct configuration files for optimal computer performance.
  • Utilize CD-ROM drives, video cards, sound cards as well as audio CD use.
  • Apply knowledge of Caching, Serial and Parallel devices, Mouse, and keyboards.
  • Apply knowledge of monitors, screen savers, video adapters, and video memory.

Troubleshoot FireWire, serial and parallel ports and various bus configurations.
  • Utilize knowledge of printers including types and troubleshooting techniques.
  • Apply knowledge of various configurations and troubleshooting methods including DOS, Windows 3.x/95/98/NT/2000.
  • Use various boot processes and methods as well as optimizazation techniques.
  • Discuss compression, encryption, and dial-up networking techniques as well as network security topics.

 DPR 241 Mobile Web Development

Mobile devices have revolutionized the way we entertain ourselves, get our news, and keep in touch with the world around us. Web developers must now create websites and applications that work consistently on all major mobile platforms. Learn how to use your existing web skills to move into mobile web development. Covers the key differences in mobile app design and the architectures that support these technologies. Use current HTML, CSS and JavaScript standards to design mobile user interfaces. Learn to create dedicated mobile websites and how to convert a mobile web application into a native app that can be loaded into an iPhone or Android device.

Upon successful completion of this course, students should be able to:
  • Identify current technologies and architectures that provide the network and communications infrastructure for mobile enabled computer systems
  • Define and identify the importance, types and uses of various mobile devices
  • List the various operating systems used in mobile devices and discuss their advantages and disadvantages
  • Apply appropriate user interface design techniques and standards to create intuitive, usable and efficient designs
  • Identify the appropriate development tools, IDEs and emulators for creating and publishing various mobile applications and web sites
  • Design and create web sites for display on a variety of different mobile devices and screens
  • Identify careers related to mobile computing and examine requisite skills
  • Convert existing XHTML web sites to HTML5

 DPR 250 Digital Portfolio Development

The focus of the Digital Portfolio Development course is to design a portfolio that makes evident a student’s knowledge and professional work in their field of study. The portfolio is a collection of material that can be used as an interactive resume, an archive of work over time or a demonstration of proficiency. The contents of a student’s portfolio can include work samples, letters of recommendation, references, transcripts, GPA, accomplishments/awards, competency lists, certifications, curricular standards, instructor assessments/evaluations, reflections, and work experiences/employer evaluations. Thus, a student’s portfolio provides the ability to show work on demand and evidence of their preparation for a career or further education in their field of study.

The objective of this course is for students to demonstrate the theoretical as well as the technical skills they have acquired throughout their program. Students will assess personal strengths to establish a career goal and decide how to organize their design and production work in a graduation portfolio.

Upon successful completion of this course, students should be able to:
  • Identify the need for a digital portfolio
  • Identify the target audience of a digital portfolio
  • Demonstrate the ability to organize, collect and prepare material for a digital portfolio
  • Explain copyright laws as it applies to acquiring and protecting intellectual property
  • Demonstrate the ability to design and develop work samples using industry standard tools and/or programming languages
  • Demonstrate the use of design and development tools to develop a digital portfolio

 DPR 100 Introduction to Theatre

This course surveys the world’s dramatic literature by concentrating on an text analysis of a representative sample of plays of varying periods (ancient, classical, modern) and types (tragedy, comedy, drama). Emphasis is placed on the plays in performance. Field trips to theatrical productions may be scheduled. This is not an acting course.

Upon successful completion of this course, students should be able to:
  • Identify through the development of theatre the social, cultural, economic, religious and political forces that have shaped the student’s world.
  • Identify positive values through attending plays that will broaden and enrich the student’s life.
  • Develop and expand the student’s sensory perception through the critical reading of play texts.
  • Write and present oral critiques of plays seen and studied, using standards of drama criticism that enhance the student’s appreciation of the art form.
  • Apply theatre attendance in life as a continuing educational experience that enhances career aspirations and broadens cultural perspective.

 DPR 105 Acting Shakespeare

Acting Shakespeare is designed with the knowledge that the plays of Shakespeare were written to be spoken aloud, by actors on a stage. This course will investigate the plays of Shakespeare with that reality in mind, and introduce students to the myriad techniques Shakespeare used in his writing which assist the actor in the performance of his characters and the onstage telling of his stories. Acting and performance techniques from Shakespeare’s day to the present will be explored through vocal and movement exercises. Students are required to read several Shakespearean plays and to analyze the texts with the goal of performing monologues and scenes from those plays. Plays in performance will be emphasized and students will watch filmed stage productions. Students will be required to see a live theatrical production of a Shakespearean play when possible.

Upon successful completion of this course, students should be able to:
  • Demonstrate, through text analysis and performance, an understanding of the fundamentals of Shakespeare’s verse and prose and how these relate to the acting of those texts

(DRA) Drama
• Demonstrate a working knowledge of acting techniques which have been applied to the works of Shakespeare throughout history.
• Bring to life one of Shakespeare’s characters from the plays, both physically and psychologically, and be able to communicate that character’s needs and intentions through performance.
• Effectively use vocal techniques to bring Shakespeare’s words, rhythms, and imagery to life.
• Work within a group and show an awareness of ensemble dynamics and cooperation.

3 Credits 3 Weekly Lecture Hours
DRA 110 Acting I

This acting course is designed to provide students with the basic rudiments of acting. Emphasis is on movement, breathing, voice (diction, projection, emphasis, interpretation), and script and character analysis. Students are required to read several plays and to attend at least two performances at area theaters. The hour TBA is provided for rehearsals. Theatre majors are encouraged to take DRA 100 in conjunction with this course as it provides insight into script analysis and staging practices.

Upon successful completion of this course, students should be able to:
• Describe the procedure for bringing a written script to performance.
• Demonstrate basic voice and movement techniques.
• Evaluate acting techniques.
• Recognize the various components of an artistic endeavor, including the roles of self-discipline, motivation, flexibility, cooperation and creativity.
• Perform short monologues and dialogues.

3 Credits 3 Weekly Lecture Hours
DRA 111 Acting II

Acting II is a continuation of Acting I. In this course, students refine skills they developed in Acting I and continue to explore the acting process through readings, theatre attendance and performance work. Emphasis is on character development through improvisation, script analysis, movement, and stage combat. Students also examine the role of imagination, perception and creativity in acting.

Upon successful completion of this course, students should be able to:
• Identify period acting styles.
• Demonstrate physical and aesthetic awareness of acting techniques.
• Demonstrate an understanding of character interpretation through movement and voice control.
• Work effectively with others on acting projects.
• Demonstrate imaginative and creative talents through the actualization of theatrical concepts of acting.

3 Credits 3 Weekly Lecture Hours
DRA 130 Voice and Movement

Voice and Movement is designed to introduce students to major vocal and movement techniques and practices used by professionals such as actors to maximize their effectiveness as public speakers and to create vibrant, multi-faceted characters for stage and film. This course teaches the inner workings of the human voice and the processes of articulation used to speak and pronounce sounds, and will emphasize the effective use of such techniques as proper breathing, stress, inflection, vocal quality, focus, rate of speech and pace, and others. Students will also learn various movement techniques such as gesture, mime, Alexander technique, Viewpoints, and the Suzuki method. The class will investigate the body/voice connection and how these techniques work together in public speaking and the creation of a stage or film character.

Upon successful completion of this course, students should be able to:
• Describe the physical actions and anatomical parts of the body used to produce sound and speech.
• Demonstrate in performance a knowledge of the different styles and methods of physical movement used in the art of speaking and acting.
• Apply tools and concepts learned to create an effective public speaking voice.
• Analyze a script or speech to identify rhetorical devices and rhythms of speech.
• Create a physical and vocal description of a theatrical character based on analysis of a script.
• Apply methods and techniques learned to manipulate the voice and physicality of the body in the creation and performance of a theatrical character.

3 Credits 3 Weekly Lecture Hours
ECE 111 Methods and Materials for Teaching
This course will prepare the student to develop and implement an active learning environment for children in Pre-k to 4th grade that incorporates classroom design, learning activities that support physical, cognitive, social and emotional development and inquiry based teaching strategies. Classroom design, play, and teacher/child interactions will be integral to this course.
Upon successful completion of this course, students should be able to:
• Effectively apply the principles of developmentally appropriate practice, constructivism, socio-cultural theory, activity theory and play in developing active learning experiences.
• Implement multiple approaches to learning and teaching.
• Utilize supportive practices in teacher/child interactions.
• Design classrooms that demonstrate appropriate use of indoor and outdoor space.
• Design classrooms that are inclusive for diverse learners including differences in age, development, culture and linguistics.
• Develop and implement effective classroom management strategies.
• Utilize Pennsylvania’s early childhood learning standards in developing learning experience.
• Select, provide and evaluate materials and create new materials consistent with learning standards.
• Explain the connection between materials, learning standards and instruction.
• Differentiate teaching strategies to promote positive outcomes for each child, including the use of assistive technology for children with disabilities.
• Evaluate and analyze developmentally appropriate use of technology with young children including electronic picturebooks, applications and software.
• Integrate curriculum and assessment to create a learning project for preschool age children that applies developmentally appropriate teaching strategies including lesson planning, room design, differentiation and technology.
College Academic Learning Goal Designation: Information Technology (TC) when taken with ECE 112, ECE 121, ECE 130, ECE 140 and ECE 201
Prereq: ECE 140
3 Credits 3 Weekly Lecture Hours

ECE 112 Developing a Professional Portfolio and Resource File for ECE
This course will prepare the student to be able to develop a professional portfolio that will demonstrate their competence in teaching in the field of Early Childhood Education. Students will gain knowledge of how to create and maintain their portfolio and how to use it in their careers.
Upon successful completion of this course, students should be able to:
• Identify the purpose and use of a professional portfolio.
• Identify the key components of a professional portfolio.
• Evaluate key stakeholder requirements for demonstrating competence in the professional portfolio.
• Create and format an electronic portfolio using free or low cost software.
• Utilize digital technologies to store, retrieve, manipulate and transport data.
• Identify and compile online early childhood education resources for future use.
• Self assess to identify prior learning and plan for future learning.
College Academic Learning Goal Designation: Information Technology (TC) when taken with ECE 111, ECE 121, ECE 130, ECE 140 and ECE 201
Prereq: ENG 050 or ENG 099 or pass test
1 Credit

ECE 120 Early Childhood Education Laboratory I
These courses provide the student an opportunity to function as a member of an instructional team in an approved nursery school, child care center or Head Start program. The students activity is carefully supervised by a qualified in-service classroom teacher and the Colleges supervisor of the field experience. The courses also include a weekly seminar discussion of issues rising from this laboratory experience. This course requires ninety hours of field experience.
Upon successful completion of this course, students should be able to:
• Use a variety of effective instructional strategies.
• Integrate play based, project based and experience based teaching as an integral part of childrens development.
• Implement lessons based on children developmental needs.
• Utilize observation and assessment to guide and support teaching and learning through differential instruction.
• Exhibit a professional attitude toward assigned responsibilities.
• Communicate effectively with children, and teachers.
Prereq: ECE 100, ECE 110, ECE 130 with a grade of C or better.
4 Credits 1 Weekly Lecture Hours 6 Weekly Laboratory Hours

ECE 121 Early Childhood Education Laboratory II
This is the capstone course for the Early Childhood Education program of study. In this course, the student will synthesize their learning by functioning as a member of an instructional team in an approved early care and education program (nursery school, childcare, preschool, Head Start). A qualified in-service classroom teacher and the Colleges supervisor of the field experience carefully supervise the students activity. A weekly seminar discusses successes, challenges and issues arising from this laboratory experience, 90 hours in the field experience is required. Background clearances including FBI, Pa Child Abuse and Pa Criminal clearances and a Pennsylvania approved child abuse recognition and reporting training is required prior to enrollment in this course. Documentation of a negative TB test is also required.
Upon successful completion of this course, students should be able to:
• Construct and implement lessons based on student’s stage of cognitive development using a multidisciplinary approach that supports exploration and understanding of the world.
• Create environments that are educationally focused, respectful, supportive and challenging for all children.
• Construct and implement an integrated program that includes all content areas across the learning standards.
• Use methods that support children’s development in all domains and content areas.
• Implement accommodations and modifications for diverse learners.
• Use appropriate interactions between teachers and students and among students.
• Construct and implement lesson and activity plans that set instructional goals and objectives guided by content, pedagogy, and developmental considerations that are consistent with Pennsylvania’s learning standards.
• Document children’s learning for families through classroom displays.
• College Academic Learning Goals Designation: Critical Reasoning (CR)
College Academic Learning Goals Designations: Information Technology (TC) when taken with ECE 111, ECE 112, ECE 130, ECE 140 and ECE 201
Prereq: ECE 111 with a grade of "C" or better
4 Credits 1 Weekly Lecture Hours 6 Weekly Laboratory Hours

ECE 130 Early Childhood Development
This course examines the cognitive, physical, social and emotional development of the young child from conception through the early childhood period. Students will integrate and apply the major concepts and theories of child development to the early childhood classroom. Students will also have the opportunity to observe the principles of child development by conducting field observations for each age group studied. (10 hours of outside field observations either in the home or school will be required. Students will need to have federal and state background clearances for observing children in a school setting).
This course is a prerequisite for the ECE courses that follow. To meet this prerequisite, the student must earn a ‘C’ or better. A final grade of D or lower will require retaking this course.
Upon successful completion of this course, students should be able to:
• Identify the multiple interacting influences on children’s development.
• Identify universal and diverse child development principles.
• Know and understand the characteristics and needs of young children.
• Know and understand normative development for language, cognitive, physical, social and emotional development.
• Apply knowledge of child development to the early childhood classroom.
• Describe the developmental patterns of change, physical, cognitive and socioemotional in infancy and early childhood.
• Observe children and record behavior in a variety of settings in order to understand variation and exceptionality in individuals.
• Use observation, documentation, and other appropriate assessment tools and approaches, including the use of technology in documentation, assessment and data collection.
• Analyze the benefits and influence of technology use with very young children.
• Apply their knowledge of child development by observing, recording and interpreting children’s behavior for the purpose of program planning using appropriate technology tools for data collection.
College Academic Learning Goal Designation: Information Technology (TC) when taken with ECE 111, ECE 112, ECE 121, ECE 140 and ECE 201
Prereq: REA 050 or REA 075, ENG 050 or ENG 099
3 Credits 3 Weekly Lecture Hours

ECE 140 Integrated Curriculum and Assessment
This course will prepare the student to develop an integrated curriculum for preschool, kindergarten and primary age children based on the structure of the academic content areas and the early learning standards. This course will also explore the relationship between curriculum and assessment in providing high quality learning experiences and differentiating instruction.
Upon successful completion of this course, students should be able to:
• Develop effective and appropriate curriculum that creates a secure base from which young children can explore and tackle challenging problems.
• Develop and implement meaningful, challenging curriculum that supports young children’s ability and motivation to solve problems and think well.
• Develop curriculum that includes both planned and spontaneous experiences that are meaningful and challenging for all children that lead to positive learning outcomes and develop positive dispositions towards learning within each content area.
• Evaluate the principal theories that influence current curriculum in early childhood education.
• Detail the basic problem with implementation of an early childhood curriculum.
• Develop curriculum that is culturally and linguistically responsive and addresses the needs of diverse learners.
• Integrate observation and assessment in curriculum planning.
• Research, analyze and synthesize information on developmentally Appropriate Assessment and prepare a presentation using technology for key stakeholders.
• Integrate curriculum across content areas.
• Identify the goals, benefits, and uses of assessment.
• Utilize developmentally appropriate assessment strategies to promote positive outcomes for each child.

College Academic Learning Goal Designation: Information Technology (TC) when taken with ECE 111, ECE 112, ECE 121, ECE 130, and ECE 201

Prereq: ECE 130 with a ’C’ or better

3 Credits 3 Weekly Lecture Hours

ECE 190 ECE Internship (1 credit)
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience. Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

All students must have the following prior to starting the internship:

All students will be required to have Pennsylvania Child Abuse Clearance, Pennsylvania Criminal Clearance, FBI clearance, documentation of current immunizations, TB screening, two character references, and Child Abuse Recognition and Reporting certificate. There are additional fees to obtaining clearances and students may have to get their clearances renewed.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

Prerequisites:

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

2 Credits

ECE 194 ECE Internship (2 credits)
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience. Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

All students must have the following prior to starting the internship:

All students will be required to have Pennsylvania Child Abuse Clearance, Pennsylvania Criminal Clearance, FBI clearance, documentation of current immunizations, TB screening, two character references, and Child Abuse Recognition and Reporting certificate. There are additional fees to obtaining clearances and students may have to get their clearances renewed.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

Prerequisites:

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

3 Credits 3 Weekly Lecture Hours

ECE 199 ECE Internship (3 credits)
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience. Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

All students must have the following prior to starting the internship:

All students will be required to have Pennsylvania Child Abuse Clearance, Pennsylvania Criminal Clearance, FBI clearance, documentation of current immunizations, TB screening, two character references, and Child Abuse Recognition and Reporting certificate. There are additional fees to obtaining clearances and students may have to get their clearances renewed.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

Prerequisites:

To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5
• Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

2 Credits

ECE 201 Children Families and Community
This course will prepare the student to implement an educational environment that builds a community of learners whose members are children, families, community members and teachers. Building relationships is integrated into practical strategies for partnering with families and communities to facilitate children's learning.

Upon successful completion of this course, students should be able to:

• Implement a positive climate for learning that involves partnering with diverse families and communities.
• Identify the role of culture on children’s development and learning.
• Articulate the potential impact of differences in cultural practices between home and school.
• Maintain respectful, ongoing, meaningful communication with family members that sustain partnerships with families.
• Provide meaningful opportunities for families to be involved in their child’s education.
• Develop strategies for keeping families informed of children’s progress.
• Communicate effectively with other early childhood professionals.
• Identify community resources and utilize those resources in program planning.
• Advocate for children and families in the larger social and political arena.
• Use of technology for communication with families that is ethical and effective.
• Reflect on how theory, culture, values, ethics, communication and experience influence home, school and community partnerships.

College Academic Learning Goal Designation: Information Technology (TC) when taken with ECE 111, ECE 112, ECE 121, ECE 130 and ECE 140

Prereq: ECE 130 and EDU 220 with a ‘C’ or better

3 Credits 3 Weekly Lecture Hours
ECE 290 Administration and Supervision of Early Care and Education Environments

This course will examine the varied aspects of administration and supervision in the early care and education environment. It is designed for early childhood educators who are or who would like to take on an administrative role in an early childhood program. All administrative aspects of the early care and education program will be explored with particular emphasis on the development of interpersonal relationships and skills needed for effective program management.

Upon successful completion of this course, students should be able to:
- Identify the varied roles of the early care and education director.
- Utilize licensing and certification requirements in decision making.
- Evaluate strategies for staff recruitment, supervision and retention.
- Analyze enrollment practices and policies.
- Implement effective strategies for working with families.
- Identify personal leadership styles and role in program administration.
- Design the physical environment to meet needs of children and staff.
- Evaluate communication between parents, staff and administration.

Prerequisite: AAS or AS in ECE or related field OR completed 45 hours towards an AAS degree.

3 Credits 3 Weekly Lecture Hours

ECE 291 Current Issues and Trends in Early Care and Education

This course will examine the current issues and trends in early childhood education. Through the use of discussions, debates and disagreement, current issues will be identified and a generation of solutions will be formulated. The design of this course is such that the early childhood educator will become a reflective decision maker.

Upon successful completion of this course, students should be able to:
- Identify factors that lead to effective leadership.
- Be able to evaluate role of government in early care and education.
- Learn to advocate for young children.
- Analyze the role of business in early care and education.
- Develop strategies for promoting professional development.
- Develop and maintaining standards of quality improvement.
- Evaluate the quality of early care and education environments.
- Analyze the role of families.
- Identify supports for special needs children and families.

Prerequisites: AAS as ECE or related field OR completed 45 hours towards an AAS degree.

3 Credits 3 Weekly Lecture Hours

ECE 293 Financial Strategies for the Business of Early Care and Education

This course will examine financial and business management strategies associated with managing a childcare center. Topics covered will include marketing, budgeting, business plans, for profit versus nonprofit financial strategies; grant writing, enrollment, cost of care and staffing issues. This course is designed as an interactive, hands on approach to learning for the center director or the early childhood professional who would like to be a center director.

Upon successful completion of this course, students should be able to:
- Business plans and marketing strategies.
- Human resource management.
- True cost of care.
- City and state agencies that provide financial support to families and early care and education.
- Basic principles of grant writing.

Prerequisite: AAS or AS in ECE or related field OR completed 45 hours towards an AAS degree.

3 Credits 3 Weekly Lecture Hours

ECO 210 Macroeconomic Principles

This course is designed to help beginning economics students comprehend the principles essential for understanding the basic economizing problem and specific economic issues, such as, unemployment, inflation and the process by which prices, in competitive markets, are determined. Students will also study key aspects of International Economics, it's importance and impact on the domestic economy. This course will also assist students to understand and reason accurately and objectively about economic matters.

Upon successful completion of this course, students should be able to:
- Understand the meaning of key economic terms and describe the categories of economic resources.
- Apply Production Possibilities Curve Analysis to explain Increasing Opportunity Cost and Economic Growth.
- Describe the laws of Demand and Supply and how they interact to determine market equilibrium.
- Explain how the economy can be assessed through national income accounts (GDP, NI, PI, DI).
- Describe four phases of Business Cycle and different types of unemployment and how to calculate the Unemployment rate.
- Describe different types of inflation and hyperinflation and their impact on economy.
- Describe how Aggregate Demand and Aggregate Supply model is used to analyze economic fluctuations.
- Describe comparative advantage and demonstrate how specialization and trade will increase nation's output and contribute to Economic Growth.
- Describe different types of trade restrictions and arguments for and against free trade.
- Identify and evaluate the economic consequences of different trade policies.
- Understand how exchange currency market works and how exchange rates are determined.
- Assess the significance of international trade and finance for the U.S. and world economies.
- Evaluate economic stability and fiscal policy through classical Keynesian and monetarist models.
- Explain how financial markets, the Federal Reserve System and the banking system interrelate in monetary policy.

College Academic Learning Goal Designation: Global Understanding (GU)

Prerequisite: ENS 050 or ENS 099 and REA 050 or REA 075 and MAT 050

3 Credits 3 Weekly Lecture Hours

EDU 110 Introduction to Teaching

This course provides students with an introduction to the field of teaching and learning. Students will become familiar with teaching as a career choice and state requirements for becoming a certified teacher. The foundations, history, and philosophy of education will be examined and students will gain an understanding of modern education in our society. Students will also examine the impact of current issues on American education today. To assist students in gaining knowledge in a well organized format, the course is structured into four areas of competence: historical and philosophical foundations; teachers and students; schools and curriculum; and finances, government, and legal concerns.

Upon successful completion of this course, students should be able to:
- Develop background in education foundations, theory and policy, including understanding current issues with historical and philosophical background including inclusionary practices. (PDE Competencies)
- Develop background in education foundations, theory and policy, including understanding social, economic and cultural diversity, and implications for learning. (PDE Competencies)
- Develop background in education foundations, theory and policy, including general and professional ethics. (PDE Competencies)
- Demonstrate understanding of the way in which classroom environments influence children learning including the connection between classroom materials; learning standards, and instruction. (PDE Competencies)
- List the advantages and disadvantages of teaching as a career choice.
- Understand how teachers develop a professional reputation and obtain employment.
- Describe and utilize the resources at Delaware County Community College that will assist them in achieving their career goal including advising, Career Center, Program Guides, resource meetings, Media Center, and PRAXIS information.
- Develop a statement of their philosophy of teaching and learning that is research based.
- Understand the diversity of students and student needs (educational, social, cultural, behavioral) and the responsibility of a classroom teacher to these needs.
- Understand and analyze the major developments of the history of education, especially as they relate to school reform.
- Use resources at DCCC to plan their educational program, choose a transfer institution, and identify the steps they need to take to complete a teacher education program.
- Become a more reflective learner, with particular regard to personal skills and attitudes as they compare and contrast their readiness with the vocation of becoming a classroom teacher today.
EDU 206 Teaching with Technology

This course is an introduction to online teaching and learning. Its purpose is to increase the student’s understanding and awareness of online teaching styles and strategies, as they relate to today’s technologies. This course will combine educational theory with computer-based activities to complement major course concepts. The course emphasizes practical, concepts and theories applicable to any level of teaching and or understanding. Such knowledge will help students develop skills that will influence how they practice teaching with technology in either a classroom or online environment.

Students are expected to have basic knowledge of computer applications, have the ability to use an internet browser and have internet access.

Upon successful completion of this course, students should be able to:

• Demonstrate knowledge of computers, networking, the Internet and World Wide Web as they relate to PK-college level education.
• Discuss and critique issues related to use of computers in education, including, equity, copyright and ethics of use of technology in the classroom.
• Identify and demonstrate the best practices associated with online materials, assessments, and evaluation.
• Integrate technology in curriculum planning and lesson delivery (PDE competency).
• Develop an awareness of the use of technology to differentiate instruction for student populations such as special education students, English Language Learners, and gifted students.
• Create an e-portfolio using the college system and using products developed in coursework.
• Demonstrate the ability to access needed information effectively and efficiently.
• Analyze administrative educational policies and properly incorporate and apply those policies when designing course assignments.
• Identify the ethical, legal and socio-economic issues surrounding information and information technology.
• Demonstrate an understanding of the research process by developing a research question, search strategy, and select appropriate research tools and resources.

College Academic Learning Goals Designations: Information Literacy (IL) and Information Technology (TC)

Prereq. REA 050 or REA 075 and ENG 050 or ENG 099 or pass test

3 Credits 3 Weekly Lecture Hours

EDU 208 English Language Learners

This course focuses on the development of foundational knowledge for teacher education students to assist English language learners successfully in their future classrooms. Students will gain a basic understanding of the processes of second language acquisition and an understanding of the influence of culture on the educational process as viewed from current theoretical and pedagogical perspectives. The course content follows Pennsylvania Department of Education’s guidelines for pre-service teachers for meeting the instructional needs of English Language Learners.

The basic premise of the course is that teachers play an important role in creating a positive classroom learning environment and bridging school success, especially for English language learners. Students will be supported to develop essential dispositions, skills, and knowledge to fulfill this important role while exploring the issues of culture, language, learning contexts, instruction and professionalism. Students will study these five major course topics through courses readings, class discussions and cultural explorations of our own and others’ cultures while engaging in individual, social and experiential learning opportunities together.

Upon successful completion of this course, students should be able to:

• Demonstrate knowledge of language systems, structures, functions, and variation
• Identify the processes of acquiring multiple languages and literacy skills, including the general stages of language development
• Identify the differences between academic language and social language
• Identify socio-cultural characteristics of English language learners including educational background and demographics
• Describe how English language learners’ cultural communication styles and learning styles affect the learning process
• Describe how English language learners cultural values affect their academic achievement and language development
• Identify bias in instruction, materials and assessments
• Demonstrate cross-cultural competence in interactions with colleagues, administrators, school and community specialists, students and their families
• Observe culturally and linguistically diverse instructional settings
• Integrate research, concepts and theories of second language acquisition to plan customized instruction for English language learners
• Integrating the PA Language Proficiency Standards (ELPS) for English Language Learners in PreK-12 grades to guide effective instructional planning and assessment
• Implement appropriate research based instructional strategies to make content comprehensible for all English language learners

Prereq. ENG 112

3 Credits 3 Weekly Lecture Hours

EDU 215 Theory and Field Experience In Elementary Education, PK-4

This course will provide an orientation to various aspects of teaching in K-4 schools. Topics will include curriculum, planning, effective instruction, discipline, and the structure of the school. Field experiences will be related to course topics. Students will complete 30 hours of observation in the field.

Upon successful completion of this course, students should be able to:

• Create environments that are educationally-focused, respectful, safe, supportive and challenging for all children (PDE PK-4 Competencies: Development, Cognition, and Learning, C)
• Establish and maintain fair and consistent standards for classroom behavior (PDE PK-4 Competencies: Professionalism)
• Construct a variety of lesson and activity plans and set instructional goals and objectives guided by content, pedagogy and developmental considerations, consistent with PA learning standards (PDE PK-4 Competencies: Professionalism)
• Demonstrate an understanding of and the ability to plan for: type, identification, prevalence, effective, evidenced-based instructional practices and adaptations (PDE PK-4 Competencies: Professionalism)
• Demonstrate use of assessment data to implement instructional and/or programmatic revisions for quality improvement (PDE PK-4 Competencies: Assessment)

Prereq. Students must have completed 15 credit hours to include ENG 100 and EDU 110. In addition, students must obtain the standard criminal background checks that are required for those who work in school settings. These include a fingerprint check, a Criminal Background Check (Act 34) and Child Abuse History Clearance (Act 151) prior to beginning the course. Background check forms are available online. The teacher will explain how to access them.

3 Credits 3 Weekly Lecture Hours

EDU 220 Introduction to Special Education

This course will provide an introduction to the field of special education, major provisions of special education law, and the mandates of the teacher serving children with disabilities in the least restrictive setting. It will also review the major needs of students with disabilities, including the effects of family demographics. Emphasis will be placed on working within special education team structures, recognizing inclusive practices, and discussing the various roles of professionals.

Upon successful completion of this course, students should be able to:

• Demonstrate an understanding of identification, characteristics of different types of disabilities, as well as effective, evidenced-based instructional practices and adaptations.
• Demonstrate understanding of the legal rights and responsibilities of the teacher for special education referral and evaluation and the rights and procedural safeguards that are guaranteed.
• Demonstrate an understanding of possible causes and implications for the over-representation of minorities in special education so as to not misinterpret behaviors that represent cultural, linguistic differences as indicative of learning problems.
• Demonstrate an understanding of the components of the Individualized Education Plan (IEP) process, with emphasis on understanding measurable goals based on present levels, specially designed instruction, adaptations, accommodations, supplementary aids and services, and supports for school personnel.
• Identify essential concepts, best-practices and strategies for serving students with IEPs.

Prereq. ENG 112 and PSY 140. In addition, students must obtain the standard criminal background checks that are required for those who work in school settings. These include a fingerprint check, a Criminal Background Check (Act 34) and Child Abuse History Clearance (Act 151) prior to beginning the course. Background check forms are available online.

3 Credits 3 Weekly Lecture Hours

(EGR) Engineering

EGR 100 Engineering Graphics

The fundamentals of drafting, space geometry of points, lines and surfaces, graphs, graphical mathematics and design projects.

Upon successful completion of this course, students should be able to:

• Reduce concepts and configurations to freehand sketches.
• Construct orthographic drawings using drafting standards, conventions and instruments.
• Construct pictorial and axonometric instrument drawings.
• Solve descriptive geometry problems.
• Apply the principles of graphic mathematics to scales, graphs, nomograms, empirical equations and graphical calculations.
• Create and plot computer-aided drawings.
• Solve individual and group preliminary design projects.

Prereq. MAT 151 or test score for MAT 152 or higher

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

EGR 150 Engineering Topics

This course is a required series of eight seminars designed to introduce first year engineering students to skills and topics of importance in engineering and is taken in the second semester of the engineering curriculum. Presented by both DCCC faculty/staff and invited speakers, the weekly one-hour seminars cover written and oral communication, research design, error analysis and internet research, along with presentations by practicing mechanical, chemical, electrical and computer engineers.

Upon successful completion of this course, students should be able to:

• Use the Internet as a research tool in engineering.
• Write a concise and accurate technical abstract on an engineering topic in an appropriate style.
• Propose a research design for a specific engineering problem.
• Explain how error analysis may be applied to a specific engineering problem.
• Discuss the role of engineers in the current and future economic and technological environment.
• Describe the technical areas in which practicing engineers work.
• Clarify general or specific career goals in engineering.

Prereq. (REA 050, ENG 050) or REA 075 or ENG 099 or pass test

1 Credit 1 Weekly Lecture Hours

EGR 190 Engineering Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty.

Students participating in this 180 hour internship will earn 3 college credits for this experience. Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Prerequisites: To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in the EGR curriculum (at least 9 credits)

• Obtain a written recommendation by a DCCC faculty member in the discipline of the internship
• Submit an current resume to the Office of Student Employment Services

2 Credits

EGR 194 Engineering Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty.

Students participating in this 120 hour internship will earn 2 college credits for this experience. Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Prerequisites: To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Upon successful completion of this course, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.

Prerequisites: To be eligible for an internship, students must:

• Have completed a minimum of 18 or more credits within the last 5 years
Have begun course work in the EGR curriculum (at least 9 credits)
Have an overall grade point average (GPA) of 2.5
Submit an current resume to the Office of Student Employment Services

EGR 200 Engineering Statics
A vector mechanics study of forces acting on static particles and rigid bodies. Equilibrium of rigid bodies, distributed body forces acting on centroid, centers of gravity and moments of inertia, analysis of structures, forces in beams and cables, friction and virtual work are topics covered.
Upon successful completion of this course, students should be able to:
- Resolve forces acting in plane and space configurations.
- Develop equivalent-force systems by means of vector, dot, cross and triple products.
- Solve equilibrium problems on two- and three-dimensional bodies.
- Determine the effect of distributed forces on bodies in terms of center of gravity and moment of inertia.
- Analyze the internal forces on structures such as trusses, frames, machines, beams and cables.
- Investigate the friction between moving components on mechanisms such as wedges, screws, bearings, wheels and belts.
- Use the method of virtual work to solve for forces, mechanional efficiency, potential energy, equilibrium and stability.
Prereq. MAT 161 and PHY 131
3 Credits 3 Weekly Lecture Hours

EGR 201 Engineering Dynamics
A course in vector dynamics. Topics include the kinematics and kinetics of particles and rigid bodies in plane and three-dimensional motion. Force, energy and momentum methods, as well as the study of unidirectional vibrations are covered.
Upon successful completion of the course, students should be able to:
- Analyze the kinematics of particles and rigid bodies for unidirectional, bidirectional and general motion.
- Develop the kinetics of particles and rigid bodies in terms of force, energy and momentum for unidirectional, bidirectional and general motion.
- Determine the motion of single particles and rigid bodies in one-dimensional vibrating or oscillating systems.
Prereq. EGR 200 Coreq. MAT 261
3 Credits 3 Weekly Lecture Hours

EGR 210 Engineering Circuits
A first course in circuits for engineers. Uses the basic concepts of modern circuit analysis. Topics include two-terminal devices and their classification, circuit topology and Kirchhoff’s Laws, lumped-circuit analysis using matrix algebra, controlled and independent sources, power and energy, and second-order time-domain techniques (including singularity functions, convolution and introductory state-variable techniques). Theory will be illustrated by laboratory and class assignments.
Upon successful completion of this course, students should be able to:
- Set up and solve circuit problems using mesh analysis.
- Set up and solve circuit problems using nodal analysis.
- Set up and solve for the transient response of first-order and second-order circuits.
- Set up and solve for the general solution of first-order and second-order circuits.
- Find the initial conditions of first-order and second-order circuits.
- Use instruments (DMM, power supplies, function generators, oscilloscopes) to measure various electrical quantities.
- Find the transpose of response of electrical circuits.
- Find the response to a given input of an electrical circuit using convolution.

EGR 220 Engineering Thermodynamics
Engineering Thermodynamics is an introductory one-semester course with lecture, demonstrations, and computer simulations, designed for engineering and science students. Major topics include: concepts of thermodynamics; pressure, temperature; heat and heat transfer; properties of substances; density, extensive and intensive properties; First Law of Thermodynamics and its application, Second Law of Thermodynamics and its application; reversible and irreversible processes; the Clausius, Kelvin, and Planck statements of the Second Law; entropy and Carnot, Otto, Diesel, and Rankine cycles; power cycles and the refrigeration cycle.
Upon successful completion of this course, students should be able to:
- Understand the basic concepts and definitions needed to apply the laws of thermodynamics.
- Describe the properties and behavior of a pure substance.
- Develop the First Law of Thermodynamics and apply it to control volume problems.
- State the Second Law of Thermodynamics and describe its significance to the analysis of cycles and processes.
- Understand the concept of entropy and its relationship to the Second Law of Thermodynamics.
- Analyze the operation of power and refrigeration systems.
Prereq. PHY 132, MAT 161, CHE 110: Recommended MAT 261
3 Credits 3 Weekly Lecture Hours

EGY 100 Understanding the Economics of Today’s Energy Business
Instruction in the course provides a comprehensive overview of the North American energy industry and the current technological, economic, and political environment in which the industry currently find itself. Availability for consumers; the basic of system operations, including generation, transmission, and distribution; the characteristics and pros and cons of the different methods of electrical generation; the classes of the electricity consumers and the needs and characteristics of each consumer class will be addressed in this course. The history of the electric industry, including the history of regulation, deregulation, and market restructuring; the wholesale and retail electric marketplace, marketplace participants, and the various market structures will be studied.
Upon successful completion of this course, students should be able to:
- Briefly describe the history of the electrical industry including the roles of key figures in its development, and summarize the current electricity marketplace including the importance of electricity in modern societies and the trends in its usage in the U.S. and the world.
- State what electricity is in simplest terms, describe electrons and conductors, and give examples of electricity sources and energy consuming devices. Identify electrical terms that correlate to the concepts of rate of flow, pressure, and friction or resistance in the analogy of water flowing in a pipe, and utilize Ohm’s law to predict the effect of changing voltage or resistance on current.
- Explain in basic terms how electricity is created through both chemical and electromagnetic means and name the minimum components required for batteries and generators. Describe common useful tasks that use the magnetism, heat, and light effects of electrical flow.
- Describe how electrical distribution is accomplished, list the four key physical sectors involved and note the unique physical properties of an electric deliver system that must be managed for the system to work.
- Name the three customer categories of the electricity business and relate how much electricity they currently use and are expected to use in the future, how they use it, the differences in their usage patterns over the year, the average rate for kWh they each pay and why the rates are different.
- Define generation and list and describe the different types of generating systems and their characteristics, costs, and environmental concerns, explain how each type is used to meet the demand curve, and how demand response helps meet generation needs.
- List the different types of owners of generation, describe how they evaluate needs and develop capacity, and name likely future generation sources.
- Define electrical transmission, list the types of transmission, describe the physical characteristics of the transmission system, and explain who owns transmission systems and how they operate and plan the systems. Note the costs of the systems, the current status of the transmission grid and issues with new construction.
- Describe radial feed, loop feed, and network system distribution systems and their relative costs and advantages, and list the types of system ownership and the current status of distribution systems in the country.
- Identify the critical concerns of the physical electric systems, the role of system operations, who is responsible for systems operations, and how supply and demand are matched using the scheduling of generation, reserves and transmission. Describe how system operations are changing.
- Identify the market participants and their roles in both the vertically integrated and competitive market models.
- Define electric market structure, describe the structures currently in the U.S., their goals and how they function, and how different structures address daily system operation.
- Discuss the historical basis for regulation, who the regulators are and their goals, and how they establish rates and rules. Explain what tariffs are, the rate case process, the various types of regulatory proceedings, how regulation works for both monopoly utilities and wholesale sales, and what incentive regulation is and how it works.
- Define the restructuring is, show why it can be beneficial to consumers, trace how markets mature as they are restructured, and name the components needed for a competitive marketplace and how those components are implemented.
- Describe the recent history of electric market restructuring in the U.S., what has been happening elsewhere in the world, the current status of restructuring in the U.S., and what different states have done and are doing and the role of FERC.
- Illustrate how electric supply and demand fluctuate, explain how wholesale prices are set and why they are volatile and how the wholesale and retail marketplace work.
- Describe in basic terms how the various electric market participants create profits under both traditional and incentive restructuring, list key skills for creating profits, explain what risk management is, why it is important, and how market participants manage risk using physical and financial instruments.
- Differentiate between hedging and speculating and show how VAR is used to measure risk levels.
- Portray how the generation, transmission, distribution, system operations, and retail sales sectors may each evolve in the future and describe a possible future of sustainable energy.

EGR 101 Power Plant Industry Fundamentals
This course provides a comprehensive overview of power plant fundamentals and the challenges and advantages of major electrical power generation unit types. A very basic understanding of the principles of thermodynamics as well as the theory and design of fossil, nuclear, hydro, solar, and wind generation systems and related equipment, along with storage technologies will be addressed. Maintenance and operational requirements and special concerns involved in each type of generation are addressed. Topics of instruction consider the difficult choices faced by developers of electrical generation facilities for accommodating costs and environmental concerns, as well as ensuring reliable and economical fuel-energy supplies are available for customer
needs. Options for future generation systems and the related advantageous choices each holds for future sources of electricity for the US will be studied. Research reports on the subject matters and sub-topics related to power generation are required participants in this course.

Upon successful completion of this course, students should be able to:

• Discuss the overarching principles of an electrical generation facility.
• List the main types of electrical generation facilities, and as an overview, identify the engineering, maintenance, operational, and environmental challenges common to all types.
• Describe the design of coal generating stations, the operational characteristics and the major components of a plant.
• Discuss the varied challenges associated with burning coal, as well as how these challenges are met, and describe why coal is the most used fuel for the production of electricity.
• Describe combustion turbine generating system components and their operations.
• Discuss the limitations and advantages of using natural gas as a fuel for electricity production.
• Explain the basics of nuclear fuel generation theory as well as plant design, and describe the components and operation of pressurized water reactors.
• Discuss the components and operation of boiling water reactors.
• Explain the principles of hydroelectric generation and discuss the operational concerns associated with same.
• Explain how electricity is produced within a solar cell and by solar thermal systems as well, listing the limitations and potential for using the sun to meet electric power needs.
• Describe how wind energy is converted to electricity, relating the limitations and advantages of wind power.
• Relate the processes and environmental advantages of creating electric power from biomass.
• Discuss how municipal solid waste power generation benefits to the environment using municipal solid waste.
• Describe the methods for generating electricity via ocean currents, ocean waves, tides and ocean thermal differences.
• Identify the challenges of using geothermal energy electricity production.
• Explain the basic operation of a fuel cell.
• List the components, processes and power storage technologies associated with compressed air, flywheels, super-conducting magnetic energy, NaS batteries, flow batteries, and batteries.
• Relate the process of storing energy in the form of hydrogen, citing the advantages and disadvantages of using hydrogen to capture and create electrical energy.
• List and explain current concerns for power plant operations including fuel availability and environmental restrictions.
• Discuss likely priorities for future generation plant investments, renovations and modifications.

Coreq: EGY 100

3 Credits

3 Weekly Lecture Hours

EGY 201 Energy Systems Piping and Tubing

This course is designed for students pursuing employment in the varied occupational fields of power plant maintenance and operations. Piping systems covered in this course include chemical, pneumatic, hydraulic, fuel oil, steam, and water. Drawings and detail sheets, to include Piping and Instrumentation, Drawings (P & ID’s) specific to power plant piping and tubing will be covered. Applicable codes, classification systems, and testing of piping/tubing systems will also be addressed. Valve, and steam trap design, terminology, application, and operation will be included. Quality control and abnormal operating conditions associated with power plant piping systems are covered as well.

Upon successful completion of this course, students should be able to:

• Discuss the piping systems used to distribute industrial water, air and other gases, steam, waste-water and lubricants.
• Install and maintain pipe/tubing, valves and fittings.

Upon successful completion of this course, students should be able to:

• Identify various metal pipe and fitting materials comparing strength ratings, safety factors, and methods/tools used for cutting and joining each.
• Cite the accessories associated with the installation of pipe and tubing, such as, but not limited to, hangers, expansion joints, and insulation.
• Compare the different types of plastic pipe materials, citing specifications, and proper methods of preparation and assembly.
• Describe the composition, fabrication, and use of hoses utilized to convey liquids and gases.
• Describe the function, operation, and maintenance of varied general purpose valves to include: check, gate, globe, pressure reducing, and Sloan valves.

3 Credits

2 Weekly Lecture Hours

2 Weekly Laboratory Hours

EGY 203 Thermodynamics of Energy Systems

This course provides, in a practical approach, an introduction to the theory, principles, calculations, and practices associated with heat transfer, fluid flow, and the thermodynamics applicable to the varied types of equipment used in power plants for the production of electricity. Topics of coverage are centered around the theories and calculations involving energy equations, steam tables, and diagrams, heat transfer cycles/equations, and laws associated with pumps (in relationship to the operation of power plant equipment and systems). Students will perform theoretical calculations and demonstrate the safe operations of a steam generation unit while performing laboratory exercises related to the below listed competencies.

Upon successful completion of this course, students should be able to:

• Identify basic thermodynamic principles associated with the heating and cooling of fluids, to include: the properties of water and steam, as well as temperature and sensible heat.
• Describe the development of qualitative and quantitative concepts of work, energy and heat.
• Discuss the application of the first law of thermodynamics for both non-flow, and flow systems, with relevance to the basic energy equations applicable to the associate systems.
• Describe the second law of thermodynamics, respectively, that all forms of energy are not equivalent in their ability to perform useful work.
• Describe the state of a system based on the observable properties of pressure, temperature, and volume.
• Discuss the relationship between pressure and volume of gases and predict qualitatively the behavior of most gases.
• Explain the thermodynamic importance of the mixture of gases and the products of combustion (both internal and external).
• Define a vapor power cycle (as a series of thermodynamic processes in which a working fluid can undergo an energy transition) with regard to conversion of energy from one form to another for a more purposeful use.
• Differentiate between internal and external combustion, and describe the sequence of events of two and four stroke cycle engines, along with the reliability that is essential in the development of mechanical energy.
• Describe the performance criteria associated with power cycles, and the Carnot cycle, along with a study of the reverse Carnot cycle, explaining the many thermodynamic limitations and performance criteria associated with refrigeration cycles (only as the theory applies to the production of electricity).
• Define the three mechanisms of heat transfer (conduction, convection, and radiation) relating same to an industrial application, where, simultaneously phenomena may occur requiring consideration when designing for, or analyzing, heat transfer.

Coreq: EGY 101, MAT 120 or MAT 125 or MAT 151, TME 115 Coreq: PHY 101/107, PCT 100

3 Credits

2 Weekly Lecture Hours

2 Weekly Laboratory Hours

EGY 205 Electrical Energy Production

This course is designed to introduce the electrical power production technician to the integral phases, processes, and equipment associated with the generation of electricity. The study of processes leading to the ultimate production of electricity (via generation) will include: fuel handling, boilers, prime movers, and most importantly generators (environmental concerns will be addressed for each phase of production). The inter-relationships among the three areas of electricity production; generation, transmission, and distribution will also be covered. Aspects of distributed generation (the installation of small units to meet industry needs) will be included as well. Green power units such as fuel cells, solar power, and renewable energy for the production of electricity will also be discussed.

Upon successful completion of this course, students should be able to:

• Discuss use, as it relates to the planning and development of electric power stations to include site selection, construction cost, fuel cost and the types of power station units available.
• Relate energy conversions necessary for electricity production, namely: combustion, heat and temperature, and compare and contrast fuels.
• Describe the handling processes (as they relate to delivery, storage, utilization, and waste recovery) associated with electric power generation plant fuels.
• Relate varied furnace type requirements, heat sources, furnace combustion, types of fuels used, and the rate of combustion necessary to produce steam efficiently.
• Identify the make-up of a boiler, heat transfer tubes, heater elements, fuel burners, air supply (both forced and induced draft), feed water, heat exchangers, and steam vessels.
• Explain and demonstrate the operation of an electrically powered boiler (as a steam generator).
• Elaborate on the internal combustion engine, reciprocating steam engine and steam turbine, with regard to utilization as a prime mover for electricity production (describing their use in converting heat energy to mechanical energy for use in driving electric generators).
• Describe the design and operation of various generator types, relating the use of magnetism for their operation.
• Explain the properties of electric generators, with regard to output, phasing, series vs. parallel operation, synchronization, and how each is type of generator is used for producing electricity.
• Discuss the coordination of the equipment and processes necessary for producing electricity; namely, the appropriate actions necessary for operators to achieve safe, efficient, and reliable electricity generation.
• Describe the relevance of the three broad classifications of maintenance (normal, emergency, and preventive) with respect to the operation of an electric power plant.
• Utilize fuel to site the basis reasons for the implementation of green power.
• Compare and contrast green power systems with regard to the generation of electricity, to include: wind, fuel cells, solar, hydro, nuclear, geo-thermal, micro turbines and bagasse (burning of vegetation).

Prereq: TME 115, TEL 101

Coreq: TEL 101, CHE 101/106

3 Credits

2 Weekly Lecture Hours

2 Weekly Laboratory Hours

EGY 207 Planning Scheduling and Maintenance

This course is designed to provide students with an introduction to the field of power plant maintenance, with an emphasis on systematic approaches to planning and scheduling. Students will gain practical exposure to the systematic methodologies associated with structuring and arranging for the performance of work in a proactive, rather than reactive manner. Roles, responsibilities, task descriptions, and performance criteria of plant maintenance and operator technicians will be addressed. Engagement of plant maintenance and plant operator technicians in team work will be stressed.
Upon successful completion of this course, students should be able to:

- Describe the general requirements of a maintenance planning and scheduling program.
- Elaborate on the role of a plant operator for maintenance planning and scheduling.
- Identify the multidisciplinary skills and knowledge the maintenance technician must possess in order to perform assigned tasks.
- Relate the documentation requirements for an effective maintenance program.
- Discuss how to organize oneself for determining/performing scheduled maintenance.
- Gather and evaluate information in order to design a personal check-list for bringing work assignments to a desired conclusion.
- Utilize a systematic approach in order to plan as well as prepare for completion of maintenance functions.
- Participate, as a team player, in prescribed action leading to completion of work assignments.
- Complete/submit appropriate documentation in a prescribed format and manner.
- Formulate, via observation and reasoning, recommendations for the improvement of maintenance procedures.

Prereq. IST 101, IST 105, IST 200, PCT 100, PCT 112, TME 115
Coreq. EGY 101
2 Credits 2 Weekly Lecture Hours

ELT 110 Introduction to Electricity

This introductory course introduces students to the fundamental theories and principles of electricity. These theories and principles include voltage, current, magnetism, Ohm's Law, inductance, capacitance, and resistance, as well as the basics of DC circuits, their applications, and associated symbols. The course emphasizes safe working procedures in a construction environment.

Upon successful completion of this course, students should be able to:

- Interpret electrical drawings, including site plans, floor plans, and detail drawings.
- Measure current, resistance, and voltage in DC circuits.
- Calculate volt-amperes per foot for calculating general lighting loads.
- Compute electrical loads and select proper conductor sizes and over-current devices for dedicated circuits in compliance with NEC.
- Select the proper code requirements for calculating branch circuit sizing and loading.
- Demonstrate proper installation techniques for basic electrical wiring.
- Apply safe electrical practices and the basic safety rules for working on electrical systems.
- Demonstrate an understanding of the shock hazard associated with electrical work.

4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ELT 112 Electrical Code

This course is designed to help students read and understand the National Electrical Code. The National Electrical Code is the basic code that governs all electrical installations. The course teaches students how to locate code information in Code Manual, as well as how to interpret and apply the appropriate code to all facets of the electrical installation.

Upon successful completion of this course, students should be able to:

- Demonstrate an understanding of the National Electrical Code.
- Apply the NEC index in referencing an electrical problem or concern.
- Identify codes and/or tables applicable to various electrical situations.
- Apply minimum Code requirements to a floor plan of a residence.

2 Credits 2 Weekly Lecture Hours

ELT 114 Residential Wire

This course introduces students to the theory and practice of residential wiring. Students learn how to complete new house wiring, including the wiring of lighting receptacles, major appliances, alarm systems, telephone, television, and an electrical service. The course stresses National Electric Code compliance.

Upon successful completion of this course, students should be able to:

- Demonstrate knowledge of the general requirements for residential rough-in wiring.
- Apply NEC requirements in completing wiring tasks.
- Demonstrate understanding of the difference between grounded and ungrounded conductors.
- Demonstrate knowledge of electrical services, overhead services, service drop, and service lateral.
- Layout and install cable and make connections.
- Demonstrate competence in installing basic electrical services.
- Demonstrate safe electrical practices.

Prereq. ELT 110
3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

ELT 116 Advanced Electrical Wire

This course teaches students more complex residential electrical installations. Students learn additional wiring methods for single family and multi-family dwellings that include load calculations, service entrance sizing, proper grounding techniques, and associated safety procedures.

Upon successful completion of this course, students should be able to:

- Install conduits, wiring, and electrical distribution equipment associated with residential electrical installations.
- Identify and apply the criteria for selecting service panel boards and feeder sizes.
- Apply the NEC requirements to the intended use presented by engineering drawings.
- Calculate feeder loading and determine the minimum feeder conductor size and rating of over-current protective devices.
- Tabulate materials required to install an electrical rough-in.
- Lay-out an electrical system for a new house.

Prereq. ELT 114
3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

ELT 118 Troubleshooting and Old Work Wiring

This course introduces students to the issues related to completing electrical work on old houses, as well as doing troubleshooting and preventive maintenance on residential buildings. Students learn how to rewire different areas of old houses properly, with minimal damage to the building, as well as wire major house additions. Additionally, students learn how to troubleshoot electrical problems.

Upon successful completion of this course, students should be able to:

- Identify issues involved in completing work on old house wiring.
- Evaluate electrical circuits in older homes.
- Perform basic circuit checks for shorts, opens, and ground faults.
- Perform continuity and resistance checks on relay coils and contacts, overload, fuses, circuit breakers, switches, and other control circuit components.
- Wire and troubleshoot basic electrical control circuits to develop a logical, systematic approach to troubleshooting.

Prereq. ELT 116
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

ELT 194 Electrical Internship

This Electrical Internship course provides electrical students an opportunity to gain practical field experience. During this experiential learning period, students apply the skills learned in the classroom and labs to develop greater proficiency in real-world situations. Students participating in this 120 hour internship will earn 2 college credits for this experience.

Upon successful completion of this course, students should be able to:

- Demonstrate the ability to apply basic electrical skills.
- Demonstrate the ability to perform in a professional setting in a professional manner with regard to attendance, punctuality, teamwork, attitude, and ability to meet deadlines.
- Demonstrate the ability to journal their work experience, including a log of duties performed, skills demonstrated, special project assignments, challenges encountered, supervisor reviews, and self-reflections.

Prereq. ELT 110, 112, 114, 116, 118, 206, 208 - PD approval
2 Credits

ELT 200 Commercial Wiring

This course provides an in-depth comprehension of commercial wiring. It includes the understanding of electrical power needs and distribution requirements for a typical commercial facility. The course stresses the application of main power components to support calculations necessary to have a safe and efficient commercial installation. Students will become knowledgeable of wiring for special circuits, appliances and loads such as, but not limited to, refrigeration, HVAC, food preparation apparatus and associated loads relative to various types of commercial wiring. The course will include requirements for a thorough study of commercial service entrance equipment from the utility company’s service drop to the building’s main switchboard.

Upon successful completion of this course, students should be able to:

- Demonstrate the application of commercial building plans and specifications and interpret electrical symbols.
- Compute the correct service entrance feeder size, number of circuits and identify the criteria for selecting the appropriate service equipment.
- Comprehend installation requirements for commercial wiring.
- Demonstrate an understanding of the common techniques to determine whether a circuit has a short circuit, a ground fault or an open circuit and trouble shoot common residential electrical system problems.
- Draw basic Wye and Delta transformer diagrams and make connections.
- Identify and comprehend entrance grounding requirements.
- Determine the preferred and required minimum size conductors for lighting, appliances and general purpose branch circuits.
- Compute the lighting watts per square foot for a commercial building.
- Identify types of lighting fixtures used.
- Demonstrate the correct connections for wiring a low-voltage remote control system.
- Identify the different types of emergency power systems and all the sub-components and site requirements.
- Demonstrate knowledge of transformers, disconnecting devices, service entrances and metering configuration in a commercial building.
- Determine the proper raceway type and size dependent on conductors to be installed and box size for approved box fill.
- Describe both Wye and Delta connected three-phase services.
- Calculate loads for single-phase and three-phase branch circuits.
- Calculate loads for a retail store, office building, both single and multi-family dwellings, restaurant and other institutional projects.

Prereq: ELT 102

4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

ELT 202 Industrial Electric II

This course will include heavy coverage in the areas of transformer selection and installation, AC circuits, AC motor control, industrial lighting and electric heat.

Upon successful completion of this course, students should be able to:
- Describe the effect of high- and low-power factors on alternating current systems.
- Cite the methods for producing single and multi phase voltages.
- State the construction and operating characteristics of transformers, illustrating the various types of transformer connections and discussing the results of these connections.
- Detail the construction of various AC motors.
- Demonstrate a knowledge of the construction and operation of various types of motor controllers and protective devices.
- Determine the amount of light required for various areas and types of work.
- Lay out and select the correct lighting fixtures for various areas.
- Explain the operation of electronic motor controls.

Prereq: ELT 201

4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

ELT 203 Industrial Electrical Systems

This course provides the student with an introduction to various electrical systems and devices used in a manufacturing/commercial facilities environment. Students will learn how to identify the function of electrical components, to include relays, sensors, switching/other devices and circuits. Instruction will include the theory and use of electrical instruments, to install and make repairs as well as identify, troubleshoot isolate and remedy problems. Emphasis will be placed on electric motors and motor controls. Topics of instruction will cover installation of electrical conduit, wiring, motors and other devices.

Upon successful completion of this course, students should be able to:
- Define the terminology associated with common/basic electrical systems and devices.
- Demonstrate the operational characteristics and applications of various sensing devices.
- Identify and describe the function of basic control circuits/components.
- Conduct electrical starting and braking methods.
- Compare wound rotor, synchronous and consequent pole motors.
- Conduct job planning routines for various electrical component and system installations/repairs/replacements.
- Determine sizes and install electrical conduit, boxes, wiring, etc. with regard for engineered work plans and appropriate standards.
- Install motor controls and motors.
- Discuss and troubleshoot sensing devices and circuits, to include ground faults.
- Determine a methodology for troubleshooting various distribution and control circuits. Troubleshoot variable frequency AC motor drives.

Prereq: TCC 111, TEL 101, IST 105

4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

ELT 204 Introduction to Programmable Logic Controllers

This introductory course is intended to acquaint students in a hands-on mode with the basic skills and knowledge of programmable logic controllers, with respect to Industrial Systems. Students will learn to interpret electrical and Programmable Logic Controller (PLC) input/output diagrams and ladder logic. In addition, they will become acquainted with PLC functions, components, circuitry, testing of PLC programs and troubleshooting a PLC system. This course is recommended for students with little or no programmable logic controller experience.

Upon successful completion of this course, students should be able to:
- Discuss terminology associated with PLCs.
- Describe the function, uses, and operation of a PLC.
- Define the function and operation of input/output diagrams and system networks.
- Interpret ladder logic to determine the functions of mechanical equipment.
- Discuss event driven sequencing as it relates to the input and output terminals of the PLC.
- Compare the operations of a PLC to manual and automatic control devices.
- Decipher which inputs and outputs are controlling internal counters and math functions.
- Interface wiring ladder logic diagrams with controller equipment.
- List the functions and types of timer instructions and give applications.
- Diagnose a PLC program, as it relates to a mechanical environment.
- Use PLC diagnostic equipment.
- Diagnose a motor control program in both manual and automatic modes.
- Analyze the consequences of changing a PLC program on the system being controlled.
- Identify the function and operation of a program interlock and give an application.
- Troubleshoot various levels of PLC systems to include up and down counter, timer and branching instructions.

Prereq: none

3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

ELT 208 Solar Photovoltaic System Design and Installation

This International Renewable Energy Council (IREC) focused course is designed to introduce students to grid tied photovoltaic (PV) systems. It is recommended for students with little or no programmable Logic Controllers

Upon successful completion of this course, students should be able to:
- Demonstrate a thorough knowledge of the safety requirements applicable to solar PV system installation and maintenance, including electrical, work-site, and personal safety.
- Accurately interpret and apply the National Electrical Code to solar PV system design and installation, with emphasis on a thorough working knowledge of NEC Article 690 “Solar Photovoltaic Systems”, and PV system grounding & bonding, overcurrent protection, wire and conduit type and sizing, and PV system labeling.
- Identify PV system monitoring and maintenance needs, and specify service procedures and schedule to keep a system operating safely and efficiently throughout service life.
- Identify the appropriate layout, orientation, and mounting method for the modules/array, inverters, and other system components, with attention to electrical efficiency, mechanical integrity, site requirements, maintenance access, and safety.
- Conduct an accurate site survey to determine location suitability for a solar PV system, including adequate solar access, sufficient area and structure, proper orientation, and options for placement of PV modules, inverters, and other equipment.
- Install inverters, charge controllers, disconnects and overcurrent protection devices, meters, surge protection and grounding equipment, junction boxes, batteries and enclosures, system monitoring equipment, conduit, and other system hardware in compliance with equipment manufacturers’ guidelines, the system design, the NEC, the utility company, and the local authority having jurisdiction.
- Draw a basic site plan, showing site details and equipment layout.
- Obtain and accurately interpret solar radiation and temperature data for the site and solar PV module and inverter performance specifications, determine customer energy use and needs, and then calculate the required PV system output and configure a solar PV system from available components to produce the required output.
- Determine the local requirements for utility interconnection, and select an appropriate utility interconnection point and method in conformance with the local utility company, the local authority having jurisdiction, and the NEC.
- Identify opportunities to reduce energy demand through building performance and/or electric equipment upgrades.
in order to optimize PV system size and create an efficient, integrated electrical system.
- Calculate design voltages and currents for all circuits within the PV system, and select the appropriate conductor type and rating for each circuit, taking into account all de-rating factors and voltage drop.
- Verify that the array operating voltages and currents are within the operating limits for the inverters or charge controllers that the capacity and insulation ratings of all conductors conform to NEC requirements, and that voltage drop losses are within acceptable limits.
- Determine the proper size, rating, and location for PV system overcurrent protection and disconnect devices, and for all grounding, bonding, surge suppression, and lightning arrest equipment.
- Draw complete one-line and three-line wiring diagrams for grid-tied and off-grid solar PV systems.
- Properly identify and connect all system equipment, conduit and conductors, specify conduit and conductor type and size, and specify location and text of all NEC required labels.
- Individually inspect and test PV modules, install module mounting and support structure per manufacturers’ recommendations and design, insuring proper structural attachment and weather sealing, and install modules and interconnected wiring with attention to electrical safety and code compliance.
- Install, label, and terminate all electrical wiring, verify proper connections, phase/polarity relationships, and continuity, and measure impedance of the grounding system.
- Identify the appropriate layout, orientation, and mounting method for the modules/array, inverters, and other system components, with attention to electrical efficiency, mechanical integrity, site requirements, maintenance access, and safety.
- Conduct an accurate site survey to determine location suitability for a solar PV system, including adequate solar access, sufficient area and structure, proper orientation, and options for placement of PV modules, inverters, and other equipment.
- Install inverters, charge controllers, disconnects and overcurrent protection devices, meters, surge protection and grounding equipment, junction boxes, batteries and enclosures, system monitoring equipment, conduit, and other system hardware in conformance with equipment manufacturers’ guidelines, the system design, the NEC, the utility company, and the local authority having jurisdiction.
- Draw a basic site plan, showing site details and equipment layout.
- Obtain and accurately interpret solar radiation and temperature data for the site and solar PV module and inverter performance specifications, determine customer energy use and needs, and then calculate the required PV system output and configure a solar PV system from available components to produce the required output.
- Determine the local requirements for utility interconnection, and select an appropriate utility interconnection point and method in conformance with the local utility company, the local authority having jurisdiction, and the NEC.
- Identify opportunities to reduce energy demand through building performance and/or electric equipment upgrades in order to optimize PV system size and create an efficient, integrated electrical system.
- Calculate design voltages and currents for all circuits within the PV system, and select the appropriate conductor type and rating for each circuit, taking into account all de-rating factors and voltage drop.
- Verify that the array operating voltages and currents are within the operating limits for the inverters or charge controllers that the capacity and insulation ratings of all conductors conform to NEC requirements, and that voltage drop losses are within acceptable limits.
- Determine the proper size, rating, and location for PV system overcurrent protection and disconnect devices, and for all grounding, bonding, surge suppression, and lightning arrest equipment.
- Draw complete one-line and three-line wiring diagrams for grid-tied and off-grid solar PV systems.
- Properly identify and connect all system equipment, conduit and conductors, specify conduit and conductor type and size, and specify location and text of all NEC required labels.
- Individually inspect and test PV modules, install module mounting and support structure per manufacturers’ recommendations and design, insuring proper structural attachment and weather sealing, and install modules and interconnected wiring with attention to electrical safety and code compliance.
- Install, label, and terminate all electrical wiring, verify proper connections, phase/polarity relationships, and continuity, and measure impedance of the grounding system.
- Measure PV system performance and operating parameters, compare with equipment specifications and design calculations, and assess the operating condition of the system.
- Perform diagnostic tests to isolate the cause of deficiencies or malfunctions, and specify corrective action.
- Disconnect PV system from all power sources to allow for safe servicing or replacement of equipment.
- Identify applicable local, state, and federal incentive or rebate programs, determine the requirements for application, approval, installation, maintenance, and system monitoring and metering, and integrate all requirements into the PV system design and installation.
- Identify required documentation and record-keeping to insure compliance with such programs.

Upon successful completion of this course, students should be able to:
- Define the terms “leadership” and “influence” relative to emergency response.
- Identify the roles and responsibilities associated with leadership.
- Differentiate between leadership and ego.
- Identify the need for, and the role of, leadership in the incident management system.
- Define the terms “teamwork” and “cooperation” relative to leadership and influence in emergency response.
- Identify the consequences of poor or ineffective leadership in an emergency.
- Recognize what it takes to be influential and the need for influence in certain circumstances.
- Describe how leadership can influence people, their response to activities, their safety and their future leadership styles.

Upon successful completion of this course, students should be able to:
- Define the components of search and rescue operations and resources.
- List the major responsibilities for search and rescue.
- Describe the components of Incident Command System (ICS) and their functions.
- Differentiate between at least three types of maps used in search and rescue.
Identify the use of topographical maps.
• Define the plotting methods or grid systems.
• Describe the parts of the compass.
• Utilize a compass.
• Define the six crucial steps in search and rescue management.
• Differentiate between the two basic categories of search tactics (Passive and Active).
• Describe the primary types of active search tactics.
• Describe the techniques and methods used by searchers.
• List searching or tactical skills needed by field searchers.
• Explain why knowledge of lost person behavior can be an advantage to the searcher.

PreReq: EMER 105
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

EMER 140 Emergency Seminar

This course will provide the student with a forum for discussion of the basic need for emergency management, emergency planning, and incident management. This course will also overview the roles and responsibilities of the Incident Safety Officer in preparation for a series of response drills to implement student knowledge in these areas. In addition, a functional exercise will be conducted to test the course outcomes and competencies.

Upon successful completion of this course, students should be able to:
• Understand the application of the various roles and responsibilities in incident management.
• Identify the roles and responsibilities associated with incident management.
• Identify the differences between Incident Command and Unified Command.
• Define the roles of various functions in the incident management system.
• Define the terms “teamwork” and “cooperation” in incident management.
• Evaluate hazards and risks associated with emergency response operations.
• Correct hazardous conditions associated with emergency response operations.
• Identify and correct unsafe acts that are observed during exercise as they apply to recognized standards provided by fire, police, medical and hazardous material regulations.
• Develop a plan of action to reduce or alleviate hazards.
• Implement a plan of action to reduce or alleviate hazards.

PreReq: EMER 105
1 Credit
1 Weekly Lecture Hour

(EMS) Emergency Med Services

EMS 100 Emergency Medical Technician

This intensive program is designed to instruct the prehospital care provider in the skills necessary to reduce mortality and morbidity from accident and illness. Topics covered include patient assessment, cardiopulmonary resuscitation, mechanical aids to ventilation, trauma management, head, neck and spinal injuries, fractures, medical and environmental emergencies, crisis intervention and vehicle rescue.

Upon successful completion of this course, students should be able to:
• Control hazards present to self, victim and bystanders at the scene of a pre-hospital medical emergency situation.
• Assess extent of injury to victims suffering pre-hospital accident or illness.
• Recognize and provide appropriate emergency care to victims suffering cardiac arrest and/or airway obstruction.
• Assess and provide adequate emergency care for victims suffering trauma to one or more body systems.
• Communicate patient care information in an effective professional manner both verbally and in writing.
• Assess cardiac, respiratory, diabetic and associated medical and environmental emergencies.

• Evaluate obstetrical emergencies and provide appropriate assistance and/or emergency intervention to the expectant female.
PreReq: MAT 050, REA 050 or REA 075 or pass test Coreq: FEMA Incident Command System Levels IS100 and IS700, Ten patient assessment contacts

9 Credits
7 Weekly Lecture Hours
4 Weekly Laboratory Hours

(EMTP) EMT Paramedic

EMTP 101 Pharmacology and Airway Management

This course is designed to stress practices applicable to the paramedic practitioner. Emphasis is placed on medication application, pharmacology and therapeutic concepts and practices. Various approaches are covered to ensure that the student receives broad exposure to all areas required for the paramedic practitioner. Experiments and case studies will be presented during this course. The student will utilize the knowledge of anatomy and physiology of the respiratory system to examine the mechanics of respiration, gases, regulation of respiration, foreign body airway obstructions and airway evaluation. In addition, the student will study the essential parameters of airway evaluation, airway management, and airway procedures.

Upon successful completion of this course, students should be able to:
• Identify the components of human anatomy and physiology as they relate to care for the sick or injured.
• Identify the proper use and administration of drugs for various body systems.
• Explain pharmacological characteristics, mathematical principles, and purpose in administering pharmacological agents.
• Identify communication strategies necessary to collect information, interview and assess patients.
• Discuss the assessment and management of the respiratory system.
• Identify the anatomy and physiology of the respiratory systems.
• Describe variations in assessment and management of the respiratory system.
• Outline the mechanics of the respiratory system.
• Describe the regulation of the respiratory system.
• Describe devices and techniques in the management of the respiratory patient.
• Describe conditions and complications associated with the respiratory system.
• Utilize pharmacological agents in management of the respiratory system.
• Utilize manual and mechanical interventions in management of the respiratory system.
• Distinguish between respiration, pulmonary ventilation, and external and internal respiration.
• Describe pulmonary circulation.
• Describe voluntary, chemical and nervous regulation of respiration.
• Outline essential parameters to evaluate the effectiveness of airway and breathing.
• Describe the indications, contraindications, and techniques for supplemental oxygen delivery.
• Discuss methods for patient ventilation.
• Describe the assessment techniques and devices used to ensure adequate oxygenation.

Requirement:
Certification as a current Emergency Medical Technician and current CPR provider.

PreReq: EMTP 100
6 Credits
3 Weekly Lecture Hours
6 Weekly Laboratory Hours
EMTP 102 Trauma Assessment and Management
This course is designed to provide the student with the knowledge and skills to recognize the mechanisms of injury, trauma systems, patient assessment and emergency care. The course will also cover, in detail, the importance of length of time that elapses between the incident and definitive care. Additionally, the course addresses the major roles in death reduction in three periods of trauma: through community education, scene interventions, and rapid response. Trauma systems, appreciation of comprehensive trauma systems, blunt trauma, and penetrating trauma will be thoroughly discussed.
Upon successful completion of this course, students should be able to:
- Describe the incidence and scope of traumatic injuries and deaths.
- Identify the role of each component of the trauma system.
- Predict injury patterns based upon knowledge of the laws of physics related to forces involved in trauma.
- Describe the injury patterns that should be suspected when injury occurs from blunt trauma.
- Describe the role of restraints in injury prevention and the injury patterns.
- Discuss how an organ’s motion may contribute to injury in each body region depending on the forces applied.
- Identify selected injury patterns associated with motorcycle and all-terrain vehicle (ATV) collisions.
- Describe injury patterns associated with pedestrian collisions.
- Identify injury patterns associated with sports injuries, blast injuries and vertical falls.
- Describe factors that influence tissue damage related to penetrating injuries.
- Attain certification in Pre-Hospital Trauma Life Support.

Requirement:
Certification as a current Emergency Medical Technician and current CPR provider.

Prereq. EMTP 101
5 Credits
3 Weekly Lecture Hours
4 Weekly Laboratory Hours

EMTP 103 Cardiology
This course is designed to prepare the paramedic student to manage numerous types of cardiolog emergencies. Topics including the etiology and epidemiology of cardiopulmonary disorders and conditions will be discussed as well as the means of identifying and describing the function of cardiopulmonary system.
Upon successful completion of this course, students should be able to:
- Identify the risk factors and prevention education of cardiovascular disease processes.
- Distinguish pathophysiology of respiratory emergencies related to ventilation, diffusion, and perfusion.
- Assess causes, complications, and conditions of the cardiopulmonary system.
- Describe the anatomy and physiology of the cardiopulmonary system.
- Identify the electrophysiology of the cardiac system.
- Describe cardiovascular disease processes.
- Distinguish among varied techniques in managing cardiac and pulmonary emergencies.
- Apply emergency intervention on patients suffering from cardiopulmonary conditions.
- Attain certification in Advance Cardiac Life Support.

Requirement:
Certification as a current Emergency Medical Technician and CPR provider.

Prereq. EMTP 101: Coreq. EMTP 102, EMTP 104, EMTP 105
4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

EMTP 104 Medical Assessment and Management
This course is designed to prepare the paramedic student to manage numerous types of medical emergencies. This course will provide the student with information necessary to effectively perform in medical emergency situations pertaining to neurology, hematology, endocrinology, allergy, anaphylaxis, gastroenterology, urology and toxicology.
Upon successful completion of this course, students should be able to:
- Describe anatomy and physiology of the nervous system.
- Identify disorders of the nervous, endocrine, and gastrointestinal systems.
- Identify neurological disorders.
- Describe causative agents and the pathophysiology of ingested poisons.
- Assess acute abdominal pain. Specify disorders of the endocrine system.
- Describe the anatomy and physiology of the endocrine glands that assist the body in the maintenance of homeostasis.
- Describe the antigen antibody response.
- Describe signs and symptoms and management of allergic reactions.
- Describe signs and symptoms, complications, and prehospital management of gastrointestinal disorders.
- Distinguish between poisoning by ingestion, inhalation, and injection.
- Recognize conditions relating to drug and alcohol abuse.
- Identify key structures and normal functions of the urinary system.
- Describe detailed pathophysiology and assessment of urinary system disorders.
- Identify abdominal and genitourinary disorders, acute abdominal pain and systemic illnesses.
- Apply management and treatment priorities for toxic syndromes.
- Discuss the pathophysiology of blood and hematological disorders.
- Apply the theory of thermoregulation to various patient presentations.

Requirements:
Certification as a current Emergency Medical Technician and current CPR provider.

Prereq. EMTP 101 with a ‘C’ or better
Coreq. EMTP 102, EMTP 103, EMTP 105
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

EMTP 105 Clinical Rotations I
This course is an incorporation of the skills and practices that each student will need to accomplish during the in-hospital clinical sessions. The clinical document required by the Committee on Accreditation of Educational Programs for Emergency Medical Services Professions (CoAEMSP) outlines the specific encounters with the patient that each student must successfully achieve during clinical and hospital sessions. In addition, topics such as intravenous medications bolus through intravenous line, communicating, relaying patient information, and trauma including hospital procedures will be covered.
Upon successful completion of this course, students should be able to:
- Perform a comprehensive identification, assessment and management of a variety of advanced life support patients in the in-hospital setting.
- Demonstrate knowledge of communication systems for reporting patient care and interventions.
- Demonstrate appropriate patient communication techniques.
- Document all patient assessments and advanced life support interventions accurately for patients in a variety of in-patient and out-patient clinical settings.
- Demonstrate appropriate assessment, communications and management for pediatric patients.
- Demonstrate appropriate assessment, communications and management for psychiatric patients.
- Demonstrate appropriate assessment, communications and management for trauma patients.
- Demonstrate appropriate assessment, communications and management for intensive care unit and intermediate care patients.

Prereq. EMTP 101 with a C.
Coreq. EMTP 102, EMTP 103, EMTP 104
2 Credits
4 Weekly Laboratory Hours

EMTP 200 Summative Field Clinical
Summative Field Clinical is a Capstone course. Students will enroll in this course only after demonstrating skill and knowledge in the didactic and laboratory components of the program. Students will perform and manage an effective assessment of the patient. The student will learn the appropriate procedures to gather evaluate and synthesize information as well as make appropriate decisions based on that information and be able to take the necessary action for patient care. The student will be expected to achieve proficiency by performing these skills on actual patients in a clinical setting. Integrating pathophysiological principles, physical examination findings, formulating a field impression and implementing treatment for the patient with common complaints will be practiced during this time. Alternative learning experiences (simulations, programmed patient scenarios, etc.) will be available as needed. Proficiency in performing all steps and procedures safely and properly will be thoroughly evaluated.
Upon successful completion of this course, students should be able to:
- Demonstrate and discuss how assessment-based management contributes to effective patient and scene assessment.
- Demonstrate and describe factors that affect assessment and decision making in the pre-hospital setting.
- Demonstrate the proper application and performance of basic life support skills.
- Demonstrate safe practices in the pre-hospital environment and effectively communicate acceptable practices and procedures to the EMS team, patient, bystanders and others on an emergency scene.
- Recognize the need for advanced life support interventions.
- Outline and demonstrate effective verbal and non-verbal techniques for scene and patient assessment and choreography of patient assessment and personnel management.
- Identify and utilize essential take-in equipment for general and selected patient situations.
- Describe techniques that permit efficient and accurate presentation of the patient.
- Outline strategies that promote an effective patient encounter.
- Demonstrate the ability to serve as a team leader in a variety of pre-hospital emergency responses.
- Demonstrate proper performance of advanced life support procedures and skills using the most appropriate equipment and advanced technological devices available.
- Apply appropriate advanced life support skills in an emergency situation.

Prerequisite:
Certification as a current Emergency Medical Technician and CPR provider.

College Academic Learning Goal Designation: Information Technology (TC)

Prereq. EMTP 102, 103, 104, 105 with a ‘C’ or better
Coreq. EMTP 201, EMTP 205
8 Credits
16 Weekly Laboratory Hours
EMTP 201 Operations and Special Patient Populations
This course is designed to provide the student with information necessary to effectively perform in specific medical emergency situations. Infections diseases, disease transmission pathways, behavioral and psychiatric illnesses, obstetrical and gynecological emergencies and rescue operations will be covered.

Upon successful completion of this course, students should be able to:
- Distinguish among the recognition, transmission, and pathophysiology of infectious diseases.
- Discuss the paramedic’s role in the prevention of disease transmission.
- Discuss the critical principles of behavior emergencies.
- Identify potential causes of behavioral and psychiatric illnesses.
- Distinguish varied methods of approaching violent and non-violent patients (adult or child).
- Describe the physiology of menstruation and ovulation.
- Describe the structure and function of processes during pregnancy.
- Describe detailed assessment and management of obstetrical and gynecological emergencies.
- Discuss and demonstration of rescue operations.
- Attain certification in Pediatric Advanced Life Support.

REQUIREMENT:
Certification as a current Emergency Medical Technician and CPR provider.
Prereq: EMTP 102, 103, 104 with a C: Coreq: EMTP 200, EMTP 205
3 Credits 3 Weekly Lecture Hours 3 Weekly Laboratory Hours

EMTP 205 Clinical Rotations II
This course addresses skills and practices each student needs to successfully complete during the in-hospital clinical sessions. The clinical document required by the Committee on Accreditation of Educational Programs for Emergency Medical Services Professions (CoAEMSP) outlines the specific encounters with the patient that each student must successfully achieve during clinical and hospital sessions. In addition, topics such as intravenous medication bolus through intravenous line, communicating, relaying patient information, and trauma will be experienced, as well as numerous in hospital miscellaneous procedures.

Upon successful completion of this course, students should be able to:
- Perform a comprehensive identification, assessment and management of a variety of advanced life support patients in the in-hospital.
- Demonstrate knowledge of communication systems for reporting patient care and interventions.
- Demonstrate appropriate patient communication techniques.
- Document all patient assessments and advanced life support interventions accurately for patients in a variety of in-patient and out-patient clinical settings.
- Demonstrate appropriate assessment, communications and management for pediatric patients.
- Demonstrate appropriate assessment, communications and management for maternity patients.
- Demonstrate appropriate assessment, communications and management for labor and delivery patients.
- Demonstrate appropriate assessment, communications and management for burn patients.
Prereq: EMTP 102, 103, 104, 105 with a C: Coreq: EMTP 200, EMTP 201
3 Credits 3 Weekly Lecture Hours 3 Weekly Laboratory Hours

ENG 050 Developmental English
This course is intended to prepare students for college-level writing by using a multi-step approach and providing a comprehensive review of grammar. Students will move from paragraph to essay writing while developing basic research skills. Students will develop their critical thinking skills through reading and writing. Credits from the course are not applicable toward a degree.

Upon successful completion of this course, students should be able to:
- Demonstrate critical thinking and writing in various rhetorical situations.
- Demonstrate awareness of the rhetorical situation by making appropriate choices for a given writing task.
- Craft a thesis that can be supported with evidence in the body and conclusion.
- Demonstrate that writing is a process.
- Apply formal conventions of written American English with respect to grammar, mechanics, and punctuation.
- Provide critical assessment of college-appropriate texts.
- Synthesize basic research skills.

ESL students must pass ESL 044: Intermediate Writing II before beginning ENG 050.
Prereq: Appropriate placement test scores or ESL 044
3 Credits 3 Weekly Lecture Hours

ENG 099 ALP English
ENG 099 provides individualized instruction and regular practice in writing essays for college audiences and critically reading and understanding college-level texts. Specific attention will be paid to effective reading strategies and a recursive understanding of the writing process. This course is part of DCCC’s Accelerated Learning Program, which enables students to complete developmental coursework in English while simultaneously enrolling in ENG 100. This program enables students to develop their skills quickly and to complete their college English requirements faster than with the typical sequential approach to these classes.

Students wishing to enroll in college level courses with ENG 099, have the option to enroll in any of the following courses: HIS 110, HIS 120, HIS 150, HIS 160, HUM 160, SOC 110 or SOC 120.

Upon successful completion of this course, students should be able to:
- Practice effective writing strategies for all steps of the writing process, including invention, planning, drafting, revising, and editing.
- Write for various contexts with an awareness of audience.
- Write thesis-driven essays that are clearly organized and developed with appropriate evidence.
- Demonstrate critical reading skills by annotating, analyzing, and thoughtfully responding to a variety of challenging texts.
- Demonstrate critical reading, thinking, and writing in various rhetorical situations and make appropriate rhetorical choices for given writing tasks.
- Demonstrate proficient comprehension of and a critical assessment of college-appropriate texts using strategic and critical reading.
- Practice basic research skills such as developing a research question, accessing reliable sources, and evaluating content.

Prereq: Appropriate placement test scores, concurrent ENG 100
3 Credits 3 Weekly Lecture Hours

ENG 100 English Composition I
This course reviews the principles of composition, including rhetoric, grammar and usage. It emphasizes critical thinking, the recursive nature of writing, the writing of analytical essays, and the application of information literacy skills.

Upon successful completion of this course, students should be able to:
- Apply college-level critical thinking and writing in various rhetorical situations.
- Compose original, thesis-based essays with cogent, well-supported evidence.
- Use appropriate rhetorical techniques for a specific writing task.
- Demonstrate organizational skills in constructing an essay with an introduction, conclusion, and transitions.
- Explore and evaluate appropriate academic databases to find credible primary and secondary sources.
- Synthesize appropriate sources to produce a research paper with accurate documentation.
- Employ prewriting, drafting, and revision strategies.
- Apply formal conventions of standard English with respect to grammar, mechanics, and punctuation.

College Academic Learning Goals Designations: Critical Reasoning (CR), Information Literacy (IL), and Written Communication (WC)
Prereq: ENG 050, REA 050 or ENG 098 or REA 075 or test scores
3 Credits 3 Weekly Lecture Hours

ENG 112 English Composition II: Writing About Literature
ENG 112 is a writing course emphasizing both literature and information literacy skills that reinforce basic principles of composition learned in ENG 100. The course develops critical thinking through the study of literature and the use of advanced research techniques to write analytical/critical and research essays.

Upon successful completion of this course, students should be able to:
- Demonstrate critical thinking and writing in response to literature.
- Compose original, thesis-based analytical/critical essays in response to literature.
- Express ideas logically and clearly using appropriate rhetorical techniques.
- Analyze fiction, poetry, drama, and other literature using the elements of literature from different critical perspectives.
- Access and critically evaluate databases to find appropriate, credible sources using current information literacy skills.
- Identify the purpose of and rules for source attribution, and synthesize source material using MLA documentation in a plagiarism-free, multi-source essay/research paper based on a work of literature.
- Revise, edit, and proofread to produce final drafts applying formal conventions of standard English with respect to grammar, mechanics and punctuation.

College Academic Learning Goals Designations: Critical Reasoning (CR), Information Literacy (IL) and Written Communication (WC)
Prereq: ENG 100 with a “C” or better
3 Credits 3 Weekly Lecture Hours

ENG 115 Research for English Majors
This course introduces English majors to the organization, retrieval and evaluation of electronic and print information in their field. Students will understand the evolving nature of information in the digital age. Emphasis will be on developing viable research questions, using academic library systems effectively, evaluating traditional and emerging scholarly resources in a variety of formats, and using the information in an ethical manner by citing resources according to current MLA standards.
Upon successful completion of this course, students should be able to:

- Distinguish between literary criticism, book, film and theater reviews; and biographical articles.
- Identify critical approaches to literature, such as feminist, Marxist, reader-response, psychoanalytical, etc.
- Identify major journal databases and aggregate databases in their field (includes e-books and e-ref books) such as JSTOR and the Gale Literature Resource Center.
- Use advanced features of databases, such as Boolean searching, limiters, etc.
- Become familiar with features of online book catalogs at Delaware County Community College Library and other academic and public libraries.
- Evaluate literacy criticism in books and essays.
- Use reference book/e-books, handbooks and Internet to retrieve cultural, historical and background information on authors, literary movements, timelines and literary theories.
- Evaluate the role of the “free” Internet web sites in the field of English and related areas of study, such as grammar sites, ready reference sites, citation generators, Google Books, Google Scholar, Open Source Movement.
- Demonstrate knowledge of MLA citation standards for a variety of resources.
- Be aware of software and user services relevant to their field, such as subscription citation generators (endnote, network), turnitin, and smartthinking.

ENG 130 Fundamentals of Journalism I

This is a writing-intensive course designed for students contemplating a career in journalism. The course will focus on the principles and techniques of journalism with an emphasis on the print media, primarily weekly and daily newspapers. Topics include the nature of news, news gathering techniques, news reporting, digital journalism, ethics of journalism and journalism law.

Upon successful completion of the course, the student should be able to:

- Define "news."
- Discuss the impact of electronic media on print media.
- Explain the organization and hierarchy of a typical newspaper.
- Define newspaper terms.
- Interview sources.
- Write a lead.
- Write news and feature copy according to AP Style.
- Create a blog.
- Explain journalism law with respect to libel and invasion of privacy.
- Identify and summarize three ethical philosophies pertaining to journalism.

Pre req. ENG 100

3 Credits

3 Weekly Lecture Hours

ENG 131 Fundamentals of Journalism II

This writing intensive course is designed for students contemplating a career in journalism, public relations or advertising. Students will continue to practice news gathering and writing techniques learned in Fundamentals of Journalism I (ENG 130) as well as techniques in copy editing. While doing so, students will assist in the writing, editing and production of the campus newspaper. Students will also learn to write copy for public relations, advertising and broadcast media.

Upon successful completion of the course, students should be able to:

- Write and edit news and feature stories according to AP Style.
- Edit news and feature stories using copy-editing symbols.
- Submit articles electronically to an editor.
- Write broadcast copy.
- Write advertising copy.
- Write a news release.
- Create a press kit for a public relations event.

Pre req. ENG 130

3 Credits

3 Weekly Lecture Hours

ENG 205 Creative Writing: Introduction

This is a workshop-intensive course in which students will examine and create various elements of prose and poetry. The workshops are an integral part of any creative writing course, and they are designed to provide students with critical and constructive feedback that will help move them from the planning stage through to the revision process. Therefore, the major focus will be student submissions; over the course of the semester, students will read, analyze and critique classmates' submissions, a process which will help yield more effective works of prose and poetry.

Upon successful completion of this course, students should be able to:

- Recognize the elements necessary to build effective works of poetry and prose.
- Create prose that demonstrates the ability to establish developed character that can move through a narrative structure.
- Craft poetry that effectively employs sound, imagery and structure.
- Examine and evaluate prose and poetry to create a body of polished work that demonstrates knowledge of the effective elements of each genre.
- Synthesize criticism and analysis to create dynamic poetry and prose.

Coreq. ENG 112 or permission of instructor

3 Credits

3 Weekly Lecture Hours

ENG 206 Creative Writing: Non-Fiction and Memoirs

This is a workshop-intensive course in which students will examine various elements that help writers produce effective works of nonfiction. The workshops are an integral part of any creative writing course, and they are designed to provide students with critical and constructive feedback that will help them move from the planning stage through to the revision process. Therefore, the major focus will be student submissions; students will read, analyze and critique classmates' submissions. In addition to writing their own works, students will read a wide range of published nonfiction and should have a basic understanding of the various modes within the genre.

Upon successful completion of this course, students should be able to:

- Describe and discuss the work of important nonfiction texts in terms of structure, dramatic arc, central metaphors and symbols, physicality, and dialogue.
- Describe the different types of creative nonfiction: personal essay, memoir, travel writing, profile/biography, feature article/literary journalism, food writing, etc.
- Gather research for a nonfiction piece.
- Create nonfiction pieces that include narrative, scene development, character development, dialogue, description, and reflection.
- Compose drafts and develop a revision plan.
- Share work with fellow writers with a intent of considering feedback and potentially incorporating the ideas of others.

Pre req. ENG 112 or permission of instructor

3 Credits

3 Weekly Lecture Hours

ENG 207 Creative Writing: An Introduction to Playwriting

This course introduces students to the concepts of dramatic writing, with an emphasis on character and structure. The course is intended to provide the student with practical experience in the creative process of composing stage-worthy plays.

Upon successful completion of this course, students should be able to:

- Describe and discuss the work of important playwrights in terms of structure, dramatic arc, central metaphors and symbols, physicality, and dialogue.
- Describe the standard format of a play.
- Research ideas for use in plays.
- Formulate different dramatic ideas.
- Create dialogue, characters, and relationships intended for the stage.
- Compose and revise plays.
- Share work with fellow writers with the intent of listening to feedback and potentially incorporating the ideas of others into the work.
- Work with actors to refine dialogue.
- Use physical-mental exercises to inspire and sustain dramatic writing.

Coreq. ENG 112 or permission of instructor

3 Credits

3 Weekly Lecture Hours

ENG 208 Creative Writing II - Short Story

This is a workshop-intensive course in which students will examine various elements that help writers produce effective works of fiction. The workshops are an integral part of any creative writing course, and they are designed to provide students with critical and constructive feedback that will help them move from the planning stage through to the revision process. Therefore, the major focus will be student submissions; each week, students will read, analyze and critique classmates’ submissions, a process which will help yield vivid characters, compelling scenes and sustained conflict.

Upon successful completion of this course, students should be able to:

- Recognize the elements necessary to build effective works of fiction, including: characterization, narration, setting, scene, plot, theme and conflict;
- Create works of fiction that demonstrate the ability to lead characters through a cohesive narrative structure;
- Examine and evaluate prose in order to discern the literary elements which produce the most success in prose;
- Synthesize criticism and analysis to create dynamic and effective works of fiction.

Pre req. ENG 112 or permission of instructor

3 Credits

3 Weekly Lecture Hours

ENG 209 Creative Writing: Poetry

This is a workshop-intensive course in which students will examine various elements that help writers produce effective works of poetry. The workshops are an integral part of any creative writing course, and they are designed to provide students with critical and constructive feedback that will help them move from the planning stage through to the revision process. Therefore, the major focus will be student submissions; students will read, analyze and critique classmates’ submissions - a process which will help yield proficiency and understanding of form, vivid imagery, and compelling use of language and wordplay.

Upon successful completion of this course, students should be able to:

- Recognize and understand the elements necessary to build effective poems, including: music, sound, and figurative language, persona and voice, imagery, theme and tone.
- Create poems that demonstrate the ability to purposefully utilize language in a cohesive lyric or narrative structure.
- Analyze and evaluate poetic techniques and elements in order to discern which produce the most effective verse in a given context or purpose.
- Synthesize criticism and analysis to create dynamic and effective poetic works.

Coreq. ENG 112 or permission of instructor

3 Credits

3 Weekly Lecture Hours
ENG 214 Women in Literature
Women in Literature is a course that allows students to look at women as they are perceived by others and as they perceive themselves. Through literary creations supplemented by films, speakers, articles and anecdotal contributions from students, we will look at women from a variety of ethnic, social and racial groups, including but not limited to African Americans, Asian Americans, Chicano and Native Americans. As part of the study of literature by and about women in our world, students will also consider some of the historical, political, economic and religious realities that have shaped and continue to shape our perceptions of women.

Upon successful completion of this course, students should be able to:

• Discuss the roles of women reflected in selected literature.
• Construct a series of response essays that demonstrate a critical analysis of the literature under discussion.
• Demonstrate research and documentation skills through the exploration of a selected topic.
• Explain the roles of women in literature in terms of economic, political and social issues.
• Identify literary contributions by women of color who traditionally have had no "voice," such as African American, Asian American, Chicano and Native American writers.
• Analyze the literary elements of the works studied.

ENG 215 Mystery and Detective Fiction
This is a course of the genre of mystery and detective fiction. It will focus on the development of the genre and the evolution of its various schools such as Golden Age mysteries, hard-boiled detective novels, and the police procedural. The course will also call attention to the cultural contexts in which these writings were produced.

Upon successful completion of this course, students should be able to:

• Identify literature as the product of a particular cultural climate.
• Examine the role of literary elements in the reading selections.
• Recognize the characteristics of the distinct schools within the mystery and detective fiction genre.
• Compose critical essays that analyze mystery and detective fiction.
• Discuss the development of mystery and detective fiction genre.
• Trace the correlations between mystery and detective fiction and other literary genres.

Pre-req: ENG 100 or placement test scores
3 Credits 3 Weekly Lecture Hours

ENG 216 Science Fiction Literature
This is a course of speculative writing that creatively represents the hard sciences and/or the social sciences in fiction. It will focus on the different subgenres found within the genre and will call attention to the cultural contexts in which these writings were produced.

Upon successful completion of this course, students should be able to:

• Identify literature as the product of a particular cultural climate.
• Discuss the development of science fiction as a genre and its relationship to other literary genres.
• Discuss the characteristics of the different subgenres within the genre of science fiction.
• Recognize the ways in which science fiction writers encourage critical assessment of the real world.
• Examine the use of literary elements found in the reading selections.
• Compose critical essays that analyze science fiction.

Pre-req: ENG 100 or placement test scores
3 Credits 3 Weekly Lecture Hours

ENG 220 British Literature I
This is a survey of British literature from the Anglo-Saxon era to the pre-Romantics with attention given to both major and marginalized works and writers.

Upon successful completion of this course, students should be able to:

• Identify and discuss major authors, literary genres, literary devices and styles of writing in British literature from the medieval era to the pre-Romantic period.
• Discuss British literary works by and about marginalized/underrepresented peoples in the context of their historical struggle and contemporary relevance.
• Compose essays that analyze British literary works in relation to their social, economic, and historical contexts and/or critical perspectives.
• Apply current information literacy techniques to develop multi-source research projects that follow MLA guidelines.

Pre-req: ENG 112
3 Credits 3 Weekly Lecture Hours

ENG 221 British Literature II
This is a survey of British literature from the Romantics to the Moderns with the attention given to both major and marginalized works and writers.

Upon successful completion of this course, students should be able to:

• Identify and discuss major authors, literary genres, literary devices, and styles of writing in British literature from the Romantic period to the post WWII era.
• Discuss British literary works by and about marginalized/underrepresented peoples in the context of their historical struggle and contemporary relevance.
• Compose essays that analyze British literary works in relation to their social, economic, and historic contexts and/or other critical perspectives.
• Apply current information literacy techniques to develop multi-source research projects that follow MLA documentation guidelines.

Pre-req: ENG 112
3 Credits 3 Weekly Lecture Hours

ENG 222 Introduction to Shakespeare
This course is a study of representative Shakespearean plays set against the literary, political and social setting that spawned them. Attention is paid to Shakespeare's influence not only in the development of the drama, but also in the literary tradition of the English-speaking world.

Upon successful completion of this course, students should be able to:

• Identify the particular types of plays and poetic verse of Shakespeare.
• Reconstruct the text of Shakespeare's plays in order to view them as dramatic productions.
• Examine how literary elements function within Shakespeare's work.
• Read and comprehend Shakespeare's language.
• Analyze Shakespeare's writings as products of the Renaissance cultural climate.
• Recognize the correlations between historical context and literary sources in Shakespeare's work.

Pre-req: ENG 112
3 Credits 3 Weekly Lecture Hours

ENG 230 American Literature I
This is a survey of American literature from the colonial era through the end of the Civil War with attention given to both major and marginalized works and writers.

Upon successful completion of this course, students should be able to:

• Identify and discuss major authors, literary genres, literary devices, and styles of writing in American literature from the colonial era to 1865.
• Discuss American literary works by and about marginalized/underrepresented peoples in the context of their historical struggle and contemporary relevance.
• Write and present multi-source research projects that follow MLA guidelines.

Pre-req: ENG 112
3 Credits 3 Weekly Lecture Hours

ENG 231 American Literature II
This is a survey of American literature from 1865 to the present with attention given to both major and marginalized works and writers.

Upon successful completion of this course, students should be able to:

• Identify and discuss major authors, literary genres, literary devices, and styles of writing in American literature from 1865 to the present.
• Discuss American literary works by and about marginalized/underrepresented peoples in the context of their historical struggle and contemporary relevance.
• Compose essays that analyze American literary works in relation to their social, economic, and historical contexts and/or critical perspectives.
• Apply current information literacy techniques to develop multi-source research projects that follow MLA guidelines.

Pre-req: ENG 112
3 Credits 3 Weekly Lecture Hours

ENG 232 American Literature III
This course continues the balanced, selective study of great representative literary works from the Renaissance to the present day in their geographic, historic, socio-economic, and political contexts. Attention is given to genres, writing styles, and applicable critical approaches. The "emerging" literatures—works by women, colonials, post-colonials and those groups generally denied a voice—are studied in an attempt to enlarge the canon and render it inclusive.
Upon successful completion of this course, students should be able to:

• Identify and discuss major writers and their influences in and contributions to world literature
• Discuss dominant themes-genres/writing styles in the established and emerging literatures
• Identify major historical and philosophical influences of modern life as they are represented in literary artifacts
• Demonstrate in discussions and writing an awareness of the struggle of writers of the emerging literatures to find a voice, an audience, and a hearing.
• Respond to the writers and literature encountered in the form of critical, analytical, and/or argumentative multi-source essays that employ current information literacy techniques and apply correct MLA documentation.

College Academic Learning Goals Designations: Diversity and Social Justice (DJ) and Global Understanding (GU)
Prereq. ENG 112
3 Credits

ENG 243 Topics in Contemporary Literature
This course is a study of literature that has been produced in the past few decades. It may feature selected topics and/or themes from a variety of fiction, drama, and poetry.
Upon successful completion of this course, students should be able to:

• Identify various themes and techniques found in post-modern literature such as irony, pastiche, intertextuality, metafiction, temporal distortion, etc.
• Identify literature as the product of a particular cultural climate.
• Recognize the ways in which postmodern literature is a response to modern literature.
• Examine the use of literary elements found in the reading selections.
• Compose critical essays that analyze the reading selections.
Prereq. ENG 112
3 Credits

ENG 245 Black American Literature
Black American literature is a comprehensive survey of the writings of African Americans beginning with the 18th century through the present. By way of reading, lecture and discussion, students will analyze the various genres, topics, mores and traditions identified with African Americans and their historical and cultural significance.

Upon successful completion of this course, students should be able to:

• Discuss the roles of African Americans in the larger culture as reflected in selected literature
• Trace historical developments among Blacks in America from their African roots through slavery, the Civil War and the industrialized 20th century
• Analyze literary elements of the works studied
• Discuss the origins of racial stereotypes, discrimination and segregation as they appear in selected works
• Write an essay(s) discussing the aforementioned topics
Prereq. ENG 100
3 Credits

ENG 250 Children's Literature
This course is a critical and analytical study of a variety of texts that represent the many genres of children's literature. It will emphasize how children are influenced by literature and how children's literature reflects the values of the particular culture that produces it. Upon successful completion of this course, students should be able to:

• Recognize the characteristics of the different genres of children's literature.
• Determine and apply criteria for what may be considered as quality children's literature.
• Analyze literary elements such as theme, character, and setting.
• Evaluate the contributions that illustrations can make to a text.
• Identify literature as a product of a particular cultural climate.
• Discuss critically issues of gender, ethnicity, culture, and the individual that are present in the texts.
• Design and research a written project that relates to a student's particular interest in children's literature.
Prereq. ENG 112
3 Credits

ENG 290 Songwriting Workshop
This course is open to all students regardless of experience. Guided by faculty from both the English and Music departments, students will create and perform original songs in a collaborative workshop environment and explore a variety of songwriting styles, genres, and forms. Students will cap off the semester in a showcase performance of their original works.

Note: This course is a pilot/studies course that may or may not transfer. This course cannot be required as a prerequisite course or a program course. One section of this course will be offered in Spring 2017, Fall 2017 and Spring, 2018.

Upon successful completion of this course, students should be able to:

• Critique and analyze the aesthetics of popular song forms in various genres
• Apply a variety of creative strategies in the process of writing music and lyrics
• Understand and execute the principles of lyrical composition and song structure
• Understand and execute the basics of arranging music
• Document and record original song ideas
• Compose and perform original songs in collaborative groups
Prereq. ENG 050 and REA 050 or ENG 099 or REA 075
3 Credits

ESL 024 Elementary Writing
This course is for advanced beginners who can write basic sentences and have some knowledge of English sentence structure. The course covers basic grammatical structures and introduces students to simple paragraph writing as well as other types of writing needed in everyday life.

Upon successful completion of the course, students should be able to:

• Write simple, clear sentences with correct capitalization and punctuation.
• Write simpler forms of compound and complex sentences with appropriate linking words.
• Write unified paragraphs of 8 to 10 sentences about people, places and events.
• Collect and organize information for use in sentence writing.
• Recognize and identify the basic parts of speech in writing using the correct dictionary abbreviations.
• Use the basic verb tenses to indicate present, past and future time.
• Use the common models and prepositions of time and location correctly.
• Develop some skill in recognizing and correcting common writing errors.
• Show improved ability to use correct word endings and articles.
Prereq. Appropriate placement test score
Coreq. ESL 023 or placement test score
4 Credits

ESL 025 Elementary Reading
This advanced-beginner course is designed to develop students' ability to use reading strategies and to expand vocabulary in order to understand simplified texts. Students will normally take this course with Elementary Writing (ESL 024) and Elementary Speaking/Listening (ESL 026). Two hours per week of tutoring are required.

Upon successful completion of the course, students should be able to:

• Read text appropriate for this level.
• Respond to questions and organize information from readings into simple outlines and grids.
• Find main ideas, topic sentences and details.
• Predict content by asking questions before reading.
• Use strategies to infer the meaning of vocabulary, decode difficult sentences, and interpret punctuation and connectors.
• Skim and scan for information.
• Expand vocabulary.
• Use an English-English dictionary for ESL learners
Prereq. Appropriate placement test score
Coreq. ESL 024 or placement test score
4 Credits

ESL 026 Elementary Listening/Speaking
This is a course for advanced beginners who have some basic knowledge of English and some functional communicative ability (e.g., simple questions and answers on topics of everyday interest). Class time is devoted to speaking for everyday needs, grammar practice, pronunciation, intensive listening to short, simplified narratives and listening for specific information in extended narratives and conversations.

Students normally take this course along with Elementary Writing (ESL 024) and Elementary Speaking/Listening (ESL 026). The course also has two hours of lab time, which will provide students with additional listening practice.
Upon successful completion of the course, students should be able to:
- Ask and answer questions about their own life situations.
- Use courtesy in various everyday situations.
- Describe or narrate an event using two or more sentences.
- Learn the sound system of English, and practice pronunciation and intonation.
- Develop listening strategies to understand information necessary for everyday life (e.g., weather forecasts).
- Understand simplified, extended narratives (e.g., lectures and dialogues).

ESL 033 Intermediate Grammar I
This course is a continuation of Elementary Grammar (ESL 023). Students practice grammatical structures through reading, writing, speaking, and listening tasks in a classroom setting. This course is helpful for students who are fluent in English, but who need to develop the accuracy that is necessary for success in college. The course is also recommended for new international students who may have memorized grammar rules, but cannot apply them in conversational or academic situations.
Upon successful completion of this course, students should be able to:
- Use with accuracy the past perfect and future perfect verb tenses.
- Use with accuracy the present, past and future tenses in reported speech and conditional time (real and unreal).
- Apply accurately the passive, gerund and infinitive forms of verbs.
- Use models expressing possibility, ability and permisibility accurately.
- Produce adverb, noun and adjective clauses accurately.
- Use strategies to detect and correct grammatical errors.

ESL 034 Intermediate Writing I
This course is a continuation of Elementary Writing (ESL 024). Students write longer paragraphs and short essays using more advanced writing strategies such as narration, illustration, and analysis. This course emphasizes the comprehension and production of longer segments of speech. Students entering the course should be able to:
- Write compound and complex sentences with correct capitalization and punctuation.
- Use perfect tenses, regular conditionals, models, passive constructions, gerunds and infinitives.
- Use consistent verb tenses, pronouns and transitional connectors to link ideas.
- Use subordination to combine short sentences and to emphasize important ideas.
- Write short essays of 300 words using several well-supported paragraphs.
- Use description, narration, explanation and comparison.
- Generate and organize ideas using a number of pre-writing strategies.
- Take effective notes showing main ideas and important details.
- Demonstrate skill in revision and process writing in a portfolio of written work.
Prereq. ESL 024 or appropriate placement test score
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ESL 035 Intermediate Reading I
This course, students expand their reading skills and vocabulary. Students should take this course along with Intermediate Writing I (ESL 034) and Intermediate Speaking/Learning I (ESL 036). In addition, two hours of tutoring work are required weekly.
Upon successful completion of this course, students should be able to:
- Read text appropriate for this level.
- Predict content, respond to questions, defend answers and restate the content of readings.
- Make inferences based on the readings.
- Infer the meaning of vocabulary, decode difficult sentences and interpret meaning.
- Recognize the organization and structure of readings.
- Scan for information in maps, charts, graphs, etc.
- Expand vocabulary and knowledge of word forms.
- Use an English-English dictionary for ESL students.
Prereq. ESL 024 or appropriate placement test score
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ESL 036 Intermediate Listening/Speaking I
This course is a speaking and listening course for low-intermediate ESL students. Students entering the course should be able to answer questions about their own lives, to expand a spontaneous narrative to three or four sentences. This course is devoted to speaking in various social situations, the practice of grammar, pronunciation and listening for information in conversations and extended narratives. Students normally take this course with Intermediate Writing I (ESL 034) and Intermediate Speaking/Learning I (ESL 035). Two hours of lab time weekly give students additional listening comprehension practice.
Upon successful completion of this course, students should be able to:
- Use language functions appropriate for this level (e.g., requesting information, agreeing, complimenting).
- Use language at different levels of politeness and formality.
- Give short talks on topics of interest.
- Learn and practice the pronunciation and intonation patterns of English.
- Comprehend simplified lectures on academic topics.
- Identify information in conversations and narratives.
- Learn and produce common reductions in English.
Prereq. ESL 025 or appropriate placement test score
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ESL 037 Intermediate Grammar II
This course is a continuation of Intermediate Grammar I (ESL 033). It is a multi-skills course in which students practice grammar in social and academic situations.
Upon successful completion of this course, students should be able to:
- Use with accuracy the past perfect and future perfect continuous tenses.
- Use with accuracy adverb, noun and adjective clauses.
- Use tools such as connectors, tense shifting and reference words in extended writing.
- Produce and use models with accuracy.
- Select appropriate grammatical constructions for different levels of formality.
- Use language confidently and appropriately.

ESL 038 Intermediate Writing II
This course is designed for students who can write unified, well-supported paragraphs and short essays with few errors that affect readers' comprehension. Students will go through the writing process and learn to apply grammatical structures and editing strategies to their writing.
Upon successful completion of this course, students should be able to:
- Gather and organize information and ideas required for essay writing.
- Write essays for a variety of purposes and audiences.
- Identify and produce writing assignments appropriate for specific audiences.
- Use a variety of complex sentences.
- Use pronouns and transitional devices to link ideas.
- Use unreal conditionals, noun clauses and other advanced structures for sentence variety and effect.
- Proofread and revise papers in response to instructors’/peers’ comments.
- Demonstrate in a portfolio the academic writing skills required in non-ESL credit courses.
Prereq. ESL 034 or appropriate placement test score
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ESL 045 Intermediate Reading II
This course is designed for intermediate-level ESL students who need to build their vocabulary and reading skills so that they can, with the assistance of a dictionary, understand text that is written for native speakers. Students will normally take Intermediate Writing II (ESL 044) and Intermediate Speaking/Learning II (ESL 046) along with this course. In addition, two hours weekly of tutoring are required.
Upon successful completion of this course, students should be able to:
- Use a variety of reading strategies to interpret meaning.
- Summarize and paraphrase, verbally and in writing, information contained in the readings.
- Discuss the content of readings and defend answers.
- Expand vocabulary, knowledge of word forms and use of idiomatic expressions.
- Demonstrate knowledge of roots, prefixes and suffixes.
- Use an English-English dictionary for advanced ESL learners.
Prereq. ESL 035 or appropriate placement test score
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ESL 046 Intermediate Listening/Speaking II
This course emphasizes the comprehension and production of longer segments of speech. Students entering the course should be able to extend a narrative to several sentences. The class covers speaking in everyday situations, conventions of speaking in academic settings (e.g., participating in class discussions) and pronunciation. Students normally take this course with Intermediate Reading II (ESL 045) and Intermediate Writing II (ESL 044). An additional two hours each week of lab time will provide extra listening practice.
Upon successful completion of this course, students should be able to:
- Use different levels of politeness in a variety of situations.
- Speak spontaneously at an extended level of discourse.
- Organize and deliver a five to seven minute presentation.
- Contribute to group problem-solving discussions.
- Use listening strategies to understand the main points in longer narratives and conversation, some unsimplified.
- Take notes on extended narratives.
- Improve pronunciation and intonation.
- Demonstrate grammatical accuracy in most everyday conversational situations.
Prereq. ESL 026 or appropriate placement test score
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

ESL 047 Intermediate Writing/Grammar II
This course is designed for high-intermediate ESL students who can write unified, well-supported paragraphs and short essays with few errors that affect readers' comprehension. Students will go through the writing process and learn to apply grammatical structures and editing strategies to their writing.
Upon successful completion of this course, students should be able to:
- Write compound and complex sentences with correct capitalization and punctuation.
- Use perfect tenses, regular conditionals, models, passive constructions, gerunds and infinitives.
- Use consistent verb tenses, pronouns and transitional connectors to link ideas.
- Use subordination to combine short sentences and to emphasize important ideas.
- Write short essays of 300 words using several well-supported paragraphs.
- Use description, narration, explanation and comparison.
- Generate and organize ideas using a number of pre-writing strategies.
- Take effective notes showing main ideas and important details.
- Demonstrate skill in revision and process writing in a portfolio of written work.

COURSES DESCRIPTIONS

DELTA COUNTY COMMUNITY COLLEGE
Upon successful completion of this course, students should be able to:

- Gather and organize information and ideas required for paragraph and essay writing.
- Write essays for a variety of purposes and audiences with a distinct thesis statement and supporting ideas.
- Use a variety of complex sentences.
- Use tools such as reference words and transitional devices to form coherence.
- Use conditionals, clauses and other advanced structures accurately for sentence variety and effect.
- Select appropriate grammatical constructions, especially the past perfect continuous and future perfect continuous tenses and modals, for a variety of context.
- Proofread and revise papers in response to instructors'/peers' comments.
- Demonstrate in a portfolio the academic writing skills required in non-ELS credit courses.

Prereq. ESL 033 and ESL 034, or appropriate placement test scores

ESS 103 Introduction to Astronomy Laboratory

This laboratory course introduces students to astronomical observations through the use of telescopes and star charts to study objects in the night sky. Practical indoor activities are designed to foster an understanding of how objects from great distances are studied from the earth. Observations of the night sky with telescopes and the unaided eye will be conducted. Students will explore the constellations, moon, planets, and other objects of our universe. The course is intended for non-science majors, and is an optional laboratory course to accompany ESS 102 Introduction to Astronomy.

Upon successful completion of this course, students should be able to:

- Identify stars, planets and constellations using the star charts.
- Demonstrate proper use of telescope by reference to star charts.
- Locate stellar objects with a telescope by reference to star charts.
- Observe, record and analyze data collected from students observations as well as from observations of astronomical observatories.
- Describe the nightly and annual motions of the moon, stars and planets.
- Locate current information in journals and astronomical literature in the library.
- Demonstrate the use of computer information systems such as Internet to collect and study recent data on astronomical events.
- Describe several ways in which astronomers measure distance to stars.
- Develop skills that can be used in life-long learning to understand the composition of our universe.

Coreq. ESS 102

1 Credit

ESS 105 Astronomy

This course is designed to introduce students to the science of astronomy, its history, and its importance as an influence on our view of humankind. Students will conduct astronomical observations using software, telescopes, and star charts to study objects in the night sky. Practical observational activities are designed to foster a conceptual understanding of how objects from great distances are studied from the earth. The course is intended for non-science majors.

College Academic Learning Goals Designation: Scientific Inquiry (SI)

Upon successful completion of this course, students should be able to:

- Explain what tools and methods are used by astronomers to make observations and gather information about the universe.
- Describe the contributions made by early astronomers, and how it led to the current view of our universe.
- Demonstrate an understanding of the origins, structure, and evolution of our solar system, stars, galaxies and the universe.
- Investigate the possibility of life existing elsewhere in the universe.

Use star charts and/or planetarium software to survey the night sky and discover various celestial objects.

Use problem solving techniques to analyze and interpret data from student observations and/or astronomical observatories.

Prereq. (ENG 050, REA 050) or ENG 099 or REA 075 or pass test

4 Credits

ESS 110 Physical Geology

This course is designed for Geology and Natural Science majors program although it will be appropriate for non-science majors as a laboratory science elective. This course, designed as a laboratory course provides a study of the Earth, its composition, structure and the processes that shape it. The course will consider the various aspects of geology including, earthquakes, volcanoes, surface and groundwater, rivers and streams, caves, landform development, plate tectonics, rocks, and minerals.

Upon successful completion of this course, students should be able to:

- Identify volcanic, igneous activity, and the formation of igneous rocks.
- Describe the processes of weathering, erosion, sedimentation and the formation of sedimentary rocks.
- Explain the basic ideas of metamorphism and the formation of metamorphic rocks.
- Define the mechanism and effects of earthquakes.
- Summarize the theory of plate tectonics.
- Apply the plate tectonic theory to mountain building, volcanism and earthquakes.
- Compare surface water and groundwater and explain the role of each in the human environment.
- Climate, glaciers, wind, and coastal processes.
- Geologic time and rock correlation.
- Describe the supercontinent cycle of geologic history.

College Academic Learning Goal Designation: Scientific Inquiry (SI)

Upon successful completion of this course, students should be able to:

- Discuss the concepts of geologic and apply to rock correlation.
- Apply the concepts of stratigraphy as related to geologic time.
- Describe the fundamental processes of sedimentary environments.
- Understand the current thoughts of the origin and diversity of life.
- Summarize the general theory of the evolution of flora and fauna.
- Understand the Precambrian life and earth history.
- Understand the late Paleozoic life and earth history.
- Understand the Mesozoic life and earth history.
- Understand the Cenozoic life and earth history.
- Summarize the concepts and current thoughts of primate and human evolution.

Prereq. ESS 100 or ESS 110

4 Credits
**FRE 101 Elementary French I**

The basic principles of pronunciation and grammar of the French language are emphasized. Vocabulary dealing with everyday situations is covered. Listening and speaking skills are developed through laboratory practice and increased use of French in the classroom.

Upon successful completion of this course, students should be able to:

- Reproduce with reasonable accuracy the sounds of the language.
- Respond in French in a satisfactory manner to basic conversational situations.
- Produce appropriate patterns and sentence transformation.
- Write in dictation form with a reasonable degree of accuracy from materials that have already been studied.
- Recall facts and observations of cultural interest.

*Prereq.* FRE 102 or equiv.

**FRE 102 Elementary French II**

This course stresses progress in the speaking, writing and reading skills begun in FRE 101 and promotes greater understanding of French culture. The mandatory use of laboratory tapes further develops listening and speaking skills.

Upon successful completion of this course, students should be able to:

- Demonstrate an increased understanding of the principles of good pronunciation.
- Show some facility in responding to familiar questions and requests given in French.
- Demonstrate in reading and writing an understanding of grammatical concepts previously presented.
- Exercise control of a larger vocabulary.
- Write in dictation form from familiar texts.
- Recall facts of culture contrasts shown in assigned reading.

*Prereq.* FRE 101 or 2 yrs. H.S. French

**FRE 111 Intermediate French I**

Review of the basic sounds of the French language, first-level vocabulary and grammatical content. Introduction of new language concepts and more advanced vocabulary and idioms. Weekly laboratory practice to strengthen understanding of fluent speech.

Upon successful completion of this course, students should be able to:

- Demonstrate the ability to read directly in French with increasing attention to correctness of sounds, rhythm, accentuation and intonation.
- Reproduce a representative number of the dialogue situations previously illustrated.
- Demonstrate correct use of essential grammatical and idiomatic structures previously presented.
- Produce original coherent sentences and short paragraphs.
- Write familiar texts by dictation.
- Identify patterns of cultural behavior or customs that have been presented in class discussions.

*Prereq.* FRE 102 or equiv.

**FRE 112 Intermediate French II**

Focus on understanding new language principles and the identification of these concepts in reading and writing. Reading in French from a variety of practical, cultural and literary texts. Frequent listening and speaking practice. Weekly laboratory exercises for better understanding of fluent French.

Upon successful completion of this course, students should be able to:

- Respond in French with reasonable accuracy and clarity to questions within the scope of the course.
- Read directly and accurately in the language at a level comprehensible to one fluent in French.
- Reconstrukt or significantly modify learned responses or conversational patterns.
- Write coherent sentences and short paragraphs that use grammatical elements previously illustrated.
- Write in dictation form from class materials studied.
- Show some familiarity with French language contributions to the Western World and/or with cross-cultural contributions encountered in the course.

**FST 100 Introduction to Fire Protection**

A course in the history and development of fire protection. Topics covered are the role of the fire service in the development of civilization; personnel in fire protection; general introduction to fire hazards; and a discussion of the problems and possible solutions for current and future fire protection.

Upon successful completion of this course, students should be able to:

- Explain the operation of the major sprinkler systems employed in residential and commercial sites.
- Explain the internal operation of a fire pump, and the pump's relationship to the engine and transmission.
- Explain the accumulation, storage, purification and distribution of water for domestic and fire-fighting use.
- Describe proper fire alarm protection for residential buildings, including single family dwellings, dormitories and high-rise apartment buildings.
- Explain the safe operation of an aerial ladder truck when used as a rescue tool or water tower and when being used for routine work.
- Explain the safe operation of an articulated boom when used as a rescue tool or water tower and when being used for routine work.
- Construct a disaster plan for their municipality that would be used in the event of conflagration, airplane crash, flood or other disaster.

*Prereq.* FRE 111

**FST 101 Principles of Fire Science Administration**

Fire Science Administration details the skills and techniques necessary for proper management of all aspects of fire service.

Upon successful completion of this course, students should be able to:

- Delineate the scope of management principles.
- Apply managerial functions to various positions in fire service.
- Explicate behavioral science aspects in management application.
- Direct managerial skills to achieve organizational needs.
- Assess a management-by-objective program in a fire service.
- Detail the objectives of fire prevention and the fire-inspection process.
- Outline and use pre-fire planning.
- Describe personnel management.
- Depict sound training techniques for fire personnel.

**FST 102 Fire Prevention Theory and Application**

This course is designed to cover the basics of the development of fire-prevention laws and ordinances for elimination of fire hazards, inspection, organization, practices and procedures. Theory and application of laws and ordinances in modern concepts of fire prevention are also covered.

Upon successful completion of this course, students should be able to:

- Organize a viable fire-prevention program.
- Trace the development of the science of fire prevention.
- Explicate the Fire Prevention Code.
- Conduct a thorough fire safety program.
- Maintain accurate records and reports via the Systems Analysis method.
- Use the Life Safety Code properly, including its means of egress and physical features.
- Apply the Life Safety Code regulations to the institutional, residential, mercantile and industrial areas.

**FST 103 Fire and Arson Investigation**

This course enables students to become familiar with the problems inherent in determining the causes of fires, recognition of arson, preservation of evidence and successful prosecution of those responsible.

Upon successful completion of this course, students should be able to:

- Cite the organizations established to investigate causes and types of arson.
- Depict the role of fire personnel in arson suppression.
- Detail the significant scientific aids available to the fire investigator.
- Outline the urban and suburban incendiary fire patterns that have increased in the last decade.
- Conduct interviews to establish fire causes.
- Write a comprehensive permanent record of a case and provide guidance in the preparation and conduct of litigation.
- Develop skills essential to offering expert testimony in civil and criminal arson cases.

**FST 200 Fire Operation Strategies**

This course entails the various tactics and strategies involved in extinguishing fires. Emphasis is placed on the development of skills in analyzing and reacting to crises.

Upon successful completion of this course, students should be able to:

- Detail the general rules of safety and cite the most common deficiencies.
- Detail proper operating functions of engine and ladder companies at the fire scene.
- Evaluate fire conditions and select effective baseline placement, proper methods of ventilation, use of fog and appropriate safety measures.
- Explicate procedures used in fighting major fires, fires in buildings under construction and fires in various types of buildings.
- Delineate the procedures for post-fire analysis in order to improve performance.

**FST 201 Fire Protection in Building Construction**

This course is designed to expose students to the various types of building construction and the fire problems (including building collapse) of each.

Upon successful completion of this course, students should be able to:

- List the six common types of construction used in this area.
- Explicate the shifting of the various types of loads in a building during fire situations.
- Detail the appropriate methods of fire fighting for the various types of wood, siding, sheathing, masonry, concrete and steel buildings.
- Recognize and cite approved fire-fighting techniques for the various types of voids inherent in buildings.

**FST 202 Fire Prevention in Building Construction**

This course is designed to cover the basics of the development of fire-prevention laws and ordinances for elimination of fire hazards, inspection, organization, practices and procedures. Theory and application of laws and ordinances in modern concepts of fire prevention are also covered.
COURSE DESCRIPTIONS

FST 202 Fire Systems in Industry
This course is designed to acquaint students with the various aspects of private fire protection, from designing the physical facilities to instituting safety factors to extinguishing conflagrations.
Upon successful completion of this course, students should be able to:
• Assess occupational opportunities in industrial fire protection.
• Delineate the management responsibilities concerning property conservation.
• Detail the traits needed in and responsibilities of a director of property conservation.
• Depict the procedures required to begin a property conservation program.
• Provide the minimal functions required of the plant emergency organization.
• Establish a viable watch service.
• Classify the various types and components of sprinkler systems.
• Describe the advantages of each of the four basic types of alarm systems.
• Preplan for the normal property conservation emergency situations.

3 Credits 3 Weekly Lecture Hours

FST 220 Seminar Fire Science
This course is designed for advanced students and presents a series of topics only occasionally encountered. Much of the material is supplemental to previous course work. Students are expected to present a research project to the class.
Upon successful completion of this course, students should be able to:
• Depict the specific extinguishing properties of water, foam, concentrates and inert gases.
• Explicate procedures involved in electrical fires.
• Detail the types and legal aspects of fire alarm systems.
• Provide guidelines for fire operations at high-rise emergencies.
• Plan effective and motivating ongoing training for fire personnel.
• Delineate appropriate administrative techniques of budgeting, record keeping and preplanning for diverse emergency situations.

3 Credits 3 Weekly Lecture Hours

GER 102 Elementary German II
This course stresses progress in the speaking, writing and reading skills begun in GER 101 and promotes understanding of German culture. The mandatory use of laboratory tapes further develops listening and speaking skills.
Upon successful completion of this course, students should be able to:
• Respond in German to a representative number of daily situations.
• Produce with more accuracy the phonetic sounds of the language.
• Read familiar prose aloud in a manner acceptable to the fluent speaker.
• Carry out familiar requests made in German.
• Demonstrate increased command of vocabulary and elements of grammar.
• Briefly express ideas on a given topic.
• Recall familiar facts of German civilizations from reading assignments.
Prereq: GER 101

3 Credits 3 Weekly Lecture Hours

HIS 101 American History I
An inquiry into the history of the United States from the introduction of African and European peoples into the existing populations of the Americas through the period of the Civil War. Includes the cultural origins and initial interactions of African, European and Native American peoples in the Western Hemisphere and the initial phases of a global economy, British Colonization and the establishment of diverse cultures in North America, the Period of the American Revolution, Confederation and Constitution, the establishment of unique political, social and economic structures in the early Republic, cultural and political conflict between Free and Slave States, and the Civil War and Reconstruction.
Upon successful completion of the course, students should be able to:
• Explore variables of race, ethnicity, class, sexuality, and religious background to demonstrate the diversity of American cultural development in colonizing America and the early history of the United States.
• Discuss historical information regarding the foundation and formation of the United States to promote a global understanding of the interdependence of peoples and nations that can be used to create dialogue on meaningful and relevant events in their own place and time.
• Develop analytical skills through an evaluation of cause and effect of events from pre-Colonization to the Civil War to suggest how and why events happen based upon historical fact sets.
• Develop critical thinking skills through an explanation of the significance of historical information within varying contexts, theoretical models and methods.
• Explain the difference between types of evidence and interpretation to give students a clear understanding of how to use evidence and commentary from primary and secondary sources to develop interpretive frameworks on a variety of information types.
• Use social science methods and models to give students effective tools to compose their own interpretations in both oral and written formats.
Prereq: GER 101

3 Credits 3 Weekly Lecture Hours

HIS 110 World Civilizations I
An introductory history of the development of the world’s major civilizations to 1500. The course emphasizes the role of economic, social, and political change throughout the ancient and medieval periods of world civilization. Students will gain a greater understanding of the foundations of world civilizations and cultures.
Upon successful completion of the course, students should be able to:
• Think critically and analytically about the development and nature of separate world cultures created over several centuries.
• Explain the creation of the political, economic, social, and religious foundations and stratifications of civilization in the ancient period to 1500.
• Understand how societies devised different solutions to key difficulties in forging a durable civilization.
• Comprehend the role of geography and environment in the development of diverse civilizations.
• Understand the roots of the modern world through the examination of ethnic, racial, religious, gender, and socio-economic diversity of ancient world civilizations.
• Discuss the implications of early aspects of globalization in world history.
• Utilize information literacy of a variety of source material to examine and discuss world history.
Prereq: ENG 050 or equivalent and ENG 045 or ENG 050 or ENG 075; Coreq: ENG 089

3 Credits 3 Weekly Lecture Hours

HIS 120 American History II
An inquiry into the history of the United States from the Reconstruction to the present; includes the process of reconstruction of the Union and the rise of Jim Crow, post-Civil War industrialization, immigration and urbanization, the Western frontiers, the emergencies of the Labor Movement, United States diplomatic history, the Progressive Era, World War I, post-war prosperity and the Great Depression, New Deal policy and diplomacy, World War II, the Cold War, Vietnam, Civil Rights Movement and various social movements of the 1960s, the America in the a globalizing world in the latter part of the 20th century.
Upon successful completion of this course, students should be able to:
• Develop critical thinking skills to analyze the political, economic, diplomatic and military changes that have occurred from the Reconstruction to the present.
• Explore variables of Race, Ethnicity, Class, Sexuality, and Religious Background to demonstrate the Diversity of American Cultural Development.
• Extract facts and commentary from primary and secondary sources to compose historical interpretations in both oral and written formats.
• Discuss history historical information to promote an intellectual capacity to create dialogue on meaningful and relevant events in their own place and time.
• Analyze the development of the United States in a global framework.
Prereq: ENG 050 and REA 050 or REA 075 or pass test: Coreq: ENG 089

3 Credits 3 Weekly Lecture Hours

HIS 150 World Civilizations II
An introductory history of the development of the world’s major civilizations since 1500. The course emphasizes the role of economic, social, and political change throughout modern world history. Students will gain a greater appreciation for the interaction and interdependence of nations and cultures within the modern world.

Prereq: Fewer than two yrs H.S. German

3 Credits 3 Weekly Lecture Hours

(GER) German

GER 101 Elementary German I
The basic principles of pronunciation and grammar of the German language are covered and vocabulary dealing with everyday situations is emphasized. Listening and speaking skills are developed through laboratory practice and increased use of German in the classroom.
Upon successful completion of this course, students should be able to:
• Recognize the essential differences between the German and English pronunciation systems.
• Understand in oral and written form first-level content words and grammatical principles.
• Read aloud in German with due attention to principles of good pronunciation including word stress and intonation patterns.
• Produce appropriate pattern and sentence transformation.
• Write in dictation form with a reasonable degree of accuracy from materials that have been studied.
• Recall familiar facts of German culture from reading assignments.
Prereq: Fewer than two yrs H.S. German

3 Credits 3 Weekly Lecture Hours

(HIS) History

HIS 120 American History II
An inquiry into the history of the United States from the Reconstruction to the present; includes the process of reconstruction of the Union and the rise of Jim Crow, post-Civil War industrialization, immigration and urbanization, the Western frontiers, the emergencies of the Labor Movement, United States diplomatic history, the Progressive Era, World War I, post-war prosperity and the Great Depression, New Deal policy and diplomacy, World War II, the Cold War, Vietnam, Civil Rights Movement and various social movements of the 1960s, the America in the a globalizing world in the latter part of the 20th century.
Upon successful completion of this course, students should be able to:
• Develop critical thinking skills to analyze the political, economic, diplomatic and military changes that have occurred from the Reconstruction to the present.
• Explore variables of Race, Ethnicity, Class, Sexuality, and Religious Background to demonstrate the Diversity of American Cultural Development.
• Extract facts and commentary from primary and secondary sources to compose historical interpretations in both oral and written formats.
• Discuss history historical information to promote an intellectual capacity to create dialogue on meaningful and relevant events in their own place and time.
• Analyze the development of the United States in a global framework.
Prereq: ENG 050 and REA 050 or REA 075 or pass test: Coreq: ENG 089

3 Credits 3 Weekly Lecture Hours

HIS 150 World Civilizations I
An introductory history of the development of the world’s major civilizations to 1500. The course emphasizes the role of economic, social, and political change throughout the ancient and medieval periods of world civilization. Students will gain a greater understanding of the foundations of world civilizations and cultures.
Upon successful completion of the course, students should be able to:
• Think critically and analytically about the development and nature of separate world cultures created over several centuries.
• Explain the creation of the political, economic, social, and religious foundations and stratifications of civilization in the ancient period to 1500.
• Understand how societies devised different solutions to key difficulties in forging a durable civilization.
• Comprehend the role of geography and environment in the development of diverse civilizations.
• Understand the roots of the modern world through the examination of ethnic, racial, religious, gender, and socio-economic diversity of ancient world civilizations.
• Discuss the implications of early aspects of globalization in world history.
• Utilize information literacy of a variety of source material to examine and discuss world history.
Prereq: ENG 050 or equivalent and REA 050 or REA 075; Coreq: ENG 089

3 Credits 3 Weekly Lecture Hours

HIS 160 World Civilizations II
An introductory history of the development of the world’s major civilizations since 1500. The course emphasizes the role of economic, social, and political change throughout modern world history. Students will gain a greater appreciation for the interaction and interdependence of nations and cultures within the modern world.

Prereq: ENG 050 or equivalent and REA 050 or REA 075; Coreq: ENG 089

3 Credits 3 Weekly Lecture Hours

COURSES OFFERED
Upon successful completion of the course, students should be able to:

- Think critically and analytically the development and nature of separate world cultures created over several centuries.
- Understand the creation of a global community from 1500 through the twentieth century.
- Explain how societies devised different responses to globalization.
- Understand the creation of the contemporary world through analysis of the major historical themes from 1500 through the twentieth century.
- Comprehend the ethnic, racial, religious, gender, and socioeconomic diversity of global societies since 1500.
- Utilize information literacy and a variety of source material to examine modern world history.

College Academic Learning Goals Designations: Critical Reasoning (CR), Diversity and Social Justice (DJ) and Global Understanding (GU)

Prereq: ENG 050 and REA 050 or REA 075 or pass test: Coreq, ENG 099

3 Credits 3 Weekly Lecture Hours

HIS 190 History Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 3-120 hour internship will earn 2 college credits for this experience. Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

Upon successful completion of this course, students should be able to:

- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Demonstrate specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement to be developed in consultation with the CSEL instructor.
- Work closely with a faculty mentor in the student's program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

Prerequisites: To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty member within the discipline of the internship

Submitt an current resume to the Office of Student Employment Services

2 Credits 2 Weekly Lecture Hours

HIS 199 History Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 3-180 hour internship will earn 3 college credits for this experience. Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

Upon successful completion of this course, students should be able to:

- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Describe how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Demonstrate specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.

Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).

Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

Prerequisites: To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty member within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

3 Credits 3 Weekly Lecture Hours

HIS 200 Civil War and Reconstruction

This course encompasses the critical period of American history from 1850 to 1877. It examines the political, social, diplomatic and economic aspects of the Antebellum, Civil War and Reconstruction periods. It also emphasizes the military and naval activities of the time. Students will be introduced to scholarly writings and research about the primary and secondary sources dealing with the American Civil War and Reconstruction.

Upon successful completion of this course, students should be able to:

- Understand the causes, major events, and ramifications of the American Civil War and Reconstruction.
- Think and write critically and analytically about the political, social, diplomatic and economic issues concerning the American Civil War and Reconstruction, its causes, and its outcomes, with an emphasis upon the concepts of Modern War and Total War.
- Utilize information literacy to become familiar with scholarly literature and identify differing points of view on controversial political, social, diplomatic, and economic topics pertaining to the American Civil War and Reconstruction.
- Utilize information literacy to identify, read, comprehend and synthesize primary and secondary sources dealing with the political, social, diplomatic, and economic aspects of the American Civil War and Reconstruction.
- Evaluate the successes and failures of the American Civil War and Reconstruction with emphasis upon their significance in the issues of race, politics, and culture in American today.

College Academic Learning Goals Designations: Critical Reasoning (CR) and Diversity and Social Justice (DJ)

Prereq: ENG 050 or ENG 099 and REA 050 or REA 075 or pass test

3 Credits 3 Weekly Lecture Hours

HIS 201 African-American History

This course is an introductory survey course in black history. It exposes students to the roles played by Africans and people of African descent in world history.

Upon successful completion of this course, students should be able to:

- Trace African heritage and culture in both Africa and the United States.
- Evaluate the contributions and influence of African people in the development of Western Culture.
- Describe the experience and contributions of Afro-Americans in the United States.
- Assess the history of the African continent in terms of cultural, political and economic factors from the earliest periods to the present, including Sub-saharan-Islamic Africa, the pre-colonial era and post-World War II development.

3 Credits 3 Weekly Lecture Hours
HIS 224 History of the First World War
The purpose of this course is to familiarize students with the major causes, events, and ramifications of the First World War. Upon completion of this course, students will understand the problems that led to the conflict, the major events that shaped its outcome, and the effects of the war that still resonate today. Students will also be exposed to primary and secondary sources pertaining to the First World War.

Upon successful completion of this course, students should be able to:

- Demonstrate an understanding of the causes, major events, and ramifications of the First World War.
- Think and write critically and analytically about issues concerning the First World War, its causes, and its outcomes; with an emphasis upon the concepts of Modern War, Total War, and Global War.
- Utilize information literacy to become familiar with scholarly literature and identify differing points of view on controversial topics pertaining to the First World War.
- Utilize information literacy to identify, read, comprehend, and synthesize primary and secondary sources dealing with the First World War.

HIS 225 History of the Second World War
The purpose of this course is to familiarize students with the major causes, events, and ramifications of the Second World War. Upon completion of this course, students will understand the problems that led to the conflict, the major events that shaped its outcome, and the effects of the war that still resonate today. Students will also be exposed to primary and secondary sources pertaining to the Second World War.

Upon successful completion of this course, students should be able to:

- Demonstrate an understanding of the causes, major events, and ramifications of the Second World War.
- Think and write critically and analytically about issues concerning the Second World War, its causes, and its outcomes; with an emphasis upon the concepts of Modern War, Total War, and Global War.
- Utilize information literacy to become familiar with scholarly literature and identify differing points of view on controversial topics pertaining to the Second World War.
- Utilize information literacy to identify, read, comprehend, and synthesize primary and secondary sources dealing with the Second World War.
- Recognize how the Second World War still resonates in today’s global issues.

HIS 252 Women in History
This is a survey course in Women’s History. It will not only focus on the historical struggles to attain status but will also examine dominant thought within the discipline such as feminism, postmodernism, Womanist and global theories as related to women.

Upon successful completion of this course, students should be able to:

- Analyze the evolution of the biological, ideological and political subordination of women.
- Examine the different facets of social activism to achieve extension of academic and political rights.
- Investigate the dominant issues relating to women such as health, reproductive rights, employment and violence.
- Contrast the economic and social status women’s lives in different countries and the role of culture in determining their status.
- Explore the cultural expressions of women that give definition to their lives.

HIS 256 History of Modern Islam
A inquiry into the history of the Islam and the Middle East from the life of the Prophet Mohammed, through the cultural and political spread of Islamic peoples into Africa and Europe with the Caliphate, to the Islamic Renaissance of the Early Middle Ages, the Empires of the Ottomans, Safavids and Mo’ guls and into the 20th century with the rise of oil and secular states. The course will complement existing courses on the religion of Islam to show the intersection of religion with political and cultural institutions as they spread from the core Islamic lands in the Arabian Peninsula to the broader world.

Upon successful completion of the course, students should be able to:

- Assess the causes and effects of major events and developments within the Islamic World and the Middle East.
- Trace the origin and the early history of Islamic culture as an outgrowth of the life of the Prophet Mohammed and Arabic culture.
- Note the spread of Islam and the rise of extensive scientific, artistic and cultural development with the Islamic Renaissance of the Early Middle Ages, which will begin the expansion of the growth and prosperity of Western Civilization.
- Examine the Middle East’s role in energy production in the 20th century and how the beliefs of Islam inform economic policy in the emerging global economy.

HIS 235 20th Century World History
Twentieth Century World History is a course where students will closely examine many of the major events that have played a role in forming much of the contemporary world. Liberalism, Capitalism, Socialism and various forms of Nationalism will be explored through events like World War I and World War II, the Cold War and Post-Colonial liberation movements to show the progress and poverty of human civilization in its latest developments. The course ends with topics like the Internet and the War on Terror to shed light on the daunting of the 21st century.
Upon successful completion of this course, students should be able to:
- Appreciate the importance of tourism’s economic contribution
- Understand consumer travel behavior
- Achieve a personal philosophy of travel as a factor in life’s enrichment
- Understand basic tourism marketing principles and applicable technology
- Apply tourism supply/demand principles as the basic for policy and planning
- Distribution of destination services with emphasis on consumer orientation
- Study the tourism policy in the Delaware Valley region
- Identify possible career opportunities in this field

Prereq. ENG050 or ENG099, READ05 or READ75, MAT050
Test score

HRM 145 Sales and Marketing in Hospitality
In this course the student will learn to explain and apply the theory of successful hospitality marketing and sales. The topics of developing hospitality marketing and sales plans will be covered. The organization of the typical sales and marketing office within the corporate and individual property will be discussed. Various personal sales techniques such as selling, selling and upselling in the hotel/restaurant reservation and direct patron contacts will be explained. Marketing to all segments of tourism including social, education, government, fraternal, recreation and non-profit will be presented.

Upon successful completion of this course, students should be able to:
- Distinguish marketing from sales.
- Identify trends that affect marketing and sales in the hospitality industry.
- Identify and describe the key steps of a hospitality marketing plan.
- Summarize the duties and responsibilities of staff and management positions typically found in a lodging property marketing and sales operation.
- Perform the five steps of a hospitality presentation sales call.
- Explain effective telephone communication, email, technology (CRS) and social media for room and foodservice reservations.
- Describe internal marketing and sales promotion.
- Explain the role of hospitality advertising, public relations, and publicity.
- Explain how lodging and foodservice/restaurant are meeting the current needs of business including meeting planners.
- Identify considerations for marketing hospitality products and services to international travelers and other special segments such as social, education, domestic tourists, sports teams, and government travelers.
- Summarize trends affecting the food and beverage industry, and describe positioning strategies and techniques for restaurant and beverage operations.
- Explain how hotels market and sell to conventions, catered events and trade shows.

Prereq. HRM 100

3 Credits 3 Weekly Lecture Hours

HRM 155 Managing Lodging Operations
This course covers in detail the procedures of the hotel/motel front office, including the duties of the manager, desk agent, night auditor, reservations, credit and cash handling. Meaningful statistics and reports are examined. The interdepartmental roles including housekeeping, maintenance, security and other uniformed staff are discussed. The relationship between employees and guest, room design/layout and the future role of computers are presented.

Upon successful completion of this course, students should be able to:
- Develop a hotel organization structure.
- Use basic procedures of a room-reservation system.
- Apply specific knowledge of the lodging industry to careers.
- Register, assign, and assign guest rooms.
- Derive room-pricing strategies using various decision-making techniques.
- Communicate interdepartmentally using machines, terminology, symbols and racks.
- Prepare accounts and control cash using manual and machine procedures.
- Use basic procedures of the night audit.
- Prepare and use hotel statistical ratios.
- Apply basic knowledge of the use of computers.

Prereq. HRM 100

3 Credits 3 Weekly Lecture Hours

HRM 162 Laws of Innkeepers
This course is an applied approach to the legal responsibilities of the operational department heads in lodging properties and all areas of food service. Topics include room reservation contract law, torts, ADA requirements, Civil Rights legislation, tip credit reporting requirements, labor law, dram shop, PA Title 18, 47 and 36. All supervisors and department heads benefit from this practical approach to avoiding the legal problems in this industry.

Upon successful completion of this course, students should be able to:
- Outline the duties the law creates to protect guests and restaurant/hotel operators.
- Discuss areas where food service and lodging properties may be affected by federal, state and local regulations.
- Formulate guidelines related to Civil Rights laws.
- Identify specific management actions to avoid liability in areas of food and property.
- Establish legal guidelines with regard to employee selection, wages and union relations.
- Outline procedures to reduce crimes against the business.
- Outline tests for the legality and enforceability of contract requirements in food service.
- Establish legal practices of lodging and food-service franchising

Prereq. HRM 100

3 Credits 3 Weekly Lecture Hours

HRM 165 Managing Hospitality Human Resources
This course is designed to provide students with a basic understanding of human resources in the hospitality industry including labor cost forecasting, recruitment, selection, assessment of job performance, compensation and incentive pay programs and benefit plans for both supervisors and hourly employees. Students will discuss the role of collective bargaining on the industry.

Upon successful completion of this course, students should be able to:
- Describe the Equal Employment Opportunity Commission (EEOC); distinguish between EEOC laws and affirmative action.
- Describe how the results of job analysis are used to job descriptions and job specifications.
- Explain and apply methods for forecasting labor demand, and identify the advantages and disadvantages of internal and external recruiting.
- Describe the importance of the selection process, and identify the types of selection errors and biases managers must overcome when interviewing job applicants.
- Explain the purpose of an orientation program.
- Identify and describe the stages of the training cycle, and explain how a training needs assessment is developed and conducted.
- Describe the functions of performance appraisals.
- Describe types of compensation, and outline the major influences on compensation plans.
- Outline the steps and identify options for establishing pay structures and identify the characteristics and advantages of effective incentive programs.
- Describe the impact of the various Civil Rights laws on the industry.
- Describe four general categories of employees’ benefits and several factors to consider when developing benefit plans.
- Outline the reasons employees join unions.
- Identify mandatory, voluntary, and illegal collective bargaining issues.
- Describe how management should prepare for collective bargaining.
- Explain the purpose of the Occupational Safety and Health Act (OSHA), and describe the enforcement of OSHA standards and requirements.
- Describe the hospitality industry’s turnover problem, demonstrates how to calculate turnover rates, and identify the costs, causes and impact of turnover.

Prereq. HRM 100

3 Credits 3 Weekly Lecture Hours

HRM 199 Hotel and Restaurant Management Internship CSEL
Internship and/or College Sponsored Experimental Learning (CSEL) provides qualified, enthusiastic students with opportunities to receive academic credit for work experience in the hospitality field. Internships and/or CSEL combine classroom theory with practical, real-world employment experiences. Students participating in this 180 experience will earn 3 college credits for this experience.

Upon successful completion of this course, students should be able to:
- Develop, observe and perform technical skills as required in the hospitality work position assigned by employer.
- Develop, observe and perform interpersonal skills as required in the hospitality work position assigned by employer.
- Observe and use the equipment and technology used in the hospitality work position assigned by employer.
- Submit written reports and/or journals as required by the Office of Student Employment Services and supervising faculty.

Prerequisites:
Have earned 21 or more credits at DCCC
Have an overall average grade point average of 2.5
Obtain written recommendation from a DCCC instructor of Hotel and Restaurant Management or Culinary Arts
Submit an updated resume and application for this course to the Office of Student Employment Services

Prereq. HRM 100

3 Credits 3 Weekly Lecture Hours

HRM 253 Restaurant Management
The procedures, practices and methods of food service operational management are presented in detail. The following topics are discussed: menu planning, pricing, merchandising, food purchasing, receiving, storage, issuing, inventory and controls, kitchen supervision and design (workflow); employee training, labor cost/payroll analysis are topics of discussion.

Upon successful completion of this course, students should be able to:
- Apply organizational theory to the practical performance of management functions.
- Use internal operational controls.
- Plan and design a menu.
- Purchase, receive, store and issue food.
- Design and lay out the operational areas.
- Deliver prepared foods to consumers.
- Perform administrative tasks with regard to personnel.
- Promote and merchandise products and services of a food-service operation.

Prereq. HRM 100

3 Credits 3 Weekly Lecture Hours
HRM 254 Catering & Event Planning
This course emphasizes the use of standardized recipes, work improvement techniques, menu pre-costing/pricing in the planning of quantity foodservice operations. Discussions include catering, on/off premise event planning, sales and marketing practices and operational reports/record keeping. Students will plan a quantity food event.
Upon successful completion of this course, students should be able to:
• Use formulas in determining food yields and perform recipe conversions for large groups.
• Eliminate unnecessary work in a quantity food situation through the use of continuous process improvement.
• Use banquet/catering management practices, policies and procedures as they relate to banquet organizing, staffing, controlling and a large party/event.
• Explore the current computer software designed for catering management.
• Plan and cost a special event for a large event with meal
PreReq. HRM 100
3 Credits 3 Weekly Lecture Hours

HRM 255 Beverage Management
This is a course for those wishing to learn how to operate a beverage outlet and serve controlled beverages responsibly. This is not a bartending course. The course includes restaurant bar operations, hotel room beverage service, catering bar systems and beer distributors. The federal standards of identity under USCA 27 and Pennsylvania Law Title 47 and any appropriate criminal codes will be presented.
Upon successful completion of this course, the student should be able to:
• Make personal choices in career development and business decisions with regard to beverage management.
• Structure task performance within a beverage operation.
• Purchase, receive, store and issue beverages in accordance with generally accepted procedures.
• Properly use equipment, tools and terminology specific to beverage operations. Demonstrate the basic practices of mixology.
• Apply merchandising techniques within an overall marketing strategy of a beverage operation.
• Gather and apply information for internal control and operational decision making.
• Discuss third-party liability as affected by the environment of a beverage operation.
• Apply federal, state and local regulations/laws specific to beverage commerce.
PreReq. HRM 100
3 Credits 3 Weekly Lecture Hours

(HUM) Humanities

HUM 100 Introduction to Visual Arts
This course is designed to introduce students, through a broad overview, to the nature of art, the people who make art, the various forms art takes and to the importance of art in our everyday lives. Students consider the role of the artist in society and how that role changes historically. Issues such as aesthetics, creativity and perception, and what it means to be a visually literate patron of the arts will be explored. A thorough introduction to the visual elements and principles of design will help students to form some guidelines for analysis and criticism in such areas as drawing, painting, photography, film, video, sculpture, architecture, crafts, environmental design.
Upon successful completion of this course, students should be able to:
• Identify several themes and purposes of art.
• Identify the visual elements and apply them in analysis of various two-and-three dimensional media.
• Identify the principles of design in art.
• Apply principles of design and personal aesthetics to criticism and analysis of various art media.
• Demonstrate an understanding of a comprehensive list of terms common in the art world and apply those terms in written criticism.
• Demonstrate a knowledge of a variety of roles artists have assumed in society.
• Demonstrate a knowledge of the traits characteristic of these artists and their styles.
• Demonstrate a knowledge of tools, methods and materials used in a broad spectrum of two-and-three-dimensional media.
• Demonstrate a sense of the chronological history of the arts.
PreReq. ENG 100
3 Credits 3 Weekly Lecture Hours

HUM 110 Early Cultures to Renaissance
Humanism and the Global Community of Today
This course introduces students to the cultural legacy of the global community. In a historical context, students will survey the literature and the visual and performing arts of various societies from their pre-historic creative endeavors to their achievements in the Renaissance. Students will examine the various social, cultural, and religious institutions that emerged as men and women around the world struggled to cope with their environments. Basic theories, methods and practices of archaeology are introduced to assist students in their understanding of the early human experience.
Upon successful completion of this course, students should be able to:
• Understand the artistic, social, cultural and religious achievements of the first civilizations.
• Explain the historical and aesthetic development of various cultural patterns from pre-history to the Renaissance.
• Articulate the contributions of diverse peoples to literature, government, religion, visual and performing arts.
• Articulate the major aesthetic principles of poetry, prose, painting, music, architecture and sculpture within this time period.
• Trace the influences of these earlier cultures on the present day global community.
PreReq. ENG 050 or ENG 099 andREA 050 orREA 075 or placement test
3 Credits 3 Weekly Lecture Hours

HUM 120 Renaissance Humanism to Twenty-First Century Globalism
This course continues the survey begun in HUM 110 of the cultural legacy of the global community. In an historical context, students will survey the literature and the visual and performing arts of various societies from the Baroque (17th century) to the Post-Modern (21st century) period. Students will also examine the impact of science and technology, as well as the social and cultural realities in this period.
Upon successful completion of this course, students should be able to:
• Understand the artistic, social, cultural and religious achievements from the Baroque to the 21st century.
• Explain the historical and aesthetic development of various cultural patterns from the Baroque to the 21st century.
• Articulate the contributions of diverse peoples to literature, science, religion, visual and performing arts, and modern technology.
• Articulate the major aesthetic principles of poetry, prose, painting, music, architecture and sculpture within this time period.
• Trace the influences of these more recent cultures on the present day global
College Academic Learning Goals Designations: Diversity and Social Justice (DJ), Global Understanding (GU) and Written Communication (WC)
PreReq. ENG 100 with a “C” or better or placement test
3 Credits 3 Weekly Lecture Hours

HUM 121 Myth
This writing-intensive course surveys ancient and modern world myths that still have an impact on our self-concepts and/or inform our ideas of society, power, and social structure. Narrative myths are studied as well as their interpretations in visual art and music. Beginning with a focus on Babylonian and Egyptian mythology, the course uses literature, art, music and film to evaluate mythology’s place in helping us to understand the human condition and in understanding how humans perceive and structure society. Readings vary from semester to semester, but will include stories from major world mythologies, major world religions, various geographic regions, and various historical periods, for example Egyptian, Mesopotamian, Greek, Roman, Celtic, Germanic, Asian, North and South American, African, and Australian traditions.
Upon successful completion of this course, students should be able to:
• Analyze and interpret myths to gain an understanding of how they function and change within/across historical contexts, societies, groups, and cultures.
• Identify and paraphrase mythological themes and motifs that are universal across world cultures.
• Identify how mythic stories reveal and support social structures and cultural values.
• Compare aspects of myth-based fiction as seen in film, novels, popular culture, and television.
• Identify versions of myths in rituals, visual art, and music.
• Analyze in writing and discussion the differences between the original myths and their current manifestations.
• Demonstrate the concept of “storytelling” rights as these relate to power and prestige.
• Discuss in writing how myths/stories can construct ideas about race, socio-economic status, ethnicity, age, religion, gender, and sexual orientation and how stories can be used to institutionalize inequalities.
• Use elements of the writing process, produce a well-documented, well-researched final paper on an assigned topic in mythology.
College Academic Learning Goals Designations: Diversity and Social Justice (DJ), Global Understanding (GU) and Written Communication (WC)
PreReq. ENG 100 with a “C” or better or placement test
3 Credits 3 Weekly Lecture Hours

HUM 141 Film Language
This course is intended to engage students in analysis of the film medium, to help them relate the art of film to their lives and their language and to stimulate their appreciation of the visible world. The course includes a brief survey of film history, a study of the subject matter and bias of the documentary film and visible forms of poetry in the art film.
Upon successful completion of this course, students should be able to:
• Identify types of films.
• Recognize stages in film history.
• Identify elements of cinematic technique.
• Discuss the aesthetics of film.
• Recognize the existence of varying critical approaches.
• Recognize a good film.
PreReq. ENG 100 or permission of instructor
3 Credits 3 Weekly Lecture Hours

HUM 142 American Cinema
This introductory course in film studies surveys American motion pictures as an industry, a form of artistic expression and a powerful cultural and societal influence. Students taking this course as distance learning should be aware of its independent study aspects.
Upon successful completion of this course, students should be able to:
• Demonstrate a familiarity with American film history from the silent screen to the present.
• Demonstrate a knowledge of the basic technical and critical vocabulary of motion pictures.
HUM 160 Introduction to World Religions
This course introduces students to the five major religions of the world: Judaism, Christianity, Islam, Hinduism and Buddhism. We will read, research and discuss the historical, ethical and spiritual foundation of each religion, its beliefs and practices, in order understand its place in the perennial search for Truth and its relevance in the world today. The goal of this course is to set the stage for authentic inter-religious dialogue to prevent religious conflict and dogmatic discrimination.

Upon successful completion of this course, students will be able to:
- Explain the developmental stages of each of the five major religions.
- Evaluate the principal tenets of each of these belief systems.
- Describe the most important practices of each of these religions.
- Analyze the inter-relative or conflicting theological, social and historical tenets of the five religions discussed from a global perspective.
- Recognize how the tenets or beliefs of each religion fostered or hindered integration or separation within its cultural background and in comparison to the other religions discussed.

College Academic Learning Goals Designations: Critical Reasoning (CR), Diversity and Social Justice (DJ) and Global Understanding (GL)
PreReq: ENG 050 andREA 050 orREA 075 or pass test:
Coreq: ENG 099
3 Credits 3 Weekly Lecture Hours

HUM 162 Islam
This class is an in-depth analysis of the historical, religious, ethical and political foundations of ISLAM, including the life of the prophet Mohammed, the Qur’an and its various branches, especially Sufism.

Upon successful completion of this course, students should be able to:
- Improve their reading comprehension and writing skills.
- Improve their research skills (traditional and on-line).
- Understand the development and history of Islam.
- Understand the relationship between Islam and the other Judeo-Christian traditions.
- Recognize the important cultural and spiritual contributions of Islam.
- Describe the most important rituals and tenets of Islam.

PreReq: ENG 050 orENG 099 andREA 050 orREA 075 or pass test:
3 Credits 3 Weekly Lecture Hours

HUM 168 Buddhism
This class is an in-depth analysis of the historical, philosophical, religious and ethical foundations of Buddhism, including the life of Gautama Siddhartha, the three major branches of Buddhism (i.e. Theravada, Mahayana and Va-jrayana) and Buddhism in the West. Some basic meditation instruction will be included in the course.

Upon successful completion of this course, students should be able to:
- Conduct college-level research-traditional and online on the critical aspects of Buddhism.
- Understand the relationship between Buddhism and other religious traditions.
- Describe the essential aspects of Buddhist philosophy at the college level.
- Understand the historical development of Buddhism.
- Develop an informed approach to Buddhist culture and religion.

PreReq: ENG 100, HUM 160 recommended
3 Credits 3 Weekly Lecture Hours

HUM 205 Latino American Culture
This course provides an overview of the Latin-American cultural heritage. Based on elements from anthropology, culture (both folk and popular), film, folklore, language and linguistics, theater and drama, and literature, the course examines various cultural traditions within Latin-American society.

Upon successful completion of this course, students should be able to:
- Identify and describe significant events and factors that have characterized and influenced the various traditional, folk and popular cultures of Latinos residing in the United States.
- Identify major Latino personalities and their contributions to culture in the United States.
- Demonstrate the ability to describe the cultural experiences of Latinos as residents and citizens in the United States.
- Describe the contributions of Latinos to American culture.
- Apply course concepts and use appropriate terminology when describing the Latino cultural experience.
- Conduct a research project and make a presentation on a significant topic or issue relating to Latino-American culture.

Recommended Course: Latino-American History (HIS 253)
PreReq: ENG 100, HUM 160 recommended
3 Credits 3 Weekly Lecture Hours

HUM 212 The Art and Architecture of Renaissance Florence
Through an experiential approach, students will study the Renaissance as it flowered in Florence, the Italian city most associated with the birth of that cultural/historical era and its emphasis on humanism. Students will be introduced to the landmarks of Florentine history from its Roman beginnings to the Sixteenth Century. The study of Renaissance art and architecture will begin with an over-view of the ideas central to the Classical world and end with the transition to Mannerism. Classroom lectures will be the springboard to the on-site experience of art/architecture in both sacred and secular places. In addition to viewing art in museums and churches, students will be introduced to well-known cultural artifacts that mirrored everyday life in the palazzo as well as the more common Renaissance home. The changing role of the artist in society, the larger themes and purposes of art, the vocabulary of architecture and the principles of design will be topics of discussion, study and practice. The course is part of a study abroad experience. Living in Florence will provide students with a first-hand knowledge of the Florentine people who created part of the Italian culture.

Upon successful completion of this course, students should be able to:
- Identify major art and architecture achievements in Renaissance Italy.
- Define the term ‘patronage’ and articulate the role of the Medici as patrons of the arts.
- Identify the major works of Leonardo da Vinci, Michaelangelo and Raphael in the late 15th Century (Florence and Rome).
- Demonstrate a basic understanding of Brunelleschi’s perspective system.
- Articulate the difference between linear perspective and atmospheric perspective.
- Demonstrate a broad understanding of the Renaissance as a phenomenon in Renaissance Italy.
- Explain basic social, cultural, political and geographical conditions that caused the arts to flourish in Florence.
- Understand the chronological/historical development of art in Florence through both a study of theory and repeated encounters with the art on-site or in museums.
- Articulate the controversy over the impact of the Black Death on the art that followed it.
- Name and identify the 5 Orders of architecture known in the Renaissance.
- Understand the term “patronage” and articulate the role of the Medici as patrons of the arts.
- Explain how the Renaissance house became an outward symbol of status and wealth through its art and furnishing.
- Describe the role of ceramic ware in Renaissance culture.
- Explain the role of palace architecture in Renaissance cities.
- Recognize a variety of scenes from the life of Jesus Christ.

PreReq: ENG 100 or permission of the instructor
3 Credits 3 Weekly Lecture Hours

HUM 289 China Academic and Exchange Program
Enrollment in this special topics seminar is limited to students participating in the Widener/Chongqing Technology and Business University (CTBU) Study Exchange Program.

Delaware County Community College students are participants as part of the Widener University contingency. The seminar will be a combination of classes conducted at Widener University and at CTBU. Students will be introduced to some of the unique features of Chinese culture, including art, music, language, cinema, traditional medicine practices and cuisine. Mandarin instruction will involve listening and speaking exercises and Chinese characters recognition.

Students will also explore and critically analyze Chinese and Western perspectives on China’s current social and economic issues. Classes will also focus on preparing students for the academic and cultural exchange program experience. Students are required to travel to CTBU in China for three weeks in Summer I. Classes at CTBU will include Mandarin, martial arts, calligraphy and field trips to historical and cultural landmarks.
Note: This course is a pilot/special studies course that may or may not transfer. This course cannot be required as a prerequisite course or a program course. One section of this course will be offered in Spring 2017, Spring 2018 and Spring 2019.

Upon successful completion of this course, students should be able to:

- Master basic and useful Mandarin phrases.
- Understand and articulate unique features of Chinese cultural traditions.
- Understand and articulate major trends in contemporary economic, political, cultural, and social forces at work in China.
- Articulate and critically discuss media depictions of modern-day China, including its politics, economics, social values and practices.
- Develop and reflect your personal skills in context of international travel and global citizenship.
- Reflect upon and articulate your role in an intensive group international travel experience.

3 Credits 3 Weekly Lecture Hours

HUM 295 Mindfulness Education and Stress Reduction for College Students: The Art of Breathing

This is an inter-disciplinary, co-taught course that offers a systematic approach to stress reduction. It is also designed to help students to learn, study, experience and evaluate the numerous benefits of mindfulness practice, such as enhanced critical thinking, improved academic abilities, conflict resolution, increase in personal effectiveness in dealing with life stressors particular to college students. The course is taught by a team of humanities and nursing faculty and will include mindfulness practices, body work (yoga, Tai Chi, Chi Gong), scientific/clinical neurobiological data collection and evaluation and research on the connection between body and mind, as well as the historical and philosophical roots of mindfulness practice. Particular attention will be paid to teaching to reduce test anxiety, especially for high stakes testing for human strengths and challenges. The course explores the major policies and practices that are used to understand human service workers.

Upon successful completion of this course, students should be able to:

- Explain the historical foundation and current role of the Human Service Worker.
- Describe the structure and content of a professional helping relationship.
- Identify interventions based on the major case management and counseling models in the field of human services.
- Demonstrate the skills necessary for interviewing individuals in a social service or agency setting.
- Understand the limitations of implementing services in social service systems.
- Explain the impact of the shift of responsibility for social welfare programs from the federal, to the state, to the local government, in the United States.
- Demonstrate how knowledge of oppression, privilege, culture, racism, institutional racism, stereotypes, discrimination, and ethnic identity relate to the skills necessary to perform the tasks of a culturally competent human service worker.
- Plan and design an intervention program targeted to a specific population’s need for group services.
- Evaluate the ethical dilemmas surrounding the concepts of self-determination, mandated treatment, HIV/AIDS, child abuse, the right to die and class differences between the worker and the client.
- Identify the emotional and physical symptoms and causes of professional burnout along with the methods designed to prevent it.

Prereq. ENG 050 or ENG 099, PHS 050 or PHS 075 or pass test

3 Credits 3 Weekly Lecture Hours

HUM 201 Domestic Violence

This course is a one semester overview of the complexities underlying domestic violence in America, with a particular focus on Pennsylvania. Experts define domestic violence as behavior patterns that are purposeful, often violent and used to maintain power and control over an intimate partner. Students will examine the historical and cultural context and expanded definition of domestic violence along with the current best practices to prevent and eliminate this problem. This course is designed to enhance the knowledge of students interested in the field of social work as they critically evaluate the complex overlapping of family dynamics, work place concerns and other social problems with the impact of physical, sexual, emotional, economic and psychological abuse. Special attention will be paid to the current best practices designed to assist children, individuals, families and communities with the goals of safety and self-determination.

Preach. ENG 050, PHS 050, or PHS 075 or pass test

3 Credits 3 Weekly Lecture Hours

HUS 201 Domestic Violence

This course is a one semester introduction to human services and the major policies and practices that are used to understand human strengths and challenges. The course explores the skills, values and knowledge based needed to effectively work as a culturally competent, human service professional in a multidisciplinary setting.

Upon successful completion of this course, students should be able to:

- Define domestic violence, the cycle of violence and related concepts.
- Identify and explain the roles of the perpetrator, victim and bystander.
- Describe the support/benefits and limitations of the current legal and police responses to domestic violence incidents.
- Identify governmental and social services agencies available to assist victims, perpetrators and bystanders.
- Describe the structure, content and limitations of a professional helping relationship.
- Identify local agencies and models of strength-based interventions and treatment practices.
- Demonstrate knowledge of the functions of the various parts of refrigeration systems and refrigerant cycles.
- Interpret temperature charts and pressure-enthalpy relationships.
- Demonstrate understanding of piping layout and the relevant application considerations.
- Troubleshoot refrigerant problems.
- Apply computations for heat loss and heat gain.
- Conduct operational procedures such as pump down for refrigeration and air conditioning systems.
- Demonstrate awareness of workplace safety principles and practices.

Preach. HVA 100

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 101 Introduction to Heating, Ventilating, Air Conditioning and Refrigeration Electrical Fabrication

This course will provide a background and understanding of electrical installation, Ohm’s law, wire sizing, system controls, types of motors, AC/DC theory and understanding of the use of meters and equipment components associated with this field. The math necessary to perform the calculations in this course will be covered as an integral part of instruction. The course includes theory as well as practical shop applications.

Upon successful completion of this course, students should be able to:

- Define and analyze electrical circuit fundamentals.
- Identify circuit symbols on a schematic diagram or electrical charts.
- Apply Ohm’s law to resolve electrical issues when installing, servicing and testing electrical equipment and systems.
- Demonstrate the use of electric meters, their operation and application.
- Identify current carrying capacity of conductors.
- Use wire sizing charts to properly size conductors for system connections.
- Demonstrate knowledge of safety procedures when working on equipment.
- Analyze the types of motors used within the HVACR field, including both theory and operation.

Preach. HVA 050 or HVA 075 or pass test and HVA 104

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 103 Advanced Refrigeration and Air Conditioning

This course provides students with a background and understanding of residential, light and commercial refrigeration and air conditioning. The refrigeration cycle is reviewed and heat transfer discussed. Particular attention is placed on use of hand tools, techniques of installation and service of equipment.

Upon successful completion of this course, students should be able to:

- Demonstrate appropriate procedures for attaching refrigeration manifold to a refrigerator system.
- Position compressor service valves for variety of operations in refrigeration and air conditioning systems.
- Demonstrate knowledge of the functions of the various parts of refrigeration systems and refrigerant cycles.
- Interpret temperature charts and pressure-enthalpy relationships.
- Demonstrate understanding of piping layout and the relevant application considerations.
- Troubleshoot refrigerant problems.
- Apply computations for heat loss and heat gain.
- Conduct operational procedures such as pump down for refrigeration and air conditioning systems.
- Demonstrate awareness of workplace safety principles and practices.

Preach. HVA 100

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours
Upon successful completion of this course, students should be able to:

- Explain heat flow, change of state condensing point, vaporization point and laws of refrigeration.
- Describe knowledge of the types of commercial refrigeration systems and the integral components.
- Identify the common problems with valves, pressure switches, filters and dryers.
- Demonstrate the adjustment of the superheat and subcooling of refrigeration and air conditioning machines for maximum efficiency.
- Demonstrate understanding of psychrometric charts and its uses in air conditioning.
- Measure air flow.
- Diagnose common problems associated with air side residential and commercial air conditioning.

Prereq. HVA 101 and HVA 200

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 104 Practical Problems in Mathematics for HVAC&R Technicians

This course introduces basic mathematics for the HVAC&R student. The course includes whole and mixed numbers, fractions, decimals, ratios and proportions, basic trigonometry and Ohm’s law of electrical relationships. It covers direct and computed measure and presents the use of standard formulas, graphs and graphing. Emphasis will be placed on real practical applications.

Upon successful completion of this course, students should be able to:

- Solve problems using ratios and proportion.
- Calculate answers using standard HVAC&R formulas.
- Solve triangles using trigonometric ratios and the law of sines and cosines.
- Construct airflow charts from raw data and also interpret HVAC&R related graphs.

Prereq. MAT 050 or placement math test score

3 Credits 3 Weekly Lecture Hours

HVA 106 Basic Piping for Contractors

This course is an introduction to piping principles and practices as they apply to Heating, Ventilating, Air Conditioning, and Refrigeration. The course utilizes a variety of pipes, pipe materials, and fittings in the instruction of proper method of joining pipe and material lists, measuring, and assembly of manifolds. The students will develop the skills needed to work with drawings and testing procedures.

Upon successful completion of this course, students should be able to:

- Identify various types of pipes and fittings.
- Interpret and apply information contained in drawings and blue prints.
- Perform accurate measurements.
- Demonstrate procedures required for the HVAC&R pipe installation.
- Demonstrate the proper procedure for valve installation.
- Demonstrate appropriate procedures to test hydraulic and pneumatic pipe deficiencies.
- Demonstrate required safety knowledge.

Prereq. ENG 050 or ENG 099

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 107 Gas Heating

This course is designed to provide the relevant theory and skill to remove and install gas or oil heating systems. The topics of instruction will include but will not be limited to the basic system sizing selection of equipment recognizing the venting requirements for a new installation. Steps to follow for the safe removal of existing equipment will be discussed. Restate an understanding of NFPA 54 the NEC codes and the manufacturers installation instructions. Provides knowledge to perform basic electric wiring for the installation of heating equipment and how ductwork is assembled for hot air systems, the piping schematics, and components for hot water systems will also be presented.

Upon successful completion of this course, students should be able to:

- Perform a startup and check operation of the equipment.
- Understand basic heat loss calculation.
- Restate the two types of warm air systems.
- Recognize an up flow, and counter flow heater.
- Recognize operating and safety controls.
- Identify the function of each operating and safety control. Calculate air combustion.
- Calculate gas pipes.
- Identify NFPA guidelines for venting gas.

3 Credits 3 Weekly Lecture Hours

HVA 108 Duct and Sheet Metal Fabrication and Installation - Residential

This course is designed for students who plan a career in the heating, ventilation, and air conditioning industry. Topics covered in this course includes, but is not limited to, safety, duct takeoff, sheet metal calculations, costing, installation, heat loss/gain and blueprint reading.

Upon successful completion of this course, students should be able to:

- Read and use a duct factor chart.
- Utilize a duct takeoff form.
- Determine total weight of metal needed for duct.
- Utilize an installation takeoff form.
- Identify casting sheet metal duct, duct liner, and installation
- Fabricate air and splitter dampers and drivers.
- Cut openings in duct for take-off collars.
- Join duct sections.
- Apply the proper method of duct sealing.
- Apply external duct insulation.
- Utilize tools of the trade.
- Perform an oblique drawing of a duct system.
- Read a blueprint.
- Install grilles, registers, and diffusers.
- Install flexible connectors.
- Identify NFPA-54 guidelines for venting gas-fired appliances.
- Identify NFPA-31 guidelines for venting oil-fired appliances.

3 Credits 3 Weekly Lecture Hours

HVA 109 HVAC Troubleshooting

This course presents the sequence of operation in the troubleshooting of residential air conditioning and gas-fired warm air systems. The materials and lab demonstrations promote the safe use of electrical, temperature, and pressure gages to facilitate a system diagnosis and recommended solution.

Upon successful completion of this course, students should be able to:

- Collect and analyze data with the owner.
- Use proper tools safely to find problems.
- Operate the HVAC System to verify safe, efficient services.
- Record operating pressures, temperatures, airflow, and identification numbers.
- Develop a cost-effective plan of action.
- Demonstrate safe working habits.
- Troubleshoot flow charts.
- Identify low voltage systems.
- Identify diagram circuits.
- Utilize pressure gauges.
- Utilize electrical meters.
- Use combustion analyzer.
- Recognize system hazards.
- Review plan of action with owner.

Prereq. HVA 200, NAT 129 or MAT 151 or placement test scores

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 110 Hydronic Heating Systems

This course is an introduction to hydronic hot water heating. The course is designed to cover residential and light commercial systems, which involves many different piping disciplines. Also covered are design and building techniques of hot water heating systems.

Upon successful completion of this course, students should be able to:

- Review safety rules.
- Explain the principles of heat transfer.
- Detail boiler design and construction.
- Calculate heat loss/gain.
- Identify various heat distribution systems.
- Cite the different piping designs of hydronic heating systems.
- Cite the sequence of operation of a gas or oil fired hot water boiler.
- Cite the sequence of operation of a hydronic heating system.
- Service and replace hot water boilers.
- Service mechanical controls of a hydronic heating system.
- Identify and install appropriate venting.
- Analyze combustion procedures.

Prereq. HVA 112

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 111 Advanced Duct and Sheet Metal Fabrication/Installation - Commercial

This course is designed for students who plan a career in the HVAC industry. This course covers safety, duct take-off, duct support systems, installation techniques, duct design, sizing and layout, blueprint reading, and venting of heating appliances.

Upon successful completion of this course, students should be able to:

- Read a blueprint.
- Perform oblique drawings of a duct system.
- Know the difference between supply air and return air duct systems.
- Identify the different types of duct hangers, clamps, and connectors.
- Identify the need for duct reducers.
- Identify various duct sealing techniques.
- Cut a perfect 10-inch diameter hole in a duct.
- Connect various duct fittings.
- Make branch connections.
- Properly install flexible duct.
- Install flexible connectors.
- Perform an air test and balance.
- Apply external duct insulation.
- Apply and repair duct liner.
- Install grilles, registers, and diffusers.
- Identify NFPA-54 guidelines for venting gas-fired heating appliances.
- Identify NFPA-31 guidelines for venting oil-fired heating appliances.

Prereq. HVA 108

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

HVA 112 Oil Burners and Hydronic Steam Heating

This course is an introduction to oil burners and hydronic steam heating. The course covers the history of oil burners and their technological growth to present day in residential and light commercial appliances. Also discussed are petroleum crude, refinement, and distillation into light grade fuel oil. This course also covers techniques in designing and building of steam heating systems.
HVA 201 Refrigerant Certification
This course will instruct the students about the harmful effects of chlorofluorocarbons on the ozone, production limitations and phase-out of CFCs and HCFCs, and recycle, reclaim and recover. The course also prepares students to take EPA national certification exam.
Upon successful completion of this course, students should be able to:
• Detail the chemical properties of CFCs and HCFCs.
• Demonstrate understanding of the Montreal protocol and the regulations established by the international community concerning refrigerants.
• Demonstrate understanding of the U.S. Clean Air Act and the limits and prohibition of CFCs and HCFCs.
• Set up record keeping and documentation for refrigerant management program. Demonstrate understanding of how to recover, recycle and reclaim equipment.
• Demonstrate understanding of how to service refrigeration and air conditioning without venting refrigerant into the atmosphere.
PreReq. HVA 100
2 Credits 1 Weekly Lecture Hours
2 Weekly Laboratory Hours

HVA 202 Oil and Gas Burner Service
This course includes review of heat transfer products and their use in institutional and commercial equipment. High efficiency heating equipment, principles and operation, sequence of operation and oil and gas burner technology will be addressed.
Upon successful completion of this course, students should be able to:
• Explain principles of combustion.
• Identify three methods of heat transfer.
• Demonstrate the knowledge of the principles of convection of high-efficiency heating equipment.
• Demonstrate knowledge of the furnace design and construction.
• Identify potential venting problems with high-efficiency equipment.
• Demonstrate knowledge of hydronic heating-system components and design. Service oil and gas burners.
2 Credits 1 Weekly Lecture Hours
2 Weekly Laboratory Hours

HVA 203 Heat Pumps
This course is designed to present practical fundamentals, recommended service procedures and start-up of heat-pump systems. The course is structured to introduce the basics of each topic and then move into the more technical aspects of the topic. Topics covered include troubleshooting, standard service procedures and earth-coupled, water source heat-pump systems.
Upon successful completion of this course, students should be able to:
• Demonstrate understanding of the operation of a heat pump.
• Demonstrate understanding of heat-pump components and control.
• Detail the operation of air-source and ground-source heat-pump systems.
• Perform calculations necessary for proper heat-pump system design.
• Demonstrate installation and start-up of a heat-pump system.
• Troubleshoot a heat-pump system.
3 Credits 2 Weekly Lecture Hours
2 Weekly Laboratory Hours

HVA 204 Blueprint Reading for HVAC
This course presents fundamentals in the understanding and use of basic HVAC drawings and schematics to determine construction drawings to determine methods and materials of light construction. Emphasis is placed on architectural symbols, use of scales and orthographic projection.
Upon successful completion of this course, students should be able to:
• Define multimedia and identify its components.
• Demonstrate a fundamental knowledge of the Internet.
• Examine the ADDIE model for developing effective multimedia programs and web sites.
• Identify the latest multimedia/Internet hardware and software requirements. Determine how and where multimedia and Internet technologies are used in society.
• Use digital technologies to capture images.
3 Credits 1 Weekly Lecture Hours
2 Weekly Laboratory Hours

HVA 206 Industrial Piping
This course provides a logical succession for the topics covered in HVA 106. In essence, this course introduces the student to additional variables of pipe materials, pipe connectors and systems used as conductors for various materials within varied industrial facilities. Instruction will be given in the selection, installation and proper use of the different types of materials available as industrial piping. General shop safety and health, accident protection practices and procedures and OSHA/EPA requirements for the proper use of tools, ladders and hi-bay lifts for the installation, repair and replacement of piping system components will also be addressed.
Upon successful completion of this course, students should be able to:
• Utilize appropriate terminology for the description of piping systems, components, devices and tools and for installation and repair.
• Calculate costs and savings associated with varied types of piping systems.
• Identify, select and install proper pipe for various applications, including cast-iron, copper, PVC and other plastics' composites, stainless and other alloy steels.
• Investigate the correct use of water pipes (1/2”-3” in diameter) and effect field or shop installations or repairs.
• Determine the correct application size and pressure rating for Wirsobo (PRO-PEX), Victaulic and LOKRING piping materials and devices.
• Install, repair and list types of pipe and fittings with the appropriate tools.
• Prepare job plans for the installation and repair of various piping systems.
• Apply safety/health/accident protection practices and procedures for inspection/Installation/repair of various piping systems.
• Employ proper methods for cutting steel, cast-iron, various plastics and stainless steel pipes and tubing.
• Prepare and install stainless steel pipe and fittings for food processing and pharmaceutical applications.
• Select a type of piping material with regard for application and system pressure.
• Utilize a T-2001 System for pipe installation and/or repair.
PreReq. HVA 106, TME 115
2 Credits 1 Weekly Lecture Hours
2 Weekly Laboratory Hours

(IMM) Interactive Multimedia

IMM 110 Multimedia Graphics & Design
This course provides an introduction to multimedia, the Internet, the multimedia design and development process, the principles of design, and an in-depth exploration of digital imaging. Students learn to utilize Adobe Photoshop to create and edit professional-looking graphics for use in multimedia and web applications.
Upon successful completion of this course, students should be able to:
• Define multimedia and identify its components.
• Demonstrate a fundamental knowledge of the Internet.
• Examine the ADDIE model for developing effective multimedia programs and web sites.
• Identify the latest multimedia/Internet hardware and software requirements. Determine how and where multimedia and Internet technologies are used in society.
• Use digital technologies to capture images.
IMM 120 Web Page Design and Development

This course introduces students to publishing on the World Wide Web (WWW) using HTML, Cascading Style Sheet (CSS), and Adobe Dreamweaver. Students gain hands-on experience in creating web pages that include text, images, sound, video, animation and basic JavaScript. The history of the Internet and WWW along with accessibility, universal design, responsive design, and careers in web development are also researched and explored.

Upon successful completion of this course, students should be able to:

- Describe the history of the Internet and World Wide Web as a communication and marketing tool.
- Identify the hardware, software, and networked environment necessary to support the development and maintenance of a website.
- Use HTML elements to create web pages that include links, lists, multimedia, forms and tables.
- Demonstrate the ability to manipulate images for inclusion in web pages.
- Use basic JavaScript to add interactivity to web pages.
- Use CSS to format and layout web pages.
- Design websites to provide accessibility.
- Design websites that apply universal design concepts.
- Research and explore careers and education in web development.
- Generate design and development documents for a website.
- Demonstrate a working knowledge of standard HTML, and CSS to create web pages.
- Demonstrate a working knowledge of responsive web design.
- Use Adobe Dreamweaver to design and develop web pages.
- Upload files to a web server and maintain websites on a web server.

Prereq. DPR 100 or DPR 101

3 Credits 3 Weekly Lecture Hours

IMM 200 UX Design

User experience (UX) design is a discipline concerned with all the elements that together make up the user interface, including layout, visual design, text, brand, sound and interaction. (Source: User Experience Professionals Association).

This course introduces multi-device design strategies for navigation, screen layout, and interactive content. Learn how to apply interaction design principles to your apps and web sites to create experiences that are engaging, accessible and usable. Follow a user-centered design process for analyzing, planning, and designing user experiences. Map user needs to your proposed UX design solution with scenarios, storyboards and prototypes. Gain insight on how to incorporate accessibility into your design process to increase accessibility to all people, including those with disabilities.

Upon successful completion of this course, students should be able to:

- Identify and apply an interactive design process model.
- Design applications employing user-centered design techniques.
- Analyze techniques for ensuring compliance with accessibility guidelines.
- Use rapid-prototyping tools to develop user interfaces that utilize interface design standards.
- Apply visual principles such as layout, color, iconography, imagery and typography to maximize the UX experience.
- Identify career paths, academic programs and training opportunities in the field of User Experience Design.

Prereq. IMM 110 and IMM 120

3 Credits 3 Weekly Lecture Hours

IMM 201 Audio and Video for Multimedia

This course provides students with the skills needed to create and edit digital audio and video. There is an emphasis on planning, copyright, workflow, digital capture, editing and delivery alternatives. Students learn to utilize audio and software to deliver professional audio and video for use in multimedia and web programs.

Upon successful completion of this course, students should be able to:

- Research and evaluate legal issues involving copyright and multimedia production.
- Identify equipment specifications for audio and video production.
- Demonstrate proficiency in audio and video planning and acquisition.
- Demonstrate the use of audio software to record and edit sound/music/voice.
- Demonstrate the ability to capture audio and digital video.
- Demonstrate the use of video software to record and edit digital video.
- Demonstrate proficiency in audio and video output and dissemination.
- Demonstrate how audio and video can be integrated with other elements such as texts, graphics, and animation for use in multimedia and web programs.
- Create and package a multimedia project that incorporate audio and video.

Prereq. DPR 100 or DPR 101

3 Credits 3 Weekly Lecture Hours

INT 100 Introduction to Industrial Systems Technologies

This is a hands-on introductory course intended to acquaint students with basic skills and knowledge required as a part of the Industrial Systems Technology program.

This course is specifically designed to provide knowledge and skills required for installing, maintaining, and replacing various process equipment and systems. Specific instruction in this class will cover moving and rotary equipment including terminology, function, components and purpose.

Upon successful completion of this course, students should be able to:

- Identify motion equipment such as conveyors, pumps, drives, gears, etc.
- Select and install appropriate fasteners such as nuts, bolts, snap rings, pins, etc.
- Describe the principles of operation of various motion equipment.
- Demonstrate proficiency in the use of various tools and equipment as it relates to a manufacturing or an industrial processing system.
- Describe and demonstrate various methods of shaft alignment.
- Research and explain manufacturer’s specifications, i.e., installation, operation, maintenance, service and repair.
- Define the criteria for measurement, usage, and application of various measuring instruments commonly found in industrial facilities.
- Interpret and use Process and Instrumentation Diagrams (P&ID’s) for various pieces of mechanical equipment, to include instrumentation, piping and other devices.
- Describe equipment maintenance with regard to planning, scheduling, selection of parts, power and hand tool requirements with a strong emphasis on environmental, accident prevention, and health issues.
- Select the proper tools, equipment and instruments to install and align a drive unit and coupling.
- Compare and contrast belt, chain and gear drives.
- Calculate various drive ratios for speed and torque.
- Classify industrial drive systems and their applications.
- Utilize manufacturer’s specifications to determine replacement parts.
- Analyze lubrication and packing seals to assure appropriate equipment performance.
- Plan, schedule and employ practical preventive maintenance for various pieces of equipment as part of an industrial system.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 and MAT 050

3 Credits 3 Weekly Lecture Hours

IST 101 Industrial Drive Systems

This course is designed to present the theory and practical applications associated with industrial drive systems. Specific instruction will be placed on the demonstration of knowledge and skills required of an Industrial Systems Technician. Students will learn how to analyze, operate, install, troubleshoot and maintain various mechanical systems utilizing belts, chains and drive shafts, and associated components such as bearings, seals, gears, couplings, sprockets, keys and linkages. Heavy emphasis is placed on mechanical drive arrangements where practical solutions are required. Students will also become familiar with drive units and speed control systems.

Prereq. REA 030 or placement test score

3 Credits 3 Weekly Lecture Hours
Upon successful completion of this course, students should be able to:

• Describe the terminology, design, function, and components of both belt and chain driven systems.
• Explain the function of cogged belts, and synchronous belts and their applications.
• Compare the varied types of drive and speed control systems used in industry.
• Define various types of chain lubrication methods, and demonstrate how to maintain each.
• Compare various types and applications of gera drives and their applications.
• Perform calculations involving ratios, shaft speed, and torque for a gear train drive system.
• Describe the function of chain drive components within various types of chain drive systems, and specify a system for a given application.
• Select the appropriate belts, pulleys, chains and sprockets for a specific system installation.
• Describe the function, operation, safety features, lubrication, and maintenance requirements of a material handling conveyor system.
• Calculate pulley ratios as well as shaft speed and torque associated with a belt drive system and determine belt deflection for a given application.
• Calculate conveyor belt length and linear speed using multi-methods.
• Conduct job planning and perform routines to include lockout and tag out procedures for varied pieces of industrial process control equipment.
• Install and align a conventional v-belt drive system, a multi-belt drive system and describe the methods for measuring belt tension.
• Remove and install a chain sprocket and set chain sag for a given application.
• Demonstrate the installation and alignment of a single, and a multiple chain drive system.
• List various coupling design categories, and demonstrate coupling alignment using rim, face indicator methods.
• Specify, install, operate, troubleshoot and maintain a flat belt conveyor system.
• Start-up and operate a manually controlled processing system, an open loop control system, and a closed loop control system.
• Troubleshoot belt drive, chain, and coupling systems.

Prereq: IST 100 Coreq: TME 115 and IST 105

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

IST 190 Industrial Systems Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience.

To be eligible for an internship, students must:
• Complete a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5

Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student's program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

2 Credits

IST 191 Industrial Systems Interpretations

This introductory course in blueprint reading prepares students to interpret mechanical, electrical and commercial architectural drawings and plans. Students learn about the different types of graphic representations in the electrical, mechanical and commercial construction trades, as well as how these drawings are related to the job requirements of an Industrial Systems Technician. The course will cover mechanical drawings, orthographic projections, dimensioning, use of symbols, wiring and control diagrams, piping and electrical distribution systems, and commercial construction building site plans. Emphasis will be placed on the understanding, interpretation, and application of drawings.

Upon successful completion of this course, students should be able to:

• Define the purpose and use of symbols as well as the terminology associated with industrial system drawings.
• Relate the meaning of line types, dimensions, views and sections, orthographic projection, notes, etc.
• Describe mechanical details, components, and assemblies.
• Interpret electrical schematics, to include single line, full wiring, and electrical ladder diagrams.
• Describe building wiring, conductor color coding, phase color coding and termination schemes.
• Read drawings of lighting, electrical, and piping distribution systems as well as AC control circuits.
• Create and utilize HVAC, wiring, and plumbing schematic diagrams.
• Apply schedules, site plans, and construction specifications as part of job planning requirements.
• Analyze records, reports and other documentation.
• Prepare reference documents as per in-the field installation, repair or replacement requirements.
• Conduct material take-off and basic estimating routines utilizing drawings.

Prereq: none

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

IST 194 Industrial Systems Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:
• Have completed a minimum of 18 or more credits within the last 5 years
• Have begun course work in their major (at least 9 credits)
• Have an overall grade point average (GPA) of 2.5

Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student's program/major to complete a project which articulates how the experience helps the student achieve program outcomes.

3 Credits
IST 200 Pumping Systems
This course provides students with basic skills and knowledge associated with the theory of industrial pumping systems, to include various pumps and system terminology, classification, specification, identification, installation, operation, troubleshooting and maintenance. Theoretical and laboratory instruction in this course provides students with a complete introduction to pumping system function, selection, sizes, dynamics and applications. Topics of coverage will emphasize flow, pressure, metering, valves, piping, single and multi-stage pumps, as well as inlet and discharge designs. A heavy emphasis will be placed on installation, routine and preventative maintenance, and troubleshooting of systems.
Upon successful completion of this course, students should be able to:
- Define and describe the function of a pump, and give an application.
- List and define various categories and types of pumps and their applications.
- Utilize appropriate terminology associated with pumps and pumping systems.
- Explain the dynamics of a pumping system.
- Interpret and explain manufacturer’s pump specifications and pump curves.
- Define pump efficiency and explain its significance to overall system operations.
- Describe the function, purpose, and applications of series and parallel pumping systems.
- Specify fluid properties relative to pump selection and operation.
- Describe the installation of a single stage pump, to include sizing specifications and measurements.
- Describe the purpose and proper use of a flow meter.
- Calculate flow velocity and describe the relationship between pressure and head.
- Explain cavitation in a pump system, as well as corrective actions.
- Identify and configure pump motors and drives.
- Determine and select measurement instruments, tools, anchors, shims, fittings, valves, piping, and gasket materials required to install a pumping system.
- Calculate pump efficiency and make proper adjustments (as applicable).
- Describe suction, discharge, and total head and demonstrate the use of pressure and vacuum gauges.
- Install a centrifugal pump using manufacturer’s specifications.
- Identify, specify, and replace packing and mechanical seals.
- Start-up, inspect, maintain and troubleshoot a pump.

MAT 025 Arithmetic Review
This course is designed for students who wish to strengthen their basic arithmetic skills. Arithmetic topics include addition, subtraction, multiplication and division of whole numbers, and multiplication and division of whole numbers. Students will strengthen their skills during their required class sessions using interactive computer software combined with personalized, on-demand assistance.
Upon successful completion of this course, students should be able to:
- Add and subtract single digit whole numbers.
- Multiply and divide single digit whole numbers.
- Add and subtract whole numbers.
- Multiply and divide whole numbers.

MAT 050 Mathematics Review
This course is designed for students who wish to strengthen their arithmetic skills and introductory algebra skills. Arithmetic topics include fractions, mixed numbers, decimals, ratio and proportion, percent, and real numbers. Introductory algebra topics include linear equations, linear inequalities, graphing linear equations, and polynomials.
Upon successful completion of this course, students should be able to:
- Add, subtract, multiply, and divide fractions.
- Write in words or numerals, add, subtract, multiply, divide and round decimals.
- Convert fractions, decimals, and percents.
- Solve problems using ratios, proportions, and percents.
- Evaluate, translate, and simplify algebraic expressions and use properties to add, subtract, multiply, and divide real numbers.
- Solve linear equations and inequalities in one variable.
- Graph linear equations in two variables.
- Add, subtract, multiply, and divide polynomials.

ITA 100 Elementary Italian I
Introduces the basic principles of pronunciation and grammar essentials of the Italian language. Continuing emphasis on development of listening and speaking skills.
Upon successful completion of this course, students should be able to:
- Recognize the essential differences between the Italian and English pronunciation systems.
- Understand in oral and written form first-level content words and grammatical principles.
- Read aloud in Italian with due attention to principles of good pronunciation including word-stress intonation patterns.
- Produce appropriate pattern and sentence formations.
- Write in dictation form with a reasonable degree of accuracy from materials that have been studied.
- Recall familiar facts of Italian and European civilizations from reading assignments.

ITA 101 Elementary Italian II
A continuation of Elementary Italian I with introduction to reading short cultural and practical essays. Weekly laboratory practice extends the basis for understanding the spoken language.
Upon successful completion of this course, students should be able to:
- Respond in Italian to a representative number of daily situations according to dialogues illustrated.
- Produce with more accuracy the phonetic sounds of the language and include the correct rhythm, stress and linking components.
- Read familiar prose aloud in a manner acceptable to the fluent speaker.
- Carry out familiar requests made in Italian.
- Demonstrate increased command of vocabulary and elements of grammar.
- Express briefly ideas on a given topic when guidance is offered.
- Recall familiar facts of Italian and European civilizations from reading assignments.

MAT 120 Modern College Mathematics
This course is designed to give students in the non-science fields an appreciation of and experience in using problems solving techniques, deductive and inductive reasoning, logical reasoning and symbolic logic to solve problems in a variety of disciplines. It also gives students an overview of the history of the number systems of various cultures, and reviews and reinforces the use of Algebra to solve problems in different fields of study OR uses ratios, proportions and percents to solve consumer-related problems.

College Academic Learning Goal Designation: Quantitative Reasoning (QR)
Upon successful completion of this course, students should be able to:
- Use the notation and operations of set theory.
- Use inductive and deductive reasoning and symbolic logic as appropriate to draw a logical conclusion from given information.
- Represent numbers from different number systems and add, subtract, multiply and divide in numeral systems other than base ten.
- Plus, two of the following three competencies:
  - Analyze the real-number system and apply it to real world problems.
  - Use linear equations and inequalities using algebraic and graphic techniques and apply those techniques to real world problems.
  - Use ratios, proportions and percents to solve consumer-related problems.

MAT 125 Mathematics for Teachers of Children I
This course emphasizes both the clear understanding of mathematical ideas and especially the ability to communicate these ideas to elementary school children. Using various mathematical models this course covers the following topics: sets, whole numbers, numeration, estimation, number theory, fractions, decimals, integers and proportion. This course is designed primarily for students pursuing Early Childhood Education (Pre-K-4th grade) or Middle grades (4-8th grade) teacher certification, but may be elected by other education majors.
MAT 135 Business Precalculus
This course is designed primarily (but not exclusively) for Business Majors. Topics include graphing and solving problems using linear, quadratic, rational, square root, log, and exponential functions, solving systems of equations, performing operations on matrices, linear programming, and applications from business and economics.
Upon successful completion of this course, students should be able to:
- Graph and solve problems using linear, quadratic, polynomial, rational, and square root functions.
- Graph and solve problems involving the log and exponential functions.
- Perform operations on matrices.
- Find the optimal solution of a linear programming problem using the graphing method of two variables.
- Apply the mathematical properties of lines, matrices, and exponential and log functions to business and economic problems.

Prereq. MAT 050/060 or test score
3 Credits 3 Weekly Lecture Hours

MAT 136 Business Calculus
This course is designed primarily (but not exclusively) for Business majors. Topics include limits differentiation, and integration. Applications include maxima-minima and problems in management and economics.
Upon successful completion of this course, students should be able to:
- Calculate the derivatives of certain algebraic functions, and products, quotients, and compositions of such functions.
- Apply the concepts of calculus to optimization problems and consumer and producer surplus.
- Calculate the derivatives of exponential and logarithmic functions.
- Integrate exponential, certain algebraic functions, and some combinations of these functions using substitution.

Prereq. MAT 135
3 Credits 3 Weekly Lecture Hours

MAT 151 College Algebra
This course is intended primarily for those students who are majoring in science, engineering, or mathematics. Together with Precalculus, it prepares students for Calculus I. Topics covered include solving equations (linear, quadratic, radical, polynomial, rational, and absolute value), solving inequalities (linear, polynomial, rational, and absolute value), operations in the Rectangular Coordinate System and the Complex Number System, basic function operations (domain, range, graphing, arithmetic, composition and inverses), and functions (linear, quadratic, polynomial, rational, exponential and logarithmic).
Upon successful completion of this course, students should be able to:
- Perform operations in the Complex Number System
- Solve equations and inequalities
- Perform operations in the Rectangle Coordinate System
- Define, evaluate, perform operations and graph functions
- Analyze polynomial functions
- Analyze rational functions
- Analyze exponential and logarithmic functions

College Academic Learning Goal Designation: Quantitative Reasoning (QR)
Prereq. MAT 100/128 with grade ‘C’ or better or test score
4 Credits 4 Weekly Lecture Hours

MAT 152 Precalculus
This course is intended primarily for those students who are majoring in science, engineering, or mathematics. Together with College Algebra, it prepares students for Calculus I. Topics covered include trigonometric functions, analytic trigonometry, triangle applications of trigonometric functions, analytic geometry, systems of equations, and sequences and series.
Upon successful completion of this course, students should be able to:
- Analyze trigonometric functions.
- Apply analytic trigonometry.
- Use trigonometric functions to solve applied problems.
- Apply analytic geometry.
- Solve systems of equations.
- Analyze sequences and series.

College Academic Learning Goal Designation: Quantitative Reasoning (QR)
Prereq. MAT 151 with grade ‘C’ or better or test score
4 Credits 4 Weekly Lecture Hours

MAT 160 Calculus I
This course is designed for students in the field of science and engineering. It includes the concept of limit, the rate of change of a function, derivatives, limits of sums, integrals, and applications of differentiation and integration. Calculus I is an appropriate math selection for the students interested in STEM careers and may also be applied to most other majors. It serves as a prerequisite for further mathematics courses and the University Physics sequence.
Upon successful completion of this course, students should be able to:
- Use the concept of limit.
- Differentiate functions.
- Use differential calculus to sketch curves and to solve applied problems.
- Integrate functions by approximation and by use of the antiderivative.
- Use integral calculus to determine area and to solve applied problems.

College Academic Learning Goal Designation: Quantitative Reasoning (QR)
Prereq. MAT 141/150/151 with grade ‘C’ or better or test score
4 Credits 3 Weekly Lecture Hours 4 Weekly Lecture Hours

MAT 161 Calculus II
This course is a continuation of Calculus I, MAT 160 and it is designed for students in the fields of science and engineering. It includes transcendental functions, methods of integration, improper integrals and L'Hospital's rule, conic sections, parametric equations, polar coordinates, dot and cross products of vectors, and vector calculus in two-and three-dimensional space. Calculus II is an appropriate math selection for students interested in STEM careers and may also be applied to most other majors. It serves as a prerequisite for further mathematics courses and for University Physics II (PHY 132).
Upon successful completion of this course, students should be able to:
- Differentiate and integrate using transcendental functions.
- Integrate functions using special methods.
- Relate functional and geometric properties of conic sections, curves given in parametric form, and polar curves.
- Use vectors to solve 2-space and 3-space geometrical problems.
- Use vector-valued functions to describe motion in space.

Prereq. MAT 160 with a grade of C or higher
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours
MAT 200 Linear Algebra
This course is designed primarily for engineering computer science and math students planning to transfer to four-year institutions. The topics include systems of linear equations, matrices, determinants, vectors, vector spaces, linear transformations, eigenvalues and applications.

Upon successful completion of this course, students should be able to:
• Perform matrix operations including addition, multiplication and finding the inverse.
• Solve systems of linear equations using matrix methods.
• Find the value of determinants using the methods of cofactors.
• Solve systems of linear equations using determinants and Cramer’s Rule.
• Perform vector arithmetic in two space and three space.
• Determine whether a set with the operations of addition and scalar multiplication forms a vector space.
• Determine a basis for a vector space.
• Use linear transformations to map vectors from one vector space into another.
• Find the eigenvalues of a matrix.
• Apply linear algebra to the solution of problems in mathematics.

Prereq. MAT 161
3 Credits 3 Weekly Lecture Hours

MAT 210 Statistics
This course is designed to give students a tool as well as a language in which they can better understand and analyze the data with which they work and make decisions based on their analyses. It will employ algebra in deriving measures of central tendency and variability for various discrete and continuous distributions and will include the study of the following additional topics: descriptive statistics, inferential statistics, The Central Limit Theorem, the Normal Distribution and its applications, sampling distributions, hypothesis testing, interval and point estimation, confidence intervals, the Chi-square test with contingency tables, linear correlation and regression, analysis of variance, non-parametric statistics, The Central Limit Theorem, the Normal Distribution and its applications, sampling distributions, hypothesis testing, interval and point estimation, confidence intervals, the Chi-square test with contingency tables, linear correlation and regression, analysis of variance, non-parametric statistics, The Central Limit Theorem, the Normal Distribution and its applications, sampling distributions, hypothesis testing, interval and point estimation of population parameters, the Chi-square test with contingency tables, linear correlation and regression, analysis of variance, non-parametric statistics, and applications of statistics in various disciplines.

Upon successful completion of this course, students should be able to:
• Recognize the role of statistics in critical thinking and its applications using descriptive and inferential statistics.
• Use statistical measures of central tendency and statistical measures of variability to describe, represent and analyze data.
• Solve problems with bivariate data using scatter diagrams, correlation, and Linear-Squares Regression.
• Solve problems involving the Normal Probability Distribution.
• Solve problems involving sampling distributions.
• Solve problems in statistical inference concerned with confidence intervals, minimum sample size determination, goodness of fit tests, and tests for independence and homogeneity.
• Test hypotheses for one, two, and three or more samples.
• Compute and interpret nonparametric tests.
• Use a software package to solve problems in the competencies covered.

Prereq. MAT 121 or MAT 151 or higher with a grade ‘C’ or better
3 Credits 3 Weekly Lecture Hours

MAT 260 Calculus III
This course is a continuation of Calculus II, MAT 161, and is designed for students in the fields of mathematics, science, engineering. It includes partial differentiation, multiple integration, vectors analysis, and infinite series. Calculus III is an appropriate math selection for students interested in STEM careers and may also be applied to most other majors.

Upon successful completion of this course, students should be able to:
• Apply the basic principles of set theory.
• Recognize and use valid proof techniques.
• Recognize and use the properties of relations and functions.
• Apply proof techniques.

Prereq. MAT 161 with a grade ‘C’ or better
3 Credits 3 Weekly Lecture Hours

MAT 261 Differential Equations
This course is designed for students in the fields of science and engineering. It includes first-order differential equations, linear higher-order differential equations, applications, systems of equations, Laplace transformation, series and approximate solutions. It is a required course for students majoring in engineering and may be elected by students in Liberal Arts, Business Administration and Science.

Upon successful completion of this course, students should be able to:
• Solve first-order differential equations.
• Solve linear higher order differential equations.
• Use differential equations to solve applied problems.
• Solve systems of differential equations.
• Use Laplace transformations to solve differential equations.
• Solve differential equations by use of series.
• Find approximate solutions by use of numerical methods.

Prereq. MAT 161 with a grade C or better
4 Credits 4 Weekly Lecture Hours

(MPT) Municipal Police Training

MPT 100 Introduction to Law Enforcement
This course teaches the police candidate the role of a police officer in the community. It defines police power and authority, the potential impact of its misuse on the community as well as social control. Understanding the function of the police within the context of the United States Constitution will also be addressed.

Upon successful completion of this course, students should be able to:
• Explicate the social control of police behavior.
• Describe and apply principles of police discretionary conduct.
• Analyze and describe the role of personal and professional conduct.
• Describe the place of police in our society.
• Show the relationship of police conduct to an ethical code.
• Detail the difference between civil and criminal behavior.
• Describe the role of public and community relations in police work.
• Delimit the role of law and administration of law in our society.
• Depict police leadership traits and techniques.

Prereq. MAT 260
3 Credits 3 Weekly Lecture Hours

MPT 101 Professional Development
This course teaches appropriate skills for the maintenance of mental and physical well-being and appropriate professional standards of conduct. It provides relevant theory and instruction numerous areas such as the elements of physical fitness and its relationship to police work. Moreover, the physical and psychological benefits of physical fitness and the importance of establishing a healthy lifestyle in specific areas of physical training, nutrition and weight control will also be addressed.

Upon successful completion of this course, students should be able to:
• Identify the use of force continuum and explain its levels, constraints and cues.
• Identify circumstances where use of non-deadly force is authorized.
• Identify circumstances where use of deadly force is authorized by law.
• Demonstrate techniques used to subdue persons using locks, grips, holds, etc.
• Describe stress-inducing situations that can affect the conduct of individual police officers.
• Depict police leadership traits and techniques.
• Analyze psychological barriers to confrontation by police of their own emotional and psychological problems.
• Describe the effect on an officer’s emotional state when exercising police power and authority.
• Demonstrate physical conditioning by performing push-ups, sit-ups, and a mile and one-half run, weight-lifting and sit-and-reach exercises.

4 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

MPT 102 Law and Procedures
This course teaches the police officer candidate to recognize and cite Pennsylvania criminal statutes, the rules of criminal procedures and applicable Constitutional provisions. Distinctions between criminal and civil law, federal, state and local statutes will be thoroughly addressed. In addition, topics of discussion will include, but will not be limited to, understanding the basic laws and rules that govern the power, authority, and jurisdiction of police officers in Pennsylvania. Upon successful completion of this course, students should be able to:
• Analyze the U.S. and Pennsylvania Constitution provisions that provide the legal basis for the exercise of police power.
• Provide the legal basis for the exercise of police power.
• Recognize and cite provisions of Pennsylvania statutes that define criminal conduct.
• Apply rules and statutory provisions for arrest, search warrants, electronic surveillance and bail.

3 Credits 3 Weekly Lecture Hours

MPT 103 Law and Procedures II
This course is a continuation of Law and Procedures I which teaches the police officer candidate to recognize and cite Pennsylvania criminal statute, the rules of criminal procedures and applicable Constitutional provisions. Instruction in this course will be on theory and skills associated with the significant steps in the arrest, post-arrest, pretrial, trial and post-trial processes.

Upon successful completion of this course, students should be able to:
• Recognize and cite provisions of the Mental Health Act, Protection from Abuse Act, Liquor Control Act, and Crime Victims Compensation Act.
• Identify major provisions of the Controlled Substance Act pertinent to their enforcement capacity.
• Identify the major provisions of the cell phone laws.
• Recognize provisions of environmental laws, safety concerns, and jurisdictional issues.
• Identify circumstances when a search incident to arrest is authorized.
• Describe a suppression hearing. Identify ethical considerations in search and seizure.
MPT 104 Vehicle Code
This course is designed to provide the student with relevant theory and skills in analyzing the provisions of the Pennsylvania Motor Vehicle Code and decisions of operating under the influence detection. Sources of standards for armed pedestrian behavior and the function of law enforcement within the context of the highway transportation system will be defined.

Upon successful completion of this course, students should be able to:

- Apply appropriate provisions of the Motor Vehicle Code to specific factual situations.
- Demonstrate procedures for breath, urine and/or chemical tests to determine the presence of alcohol or controlled substances.
- Detail the role of PennDOT and traffic safety enforcement.
- Cite provisions of the Motor Vehicle Code for issuing citations and arresting individuals for code violations.

2 Credits
1 Weekly Lecture Hours
1 Weekly Laboratory Hours

MPT 105 Motor Vehicle Collision Inspection and Related Issues
This course is designed to develop an understanding of the relationship of the cause and analysis of vehicle collisions. Proper identification and documentation of physical evidence as it relates to collisions upon the highway, as well as collision scene, traffic direction and control will also be addressed.

Upon successful completion of this course, students should be able to:

- Define reportable and non-reportable, traffic and non-traffic motor vehicle collisions.
- Perform the proper sequence of action at collision scene.
- Recognize appropriate legal requirements pertaining to the need to complete state traffic collision reports.
- Utilize proper search technique for physical evidence at collision scene.
- Specify proper method for measuring skid marks based on type and extent of skid.
- Identify the term hazardous materials.
- Define why hazardous materials are a problem and who has to deal with them.
- Apply PennDOT basic safety guidelines.

1 Credit
1 Weekly Lecture Hours

MPT 106 Patrol Procedures and Operations
This course presents the principles of police patrol procedures and operations as the foundation at any police department. It introduces the student to the mental preparation necessary to effectively perform duties and function as a patrol officer.

Upon successful completion of this course, students should be able to:

- Apply standard accepted principles of police patrol.
- Detail incident procedures for vehicular accidents and violations as well as apprehension of suspects.
- Specify arrest, impounding, and security procedures applicable to patrol activities.
- Define human relations skills applicable to patrol procedures.
- Delineate Miranda warnings requirements.
- Identify purposes and procedures for safe roadblocks.
- Identify markings and colors common to gangs in Pennsylvania.

3 Credits
2 Weekly Lecture Hours
1 Weekly Laboratory Hours

MPT 107 Principles of Criminal Investigation
This course is designed to present basic principles of criminal procedures. It defines the role of a responding officer at the scene of a police event as well as demonstrates the technical capacity to effectively conduct crime scene management preliminary investigations and other patrol-related investigations.

Upon successful completion of this course, students should be able to:

- Define a preliminary investigation. Identify the general unreliability of eyewitness identification and steps to make such identifications more reliable.
- Coordinate and apply methods of establishing value of stolen and recovered property.
- Demonstrate proper procedures for conducting the initial investigation of rape, sexual assault, and sex crimes.
- Recognize the most common forms of drugs.
- Define proper surveillance techniques.
- Apply principles of preliminary, crime site and follow-up investigation.
- List applicable rules of evidence.
- Detail applicable procedures to protect crime sites and to preserve evidence.
- Perform principles of interview and interrogation.
- Differentiate criminal investigation from civil investigation.

3 Credits
3 Weekly Lecture Hours

MPT 200 Human Relations
This course introduces the basic principles by which students can improve their observation skills and perceptions of human behavior. Other topics addressed are sensitivity issues and how people react to authority. The importance of understanding cultural differences and ethnic intermediation will be addressed.

Upon successful completion of this course, students should be able to:

- List and describe basic universal aspects of the communication process.
- Identify the impact of role awareness, reference groups and motivation of human behavior.
- Apply proper procedures for conducting initial investigation of bias/hate crimes.
- Process legal requirements regarding emergency detention of a mentally ill person.
- Categorize necessary information to be presented in an oral statement.

2 Credits
2 Weekly Lecture Hours

MPT 202 Crisis Management
This course enhances the students ability to make judgments and understand the various elements of juvenile crime and the juvenile justice system. To enable students to understand how to bring a dispute under control will be defined. This course will also teach behavioral skills necessary for the successful and positive resolution of dispute situations. The ability to identify and learn the necessary skills for conflict management will be thoroughly addressed.

Upon successful completion of this course, students should be able to:

- Describe and apply Constitutional and other legal requirements for arresting an individual or taking the individual into custody.
- Specify and demonstrate procedures required for arrest of individuals and for searches of those taken into custody.
- Delineate unique problems involved in the detention of mentally ill, emotionally unstable and physically handicapped individuals.
- Describe and apply principles for use of force in arrest and custody situations.
- List procedures for extricating hostages and responding to prisoner escapes.
- Identify proper safety procedures before entering a dispute.
- Identify the scope of and the authority of the Juvenile Court.

2 Credits
2 Weekly Lecture Hours

MPT 204 Firearms
This course is designed to teach police officer candidates the fundamentals of proper use of firearms. The course incorporates application of the tactical and decision-making skills necessary for them to apply this critical skill in actual situations to protect themselves and the public from harm.

Upon successful completion of this course, students should be able to:

- Apply safety rules when using firearms.
- Illustrate proper procedures for use of pistols, shotguns and holsters.
- Define deadly and non-deadly force applications.
- Identify basic principles of ballistics.

3 Credits
2 Weekly Lecture Hours
1 Weekly Laboratory Hours

MPT 205 Operation of Patrol Vehicles
This course is designed to teach the skills necessary for safe operation of police vehicles. Students will be well-versed in the control and handling of an emergency response vehicle. Mastery of the principles of safe driving coupled with refinement in driving skills under adverse and simulated emergency conditions will sharpen the students driving reactions.

Upon successful completion of this course, students should be able to:

- Operate police vehicles under normal and emergency circumstances.
- Describe and analyze an officers responsibilities for civil and/or criminal penalty in case of police vehicle accident.
- Demonstrate skills for safe driving and pursuit of fleeing individuals or vehicles.
- Detail proper vehicle protection systems.

2 Credits
1 Weekly Lecture Hours
1 Weekly Laboratory Hours

MPT 206 Report Writing and Case Preparation
This course is designed to teach and demonstrate evaluation techniques for accurately recording an incident report. The course enables students to identify the characteristics essential to a good report as well as check for completeness and accuracy.

Upon successful completion of this course, students should be able to:

- Apply techniques of listening and one-on-one communication.
- Apply rules to prepare police officers as witnesses.
- Illustrate written reports and note-taking skills.
- Demonstrate public communication as a police officer through prepared speeches, testimony, and extraparentral talks.
- Perform proper procedures of notification to a victims family of death or injury.
- Specify communication techniques for emergency notification.
- Identify characteristics as essential to a good report.
- Define the purpose of the law of evidence.

2 Credits
2 Weekly Lecture Hours

MPT 207 Emergency Response Training
This course trains the police officer candidate to provide immediate emergency care prior to arrival of paramedical aid to the site. It provides the student with the knowledge and skills necessary to work as a first responder in an emergency to help sustain life, reduce pain, and minimize the consequences of injury or sudden illness until additional medical help arrives.
Upon successful completion of this course, students should be able to:

- Describe and apply principles of emergency medical care to crisis situations.
- List emergency medical problems confronted by police officers.
- Detail procedures for obstetrical emergencies.
- Stipulate procedures for care of AIDS patients and protection of officers.

3 Credits 2 Weekly Lecture Hours 1 Weekly Laboratory Hours

MPT 208 Handling Arrested Persons

This course introduces the police officer candidate to emergency case management of disorderly mentally ill, criminal or psychologically distraught individuals. The course also covers officer safety and strategy in preparing and pre-planning in an arrest. In addition, it familiarizes the student with the parts and operational mechanisms and use of handcuffs and teaches safe and efficient transport of individuals placed in custody.

Upon successful completion of this course, students should be able to:

- Describe various violent and dangerous situations, more particularly those involving domestic disputes, mentally ill individuals, and violent criminals.
- Recognize and describe mental illness.
- Detail suicide and hostage-taking events.
- Analyze and apply principles of response to dangerous, potentially dangerous, or hostile crisis situations.
- Apply proper procedures to conduct field search of arrested persons.
- Identify proper procedure to handcuff suspects or prisoners.

1 Credit 1 Weekly Lecture Hours

(MTT) Machine Tool Technology

MTT 108 Mathematics for Occupational Technologies

This course is designed to provide the student with relevant theory and skills in solving practical, industrially based mathematical problems. Topics of instruction will include, but will not be limited to, calculating arithmetic expressions involving whole numbers, fractions, decimals, ratio, proportion, and percentages. The appropriate use of English/metric conversions, exponents, square roots, basic graph interpretation, and basic algebraic expression (formulas) manipulation will be presented. In addition, the solution of geometric figures will be addressed. An introduction to the use of trigonometry for the solution of right and oblique triangles will also be included.

Upon successful completion of this course, students should be able to:

- Conduct arithmetic operations using whole numbers, fractions, and decimals for the solutions of typical technologically based concepts, processes and operations.
- Perform English and Metric computations involving numeric and literal problems.
- Demonstrate the use of a Cartesian and a polar coordinate system to interpret and construct basic graphs, such as bar, pie, broken line, etc.
- Analyze data and select an appropriate method to construct a chart, or graph, as well as depict relationships among topical data.
- Solve fundamental expressions and common formulas using algebraic rules for addition, subtraction, multiplication, division, ratio, proportion, percentages, powers and roots, and transposition of terms, to include mixed operators.
- Apply appropriate terminology and rules for solving problems involving basic geometric entities and figures.
- Communicate the rules of similarity and congruency and solve basic triangles.
- Identify and construct right triangles and utilize the Pythagorean theory, sine, cosine, and tangent functions and The Law of Sines/Cosines for the trigonometric solution of unknowns.

3 Credits 3 Weekly Lecture Hours 1 Weekly Laboratory Hours

MTT 110 Print Layout and Measurement for Machining

This introductory course is designed to provide instruction in the theory and skills necessary to read conventional drawings commonly used in the machining industry. Instruction will be centered around object visualization and feature definition/recognition. Basic through intermediate difficulty multi-view third angle (with lesser emphasis on first angle) projection, to include orthographic, isometric, sectional and auxiliary view drawings will be addressed. Piece-part feature terminology, tolerances, limits, fits, conventional dimensioning practices, surface finish and inspection issues will be stressed. Sketching, precision layout tools, measurement tools, and techniques of usage will be covered and utilized to demonstrate comprehension in print/part interpretation.

Upon successful completion of this course, students should be able to:

- Discuss the purpose, the importance, the types, and various uses of engineering drawings, as they relate to the design and manufacture of parts.
- Communicate the purpose of a title sheet, and relate the value of each of its components to the process of completing a finished product.
- Analyze the features of an object and develop a representative sketch using the principles of orthographic projection.
- Interpret line work, dimensions, orthographic views, various section types, auxiliary views, and annotations associated with mechanical drawings.
- Visualize objects, describe geometric relationships, determine features, and placement, and apply terminology in the interpretation of graphical representations of a tab, bevel, chamfer, neck, fillet, round, slot, keyway, flat, boss, pad, hole/pattern, countersink, counterbore, tapered, surface, as well as English and metric thread forms.
- Describe, discuss and apply the techniques used in standard coordinate dimensioning methods to complete sketches, to layout parts, and perform inspection operations.
- Identify, and discuss the purpose, and the limitations, of various layout tools; and, of common precision measuring instruments.
- Demonstrate the use of various layout and precision measurement tools.

Coreq. MTT 108 or higher level MAT course

4 Credits 3 Weekly Lecture Hours 1 Weekly Laboratory Hours

MTT 111 Introduction to Manufacturing

This course provides an introduction to the field of manufacturing/machining. The course is designed to provide instruction in the commonalties of theory and skills associated with various branches of the manufacturing industry. An overview of departments, engineering design, job planning, process documents, manufacturing support team responsibilities, as well as production workforce member’s duties and responsibilities will be discussed. Shop floor etiquette, workplace cleanliness, safety and health, common powered and non-powered hand tools will be covered. Machine tool operations involving cut-off and contour metal cutting saws, drilling machines, off-hand grinding of High-Speed Steel (HSS) twist drills and lathe tools as well as surface grinding operations will be addressed. The application of measuring and layout tools will be combined with piece-part layout and inspection practices for part production. Materials, including cutting tools, and their properties will be introduced. Non-traditional machining processes, special purpose production machines, as well as hard and soft automation are among additional topics to be discussed. A rudimental introduction familiarization with conventional lathes and milling machines will also be included.

Upon successful completion of this course, students should be able to:

- Describe the purpose, importance, and responsibilities of various personnel and departments within a manufacturing organization.
- Determine the general salary ranges and job description for a position of employment.
- Outline a plan for personal career path growth in manufacturing.
- Interpret work-related documents such as work orders, process, and various operation sheets.
- Apply appropriate terminology in order to, select, handle, care for, and store tools used to perform bench work, inspection and assembly operations.
- Discuss and apply basic accident prevention practices and procedures, commonly required in manufacturing, as well as personal safety equipment; in order to assure personal health and safety.
- Compare and contrast hardness and machineability ratings.
- Demonstrate procedures for set-up and operation of various sawing, drilling, offhand, and surface grinding machines.
- Perform commonly assigned operator clean up and maintenance tasks associated with grinding, sawing and drilling machines.
- Demonstrate appropriate shop floor etiquette among co-workers and discusses the basic concepts of customer relationships in the context of work teams facilitation.
- Describe various characteristics associated with special purpose machines, mass production, hard and soft automation and assembly techniques.
- Define various common acronyms associated with processes, equipment, and operations common to the manufacturing industry.
- Describe the geometric features and part shapes created by broaching, shaping, planning, lathe and milling machine operations.
- Explain the various abrasive machining processes; and, the high production thread and gear cutting processes.
- Discuss the nature, properties, and selection criteria for various types of materials used to manufacture parts.

Coreq. MTT 110 or MAT 140 or MAT 160

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

MTT 112 Lathe Operations I

This course provides instruction in the terminology, design, setup, operation, and daily care of conventional metal working engine and related lathes. Theory and practical skill development exercises will focus on cutting tool preparations for completing external surface machining such as; straight turning, threading, chucking and tailstock operations. Accident prevention practices and procedures will be stressed throughout the course.

Upon successful completion of this course, students should be able to:

- Lubricate, clean, and perform commonly assigned operator maintenance duties for a lathe.
- Interpret work-related documents for piece-part machining on a lathe.
- Utilize appropriate terminology and accident prevention practices and procedures while referring to, and using lathes, and related accessories.
- Research design criteria and sharpen lathe tools and twist drills via off-hand grinding.
- Utilize detail drawings, calculations, layout tools, precision measuring instruments and appropriate techniques to prepare parts for manufacture on a lathe and verify part dimensions during inspection procedures.
- Identify, select, mount, set-up and adjust appropriate machine tool accessories, attachments, work holding and tool holding devices, cutting tools, and work-pieces in preparation for performing lathe operations.
- Calculate and set speeds/feeds in order to perform lathe operations such as facing, chamfering, center drilling, drilling, reaming, turning, necking, grooving, parting, knurling, external threading as well as hand tapping, filing, polishing, and de-burring.

Coreq. MTT 111

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours
MTT 122 Lathe Operations II
This course is designed to provide supplemental theory and skills instruction in conventional lathe machining operations. Skill embelishment and expanded external, as well as internal surface piece-part machining operations and associated accident prevention practices and procedures will be stressed in this course. Concepts and mathematical calculations for part geometry determination, specific lathe (machining) requirements, and the use of digital readout units will be covered. Carbide/ceramic/diamond cutting tool material, insert, and tool holder identification and selection requirements for lathe work will be explained in detail. Process planning and Geometric Dimensioning and Tolerancing (GD&T) characteristics appropriate for lathe machining will also be addressed.

Upon successful completion of this course, students should be able to:
- Set-up and operate a conventional engine lathe to complete intermediate to advanced operations involving turning, tool post grinding, radius-turning, devices, threading (taper/die) heads, steady, and follower rests.
- Select accessories and attachments, set-up and use face plates, independent, universal, and combination chucks, collect attachments, and a steady rest to facilitate internal surface feature creation such as radii, bores (straight, and tapered), grooves, and chased threads on a lathe.
- Interpret print requirements (including GD&T) and part geometry for machining and inspection of advanced lathe parts.
- Identify coolant requirements, and, using machinability and other factors, select inserts and toolholders for job completion.
- Perform geometric/algebraic/trigonometric calculations for set-up, machining and inspection of parts, to include chamfers, tapers, threads, etc.
- Review reference materials in order to develop a process plan (to include job operations tooling, and inspection procedures) for machining of a basic lathe piece-part.
- Conduct mathematical calculations associated with tapers, threads, torque, horsepower, unit cycle time/cycle time reduction, and basic estimating.

Prereq. MTT 112
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

MTT 124 Milling Operations I
This course provides introductory instruction in the terminology, design, application, set-up, operation and daily care of conventional milling machines. Accident prevention practices will be stressed.

Upon successful completion of this course, students should be able to:
- Lubricate, clean and perform commonly assigned cleanup and operator maintenance duties for a milling machine.
- Interpret work-related documents for piece-part machining on a milling machine.
- Utilize appropriate terminology when referring to milling machines, attachments and associated equipment.
- Utilize detail drawings, calculations, layout tools, precision-measuring instruments and appropriate techniques to prepare parts, and to verify part dimensions during inspection procedures.
- Identify required work and tool holding devices, select, mount, set-up and adjust appropriate accessories, attachments, and workpieces in preparation for performing milling machine operations such as facing, step, and slot milling, chamfering, spot drilling, drilling, reaming, spot finishing as well as hand tapping.
- Perform machine head/table and workholding device alignments.
- Calculate and set speeds and feeds, and perform milling machine operations.

Coreq. 108, MTT 110 and MTT 111
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

MTT 129 Solids (CAM) Modeling
This course is designed to provide introductory instruction in the theory and skills associated with Computer Aided Manufacturing (CAM) solids modeling industry. 3D design / modeling characteristics as well as criteria for constraint and feature-based design modeling will be stressed. Specific elements of designing for Computer Aided Machining (CAM) facilitation will be addressed.

Upon successful completion of this course, students should be able to:
- Determine occupational positions and define basic terms relevant to functioning within the design engineering/ manufacturing CAM industries.
- Analyze piece-parts for parametric feature/profile/surface and pattern definition.
- Describe work and tool planes, axes, coordinate systems, and develops detail definitions for manufactured parts.
- Interact with hardware/software in order to create and manipulate various views as a means for appropriately displaying a model.
- Plan and demonstrate steps for creating and modifying (manufactured) part models using a CAM package.
- Develop intermediate to advanced geometric part features and surface models using extrude, revolve, swept, and lofted object modeling techniques.
- Manipulate part definition history, and edit shapes via cut and paste functions, as well as Object Linking and Embedding (OLE) functions of the solid modeling software.
- Create/customize and present working (or shopfloor) documents.
- Analyze factors, design and create/customize, and communicate information regarding templates for manufactured part production.
- Perform extraction, as well as import and export operations involving graphical data.

Prereq. MTT 110 and TCC 111
3 Credits
2 Weekly Lecture Hours
2 Weekly Laboratory Hours

MTT 190 Machine Tool Internship
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employement Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student's program/major to complete a project which articulates how the experience helps the student achieve program outcomes

2 Credits

MTT 199 Machine Tool Internship
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
Obtain a written recommendation by a DCCC faculty within the discipline of the internship
Submit an current resume to the Office of Student Employment Services
Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Explain three program-related concepts that have been applied during the work experience.
- Describe the ways that technology is utilized in the work experience.
- Analyze the culture of the host organization.
- Analyze an operational process within the work experience.
- Demonstrate how assigned tasks depend on successful communication.
- Demonstrate how time and activity are managed to meet work-imposed deadlines.
- Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
- Demonstrate specifically how job-related competence has improved.
- Formulate a self-assessment for career growth and personal satisfaction.
- Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
- Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes

MTT 210 CNC Machine Tool Operations
This course is designed to provide appropriately prepared conventional machine tool operators with an introduction to Computerized Numerical Control (CNC) machine tool set-up and operation. Theory will be practical in nature and relate directly to shop based applications. Lathe, and mill, operations will be covered; however, the theory and concepts will be applicable to various CNC machine tools.
Upon successful completion of this course, students should be able to:
- Conduct commonly assigned CNC machine tool operator cleanup and maintenance activities.
- Describe the various axes and coordinate systems associated with differing CNC machine tool types.
- Apply accident prevention practices and procedures while interacting with the Machine Control Unit (MCU), as well as during program proof-out; and, while performing maintenance.
- Discuss the types and principles of MCU offset registers, and their usage.
- Analyze rudimental program problems and perform basic editing operations to modify G-code programs via Manual Data Input (MDI) operations.
- Edit canned cycle functions utilizing calculations/data prepared by others to create simple G-code programs via conversational graphics as well as by typing on a personal computer.
- Demonstrate upload/downloading and other Distributed Networked Computer (DNC) functions on a shop floor computer network.
- Set-up, align, and zero-out workholding devices, tooling adapters, and toolholders.
- Perform dry/first/production runs and inspections, adjusting various register values to assure tool qualification, and part dimensionally.
- Communicate and apply piece-part set-up and inspection procedures commonly associated with, advanced lathe and Milling Operations.
Preq: MTT 108, MTT 110

MTT 213 Milling Operations I
This course is designed to provide theory and skill instruction supplemental to that introduced in Milling Operations I (MTT 124). Skill embodiment and expanded surface feature creation in the use of conventional metal working milling machines and attachments, along with associated accident prevention practices and procedures will be stressed. Concepts and mathematics utilized for machining of prismatic (cube-like) features and part geometry will be emphasized. Process planning, documentation and Geometric Dimensioning, and Tolerancing (GD&T) characteristics for milling work will be addressed. Cutters and insert (geometry and grade) selection, as well as cutting parameters, will be stressed.
Upon successful completion of this course, students should be able to:
- Utilize detail drawings, layout, and inspection tools to produce parts via horizontal and vertical milling operations.
- Plan sequential operations and develop a process, a tooling, and an operation sheet, for advanced piece-part machining on milling machines.
- Develop set-up and inspection procedures for milled parts.
- Compare milling machine cutting tool material types, and their selection criteria.
- Research machinability factors and ratings for various types and classifications of materials.
- Refer to manufacturer’s catalogs and apply theory of cutting tools to determine the application, and the identification of cutting tool adapters, cutters, and inserts.
- Determine coolant selection, speed, and feed settings in regard to tool material and insert geometry requirements in order to obtain specific surface finish requirements on milled parts.
- Interpret print requirements (including GD&T) and part geometry for machining and inspection of advanced milling parts.
- Create internal features to include chamfers, bores, recesses, counterbores, countersinks, grooves and pockets using a milling machine.
- Set-up and use various style cutters to create form (profile) geometry such as angle, convex, concave, radius, T-slot, and key-way features.
- Mount and use milling machine accessories and attachments such as a right angle plate, rotary table, dividing head, boring head, angular vise, angle plate, V-blocks, sine bar/plate/vise.
- Position fixtures and perform fly cutting, slitting, straddle, and gang milling operations.
Preq: MTT 124

MTT 219 CAM Solids I
As a continuation of the principles of Computer Aided Manufacturing (CAM) design database development and usage, this course is designed to build on the course entitled Solids (CAM) Modeling (MTT 129). As such, instruction in this course will be centered around the theory and skills associated with the generation of 2 through 2 1/2 axis Computerized Numerically Controlled (CNC) machine tool code generation. Specific tool assignment and tool path generation for CNC milling and profiling [router, water-jet, laser and like machines] as well as conventional, two axis, CNC lathes will be addressed.
Upon successful completion of this course, students should be able to:
- Conduct import and export, as well as other data file management and Distributed Networked Computer (DNC) operations.
- Analyze geometry in order to develop tool path routines utilizing appropriate lead in/out and roughing moves to create desired features and surface quality.
- Design and create libraries of commonly used machining operations, as well as modify operations to optimize tool paths for the improvement of part production efficiency.
- Prepare piece-part modeling documentation to include dimensioning; and, hard copy output.
- Create tool paths for drilling, boring, and reaming on CNC mills and 2-axis lathes.
- Develop, verify, and edit tool path, and CNC code, for single surface profile creation; as well as pocketing, island, and thin-wall surface and feature creation.
- Generate roughing and finishing tool path for drilling, turning, grooving, facing, and threading (to include multiple lead) operations (inside and outside) on cylindrical parts.
Preq: MTT 129 Coreq: MTT 210

MTT 220 CNC Programming
This course is designed to provide the experienced Computerized Numerically Controlled (CNC) machine tool operator with instruction in manual part programming and advanced operations. Mathematical applications for definition of location, set-up, positioning and tool movement (absolute incremental) within specific coordinate systems will be presented. Various aspects of intermediate to Advanced G and M code programming to include fixture offsets, thread milling, looping, macro, and sub program development/execution will be included. Criteria relevant to accident prevention practices and procedures, process planning,
work-holding, tooling, machine set-up and operation, program proof-out, and quality control will also be addressed.

Upon successful completion of this course, students should be able to:
- Via manual methods, interpret and convert basic piece-part drawings in order to produce proceduralized manufacturing process/operation, work-holding, tooling documentation sheets, and job plans for a CNC mill (router on similar machine tool) and a CNC lathe.
- Apply principles of mathematics, engineering print interpretation and geometric analysis to describe part datum’s, surfaces, and feature locations in terms of 2 and 2 1/2, axis machine/tool positioning.
- Prepare and proof a written manuscript for the production of parts on a CNC mill, (or similar machine), and a CNC lathe.
- Utilize mathematical calculations, and concepts of geometric relationships combined with techniques, hardware, software menus and computer system practices associated with a Computer Aided Machining/Distributed Numerical Control (CAM/DNC) system to manually write, save, retrieve and transfer CNC machine tool programs.
- Apply programming techniques (to include advanced canned cycle, loops, and macros).
- Develop programs involving advanced operations such as helical interpolation and thread milling operations.
- Program multiple and varied parts involving multiple operations per set-up to include the use of indexing devices.
- Describe the purpose and use of charting as it applies to Statistical Process Quality Control (SPQC) in the CNC machining environment.
- Discuss the principles and applications of parametric programming as they apply to group technology part programming.

Prereq. MTT 210 3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

MTT 229 CAM Solids II

This course in advanced principles of Computer Aided Manufacturing/Machining builds on the skills and knowledge gained in CAM Solids I. Topics of instruction will include advanced (multisurface) part modeling and tool path generation for 3-axis milling (similar profiling) machines with additional positioning axis- and multi axis (mill-turn) lathes.

Upon successful completion of this course, students should be able to:
- Analyze 3D-parts geometry in order to conceptualize and create tool paths for prismatic (cube-like) part contours and blended multi-surface generation via 3-axis milling.
- Select an appropriate Computer Numerically Controlled (CNC) machine tool for required piece-part production.
- Structure a plan for approaching multi-part, same set-up, tool path generation for difficult to machine piece-parts.
- Formulate a strategy, and generate axis positioning, as well as tool path code for 4th and 5th axis programming.
- Generate tool paths for creating cross drilling, face contouring, and c-axis contours on mill-turn machine tool.
- Customize a generic CNC machine tool post processor to produce desired machine-tool/program operation.
- Robots software programming capabilities to consumer products and life style improvements.

Prereq. MTT 219 Coreq; MTT 220 3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

MTT 230 Electrical Discharge Machining

This course is designed to provide the student with the information and basic skills required to program and operate both ram (sinker), and 4-axis wire (EDM) Electrical Discharge Machining/machines. Instruction will address the fundamental principles of the EDM process, terms, capabilities, and machine tool system components. Aspects of programming and machining methodology, to include; work holding, tooling, electrode selection and operational characteristics, process variables, set-up and operation of ram and wire machines will be addressed.

Upon successful completion of this course, students should be able to:
- Cite in writing, the principles of operation for the EDM process.
- Identify the function and the components, and operational characteristics, as well as the operation parameters, of typical ram and wire EDM machine tools.
- Compare and contrast requirements for ram and wire EDM machine maintenance, set-up and operation.
- Summarize the various types of electrode materials and designs, as well as their application.
- Explain the design and operational characteristics a ram type electrode must exhibit in order to perform appropriately.
- Interpret work order requirements and set-up a typical ram, and a wire EDM machine tool for production.
- Set-up and operate a ram and a wire EDM machine tool in order to achieve desired inspection/quality characteristics on a finished part.
- Analyze part geometry requirements and create Computer Numerically Controlled (CNC) piece-part programs, incorporating control of various processes and machining parameters for machining on a ram; and, a 4-axis wire EDM machine.
- Utilize CAM software programming options to modify cutting parameters and settings, part geometry at various points on a contour.
- Conduct service and maintenance functions typically assigned to an EDM machine tool operator.

Prereq. MTT 220 Coreq; MTT 229 4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

(MUS) Music

MUS 110 Introduction to World Music

As a selective survey of music, this course is designed to teach students about both traditional and contemporary music from various parts of the world, including Africa, Latin America, the Caribbean, the Middle East, central Asia, and the Far East.

Upon successful completion of this course, students should be able to:
- Demonstrate active listening to various styles of non-western music.
- Define the characteristics that are unique to each type of music, including instrumentation.
- Appreciate the diversity of musical expression in world cultures and how music is experienced within individual cultures.
- Understand music making and music appreciation as part of the human experience.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 3 Credits 3 Weekly Lecture Hours

MUS 120 Introduction to Music

This course is for humanities electives credits. Emphasis is placed on listening, music techniques and design, historic and geographic relationships, and noted personalities.

Upon successful completion of this course, students should be able to:
- Characterize general style and techniques expressed through the various stages and periods from 600 B.C.E to the present.
- Relate music phases to the attributing aspects of other periods and to the cultural-social attitude and practice of each particular era.
- Identify the evolutionary influence of the format and latter 20th-century music styles and techniques found in the American and European cultures.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 3 Credits 3 Weekly Lecture Hours

MUS 101 Fundamentals of Music

This course is designed for the beginning musician, non-music readers and individuals lacking a fundamental understanding of rhythm, notation, clefs, time signatures, key signatures and practical musicianship skills necessary for the study of both instrumental performance and the study of music theory and composition.

Upon successful completion of this course, students should be able to:
- Identify and read pitch in G and F clefs.
- Discriminate among various rhythmic patterns and notations.
- Perform ear training and rhythmical exercises.
- Demonstrate basic sight singing skills.
- Identify all intervals from seconds to octaves by ear (Major, Minor, Perfect and Tritone).

3 Credits 3 Weekly Lecture Hours

MUS 115 Music for Children

Music for Children offers all students an opportunity to explore and experiment with music rudiments, psychology, philosophy, performance and pedagogy. This is a course for students who wish to share their own music experiences with others.

Upon successful completion of this course, students should be able to:
- Recognize the role music plays in our culture and in the child’s educational development.
- Identify and relate educational significance to various music activities.
- Apply music rudiments to facilitate educational music activities.
- Play an autoharp accompaniment while singing.
- Select appropriate materials and models of instruction to support educational plans and objectives.
- Coordinate several of the above competencies in a single instructional presentation.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 3 Credits 3 Weekly Lecture Hours

MUS 121 American Music

A survey of the evolution of music in the United States from the period of colonization to the present. Themes include European classical influences on the cultural melting pot, and the genre, form and style of concert, folk, pop, jazz and commercial music.

Upon successful completion of this course, students should be able to:
- Identify the evolutionary phases of American music as influenced by other cultures and as developed from the 17th century to the present.
- Relate the various techniques and styles of American music to the multifaceted characteristics of the social, religious, political, scientific and cultural aspirations of a particular time and a specific American population.
- Discriminate among five main evolutionary stages, and identify contributors of each stage.
- Recognize the difference among genres, form and style and use each music characteristic in identifying 10 major composers.
- Interrelate all past considerations in the evolution and forecasting of current trends of American music and interpret their relationships to the contemporary cultural/social environment.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075 3 Credits 3 Weekly Lecture Hours
MUS 122 Reading and Writing Music

This course is designed for the non-music reader and individuals lacking a comprehensive understanding of rhythm, notation, chords, time signatures and key signatures.

Upon successful completion of this course, students should be able to:
- Identify and write in G and F clefs.
- Discriminate among various rhythmic patterns and notations.
- Develop melodic patterns.
- Analyze major and minor modes.
- Synthesize and analyze basic triad structures.
- Perform in music dictation and ear training.

Prereq. Appropriate Math Test Score

3 Credits 3 Weekly Lecture Hours

MUS 123 Jazz: From Blues to ...

A survey course with emphasis on the various phases and styles of American jazz. Discussions and listenings will include cultural, socio-economic relationships and the evolution of technique and instrumentation.

Upon successful completion of this course, students should be able to:
- Discriminate among seven specific styles of jazz.
- Identify the technical variations of jazz artists and styles.
- Describe the contributions of at least 10 noted jazz performers.
- Recognize the influences upon and of jazz.
- Compare the evolution and role of jazz to other styles of music, both American and worldwide.
- Recognize the styles and techniques as they may relate to the cultural aspirations of a people and to the American culture as a whole.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075

3 Credits 3 Weekly Lecture Hours

MUS 125 Piano Class I

Piano Class I is an introductory course in piano-playing techniques. The course is applied and provides facilities for class participation and out-of-class practice. Scales, music reading, and the playing of simple folk songs and piano works will be included.

Upon successful completion of this course, students should be able to:
- Identify all keys on the piano and all symbols applicable to basic piano music.
- Control various hand positions with left- and right-hand independence.
- Perform simple rhythmic designs using upper- and lower- arm coordination and independent finger dexterity.
- Demonstrate major and minor scales with appropriate fingering, both hands and parallel motion.
- Apply basic harmony as an accompaniment to simple melodies.
- Play solo songs and simple piano works.
- Sight read simple polyphonic, two-hand piano music.
- Perform in an in-class recital.

3 Credits 3 Weekly Lecture Hours

MUS 126 Piano Class II

A continuation of Piano Class I. Emphasis is placed on solo and duo playing with appropriately advanced materials and techniques.

Upon successful completion of this course, students should be able to:
- Apply advanced independent control of both hands including Alberti bass, broken chords and arpeggiated chords.
- Control a wider range of keyboard use with rapid changes of hand positions.
- Play music with chromatic modifications.
- Perform complex rhythmic patterns with symmetric and asymmetric accents.
- Sight read music applicable to individual skills.
- Play solo and duo piano works, including some standard repertoire of Bach, Mozart and others.
- Perform in an in-class recital.

Prereq. MUS 125 or equivalent.

3 Credits 3 Weekly Lecture Hours

MUS 127 Survey of American Musical

In this humanities elective, students study the evolution of musical theater through opera, operetta, minstrel shows and follies to the present. Emphasis is on the interrelationship of both theater and music techniques and styles.

Upon successful completion of this course, students should be able to:
- Discriminate among several specific phases of musical drama.
- Identify the differences between opera and American musicals.
- Describe the contributions of at least 10 noted composers and 10 librettists.
- Compare the evolutionary stages and roles of the various phases of music drama within the culture, society, economics and political systems of each period.
- Acknowledge the contributions of noted performers of American musical theater.
- Interrelate all past considerations in the evolution of the musical as they may relate to current and future trends in the genre.

Prereq. ENG 050 and REA 050 or ENG 099 or REA 075

3 Credits 3 Weekly Lecture Hours

MUS 128 Guitar I

This course teaches the basic skills of guitar playing, including music theory, technique exercises, chord forms and rhythms. Level 1 reading etudes and songs will be assigned for classroom performance. This class is intended for students with little or no previous guitar background.

Upon successful completion of this course, students should be able to:
- Apply the fundamentals of guitar technique to the electric or acoustic guitar.
- Read music appropriate for the guitar.
- Perform technical exercises for left and right hand development.
- Apply the concepts of music notation and theory, including chordic scale, triad and seventh chord formulas, major scale formulas, and triad and seventh chord spellings.
- Chart the parameters of musical form as applied to songs.
- Play rhythmic accompaniments of traditional and popular songs in diverse styles.

3 Credits 3 Weekly Lecture Hours

MUS 131 History of Rock and Roll

This course will survey the different genres of popular music in the United States through the Twentieth Century using an historical approach. Lectures will include listening to and analyzing music examples in relation to the social, technical and historical trends.

Upon successful completion of this course, students should be able to:
- Identify local and national EEG and allied health organizations.
- Describe the contributions of electronic discoveries and the role of an Electroencephalography (EEG).
- Use published guidelines for performing routine adult EEG.
- Perform in the NDT lab.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075

3 Credits 3 Weekly Lecture Hours

MUS 132 History of Rock and Roll

This course will survey the different genres of popular music in the United States through the Twentieth Century using an historical approach. Lectures will include listening to and analyzing music examples in relation to the social, technical and historical trends.

Upon successful completion of this course, students should be able to:
- Identify the chronological development of Rock and Roll, its styles, and cultural significance.
- Critique musical performances and recordings in various rock styles.
- Identify and discuss the role of rock music within its aesthetic, historical and cultural contexts.

3 Credits 3 Weekly Lecture Hours

MUS 290 Songwriting Workshop

This course is open to all students regardless of experience. Guided by faculty from both the English and Music departments, students will create and perform original songs in a collaborative workshop environment and explore a variety of songwriting styles, genres, and forms. Students will cap off the semester in a showcase performance of their original works.

Note: This course is a pilot/special studies course that may or may not transfer. This course cannot be required as a prerequisite course or a program course. One section of this course will be offered in Spring 2017, Fall 2017 and Spring, 2018.

Upon successful completion of this course, students should be able to:
- Critique and analyze the aesthetics of popular song forms in various genres.
- Apply a variety of creative strategies in the process of writing music and lyrics.
- Understand and execute the principles of lyrical composition and song structure.
- Understand and execute the basics of arranging music.
- Document and record original song ideas.
- Compose and perform original songs in collaborative groups.

Prereq. ENG 050 and REA 050 or ENG 099 or REA 075

3 Credits 3 Weekly Lecture Hours

(NDT) Neurodiagnostic Tech

NDT 100 Foundations of Neurodiagnostic Technology

This course is designed to prepare students for working in a healthcare setting as a Neurodiagnostic Technologist. The course focuses on various aspects of Neurodiagnostic Technology (NDT) and other allied health professions. Major components include nervous system and other relevant medical terminology, infection control practices in health care, and patient safety assessments. Students will also be introduced to the historical perspectives of Electroencephalography, as well as the Scope of Practice of a Neurodiagnostic Technologist and profession ethics as outlined by the Neurodiagnostic Society (ASET).

This course will also provide students with the fundamental concepts necessary for performing routine Electroencephalograms (EEG). Students will become familiar with the published guidelines for performing routine adult EEG and will learn the basic concepts of recording normal awake and sleep patterns to be applied in NDT 101.

Students must achieve a “C” or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.

Upon successful completion of this course, students should be able to:
- Define the Neurodiagnostic Technology (NDT) profession and describe the role of an Electroencephalographer (EEG) technologist.
- Describe the accepted scope of practice, statement of professional ethics, and graduate competencies.
- Describe the contributions of electronic discoveries and the effects of individuality on EEG testing procedures.
- State the various infection precaution categories and describe the methods of proper infection prevention measures.
- Define the terms used for various neurological disorders and diagnostic testing procedures.
- Define key terms used for EEG interpretation.
- Describe patient rights.
- List patient assessment methods and techniques of acquiring vital signs.
- Classify allied health professions and relative legislative issues pertaining to current controversies in health care.
- Identify local and national EEG and allied health organizations.
- Demonstrate basic math skills including calculation of voltage, frequency, duration, and metric measurements.
- Discuss the different types of NDT testing procedures performed in the NDT lab.
- Identify gross anatomy of the brain including lobes and basic function.
- Define EEG and explain how it relates to neural functioning.
- Explain the various activation procedures and give the benefits and contraindications for each.
- Calculate the voltage, frequency and duration of selected waves.
- Discuss calibration, reason for performing calibration and appropriate methods of troubleshooting.

3 Credits 3 Weekly Lecture Hours
• Understand the role of the Allied Health Professional in emergency preparedness; including lab protocols for emergency and disaster situations, and hazardous material handling procedures.

Prereq. ENG050 or ENG099, READ05 or READ75, MAT050
Coreq. NDT 101
3 Credits 3 Weekly Lecture Hours

NDT 101 Neurodiagnostic Technology

Practicum I
This course provides ongoing clinical instruction and an evaluation method for students to demonstrate clinical competency for electroencephalography (EEG) procedures. Students learn about various hospital department functions and will be oriented to lab equipment, lab policies and procedures. Students are given instruction on the importance of the utilization and role of Allied Health Professionals in emergency situations, as well as bioterrorism and hazard preparedness.

Students complete 10 hours per week of EEG application lab and clinical experience during this course. Students utilize mannequin heads and fellow classmates (seated students) for electrode placement while gaining experience, increasing accuracy and speed prior to clinical practice. This course combines didactic information with clinical experience and psychomotor skills in a real clinical setting.

Student must pass each Clinical Competency Exam with at least a 70%.

Student must achieve a ‘C’ or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.

Upon successful completion of this course, students should be able to:
• Apply necessary critical thinking skills to assess and meet patient needs.
• Measure head according to the International 10-20 system.
• Identify electrode locations according to the international 10-20 system of measurement.
• Demonstrate proper protocols necessary to adhere to 10-20 measurement system.
• Accurately apply electrodes using various accepted methods of paste and collodion.
• Gather and input patient information including pertinent medical history.
• Apply the American Clinical Neurophysiology Society (ACNS) guidelines for montage development and routine Electroencephalogram (EEG) recording.
• Complete practical and clinical requirements and provide documentation of clinical performance.
• Provide documentation of EEGs performed.
• Describe various departmental supplies and equipment as well as policies for patient sedation, maintaining equipment, handling hazardous items such as collodion, acetone, needles and sharps.
• Understand electrical safety in the patient care setting.
• Recognize basic normal patterns in the awake, drowsy and asleep adult EEG and provide documentation of technical interpretation in clinical practice.

Prereq. NDT 100, NDT 101, BIO 150 Coreq. NDT 103
3 Credits 3 Weekly Lecture Hours

NDT 103 Neurodiagnostic Technology Principles and Practicum II
Neurodiagnostic Technology Principles and Practicum II expands on the basic concepts learned in electroencephalogram (EEG) technology and Practicum I and will introduce the advanced concepts of EEG technology. This course also covers the basic concepts of instrumentation including hardware, polarity, localization and filters. Students will learn The American Clinical Neurophysiology Society (ACNS) Guidelines for more complex EEG recordings, such as cerebral brain death studies and pediatric recording requirements. Students will also be trained to recognize more complex EEG patterns such as the maturing EEG of a neonate, abnormal patterns associated with multiple neurologic conditions and patterns of unknown significance.

Student must pass each Clinical Competency Exam with at least a 70%. Students must achieve a “C” or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.

Upon successful completion of this course, students should be able to:
• Identify normal, abnormal and benign electroencephalogram (EEG) patterns.
• Differentiate between physiologic electrographic EEG and artifact.
• Explain the effects of filters on specific waveforms.
• Describe EEG activity using appropriate terminology.
• Identify specific artifacts and method of elimination.
• Apply polarity rules in order to identify EEG patterns.
• List the advantages and disadvantages of each type of electrode and method of application.
• Complete clinical requirements and document (12 hours/week).
• Provide documentation of EEGs performed.
• Provide documentation of pattern recognition and technical interpretation.
• Explain the technical and ethical concepts of brain death, Electroencephalogram Inactivity (ECI), recordings.

Discuss in detail The American Clinical Neurophysiology Society (ACNS) Guidelines for recording pediatric EEG studies and how they relate to the everyday clinical setting.
• List common antiepileptic medications, their uses, side effects, and effects on the EEG tracing.
• Explain sedation practices and the advantages and disadvantages associated with conscious sedation.

Prereq. NDT 100, NDT 101 Coreq. NDT 102
3 Credits 2 Weekly Lecture Hours 10 Weekly Laboratory Hours

NDT 104 Neurodiagnostic Technology Practicum III
This course is designed to prepare students for the duties involved in performing Evoked Potential (EP) testing procedures and will introduce students to the basic clinical and technical concepts of visual, auditory and somatosensory evoked potentials. This course also provides instruction for basic computer components and their performance, digital recordings, vertical and horizontal resolution, Nyquist theory, aliasing, sampling rate, sampling skew, display gain, input bandwidth, montages, reformattting, networking and data transfer, archiving and video linking and recording references.

Students will attend both lecture and lab. Students must pass each Clinical Competency Exam with at least a 70%. Students must achieve a “C” or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.

Upon successful completion of this course, students should be able to:
• Understand basic computer components and their performance as they relate to neurodiagnostic testing procedures. This includes digital recordings, vertical and horizontal resolution, aliasing, sampling skew and waveform display settings.
• Describe the basic computer components of a digital Evoked Potential (EP) machine.
• Define digital related terms such as: analag to digital conversion, horizontal and vertical resolution and aliasing.
• Define evoked potentials and explain how they are used to evaluate neural function.
• Describe the accepted use of parameter settings and appropriate instrumentation for auditory, visual and somatosensory evoked potentials.
• State the electrode measurement and application techniques for auditory visual and somatosensory evoked potentials.
• Describe the anatomy of the auditory, visual, and sensory pathways.
• Identify the waveform responses and generator sites.
• State the criteria for clinically significant abnormality.
• Define key terms used for evoked potential interpretation.

Prereq. NDT 102, NDT 103
3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

NDT 105 Neurodiagnostic Technology Practicum IV
This course is designed to prepare students for the duties involved in performing Polysomnography (PSG) testing procedures. This course will introduce students to the basic clinical and technical concepts of all night sleep studies, multiple sleep latency tests and maintenance of wakefulness tests.

This course also provides basic introductory instruction on normal sleep architecture and the procedures involved in the PSG electrode application/hook-up and recording.

Student must pass each Clinical Competency Exam with at least a 70%. Students must achieve a “C” or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.
Upon successful completion of this course, students should be able to:

- Describe the montages used in polysomnography (PSG).
- Demonstrate how to perform a technically adequate polysomnography, multiple sleep latency test (MSLT) and maintenance of wakefulness test (MWT) by measuring and applying electrodes according to protocol.
- Perform a patient calibration.
- Perform an instrument calibration.
- Demonstrate how to obtain a baseline recording.
- Describe common sleep disorders and treatment options.

**NDT 200 Neurological Disorders**

This course provides detailed information about the neurological examination and specific neurological diseases processes relevant to the field of Neurodiagnostics. Students will gain knowledge of specific neurological disease processes such as: epilepsy and seizures, epileptic syndromes, cerebrovascular diseases, dementia, syncope, coma, congenital and developmental disorders, CNS infections, psychiatric and psychological disorders, movement disorders and headache. Several sessions will focus on related anatomy and pathology to correlate clinical findings and Neurodiagnostic test results.

Students must achieve a "C" or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.

Upon successful completion of this course, students should be able to:

- Understand the key components of the neurological exam and how these findings are relevant to electroencephalogram (EEG) findings.
- Define the various levels of consciousness and clinical signs associated with impaired consciousness and coma. Understand the anatomic structures required to maintain consciousness.
- Explain the basic terms used to describe seizures and the difference between seizures and epilepsy.
- Describe specific types of seizures, their clinical signs, EEG, treatment options and classification.
- Differentiate between ischemic and hemorrhagic stroke; identity possible clinical symptoms by location of event, and identify the major blood vessels supplying the brain and the regions of the brain they affect.
- Identify symptoms associated with the various dementia and delirium and the EEG findings associated with dementia and delirium.
- List the symptoms associated with Central Nervous System (CNS) infections.
- Understood psychiatric and psychological disorders in the field of Neurodiagnostic Technology.
- Understand the basics of brain imaging techniques and how they relate to neurodiagnostic findings.
- Describe the most common movement disorders and their treatment.
- Define the different types of headaches and their treatment.
- Understand the terms used to refer to different types of nerve injury and distinguish the difference between axonal and demyelinating neuropathies. Determine the different effects that an axonal and a demyelinating neuropathy will have on nerve conduction studies.
- Describe the different types of muscle disease and how the Electromyography (EMG) can be used to diagnose them.
- Recognize the different types of autonomic disorders and the tests used to diagnose them.
- Identify the different symptoms associated with imbalance and the diagnostic approach to dizziness.
- Discuss the possible causes, diagnosis, and treatment of multiple sclerosis.
- Explain the basic principles behind using ultrasound to image vessels and the basic principles behind transcranial Doppler.
- Understand the neuroanatomy of pain and the treatments for pain.
- Describe the most frequent syndromes associated with spinal cord injury.

**Prereq. NDT 104**

3 Credits

**Weekly Lecture Hours**

**NDT 201 Neurodiagnostic Technology Practicum V**

This course provides ongoing clinical instruction and an evaluation method for students to demonstrate clinical competency for Electroencephalography (EEG) procedures, as well as apply skills learned in NDT 104 (Evoked Potentials) and NDT 105 (Polysomnography PSG) to the clinical environment.

Students will learn about seizure classification and epileptic syndromes. This course will also focus on EEG interpretation as associated with seizure disorders, epileptic abnormalities, and artifact recognition.

Student must pass each Clinical Competency Exam with at least a 70%. Students must achieve a "C" or better in each NDT course within the Neurodiagnostic Technology Program in order to progress sequentially to the next course.

Upon successful completion of this course, students should be able to:

- Apply necessary critical thinking skills to assess and meet the patient's needs.
- Measure head according to the International 10-20 System.
- Accurately apply electrodes using various accepted methods of paste and collodion.
- Complete clinical requirements and document.
- Provide documentation of Neurodiagnostic Technology (NDT) studies performed.
- Provide documentation of pattern recognition and technical interpretation. Understand the importance of artifact recognition, elimination, and monitoring techniques.
- Discuss seizure classification and provide examples of seizure disorders related to each category.
- Discuss in detail a patient's history, course, treatment, and outcome as it relates to a specific epileptic syndrome and present these findings in a case history/research project.

**Prereq. NDT 105 Coreq. NDT 201**

8 Credits

**Weekly Lecture Hours**

**NET 110 Network Communications**

This course prepares students to have an overall view of the way computers communicate and the basics of networking. Key topics include networking standards, the OSI model, network protocols, transmission media, topologies, hardware, software, WANs and remote connectivity, security, managing and upgrading a network, and TCP/IP.

Upon successful completion of this course, students should be able to:

- Describe and implement various network services and standards as related to the Open Systems Interconnection (OSI) model.
- Demonstrate the ability to properly troubleshoot network connectivity problems.
- Establish network security and various management practices.
- Describe and install network connectivity devices and transmission media.
- Define the topologies and how they work with each other.
- Perform basic TCP/IP computations and perform troubleshooting utilizing various TCP/IP command line utilities.
- Describe and implement common network protocols.

**College Academic Learning Goal Designation: Information Technology (IT)**

**Prereq. ENG005 or ENG009, STA005 or STA007, MAT 050 or pass test**

3 Credits

**Weekly Lecture Hours**

**NET 115 Windows 7**

This course is designed to introduce students to set up and support the Microsoft (MS) Windows 7 workstation operating system. Students will gain experience in installing, administering, and troubleshooting this enterprise level workstation operating system.

Upon successful completion of this course, students should be able to:

- Understand the Windows 7 system features and requirements.
- Perform an installation and upgrade of Windows 7.
- Migrate user profiles in Windows 7.
- Capture, prepare, and deploy system images in Windows 7.
- Configure and manage virtual hard disks.
- Configure network settings for IPv4 and IPv6.
- Configure and manage NTFS permissions to shares, folders, and files.
- Configure application compatibility and restrictions.
- Configure and monitor system performance in Windows 7.
- Configure User Account Controls (UAC).
- Configure Windows Firewall, authorization and authentication.
- Configure backup and recovery options in Windows 7.
- Configure mobility and remote access controls in Windows 7.
- Configure Bitlocker and DirectAccess technologies.

**Prereq. NET 110**

4 Credits

**Weekly Lecture Hours**
NET 116 Managing Microsoft Windows Server 2008

This course is designed to introduce students to set up and support the Microsoft (MS) Windows Server 2008 operating system. Students will gain experience in installing, administering, and troubleshooting this enterprise level server operating system.

Upon successful completion of this course, students should be able to:
- Plan and install MS Windows Server 2008 using various deployment methods.
- Plan and install Infrastructure Services-DHCP and DNS.
- Plan and install an Active Directory Services.
- Plan and install Application Infrastructure Services - IIS, Terminal Services, and Hyper-V.
- Plan and implement File and Print Services.
- Plan for Storage Solutions.
- Plan for High Availability-RAID and Network Load Balancing.
- Securing Infrastructure Services - Secure Remote Access, SSL, and Certificates.
- Monitoring Servers - Reliability and Performance Console.
- Plan and implement Backing Up solutions - Restoring Group Policy Objects.

Prereq. NET 115

6 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

NET 117 Microsoft Window Server 2008 Active Directory

This course is designed for students who support or plan to support Microsoft (MS) Windows Server (currently 2008) Active Directory Domain Services (AD DS). Students will learn to install, configure, and troubleshoot Microsoft Windows Server Active Directory components: Domain Services, Lightweight Directory Services, Certificate Services, Federation Services, and Rights Management Services in a forest or domain.

Upon successful completion of this course, students should be able to:
- Install and deploy MS Active Directory Services.
- Configure a Read-Only Domain Controller.
- Establish and maintain trust relationships.
- Configure Active Directory replication.
- Configure the global catalog and operations masters.
- Create and maintain users, computers and groups.
- Create an OU Software.
- Use the Group Policy Management Console to configure Group Policy settings.
- Plan and configure an Audit Policy and account policies.
- Manage software through Group Policy.
- Manage Group Policy Management MMC snap-in.
- Maintain and Back up Active Directory using the Reliability and Performance Monitor.
- Create DNS zones and configure additional services-AD RMS & ADFS.
- Install Active Directory Certificate Services.
- Configure certificate revocation, certificate templates and certificate enrollments.
- Configure Certificate Authority Server settings.

Prereq. NET 115

4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

NET 230 Network Operating Systems Concepts

Network operating systems concepts provides information needed to understand and support Linux systems in use today. Major concepts include Linux operating system theory, installation, upgrading, configuring (operating system and hardware), file systems, security, hardware options, storage, resource sharing, network connectivity, maintenance and troubleshooting.

Upon successful completion of this course, students should be able to:
- Understand components of desktop and Linux server operating systems.
- Implement a logical, organized, and secure file system.
- Establish login security.
- Create login scripts and user connectivity.
- Use server console commands, services, and processes.
- Perform/rebuild Linux server operating system installation.
- Describe messaging and the Internet infrastructure.
- Explain differences in Linux versions.

Prereq. NET 110

6 Credits
6 Weekly Lecture Hours

NET 231 Network Systems Administration

This course enhances the student's understanding on how to install, configure, and manage Microsoft Windows Server 2012 in a networking environment. The course concentrates on installation and configuration of Windows 2012 servers, Microsoft's Hyper-V software and the creation and management of virtual machines, Active Directory implementations, DNS zone and records implementation, NTFS and Share permissions, Print servers and management, Group Policy creation and manipulation, IPv4 and IPv6 addressing, and the installation and configuration of a 2012 DHCP server.

This course is directly related to, and is intended to serve as a baseline to the Microsoft Install and Configuration 70-410 certification exam.

Upon successful completion of this course, students should be able to:
- Install and configure a Microsoft Windows 2012 Server.
- Utilize Microsoft’s Hyper-V software to create and manage virtual machines and switches.
- Install and manage Microsoft’s Active Directory Services.
- Create and manage DNS zones and records.
- Implement and manage NTFS and Share permissions.
- Create, implement, and manage Group Policies.
- Install, configure, and maintain a DHCP server.

Prereq. NET 115

4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

NET 232 Network Design and Implementation

This course provides students with the necessary advanced skills to design and create a multiple Linux-based network server implementation plan. Students will consider design strategies and implementations to complete a multiple Linux server environment. Students will also learn Linux server tools. The class will focus on directory services including preparation, troubleshooting, and accessibility. This course also provides an in-depth discussion of advanced electronic messaging and network security concepts.

Upon successful completion of this course, students should be able to:
- Explain the OSI Model and the concept of Layered Communications.
- Explore the fundamentals of Bridging and Switching.
- Learn the origin and functionality of the TCP/IP protocol stack and the Novell IPX/SPX protocol stack.
- Describe Cisco Network Basics and the Cisco IOS.
- Identify features and characteristics of various WAN protocols.
- Configure Cisco Routers and Switches.

Prereq. NET 231

4 Credits
3 Weekly Lecture Hours
2 Weekly Laboratory Hours

NET 242 Network Security Concepts

This course gives the student the skills necessary to apply and implement secure network administration procedures and policies. Students will be able to identify common network threats and vulnerabilities, understand networking compliance and operational security, implement application, data and host security, manage access control, and perform stable cryptography implementations. This course is intended to help prepare students for the CompTia Security+ certification exam.

Upon successful completion of this course, students should be able to:
- Explain the security function and purpose of network devices and technologies.
- Apply and implement secure network administration principles.
- Implement and use common protocols and default network ports.
- Execute disaster recovery plans and procedures.
- Analyze and differentiate among types of social engineering, wireless, and application attacks.
- Analyze and differentiate among types of mitigation and deterrent techniques.
- Implement assessment tools and techniques to discover security threats and vulnerabilities.
- Explain the fundamental concepts and best practices related to authentication, authorization and access control.
- Implement appropriate security controls when performing account management.
- Use and apply appropriate cryptographic tools and products.
- Implement Private Key Infrastructure, certificate management and associated components.

Prereq. NET 110

4 Credits
4 Weekly Lecture Hours
• Identify pediatric and geriatric considerations for drug administration.
• Calculate intravenous fluid flow rates (drops per minute and milliliters per hour), and intravenous dosages.
• Identify abbreviations and symbols for drug preparation and administration.
• Accurately read and interpret a drug label in relation to a medication order.

Prereq. MAT 050 or placement test score
1 Credit 1 Weekly Lecture Hours

NUS 110 - Concepts and Practice I

NUS 110, Concepts and Practice I, is the first nursing course in the sequence of four semesters. The concept based model of nursing practice is presented within the context of professional role behaviors, patient attributes and the health and illness continuum. Knowledge and skills basic to the practice of nursing presented utilizing student-centered learning activities. Clinical and simulation laboratory experiences support the acquisition of knowledge and skills fundamental to the practice of nursing.

Upon successful completion of this course, students should be able to:

• Identify the professional roles of the nurse as member of the health care team.
• Use the nursing process in the practice of safe, effective, patient-centered care to maintain optimal health.
• Identify current best evidence for the provision of quality patient care.
• Apply therapeutic communication principles to enhance the professional relationship between nurse and patient.
• Identify health care infrastructures and community resources available to coordinate appropriate planning of care for all patients.
• Describe concepts of nursing practice across the health and illness continuum.

Non-Academic Prerequisite: Complete physical examination, laboratory tests, urine drug screen, two-step PPD, current drug administration, and health insurance.

Prereq. NUS 110 and BIO 150 with a ‘C’ or better
Coreq. NUS 221

10 Credits 4 Weekly Lecture Hours 12 Weekly Laboratory Hours

NUS 205 Perioperative Nursing

The knowledge and technique necessary to assume responsibilities of the perioperative nurse are emphasized in this broad-based yet comprehensive orientation to the operating room and the perioperative role. Standards of patient care in the operating room are explored and identified. Assessment of patient needs and implementation of nursing interventions are collaboratively decided making is reviewed relative to total intraoperative care. Subject material guides the learner to provide for and contribute to patient safety through control of internal and external environment, biological testing and product evaluation, as well as to assist the patient with the management of anxiety through the principles of biological, physical and social sciences. The College recognizes the standards of perioperative nursing practice of the AORN as the conceptual basis of specialty practice in the OR.

Upon successful completion of this course, students should be able to:

• Describe the psychosocial influences affecting the patient’s response to surgical intervention.
• Demonstrate knowledge necessary to implement the perioperative role.
• Discuss principles of asepsis used in providing patient care during the intraoperative period.
• Analyze the conceptual basis of role function as an interdisciplinary team member in delivery of care to the operative patient.
• Plan nursing activities that reflect the nursing process in providing care to the patient undergoing surgical intervention.
• Relate nursing, legal and ethical boundaries in the practice of professional nursing in the operating room.

Prereq. RN Licensure or eligibility

3 Credits 3 Weekly Lecture Hours

NUS 111 Concepts and Practice II

NUS 111, Concepts and Practice II, is the second nursing course in a sequence of four semesters. In this course, concepts are explored within the context of health and illness experiences and build on the knowledge acquired in NUS 110. These experiences reflect diverse health populations and family health nursing. Clinical and simulation laboratory experiences support the acquisition of knowledge and skills in adult and family health nursing.

Upon successful completion of this course, students should be able to:

• Use principles of safe effective, patient centered care, using best evidence, for an individual with alteration in the concept of elimination, digestion related to an inflammatory or erosive process.
• Use principles of safe effective, patient centered care, using best evidence, for an individual with an alteration in the concept of mobility related to bone or joint dysfunction.
• Use principles of safe effective, patient centered care, using best evidence, for an individual with alteration in the concept of urinary elimination related to an obstructive or infectious process.
• Use principles of safe effective, patient centered care, using best evidence, for an individual with an alteration in the concept of oxygenation related to an infectious process.
• Use principles of safe effective, patient centered care, using best evidence, for an individual with alteration in the concept of elimination, digestion related to an inflammatory or erosive process.

Prereq. MAT 050 or placement test score
1 Credit 1 Weekly Lecture Hours

NUS 206 Perioperative Preceptorship

The skills needed by the nurse to practice professional nursing in the operating room are emphasized. Under the tutelage of an operating room nurse preceptor, with the guidance of the College faculty facilitator, the learner is introduced to the activities performed by the nurse in the operating room throughout the patient’s surgical experience. Learners will function within the scope and multiple dimensions of the perioperative role as defined in the preceptor institution.

Working with guidelines developed by the College in collaboration with local AORN advisory board, the preceptorship is a 15-day clinical practicum. Preceptors are selected by the OR nurse manager in the preceptor hospital. Preceptorship sites may be arranged by the learner or selected from the College’s preceptor affiliation. Schedules for clinical activities are mutually arranged by students and preceptor.

Upon successful completion of this course, students should be able to:

• Assess the pathophysiologic and psychosocial influences affecting the patient’s response to surgical intervention.
• Demonstrate the knowledge and skills needed to implement the perioperative role.
• Apply principles of asepsis in providing patient care during the intraoperative period.
• Function as a member of the interdisciplinary team in providing patient care during the intraoperative period.
• Demonstrate application of the nursing process in providing nursing care to the patient receiving surgical intervention.

6 weekly clinical hours

Prereq. RN Licensure or eligibility

3 Credits 3 Weekly Lecture Hours

NUS 207 RN First Assistant

The knowledge and technique necessary to assuming responsibilities of the RN First Assistant are emphasized. The role diversity of the first assistant is explored in its interdependent relationship, as the nurse works both with the physician and for the benefit of the patient. The nursing diagnosis is used as the defining guide in planning and implementing patient care. Expanded functions are stressed and elaborated as the nurse is prepared to assume responsibility in scrubbing, draping, retracting, exposing, damping, ligating and suturing. Intellectual and manual dexterity are combined to prepare the nurse with the essential skills necessary to this expanded professional role. The College recognizes AORN’s position statement on the role of the RN First Assistant. The program meets AORN Education Standards and is accepted by the Competency and Credentialing Institute for Perioperative Nursing.

Upon successful completion of this course, students should be able to:

• Trace the historical role of the nurse in the operating room.
• Apply principles of asepsis, infection control, physical assessment and the nursing process.
• Review surgical anatomy, physiology and operative techniques related to first assisting.
• Recognize surgical hazards and initiate appropriate corrective and preventive action.
• Validate intraoperative nursing behaviors of handling tissue, providing exposure, using surgical instruments, suturing and providing hemostasis.

Prereq. 2 yrs Perioperative Experience

3 Credits 3 Weekly Lecture Hours

NUS 208 RN First Assistant Internship

The RN First Assistant Directed Internship offers clinical preparation for perioperative nurses in first assisting. This internship is based on certain assumptions about the roles and responsibilities of patients and needs of the learner. The College attaches significance to the patient’s right to have a qualified assistant during surgical intervention. The perioperative nurse who is prepared as a first assistant is capable of acting collaboratively in assisting both surgeon and patient. The College believes that the perioperative nurse entering this internship will be a highly motivated individual and bring to the internship personal and professional experience of high quality. Flexibility and respect for individual student goals are essential in planning the internship. Therefore, each student has an active part in determining objectives, identifying learning resources and evaluating attainment of goals. Students work with a College faculty facilitator and surgical preceptor during the internship. The College recognizes AORN’s position statement on the role of the RN First Assistant. The program meets AORN Education Standards and is accepted by the Certification Board for Perioperative Nursing.

Upon successful completion of this course, students should be able to:

• Demonstrate application of principles of asepsis and infection control, physical assessment and nursing process.
• Recognize surgical anatomy and physiology and operative technique related to first assisting.
• Demonstrate skill in recognizing surgical hazards and initiate appropriate corrective and preventive action.
• Carry out intraoperative nursing behaviors of handling tissue, providing exposure, using surgical instruments, suturing and providing hemostasis.
The following must be submitted prior to registering for the Internship:

- A letter from the department manager validating the nurse’s experience (in years), proficiency in scrub and circulator roles, ability to perform in stressful and emergency situations, and ability to perform effectively and harmoniously as a team member.

A copy of the display portion of the professional license to practice nursing in the state in which the internship is to be done.

Evidence of current professional malpractice insurance (policy and cancelled check)

Completed health examination (form supplied by the College)

Evidence of current health insurance policy.

Evidence of current CPR certification (ACLS)

Copy of certification card (CNOR)

NUS 207 3 Credits 3 Weekly Lecture Hours

NUS 210 Concepts and Practice III

NUS 210, Concepts and Practice II, is the third nursing course in a sequence of four semesters. In this course, curricular concepts are explained within the context of increasingly complex acute and chronic health needs. The interprofessional model is used to discuss care of diverse patient populations. Clinical and simulation laboratory experiences support the acquisition of knowledge and skills in the care of children and adults with acute, complex needs.

Upon successful completion of this course, students should be able to:

- Apply knowledge of the concept of stress, adaptation, cognition to provide safe, effective, patient centered care incorporating best evidence for an individual experiencing thought process, mood, developmental, or addictive disorders.
- Apply knowledge of the concept of oxygenation to provide safe, effective, patient centered care incorporating best evidence for an individual experiencing an obstructive pulmonary process.
- Apply knowledge of the concept of perfusion to provide safe, effective, patient centered care incorporating best evidence for an individual affected by an anhereretic process.
- Apply knowledge of the concept of metabolism to provide safe, effective, patient centered care incorporating best evidence for an individual experiencing an inflammatory process.
- Apply knowledge of the concept of fluid and electrolytes to provide safe, effective, patient centered care incorporating best evidence for an individual experiencing a renal dysfunction.
- Apply knowledge of the concept of cellular regulation, immunity to provide safe, effective patient centered care incorporating best evidence.

Non-Academic Prerequisites: Complete physical examination, 1-step PPD, current CPR certification (healthcare provider), and professional liability and health insurances.

Prereq. NUS 111 with grade ‘C’ or better

10 Credits 4 Weekly Lecture Hours 12 Weekly Laboratory Hours

NUS 214 LPN to RN Education Bridge

This course is intended to facilitate the transition of the Licensed Practical Nurse to the Associate Degree Nursing Program and then to the role of the Registered Nurse. This course will compare and contrast the roles of the LPN and RN, assist the students in identifying evidence based practices, develop critical thinking skills, test taking skills and applying these skills to patient assessment and critical thinking identify normal and abnormal cardiac rhythms, such as atrial fibrillation, and to the role of theLPN to the role of the RN.

- Identify current best evidence for the provision of quality patient care.
- Develop critical thinking and test taking skills related to patient assessment.
- Identify health care infrastructures and community resources available to coordinate appropriate planning of care for all patients.

Prereq. MAT 121, ENG 100, PSI 140, BIO 150, NUS 102 Coreq. BIO 151

2 Credits 2 Weekly Lecture Hours

NUS 220 - Clinical Enhancement Skills

RN’s or grad Nurses

This course is structured to provide the student and other health care provider with the enhanced clinical skills, knowledge, psychomotor expertise, and basic principles to perform and record electrocardiography, arrhythmia interpretation, and phlebotomy. The identification of normal and abnormal EKGs including the review of the anatomy and physiology of the electrical conduction system of the heart will be covered. Legal issues will be discussed along with appropriate documentation, IV medications and alternative IV infusions systems. By the end of the course, the student will have the ability to integrate theory and practice to safely and with confidence identify normal and abnormal cardiac rhythms, successfully perform phlebotomy, maintain, and trouble shoot IV infusions, and perform and record electrocardiographis.

Upon successful completion of this course, students should be able to:

- Identify the most commonly used monitoring leads.
- Identify the normal components of the EKG.
- Describe the course that an electrical impulse follows through the normal conduction pathway of the heart.
- Recognize effects of sympatmethic and parasympathetic stimulation on heart rate, conductivity, and myocardial contraction.
- Analyze various cardiac rhythms and dysrhythmias.
- Analyze basic laboratory tests.
- Describe the components and function of blood.
- Identify appropriate materials for blood specimen collection.
- Identify reasons for complications and failure to obtain blood specimens.
- Identify the purpose of IV infusions.
- Identify the most common sites for venipuncture.
- Recognize abnormal signs and symptoms of electrolyte imbalance.
- Identify the legal limitations in the practice of administering IV therapy.
- Demonstrate proper documentation of IV assessments and management.
- Describe complications of IV therapy, and proper infection control techniques.
- Demonstrate proper techniques for central line care.
- Demonstrate proper technique for administration of direct IV push medications.
- Utilize proper techniques in performing venipuncture.

Prereq. Successful completion of NUS 111 with a ‘C’ or better for nursing students. No pre or corequisites for graduate nurses, LPNs, Paramedics, or RNs.

3 Credits 3 Weekly Lecture Hours

NUS 221 - Pharmacology for Health Care

This course focuses on pharmacology the nurse needs to know to provide safe and effective care for patients taking medications. Basic principles of pharmacology are reviewed. Medications are grouped for study according to body system and drug action. Emphasis is an application of the nursing process, including patient education, to enhance effectiveness of medication therapy.

Upon successful completion of this course, students should be able to:

- Explain the relationship of pharmacokinetics and pharmacodynamics to drug therapy.
- Describe the mechanisms of action, therapeutic effects, adverse effects, interactions, dosages and administration of commonly used groups of drugs.
- Relate the pharmacodynamics of common groups of drugs to the conditions for which they are prescribed.
- Use the nursing process to develop an age-appropriate plan of care for the patient receiving drug therapy.
- Identify nursing responsibilities for accurate administration of medications.

Prereq. NUS 110, NUS 111, BIO 150 with a grade ’C’ or better Coreq. BIO 151

3 Credits 3 Weekly Lecture Hours

NUS 222 - Holistic Advanced Physical Assessment and Pathophysiology

This course will provide the student with the knowledge and skills to identify abnormal physiologic findings. The student will utilize this knowledge and skill in completing a health history and physical assessment, identifying the patient’s biopsychosocial status.

Upon successful completion of this course, students should be able to:

- Use the appropriate communications skills necessary to complete a health history.
- Demonstrate the four examination techniques of inspection, palpation, percussion and auscultation.
- Identify the major cultural variables to be addressed in the assessment function of skin, hair, nails, head, face, neck, ears, nose, throat, eyes, respiratory system,
cardiovascular system, neurological system, musculoskeletal system, abdomen, breast and axilla, male and female genitalia

- Identify body structures and functions that need to be assessed in specific disorders
- Explain how the signs and symptoms of specific disorders are produced by the alternations in body structure and function
- Correlate subjective complaints with pathophysiologic findings upon physical assessment
- Recognize the social and ethical concerns involved in the evaluation of patient health concerns and the obligation of confidentiality
- Perform a physical examination to validate information obtained in the health history

Prerequisites/Corequisites:

- For nursing students: Successful completion of a minimum of one year in a basic RN program including basic anatomy and physiology courses.
- For paramedic students: Successful completion of BIO 151
- For graduate and registered nurses: No prerequisites.
- Prereq. NUS 111

3 Credits 3 Weekly Lecture Hours

**OCS** Occupational Studies

**OCS 102 International Code Council (Uniform Construction Code)**

This course is designed for the student who desires to become a one- and two-family dwelling building inspector. Fundamental requirements of the UCC (Uniform Construction Code) and assuring proper adherence to the codes by craftspersons as well as enforcement officials will be addressed throughout the course.

Upon successful completion of this course, students should be able to inspect:

- Footings and foundations
- Concrete slabs
- Wood decay and termite protection
- Floor and ceiling framing
- Wall framing
- Roof framing
- Masonry walls
- Sheet metal
- Roof covering
- Interior and exterior wall coverings
- Means of egress system
- Safety glazing
- Fire safety systems
- Electrical systems
- Plumbing systems
- Gas systems

3 Credits 3 Weekly Lecture Hours

**PCT** Process Control Tech

**PCT 100 Plant Equipment**

This course provides an introduction to basic hand tools as well as a study of industrial plant equipment. Topics of study include equipment construction, principles of operation, care, maintenance, and utilization. Various pieces of equipment associated with process systems will be covered. Equipment being studied will include motor drive components, basic material handling equipment, pumps, compressors, valves, boilers, furnaces, turbines, heat exchangers and cooling towers, as well as relevant instrumentation.

Upon successful completion of this course, students should be able to:

- Identify various types of plant equipment commonly found in processing plants.
- List the various types valves, and discuss their basic operational characteristics, as well as their components.
- Explain how pipe is sized, relate the differences between pipe and tubing, and describe how a seal is effected in each design.
- Distinguish between the various types of pumps, compare and contrast their appropriate uses.
- Describe the various types of compressors, compare and contrast their appropriate uses and operational procedures.
- List the common types of motors; electric, air, and hydraulic and discuss their applications.
- Recognize power transmission devices and describe, their use, care, and maintenance.
- Describe the different types of turbines, compare and contrast their respective uses, their care, and maintenance.
- Explain the principles of operation, care, and use of heat exchangers within a processing environment.
- Discuss the differences between furnace types, their construction, principles of operation, components, care and maintenance.
- Describe and demonstrate the usage of basic personnel protective equipment.
- The role of Safety, Health and the Environment (SHE) for an introductory study of various input and output devices used to control process variables in the petroleum, petrochemical, chemical, pharmaceutical, and food processing industries.
- Methods of protecting personnel through programs, procedures, and personnel protective equipment, including an introduction to the basic operating principles of process control systems.
- The role of a Process Operators and Process Control Technicians as part of a team in the production environment.
- Identify the need for quality control in a processing environment.
- Demonstrate appropriate behavior within a diverse workplace.
- Discuss the impact of job related work ethics (absenteeism, on-the-job habits, etc.) as they relate to fellow workers, and the mission at hand.
- Relate basic safety, health, and environmental issues associated with the production and refining of chemicals.
- Perform generalized introductory duties while observing acceptable practices for personal safety and health.
- Prepare a potential career profile for a process technician.
- Upon successful completion of this course, students should be able to:
  - Discuss the role and responsibilities of a process operators and process control technicians.
  - Investigate the basic sciences associated with processing industries.
  - Identify the need for quality control in a processing environment.
  - Demonstrate appropriate behavior within a diverse workplace.
  - Discuss the impact of job related work ethics (absenteeism, on-the-job habits, etc.) as they relate to fellow workers, and the mission at hand.
  - Relate basic safety, health, and environmental issues associated with the processing industries.
  - Perform generalized introductory duties while observing acceptable practices for personal safety and health.
  - Prepare a potential career profile for a process technician.

**Coreq. PCT 101**

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

**PCT 101 Introduction to Process Technology**

This course provides an overview of the concepts associated with Process Technology, as well as an introduction to the role of a Process Operators and Process Control Technicians as part of a team in the production environment. The course also provides a basic overview of issues and sciences associated with the refining and production of chemicals. In addition, the course will introduce the student to the real life environment, and the occupational responsibilities and duties of process operators/technicians.

Upon successful completion of this course, students should be able to:

- Identify various types of plant equipment commonly found in processing plants.
- List the various types valves, and discuss their basic operational characteristics, as well as their components.
- Explain how pipe is sized, relate the differences between pipe and tubing, and describe how a seal is effected in each design.
- Distinguish between the various types of pumps, compare and contrast their appropriate uses.
- Describe the various types of compressors, compare and contrast their appropriate uses and operational procedures.
- List the common types of motors; electric, air, and hydraulic and discuss their applications.
- Recognize power transmission devices and describe, their use, care, and maintenance.
- Describe the different types of turbines, compare and contrast their respective uses, their care, and maintenance.
- Explain the principles of operation, care, and use of heat exchangers within a processing environment.
- Discuss the differences between furnace types, their construction, principles of operation, components, care and maintenance.
- Describe and demonstrate the usage of basic personnel protective equipment.
- The role of Safety, Health and the Environment (SHE) for an introductory study of various input and output devices used to control process variables in the petroleum, petrochemical, chemical, pharmaceutical, and food processing industries.
- Methods of protecting personnel through programs, procedures, and personnel protective equipment, including an introduction to the basic operating principles of process control systems.
- The role of a Process Operators and Process Control Technicians as part of a team in the production environment.
- Identify the need for quality control in a processing environment.
- Demonstrate appropriate behavior within a diverse workplace.
- Discuss the impact of job related work ethics (absenteeism, on-the-job habits, etc.) as they relate to fellow workers, and the mission at hand.
- Relate basic safety, health, and environmental issues associated with the processing industries.
- Perform generalized introductory duties while observing acceptable practices for personal safety and health.
- Prepare a potential career profile for a process technician.

**Coreq. PCT 101**

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

**PCT 110 Safety, Health, and the Environment**

This course will provide students with an overview of the current petrochemical safety, health and environmental regulations, standards, and laws. The course will provide a survey of potential industry/product and facility hazards. Methods of protecting personnel through programs, procedures, and personnel protective equipment, including advanced personal safety and health measures will be addressed. In addition, the course will provide instruction in emergency response to spills, leaks and releases. Facility safety equipment, as well as warning and alarm systems will be covered.

Upon successful completion of this course, students should be able to:

- List the basic principles, characteristics and applications of process control systems.
- Discuss the various methods used to implement process control systems.
- Explain the methods used to generate process control signals.
- Define the basic concepts concerning transducers, as well as investigate the different types of output devices and signals used to control processes.
- Describe the nature of fluids as well as the causes and effects of hydrostatic and dynamic pressure.
- Describe fluid flow, characteristics of pressure, and pressure head, in regard to process control parameters.
- Describe the instruments, methods and principles of operation used to measure pressure, level, and flow in fluids.
- Identify potential environmental hazards and discuss varied issues regarding their abatement.
- Identify the real time limitations and implications and process characteristics required to transmit serial information between MTU and RTUs with regard to the limiting factors of a real time SCADA system.
- Explain closed loop control system theory relating to the purpose of closed loop control and the different modes of controller operation.
- Discuss some of the more advanced aspects of automatic controllers, with relevance to safety and alarming of controllers.
- Identify the real time limitations and implications and process characteristics required to transmit serial information between MTU and RTUs with regard to the limiting factors of a real time SCADA system.
- Explain closed loop control system theory relating to the purpose of closed loop control and the different modes of controller operation.
- Discuss some of the more advanced aspects of automatic controllers, with relevance to safety and alarming of controllers.

**Coreq. PHY 100, 110, 131**

4 Credits 4 Weekly Laboratory Hours

**PCT 111 Process Control I**

This course is designed to provide operators/technicians with an introduction to the basic operating principles of process control systems. Topics of study will include control principles, the elements of process control systems, and process control signals and systems. The course also provides for an introductory study of various input and output devices used to control process variables. The course is also designed to provide an introduction to the basic sciences associated with processing industries.

Upon successful completion of this course, students should be able to:

- List the basic principles, characteristics and applications of process control systems.
- Discuss the various methods used to implement process control systems.
- Explain the methods used to generate process control signals.
- Define the basic concepts concerning transducers, as well as investigate the different types of output devices and signals used to control processes.
- Describe the nature of fluids as well as the causes and effects of hydrostatic and dynamic pressure.
- Describe fluid flow, characteristics of pressure, and pressure head, in regard to process control parameters.
- Describe the instruments, methods and principles of operation used to measure pressure, level, and flow in fluids.
- Identify the various operating conditions of pressure switches.
- Relate the concept of heat exchange.
- Describe the physical changes heat produces in matter.
- Determine the major differences between AC and DC motor operation, the fundamental methods of controlling each, and some of the problems associated with each type.
- Explain closed loop control system theory relating to the purpose of closed loop control and the different modes of controller operation.
- Discuss some of the more advanced aspects of automatic controllers, with relevance to safety and alarming of controllers.
- Identify the real time limitations and implications and process characteristics required to transmit serial information between MTU and RTUs with regard to the limiting factors of a real time SCADA system.
- Explain closed loop control system theory relating to the purpose of closed loop control and the different modes of controller operation.
- Discuss some of the more advanced aspects of automatic controllers, with relevance to safety and alarming of controllers.

**Coreq. PCT 100, 101, MAT 128 or MAT 151 or higher**

4 Credits 3 Weekly Lecture Hours

**PCT 112 Power Plant Processes**

In this course provides an introduction to the technical requirements associated with auxiliary equipment, as well as the safety, economics and maintenance required to meet the criteria for appropriate power plant operation. This course is designed to facilitate assimilation of knowledge and skills associated with various individual pieces of auxiliary plant equipment for the purpose of providing instruction in the function and process of performing daily operating responsi-
ilities and functions. The interplay of business fundamentals and the importance of quality and systematic operations, along with energy management techniques will be studied. The principles and application of operations, maintenance, material handling, and process trouble shooting techniques will be introduced.

Upon successful completion of this course, students should be able to:
- Identify the role and responsibilities of a production, and a process technician.
- Relate the core values individuals need to demonstrate in order to meet management’s goals and objectives.
- Identify and discuss safety standards and hazards associated with processing plants.
- Describe the use of permit systems developed for routine work and maintenance assignments as required by regulatory agencies such as Occupational Safety and Health Administration (OSHA).
- Explain quality as it relates to importance as a competitive tool, expressing the importance of employer/employee commitment.
- Cite the importance of good communication skills, and the effect of same on productivity, safety, and quality of a processing plants operation.
- Describe the physics, and the thermal properties, involved in the operation of a processing unit.
- Discuss the energy characteristics associated with processing unit, such as; heat energy, kinetic energy (rotating equipment and flow), potential energy (vessels full of chemicals) and pressure (steam, bottled gases).
- Describe the relevancy of process sampling, and analytical testing, as a means for enhancing the production of a safe and efficient product.
- Explain the purpose of a processing unit, relating the process control assignments associated with the monitoring and data collection (as part of the normal operations of the unit).
- Define the importance of routine and preventive maintenance assignments for assuring the efficiency, along with the reliability, of processing equipment.
- Relate the operational procedures (in a macro manner) for unit shutdowns, turnarounds, and start-ups relating some of the cost issues, hazards, roles, and responsibilities for various support personnel during system startup.

Upon successful completion of this course, students should be able to:
- Identify and correct blockage in fluid lines.
- Troubleshoot basic problems with mechanical equipment and identify and/or recommend necessary corrective action for proper unit operation.
- Identify and correct blockage in fluid lines.
- Recognize problems associated with pumps and identify correct action.

Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience. To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5

Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience. To be eligible for an internship, students must:
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- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
PCT 199 Process Control Internship
College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

To be eligible for an internship, students must:
Have completed a minimum of 18 or more credits within the last 5 years
Have begun course work in their major (at least 9 credits)
Have an overall grade point average (GPA) of 2.5
Obtain a written recommendation by a DCCC faculty within the discipline of the internship
Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to:
• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program major to complete a project which articulates how the experience helps the student achieve program outcomes.

3 Credits

PHI 110 Contemporary Moral Problems
This course is intended for the beginning student in philosophy. In this course students, after acquiring basic argumentative skills and some background in moral theory, will examine several different contemporary moral problems. The moral problems discussed may include: the legalization of narcotic drugs, abortion, affirmative action, euthanasia, capital punishment, the ethical treatment of animals, etc. The purpose of the class is to discuss the above issues from a reasoned, philosophical perspective.

Upon successful completion of this course, students should be able to:
• Identify the basic elements of sound reasoning and make a cogent argument for a position.
• Present the major philosophical problems discussed in class.
• Analyze the major philosophical problems discussed in class.
• Present the ethical theories discussed in class.
• Explain the ethical theories discussed in class.
• Identify the philosophers discussed in class and present their views.
• Critique the views of the philosophers discussed in class.
• Formulate and rationally defend an ethical position on a contemporary moral problem.
• Apply the philosophical method of argumentation to issues in daily life.

Prereq. ENG 100
3 Credits 3 Weekly Lecture Hours

PHI 110 College Physics I
This course is intended for science majors who are not in the University Physics sequence. The course deals primarily with Electricity and Magnetism, Waves and Optics, and Modern Physics topics.

Upon successful completion of this course, students should be able to:
• Describe electrostatic interactions in terms of force, fields, energy and potential.
• Analyze circuits using Ohm’s Law and Kirchoff’s Rules.
• Describe the magnetic fields of simple geometries and their interactions with charged objects.
• Define waves and their interactions.
• Apply wave concepts to explain sound phenomena.
• Apply the concepts of geometric and wave optics to the phenomena of refraction, reflection, interference and diffraction.
• Discuss the development of the atomic model and quantum mechanics
• Use concepts of nuclear physics to describe decay processes.
• Apply laboratory skills and computer technology to solve problems in a cooperative environment.

Prereq. MAT 151: Coreq. MAT 152
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

PHI 111 College Physics II
This course is a continuation of College Physics I and is designed for Science majors who are not in the University Physics sequence. The course deals primarily with Electricity and Magnetism, Waves and Optics, and Modern Physics topics.

Upon successful completion of this course, students should be able to:
• Describe electrostatic interactions in terms of force, fields, energy and potential.
• Analyze circuits using Ohm’s Law and Kirchoff’s Rules.
• Describe the magnetic fields of simple geometries and their interactions with charged objects.
• Define waves and their interactions.
• Apply wave concepts to explain sound phenomena.
• Apply the concepts of geometric and wave optics to the phenomena of refraction, reflection, interference and diffraction.
• Discuss the development of the atomic model and quantum mechanics
• Use concepts of nuclear physics to describe decay processes.
• Apply laboratory skills and computer technology to solve problems in a cooperative environment.

Prereq. ENG 100
3 Credits

PHY 107 Technical Physics
Technical Physics is an algebra-based course designed primarily for students in the technologies. The course explores selected topics related to mechanics, sound, electricity, and magnetism, with an emphasis on technical applications of physics.

Upon successful completion of this course, students should be able to:
• Identify the common units of mass, length, and time in both the English and metric systems and the derived units necessary for the calculations and measurements of the physical phenomena studied in this course.
• Describe the motion of simple objects in terms of distance, time, velocity, and acceleration.
• Analyze motion using Newton’s Laws in one and two dimensions.
• Apply the Laws of Conversation of Momentum and Energy.
• Apply mechanics to rotating systems.
• Describe the nature of wave motion and apply it to sound waves.
• Analyze electrostatic forces and related electrical concepts.
• Explain the fundamentals of magnetism.
• Apply the topics listed above to understand the functioning of simple machines and electrical devices.
• Apply laboratory skills and technologies to solve problems in a cooperative environment.

Prereq. MAT 151 and MAT 152
4 Credits

PHY 131 University Physics I
This course is designed for Natural Science and Engineering majors who are required to take a calculus-based physics course. Dealing primarily with mechanics, the course covers the linear and rotational kinematics and dynamics of particles and the principles, laws and concepts pertaining to, the motion of solids, along with specific applications relating to liquids and gases.

Upon successful completion of this course, students should be able to:
• Analyze the kinematics equations to determine the linear motion of a particle.
• Use the kinematics equations to determine the rotational motion of a solid.
• Apply Newton’s Laws of motion and gravity to the linear motion of a particle.
• Apply Newton’s Laws of motion to the rotational motion of a solid.
• Know and apply the concepts of work and energy to solids, liquids and gases.
• Utilize the concepts of momentum and conservation of momentum principle to analyze the interactions of particles and solids.
• Use the concepts relating to the material properties of solids, liquids and gases.

4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours
• Apply the concepts of periodic motion to solids experiencing simple harmonic motion.
• Develop and use the kinematics and dynamics equations for wave motion as exhibited by liquids and gases.
• Apply laboratory skills and computer technology to solve problems in a cooperative environment.

College Academic Learning Goal Designation: Scientific Inquiry (SI)

Prereq: MAT 160

PHY 132 University Physics II

This course is a continuation of University Physics I and is designed for Natural Science and Engineering majors who are required to take a calculus-based physics course sequence. Dealing primarily with electricity and magnetism, the course covers the principles, laws and concepts of electrostatics and electrodynamics, including electromagnetic waves and physical and geometrical optics.

Upon successful completion of this course, students should be able to:
• Determine the electric field by the application of Coulomb's Law and Gauss's Law.
• Apply the concepts of potential difference, capacitance and resistance to direct and alternating current circuits.
• Utilize Kirchhoff's Rules to analyze direct and alternating current circuits.
• Calculate magnetic fields by the application of the Biot-Savart Law and Ampere’s Law.
• Apply Faraday’s Law of Induction to explain the effects resulting from changing magnetic fields.
• Use Maxwell’s Equations to explain the creation and properties of an electromagnetic wave.
• Apply the concepts of geometric and wave optics to the phenomena of refraction, reflection, interference and diffraction.

Apply laboratory skills and computer technology to solve problems in a cooperative environment.

Prereq: PHY 131 Coreq MAT 161

4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

PHY 230 Modern Physics

This course is an introduction to topics in Modern Physics. Students will be introduced to Special Relativity, Wave-Particle Duality, Quantum Mechanics, Atomic physics, Nuclear physics, Particle Physics and Cosmology. This course is intended for students intending to major in physics and for students who need an extra course in Modern Physics.

Upon successful completion of this course, students should be able to:
• Apply the concept of relativity to the physical world.
• Discuss the concept of Wave-Particle Duality and Quantum Physics and its implications.
• Describe the structure of matter as described by Atomic and Molecular physics.
• Describe and explain physics at the nuclear level.
• Describe the fundamental particles found in nature and their role in cosmology.

Prereq: PHY 132 and MAT 161

3 Credits 3 Weekly Lecture Hours

(PLB) Plumbing

PLB 100 Plumbing Theory I

This course is designed to provide the student with instruction in plumbing practices applicable to all areas of plumbing. Emphasis will be placed on presenting the history of plumbing, materials, tools and ideas in the plumbing industry. Traditional approaches are covered to ensure that the student receives a broad exposure to all materials and practices potentially encountered in the workplace.

Upon successful completion of this course, students should be able to:
• Explain the history of plumbing.
• Explain the development of plumbing codes.
• Define terminology associated with the trade, for example; fitting allowances.
• Specify fittings correctly.
• Identify various patterns of fittings.
• Define different types of sketches.
• Demonstrate the proper use of measuring tools.
• Calculate dimensions and interpret piping symbols.
• Perform basic measurements (expressed in feet, inches, and fractions).
• Accurately measure pipes, threads, runs and angles related to plumbing installations.
• Calculate pipe sizes for drainage and service lines.
• Identify tools used to install plumbing systems.
• Explain the various methods of assembling pipe.

Prereq: Must be employed by a Master plumber

5 Credits 3 Weekly Lecture Hours

PLB 101 Plumbing Theory II

This continuation course is designed to stress good solid plumbing practices applicable to all areas of plumbing. Emphasis will be placed on presenting advanced concepts and materials in the plumbing industry. Traditional approaches are covered to ensure that the student receives a broad exposure to all materials and practices that may be encountered in the workplace. Proper selection, installation of materials, application, and use of tools according to plumbing codes are covered.

Upon successful completion of this course, students should be able to:
• Test and repair gas piping.
• Describe the relationship of threads per inch to pipe size.
• Identify the various tools for threaded pipe.
• Describe the use of the tools for threaded pipe.
• Explain how pipe is cut, reamed, and threaded.
• Define the terms associated with pipe threading.
• Demonstrate the procedures necessary to properly tighten fittings on pipes.
• Tighten fittings on pipes and valves.
• Define fitting allowance.
• Interpret center-to-center measurements.
• Perform fittings to obtain end-to-end measurements.

Prereq: Must be employed by a Master plumber and PLB 100

5 Credits 3 Weekly Lecture Hours

PLB 102 Math for Plumbers

This course is designed to provide the student with relevant theory and skills in solving practical, industrial based, trade-related mathematical problems. Topics of instruction will include, but will not be limited to, calculating arithmetic expressions involving whole numbers, fractions, decimals, ratio, proportion, and percentages. The appropriate use of English/metric conversions, exponents, square roots, basic graph interpretation, and basic algebraic expression (formulas) manipulation will be presented. Emphasis is placed on providing the student with a problem-solving methodology applicable to new and future mathematical concepts. An introduction to the use of trigonometry for the solution of right and obtuse triangles will also be included.

Upon successful completion of this course, students should be able to:
• Perform the addition, subtraction, multiplication and division of fractions.
• Utilize ratio and proportion.
• Define the Pythagorean theorem and show its use in plumbing for finding angles and offsets.
• Solve square roots and perimeter, area, and volume problems.
• Use mathematical concepts as they relate to plumbing projects.
• Define the types of measurements used in plumbing projects.
• Identify the mathematical symbols.
• Define the use of symbols in mathematics.
• Define math procedure and math precedence.
• Solve linear equations.
• Define formulas Equations.
• Utilize square root to solve triangles.
• Describe the relationship of angles formed by intersecting lines.
• Utilize the proportion of each task.
• Interpret various pipe weights and use a pipe data sheet.
• Calculate pipe clearances.
• “Take off” for fittings.
• State generic rules for fitting allowance.

Prereq: Must be employed by a Master plumber and PLB 101

5 Credits 3 Weekly Lecture Hours

PLB 103 Installation & Repair

This course is designed to stress good solid plumbing practice applicable to all areas of plumbing materials, installation, and repair. Emphasis will be placed on advanced concepts and material selections in the plumbing industry. Traditional approaches are covered to ensure that the student receives a broad exposure to all materials and practices that may be encountered in the workplace. Proper selection, installation of materials, application, and use of tools according to plumbing codes are covered. In addition, practical application in the lab of the theoretical material covered in class will be stressed throughout the course.

Upon successful completion of this course, students will be able to:
• Explain how to install gas piping correctly.
• Explain how to install domestic gas equipment safely.
• Describe pipe threads.
• Describe loop and circuit vents and how they are installed.
• Identify and perform the various methods of supporting pipes.
• Sketch the various devices used to support pipes.
• Describe the purpose of cleanouts.
• Identify the various locations and sizes of cleanouts.
• Identify the size and types of drainage traps.
• Describe siphonage and its effect on various types of traps.
• Describe back pressure and how to prevent it.
• Discuss capillary attraction and evaporation.
• Describe the types of fixture traps and where they are used.
• Explain why and where grease traps are used.

Prereq: Must be employed by a Master plumber and PLB 101

5 Credits 3 Weekly Lecture Hours

PLB 104 Bathroom Installation

This course explains the manifold rules and regulations regarding shop safety. It demonstrates the right ways to lay out a job by the department of Labor and Industry, as well as, discuss job site hazards. In addition, it places emphasis on the power threader, soldering, brazing and safety. Students are taught how to create a detailed tool and material list as well as how to complete the manifold drawing to scale.

Upon successful completion of this course, students should be able to:
• Understand job site hazards and apply safety regulations.
• Design and create a manifold drawing.
• Identify appropriate symbols.
• Demonstrate the power threader, soldering and brazing.
• Create a detailed tool and material list.
• Complete a manifold project.
• Interpret the fitting allowance chart.
• Rough in the waste for the bathrooms.
• Design a bathroom according to a given plumbing code.
• Create a tool and material lists for said bathroom.
• Describe siphonage and its effect on various types of traps.
• Describe back pressure and how to prevent it.
• Discuss capillary attraction and evaporation.
• Describe the types of fixture traps and where they are used.

Prereq: Must have completed two years apprentice and working for a master plumber.

Prereq: Must be employed by a Master plumber and PLB 101

1 Credit 3 Weekly Lecture Hours
PLB 110 Introduction to Plumbing
This introductory course in the Plumbing Technology Certification program exposes students to the foundational knowledge needed to develop skills in the plumbing trade. This course presents basic plumbing concepts, plumbing lexicon and terminology, as well as the use of critical plumbing tools and equipment. Students also learn basic aspects of applications and installation for a residential plumbing system.

Upon successful completion of this course, students should be able to:
- Describe the history of plumbing systems.
- Use appropriate terminology in discussing plumbing projects and assignments.
- Demonstrate knowledge of health and safety practices in the plumbing trade.
- Distinguish plumbing tools and their uses.
- Examine and identify plumbing configurations commonly used in a domestic water system.
- Identify plumbing materials used in supply and drainage of a domestic water system.
- Define major components of domestic plumbing.
- Demonstrate knowledge of the sources and solvency of domestic water.

PreReq. PLB 111, HVA 106

3 Credits 3 Weekly Lecture Hours

PLB 111 Faucets & Fixture Systems
This course focuses on fixtures and faucets used in domestic plumbing applications. It includes, but is not limited to complete bathroom, kitchen, and laundry room fixtures. This course also emphasizes common design theories.

Upon successful completion of this course, students should be able to:
- Identify various fixtures and their applications in industry.
- Demonstrate an understanding of the mechanical operations of fixtures and faucets.
- Explain troubleshooting techniques used in addressing plumbing problems.
- Demonstrate an understanding of ADA requirements in relation to domestic plumbing systems.
- Model layouts and designs for new bathrooms and kitchens.
- Illustrate rough installations of plumbing fixtures.

PreReq. PLB 110, TCS 141

3 Credits 3 Weekly Lecture Hours

PLB 112 Plumbing Residential Service
This course presents an in-depth study of residential plumbing services. The course prepares students to diagnose and solve problems with potable water and waste water systems. In addition, students will learn how to work with fixtures, faucets, and equipment associated with residential plumbing systems.

Upon successful completion of this course, students should be able to:
- Identify potable water and waste water delivery systems.
- Demonstrate an understanding of problems related to potable water and waste delivery systems.
- Troubleshoot and repair plumbing fixtures and faucets.
- Identify pumps and their applications in domestic plumbing systems.
- Prepare domestic plumbing systems for seasonal temperature changes.
- Detect in fixtures, the sources of leaks, odors and sounds reported by consumers.
- Demonstrate competencies in customer services and professionalism.

PreReq. PLB 111, HVA 106

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

PLB 200 Heating Systems
This course is designed to help the heating professional become comfortable with the electrical portion of an installation or service call. The program covers basic electric circuits, flow of electricity, switches, grounding, electrical terms and principles, electric power in the home, electric wire and supplies, tools and test equipment, transformers, electric heating components, wiring diagrams, practical wiring of a heating appliance, and troubleshooting.

Upon successful completion of this course, students should be able to:
- Identify basic electrical circuits.
- Define two Laws of Electricity and understand fundamental electrical terms.
- Describe how electric power gets to a home and some safety considerations.
- Explain types and common uses of electrical wire (conductors).
- Splice and connect wires.
- Extend a circuit and some common electrical parts.
- Use the proper tools and test equipment to perform basic electrical work.
- Demonstrate how electrical power from the Power Company transformer can reduce to run low voltage components in a home.
- Identify the essential electrical components of a heating system.
- Perform the basics of wiring, schematics, ladder, and pictorial diagrams.
- Read a schematic and ladder-wiring diagram, and wire a boiler.
- Troubleshoot an electrical circuit.
- Install gas utilization equipment in accordance with their listing and the manufacturer's instructions.
- Perform methods of vent installations of venting systems based on the operating characteristics of the gas utilization equipment.
- Adjust the burner input to the proper rate in accordance with the equipment manufacturer's instruction by changing the size of a fixed orifice, by changing the adjustment of an adjustable orifice, or by readjustment of the gas pressure regulator outlet pressure without overfiring.
- Perform modifications to an existing appliance installation for the purpose of conservation.

PreReq. Must be employed by a Master plumber

2 Credits 3 Weekly Lecture Hours

PLB 202 Blueprint Reading
This course was designed for plumbing and pipe fitting students who need to develop the ability to interpret trade blueprints and plan the installation of the required plumbing. The appropriate method to interpret all types of trade drawings and make orthographic or isometric sketches of plumbing installations will be discussed. The student will have the opportunities for extensive practice which provide reinforcement and additional performance skills will be presented.

Upon successful completion of this course, students should be able to:
- Read blueprints and sketch plumbing features.
- Discuss the purpose of specifications and plumbing codes.
- Determine if a back-flow prevention assembly is necessary.
- Define various plumbing systems code.
- Discuss the purpose of specifications and plumbing codes.
- Determine the minimum water pressure required at the most remote outlet on any potable water system.
- Identify the requirements on a potable water system for installation.
- Identify and operate the vacuum breaker on the discharge side.
- Demonstrate how a direct connection to a sewer or waste line can be properly utilized.
- Connect and identify appropriatearieties.
- Size drainage and vent lines.

PreReq. Must be employed by a Master plumber

3 Credits 3 Weekly Lecture Hours

PLB 207 Cross Connection Control
This course presents the essential ingredients of blending theoretical and practical aspects of cross-connection controls along with specific guidelines concerning the theory of backflow prevention and administration. It provides extensive information on troubleshooting from a hands-on point of view and is designed to be used as an on-the-job troubleshooting tool. Standardized training in the backflow/cross-connection control field will be addressed.

Upon successful completion of this course, students should be able to:
- Pass ASSE (American Society of Sanitation Engineers) Backflow Certification Exam for Testers.
- Communicate historical data regarding cross-connections.
- Perform the five methods of properly controlling backflow.
- Articulate and define various cross-connections definitions.
- Identify the various responsibilities of public and private agencies for cross-connection controls.
- Apply, define and identify the appropriate plumbing codes and standards.
- Discuss basic hydraulics and the fundamentals of cross-connection controls.
- Utilize and apply the safety program material and implementation into the workplace.
- Implement installation guidelines for backflow prevention assembly.
- Observe the condition of the test gage equipment during all stages of the field test procedure.
- Troubleshoot and repair the problem with a backflow prevention assembly.
- Demonstrate the validity of the inspection and certification of a backflow prevention assembly.
- Report the results of the field-testing operations.
- Maintain and generate all records and certifications of all backflow prevention assembly tests performed.

PreReq. Must be employed by a Master plumber

3 Credits 3 Weekly Lecture Hours

PLB 208 Philadelphia Plumbing Codes
This course reviews the major aspects of Philadelphia Plumbing Code (1996 Edition). Emphasis will be placed on general regulations, plumbing definitions, materials, sanitary and storm water systems. Students will be exposed to sketching, laying out, and sizing of various systems.

Upon successful completion of this course, students should be able to:
- Determine if a back-flow prevention assembly is necessary.
- Check with your inspector on the appropriate assembly required for the job.
- Determine the minimum water pressure required at the most remote outlet on any potable water system.
- Identify the requirements on a potable water system for installation.
- Identify and operate the vacuum breaker on the discharge side.
- Demonstrate how a direct connection to a sewer or waste line can be properly utilized.
- Connect and identify appropriatearieties.
- Size drainage and vent lines.

PreReq. Must be employed by a Master plumber

3 Credits 3 Weekly Lecture Hours

PLB 209 International Plumbing Codes
This course is designed to assist students in understanding codes and adjacent code provisions. It addresses various codes founded upon certain basic principles of environmental sanitation and safety through properly designed, acceptably installed, and adequately maintained plumbing systems will be addressed.

Upon successful completion of this course, students should be able to:
- Correct all plumbing violations.
- Size and design plumbing systems for residential and commercial buildings.
- Define various plumbing systems code.
- Change the direction of flow without restrictions regarding drainage fitting patterns.
- Apply the standards to control all materials, systems, and equipment used in the construction, installation, alteration, repair, or replacement of plumbing or drainage systems or parts.
- Test joints and connections in the plumbing system requiring gas tight and watertight for the pressure required.
• Apply the plumbing code regarding how fixtures shall be separately trapped by a water seal trap and placed as close as possible to the fixture outlet.
• Demonstrate the proper handling of liquid waste containing grease, flammable wastes and other ingredients harmful to the building drainage system.
• Confirm the requirements for plumbing fixtures for accessible use and their installation.

Prereq. Must be employed by a Master plumber

5 Credits

**PLB 210 Drains and Sewers**

This course focuses on residential drainage and venting systems. It provides explanations of the elements and processes involved in the drainage systems, as well as instructions on appropriate applications. Student will also learn how to diagnosis blockage and slow drain problems associated with improper installation, interior materials and improper venting.

Upon successful completion of this course, students should be able to:

• Design residential drainage, waste and venting systems.
• Determine proper fall and sizing for common bathroom groups.
• Differentiate between public and private sewage disposal systems.
• Identify obstructions in branch drains, waste and soil lines.
• Diagnose problems in drainage and venting systems.
• Install testing equipment according to local code requirements as pertains to drain lines and venting.

Prereq. PLB 110 as a prerequisite.

3 Credits

**PLB 211 Advanced Plumbing**

This course introduces advanced piping principles as they apply to the plumbing industry. Students learn to identify and use a variety of piping, fittings, and materials in domestic water and drainage installations. These installations could be in new or retrofit applications.

Upon successful completion of this course, students should be able to:

• Identify various material, components, and accessories for water and drainage installation and venting applications.
• Explain the differences in piping and fittings used in commercial and residential systems.
• Demonstrate various installation techniques for copper, plastic and domestic water lines.
• Identify drainage fitting patterns, bend, degrees and their common application.
• Calculate pitch and grade.
• Connect different drainage fittings of dissimilar materials.
• Design a bathroom draw a sketch of pipe.
• Evaluate gas piping distribution and associated accessories.
• Design gas line based on BTU requirements.
• Demonstrate knowledge of drilling, boring, and notching techniques as well as installations.
• Apply the appropriate techniques to install, repair, and maintain pipes in accordance with local and international plumbing codes.

Prereq. PLB 210

2 Credits

**PLB 212 Installation of Plumbing Related Fixtures**

The purpose of this course is to help students develop the fundamentals skills required to install plumbing related fixtures, faucets and appliances in residential homes. The course builds on the skills students acquire in the introductory Faucets and Fixtures course.

Upon successful completion of this course, students should be able to:

• Install selected fixtures.
• Adjust applications for proper appearance and function.
• Analyze conditions that impact the installation of fixtures.
• Demonstrate knowledge of code requirements for residential fixtures.
• Demonstrate knowledge of water and drainage testing systems in preparation for testing.

Prereq. PLB 211

3 Credits

**PLB 213 Principles of Prod Hot Water**

This course presents the principles of heating water for consumption in a variety of applications. Students also learn the theories and practice of using different fuels to produce hot water systems. In addition, they gain knowledge of several types of hot water systems configurations as well as how to install residential hot water heating systems.

Upon successful completion of this course, students should be able to:

• Demonstrate an understanding of the theory of British Thermal Unit.
• Explain the principles of domestic hot water heating and circulation.
• Analyze the different energy-fuel sources for hot water.
• Explain the advantages and disadvantages of various fuel options.
• Explain the processes for selecting the proper water heater to meet the consumer requirements.
• Describe the different hot water heating distribution systems.
• Identify the valves, safety devices and control components of domestic hot water heating systems.
• Demonstrate an understanding of the combustion and venting processes of gas and oil fired hot water units.
• Troubleshoot gas, electric, and oil hot water heater systems.
• Discuss layout of solar hot water heaters.
• Describe the operation of residential boilers.
• Demonstrate an understanding of radiant heating systems.

Prereq. PLB 212

3 Credits

**PLG 100 Introduction to the Paralegal Profession**

This course provides an overview of the paralegal profession while focusing on the role of the paralegal in the legal profession, the legal and ethical rules that determine unauthorized practice of law, and key legal terminology used in the profession. While developing critical thinking and legal reasoning skills, students will be introduced to such concepts as common law, constitutional foundation in the American legal system, federalism, and differences between the federal and state court systems.

Upon successful completion of this course, students should be able to:

• Identify and use productivity software applicable to various client conflict management, timekeeping and file management, to prepare and maintain a database for each client, to organize and safeguard documentary evidence, and to assist during trial preparation and trial.

Upon successful completion of this course, students should be able to:

• Apply principles of legal research and writing to drafting discovery documents, motions, memoranda of law, trial and appellate briefs, and various other legal documents.
• Properly format legal documents and cite legal references.
• Compose written communications with attorneys, courts, and clients.
• Discuss relevant ethical issues.

Prereq. PLG 110 with a grade C or higher

3 Credits

**PLG 120 Legal Research and Writing II**

This course builds upon the knowledge and skills acquired in Legal Research and Writing I to research substantive and legal issues with more complexity and greater depth. Students will draft more intricate and varied legal documents including different forms of discovery, motions, and memoranda in support, orders, trial briefs, final pretrial orders, and appellate briefs. Students need to obtain a C or higher in this course to take any course that requires PLG 120 as a prerequisite.

Upon successful completion of this course, students should be able to:

• Differentiate between the various sources and methods used to research the law.
• Conduct and identify different methods of legal research.
• Identify and analyze legal issues.
• Use critical thinking to apply the law to facts presented in hypothetical case scenarios.
• Write legal memoranda that demonstrates an understanding of legal issues.
• Discuss relevant ethical issues.

Prereq. PLG 100

3 Credits

**PLG 130 Technology in the Law**

This course is a general introduction to the use and the application of legal specialty software programs in the modern practice of law. Covers law office applications of client management software, billing software, LexisNexis® Academic, and various state and federal websites. Students will use appropriate software to perform client conflicts checks, for timekeeping and file management, to prepare and maintain a database for each client, to organize and safeguard documentary evidence, and to assist during trial preparation and trial.

Upon successful completion of this course, students should be able to:

• Identify and use productivity software applicable to various business and legal environments.
• Comprehend the impact of modern technologies on law office and courtroom procedures and apply such technologies and management software to assigned hypothetical legal work and tasks.
• Apply the relevant computer software and applications applicable to legal environments.
• Apply communication and collaboration applications commonly used in the legal and business environments.
• Identify the ethical and privacy issues that arise from the use of technology and the law.

College Academic Learning Goal Designation: Information Technology (TC)

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075

3 Credits

**PLG 140 Paralegal Studies**

This course introduces basic legal research and writing skills. Students are taught the basics of researching issues of substantive and procedural law as well as how to draft basic legal documents. This course also introduces students to traditional law library resources, such as Black’s Law Dictionary, U.S. Code, the Pennsylvania Code, Federal Reporter, Pennsylvania Reporter, Atlantic Reporter, and legal treatises. In addition, students will learn about online research sources including LexisNexis and the official federal and Pennsylvania State Courts websites. Students need to obtain a C or higher in the course in order to take any course that requires PLG 110 as a prerequisite.

Upon successful completion of this course, students should be able to:

• Differentiate between the various sources and methods used to research the law.
• Conduct and identify different methods of legal research.
• Identify and analyze legal issues.
• Use critical thinking to apply the law to facts presented in hypothetical case scenarios.
• Write legal memoranda that demonstrates an understanding of legal issues.
• Discuss relevant ethical issues.

Prereq. PLG 100

3 Credits

**PLG 150 Legal Research and Writing I**

This course introduces basic legal research and writing skills. Students are taught the basics of researching issues of substantive and procedural law as well as how to draft basic legal documents. This course also introduces students to traditional law library resources, such as Black’s Law Dictionary, U.S. Code, the Pennsylvania Code, Federal Reporter, Pennsylvania Reporter, Atlantic Reporter, and legal treatises. In addition, students will learn about online research sources including LexisNexis and the official federal and Pennsylvania State Courts websites. Students need to obtain a C or higher in the course in order to take any course that requires PLG 110 as a prerequisite.

Upon successful completion of this course, students should be able to:

• Differentiate between the various sources and methods used to research the law.
• Conduct and identify different methods of legal research.
• Identify and analyze legal issues.
• Use critical thinking to apply the law to facts presented in hypothetical case scenarios.
• Write legal memoranda that demonstrates an understanding of legal issues.
• Discuss relevant ethical issues.

Prereq. PLG 100

3 Credits

**PLG 160 Legal Research and Writing II**

This course builds upon the knowledge and skills acquired in Legal Research and Writing I to research substantive and legal issues with more complexity and greater depth. Students will draft more intricate and varied legal documents including different forms of discovery, motions, and memoranda in support, orders, trial briefs, final pretrial orders, and appellate briefs. Students need to obtain a C or higher in this course to take any course that requires PLG 120 as a prerequisite.

Upon successful completion of this course, students should be able to:

• Differentiate between the various sources and methods used to research the law.
• Conduct and identify different methods of legal research.
• Identify and analyze legal issues.
• Use critical thinking to apply the law to facts presented in hypothetical case scenarios.
• Write legal memoranda that demonstrates an understanding of legal issues.
• Discuss relevant ethical issues.

Prereq. PLG 100

3 Credits

**PLG 170 Paralegal Studies**

This course introduces basic legal research and writing skills. Students are taught the basics of researching issues of substantive and procedural law as well as how to draft basic legal documents. This course also introduces students to traditional law library resources, such as Black’s Law Dictionary, U.S. Code, the Pennsylvania Code, Federal Reporter, Pennsylvania Reporter, Atlantic Reporter, and legal treatises. In addition, students will learn about online research sources including LexisNexis and the official federal and Pennsylvania State Courts websites. Students need to obtain a C or higher in the course in order to take any course that requires PLG 110 as a prerequisite.

Upon successful completion of this course, students should be able to:

• Differentiate between the various sources and methods used to research the law.
• Conduct and identify different methods of legal research.
• Identify and analyze legal issues.
• Use critical thinking to apply the law to facts presented in hypothetical case scenarios.
• Write legal memoranda that demonstrates an understanding of legal issues.
• Discuss relevant ethical issues.

Prereq. PLG 100

3 Credits

**PLG 180 Paralegal Studies**

This course introduces basic legal research and writing skills. Students are taught the basics of researching issues of substantive and procedural law as well as how to draft basic legal documents. This course also introduces students to traditional law library resources, such as Black’s Law Dictionary, U.S. Code, the Pennsylvania Code, Federal Reporter, Pennsylvania Reporter, Atlantic Reporter, and legal treatises. In addition, students will learn about online research sources including LexisNexis and the official federal and Pennsylvania State Courts websites. Students need to obtain a C or higher in the course in order to take any course that requires PLG 110 as a prerequisite.

Upon successful completion of this course, students should be able to:

• Differentiate between the various sources and methods used to research the law.
• Conduct and identify different methods of legal research.
• Identify and analyze legal issues.
• Use critical thinking to apply the law to facts presented in hypothetical case scenarios.
• Write legal memoranda that demonstrates an understanding of legal issues.
• Discuss relevant ethical issues.

Prereq. PLG 100

3 Credits
PLG 140 Contract Law
This course provides in-depth analysis of contract law including contract formation and the elements of an enforceable contract, rights and obligations of the parties to a contract, contract performance and discharge, elements of breach of contract, defenses to a claim of breach, remedies for breach, implied-in-law contracts, implied-in-fact contracts, promissory estoppel, and secured transactions. Included in the course is a study of the Sales and Commercial paper provisions of the Uniform Commercial Code. Specific contracts that are subject to much litigation are examined and discussed. Application of contract drafting techniques will be stressed. Ethical issues related directly to contract law will be discussed.

Upon successful completion of this course, students should be able to:
- Discuss the elements of a contract.
- Discuss relevant ethical and constitutional issues.
- Compare and/or contrast different contractual agreements.
- Explain the various modes of discharging a contract and the remedies available for breach of contract.
- Analyze and draft contracts that comply with the provisions of the Uniform Commercial Code with emphasis on Article 2 (Sales) and Article 3 (Commercial Paper).

Prereq. PLG 110, PLG 120, PLG 140, PLG 210, PLG 240
Coreq. PLG 110 with a grade C or higher

3 Credits 3 Weekly Lecture Hours

PLG 199 Paralegal Experience and Legal Ethics
This course is designed for the day/full-time students that need to satisfy the internship requirement for the Paralegal Studies Program. There are two components to this course. The first component involves an internship with a local law firm, corporate law department, government agency, or nonprofit. With the assistance of the Director of Paralegal Studies, and the Office of Student Employment Services and Coops, students will need to secure an internship. Students are required to intern a minimum of 180 hours in the paralegal field.

The second component requires students to meet one hour per week to discuss job related issues and cover the fundamental principles governing the ethical practice of law for both lawyers and paralegals. In addition, this segment of the course provides students with the necessary tools to identify and resolve ethical problems as well as provide practical tips to implement in everyday practice. Students will also examine the rules of ethics peculiar to the practice of law and the crucial role they play in the profession of a paralegal. This course covers the regulation of the legal profession, the unauthorized practice of law, client confidentiality, conflicts of interest, advertising and solicitation, client fees and fee sharing, and specific examples of Pennsylvania’s Rules of Professional Conduct.

Need to obtain Director of Paralegal Studies Approval.

Upon successful completion of this course, students should be able to:
- Develop professional level skills in oral and written communications.
- Develop a first-hand understanding of law-related office organizations and their internal systems such as timekeeping, billing and file management.
- Acquire a sound, contextual understanding of legal and ethical responsibilities, including, but not limited to, regarding client confidentiality, conflict of interest, and the unauthorized practice of law.
- Create a portfolio of work samples (or writing samples).

Prereq. PLG 120, PLG 140, PLG 210 and PLG 240 - C

4 Credits 1 Weekly Lecture Hours

PLG 197 Paralegal Practicum and Legal Ethics
This course is specifically designed for part-time/evening students that need to satisfy the internship requirement for the Paralegal Studies Program, and will meet in a traditional classroom setting.

As with the traditional internship, there are two components to this course. The first component involves a practicum where students work directly under the direction and supervision of an attorney and/or experienced paralegal in a traditional classroom setting. In a controlled environment, students will learn how to interview clients, prepare and monitor client files, set up interview schedules, and perform various administrative duties relating to practical work operations in a legal office. Need ‘C’ or better for prerequisites.

The second component covers the fundamental principles governing the ethical practice of law for both lawyers and paralegals. In addition, this segment of the course provides students with the necessary tools to identify and resolve ethical problems as well as provide practical tips to implement in everyday practice. Students will also examine the rules of ethics peculiar to the practice of law and the crucial role they play in the profession of a paralegal. This course covers the regulation of the legal profession, the unauthorized practice of law, client confidentiality, conflicts of interest, advertising and solicitation, client fees and fee sharing, and specific examples of Pennsylvania’s Rules of Professional Conduct.

Need to obtain Director of Paralegal Studies approval.

Upon successful completion of this course, students should be able to:
- Develop professional level skills in oral and written communications.
- Develop a first-hand understanding of law-related office organizations and their internal systems such as timekeeping, billing and file management.
- Acquire a sound, contextual understanding of legal and ethical responsibilities, including, but not limited to, regarding client confidentiality, conflict of interest, and the unauthorized practice of law.
- Create a portfolio of work samples (or writing samples).

Prereq. PLG 110, PLG 120, PLG 140, PLG 210 and PLG 240 - C

4 Credits 1 Weekly Lecture Hours

PLG 200 Family Law
This course introduces students to the procedural and substantive law affecting the family and domestic relations. The law affecting prenatal agreements, separation, divorce, spousal support, alimony, spousal abuse, custody, child support and adoption is discussed. Emphasis is placed on the preparation of relevant legal documents and procedures for filing.

Upon successful completion of this course, students should be able to:
- Discuss the basic principles of family and domestic relations law.
- Research family law and domestic relations issues.
- Analyze specific divorce remedies.
- Prepare legal documents applicable to court rules and regulations in a family or domestic relations case.
- Discuss the role of human relations, emotional sensitivity, in domestic relations cases.
- Discuss the relevant ethical issues.
- Apply relevant modern technologies.

Prereq. PLG 110

3 Credits 3 Weekly Lecture Hours

PLG 210 Civil Litigation and Tort Principles
This course focuses on the applications of the principles of tort law and civil litigation, and emphasizes the paralegal’s role in the civil and litigation process. Students will receive a thorough overview of the applicable constitutional issues that arise in tort law, rules of civil procedure, and rules of evidence as well as an introduction to different resolution methods available through the state and federal court systems; in particular, alternative dispute resolution methods applicable to negligence cases. Lastly, this course provides students with the necessary foundation to prepare and write pleadings and other applicable court documents, prepare for discovery, and assemble proper documentation for trial.

Upon successful completion of this course, students should be able to:
- Conduct legal research of basic negligence liability concepts applied to various intentional and unintentional torts and the applicable defenses, and then use critical thought to analyze the results of such research.
- Comprehend fundamental constitutional issues surrounding tort law.
- Discuss the theories of damage recovery applicable to tort matters.
- Discuss negligence problem resolution through court litigation and alternative remedies of negotiation, arbitration, and mediation, as well as the paralegal’s role in each scenario.
- Discuss relevant ethical issues.

Prereq. PLG 120

3 Credits 3 Weekly Lecture Hours

PLG 221 Civil Litigation and Tort Applications
This course focuses on the application of the principles of tort law and civil litigation learned in Civil Litigation and Tort Principles, with an emphasis placed on deepening the student’s understanding of the paralegal’s role in the civil litigation process. Students will be taught the role of the paralegal in writing briefs and researching the law in the trial and appellate process. In addition, students will learn how to properly prepare and draft appellate briefs and other documents to be filed with an appellate court.

Upon successful completion of this course, students should be able to:
- Accurately apply Court Rules of Civil Procedure and rules of evidence when filing and drafting trial and appellate court documents.
- Prepare and write pleadings and other documents with trial court practice.
- Prepare and draft appellate briefs.

Prereq. PLG 210

3 Credits 3 Weekly Lecture Hours

PLG 220 Real Estate Law
This course provides an introduction to real-property law. Emphasis is placed on real estate fundamentals, material devoted to the legal concepts of ownership, the laws that govern real estate transactions, and material that discusses brokerage and related activities. In addition, this course examines the tasks performed by lawyers and their representatives in representing buyers and sellers in the transfer of real property interests and the relationships between landlords and tenants. Discussion and analysis of real-property law includes possession, ownership and transfer of real property, land-use controls, environmental issues, contracts, agreements and financing, federal and state laws and regulations, taxes and liens, land title issues, estates, and the business of real estate.

Upon successful completion of this course, students should be able to:
- Analyze the basic principles of property law.
- Apply principles of real property law to the preparation of forms common to real estate transactions.
- Discuss relevant ethical and constitutional issues.

Prereq. PLG 140 with Director’s approval

3 Credits 3 Weekly Lecture Hours

PLG 230 Estates, Trusts and Wills
This is a task-oriented course that emphasizes the terminology, forms and procedures of probate and estate administration. Students also learn to draft a simple trust and a will.

Upon successful completion of this course, students should be able to:
- List and describe the duties of an estate paralegal.
- Construct a family tree for the decedent and determine which of the decedent’s surviving relatives are entitled to share (and to what degree) in the decedent’s estate.
- Gather necessary information to complete and file petitions for Letters.
- Apply the rules concerning advertising of the grant of Letters and identify the reasons for and advantages of advertising.
- Complete the renunciation form.
- Identify and differentiate between various grounds for contesting a will.
- Calculate the surviving spouse’s elective share.
- Identify and differentiate between survival actions and wrongful death options.
- Gather information, complete and file various State and Federal tax returns.
- Draft and file a basic accounting with the Probate Court.
- Draft and file Satisfaction of Reward/Receipts and Releases.
- Identify procedures for handling small estates and ancillary administration.
- Draft a simple trust.
- Apply relevant modern technologies.
- Discuss relevant ethical issues.

PreReq: PLG 110
3 Credits 3 Weekly Lecture Hours

PLG 240 Criminal Law and Procedure
This criminal law and procedure course introduces the foundations of criminal law and rules of criminal procedure. Students will be introduced to the elements of crimes against persons and property as well as legal defenses to criminal prosecution. The course also covers evidentiary issues and constitutional concerns, along with pretrial considerations and procedures, trial, sentencing, punishment, and appellate review. There is an emphasis placed on the preparation of legal documents relevant to criminal cases and the proper preparation of case files.

Upon successful completion of this course, students should be able to:
- Discuss the basic principles of criminal law.
- Prepare legal documents relevant to criminal cases and procedures.
- Prepare a case file that requires documentation of key facts, and the maintenance and organization of applicable case file documents.
- Identify ethical and constitutional law issues.

Coreq: PLG 100
3 Credits 3 Weekly Lecture Hours

PLG 241 Administrative Law
This course introduces paralegal students to the laws involving administration of government by various departments, agencies, boards, and commissions that implement and enforce government law and policy. Students are taught the laws and procedures affecting the administrative decision-making processes on a local, state and federal government level.

Upon successful completion of this course, students should be able to:
- Describe the scope and application of Administrative Law.
- Describe the constitutional and statutory legal bases of administrative law and administration agencies on a local, state and federal level of government.
- Describe and analyze the rules, procedures and practices of government departments, agencies, boards and commissions for making rules, conducting hearings and making decisions.
- Describe and analyze the scope of authority and jurisdiction for various governmental departments, agencies, boards and commissions.
- Analyze the administrative, quasi-legislative and quasi-judicial functions of administrative departments.
- Analyze the role of legislative body, courts, statutory limits on governmental immunity and the constitution in limiting the exercise of power and authority by state, federal and local government departments, agencies, boards and commissions.
- Analyze the procedures to be followed pursuant to specific statutes: Workmen’s Compensation Act for Commonwealth of Pennsylvania; Public Utility Commission; Bureau of Professional and Occupational Affairs; Securities Commission; and the Human Relations Commission.
- Analyze the procedures to be followed with regard to the U.S. Social Security Administration (claims and appeals), various environmental protection statutes, acts involving wages and benefits; various labor protection acts; acts that prohibit discrimination, viz., Equal Pay Act, Age Discrimination Employment Act, Civil Rights Act, Title VIII.
- Analyze the procedures to be followed with regard to local zoning, licensing and building codes.
- Describe statutes that protect the public from the government including Freedom of Information Acts, Sunshine Laws (including municipal sunshine laws) and Privacy acts.
- Discuss relevant ethical issues.
- Apply relevant modern technologies.

PreReq: PLG 110
3 Credits 3 Weekly Lecture Hours

PLG 242 Business Organizations
This course focuses on the law of business organizations. Emphasis in the course is on corporations from formation to dissolution.

Upon successful completion of this course, students should be able to:
- Differentiate between a sole proprietorship and different types of partnerships.
- Create a corporation and identify the characteristics of a corporation that make it an important and separate legal entity.
- Describe the financial structure of a corporation.
- Describe the formalities of the operation of a corporation.
- Differentiate between a corporation which operates in one state and multi-state corporations.
- Describe the way in which corporate structure can be changed and the reasons that may precipitate such a change.
- Discuss relevant ethical issues.
- Apply relevant modern technologies.

PreReq: PLG 110
3 Credits 3 Weekly Lecture Hours

PLG 243 Bankruptcy Law
This specialized paralegal course focuses on what the paralegal needs to know about bankruptcy. Emphasis is on the preparation of the various forms required in processing different types of bankruptcy cases. Emphasis is also on learning the terminology applicable and unique to bankruptcy law.

Upon successful completion of this course, students should be able to:
- Identify the terminology applied to bankruptcy law and practice.
- Investigate and prepare bankruptcy petitions and schedules.
- Describe and prepare forms necessary to process a bankruptcy case.
- Identify and describe in detail the ordinary steps in the process of filing and administering a bankruptcy case.
- Identify the different types of bankruptcy proceedings and the forms necessary for filing each type.
- Distinguish between personal bankruptcy and corporate bankruptcy.
- Describe the effects of a bankruptcy filing on an individual and on a corporation.
- Identify the exemptions which may be claimed in a bankruptcy.
- Contrast the differences between a bankruptcy and a reorganization plan and be able to process them accordingly.
- Find, analyze and follow the local bankruptcy court rules.
- Discuss relevant ethical issues.
- Apply relevant modern technologies.

PreReq: ENG 050 or ENG 099 and REA 050 or REA 075 3 Credits 3 Weekly Lecture Hours

PLG 244 Labor and Employment Law
This course focuses on the identification and application of laws regulating the interactions among employers, employees, and labor organizations representing employees. Emphasis is on the paralegal’s role in labor contract negotiations, administrative and alternative dispute resolution proceedings concerning labor disputes, and the civil litigation process that arises from such disputes in both federal and state courts.

Upon successful completion of this course, students should be able to:
- Identify and discuss the labor and employment laws applicable to employer/employee relationships.
- Discuss the rules and procedures and evidence applicable to administrative proceedings, labor arbitration, and court proceedings involving labor disputes.
- Describe the role of the paralegal in providing litigation support in administrative proceedings, arbitration, and court proceedings involving labor disputes.
- Identify the role of the paralegal in providing support for collective bargaining negotiations.
- Prepare and write contract negotiation proposals, grievances and demands for arbitration, unfair labor practice charges, employment discrimination claims, and post-arbitration letter briefs.
- Discuss relevant ethical issues.
- Apply relevant modern technologies.

PreReq: ENG 050 or ENG 099, REA 050 or REA 075 and MAT 050
3 Credits 3 Weekly Lecture Hours

PLG 246 Elder Law
This course will cover various aspects of law that have particular application to the elderly client. The course is designed to familiarize the student with the practical and theoretical aspects of elder law. As more and more Americans age, legislators, jurists, and other legal professionals have to address the social and legal needs of the elderly including healthcare, employment, housing, guardianship, and elder abuse problems.

Upon successful completion of this course, students should be able to:
- Discuss the basic concept of the legal definition of “elder”.
- Evaluate the legislative responses to the aging population.
- Discuss the various types of health care problems that face the elderly.
- Discuss employment and income issues as they affect the elderly.
- Analyze the various statutes that have been enacted to assist the elderly with housing problems.
- Discuss the concept of guardianship.
- Identify estate planning.
- Analyze the concept of elder abuse and apply remedies for abuse.
- Discuss the agencies that provide assistance to the elderly.
- Discuss relevant ethical issues.
- Apply relevant modern technologies.

PreReq: ENG 050 or ENG 099 and REA 050 or REA 075
3 Credits 3 Weekly Lecture Hours

POL 110 Introduction to Political Science
This course explores the fundamental concepts in the discipline of political science and the philosophical foundation of the American system of government.

Upon successful completion of this course, students should be able to:
- Distinguish between political philosophy and political science.
- State and explain the basic issues addressed in the phi.
- State and define the essential concepts in the discipline of political science.
- Demonstrate an understanding of the philosophical foundations of the American system of government.

PreReq: ENG 050 or ENG 099 and REA 050 or REA 075
3 Credits 3 Weekly Lecture Hours

(POL) Political Science
POL 120 American National Government
American Government introduces students to the concepts, functions, and structures of the United States government. It undertakes an analysis of the U.S. national political system with a focus on the role of individuals in the governmental process, and the nature of the interactions that take place among the various branches and levels of government. Analysis will be made of civil rights and liberties that has maintained America as the most culturally diverse country in the world.
Upon successful completion of this course, students should be able to:
- Assess the political economy and historical underpinnings of the American system to the principles that were purported
- Contrast the structure and organization of the executive, legislative, judicial branches of government with the actual mechanisms of the system
- Analyze the struggle for civil liberties and civil rights
- Assess political factors and dynamics of democracy and actors within the system: citizens, political parties, interest groups, the media, and electoral process
- Examine public policies with regard to populations throughout history
College Academic Learning Goal Designation: Diversity and Social Justice (DJ)
Prereq. REA 050 or REA 075 and ENG 050 or ENG 099, placement test
3 Credits 3 Weekly Lecture Hours

POL 130 American State and Local Government
An analytical study of the powers, process and problems of American state, county and local governments. Careful consideration of the nature of political, legislative, administrative and judicial organization at the state, county and city level will be given.
Upon successful completion of the course, students should be able to:
- List the development of the six major historical periods in the evolution of American state and local government
- Define federalism and two other major forms of governmental structure
- Identify the nature, functions, structure and legal position of local government in American federalism
- Trace the structure, functions and problems of the three branches of American state government with emphasis on Pennsylvania.
Students are encouraged to participate in civil, political and community activities in a democratic society
3 Credits 3 Weekly Lecture Hours

POL 140 American Presidency
This course is a study and analysis of the historical and political influences upon the institution of the modern American presidency.
Upon successful completion of this course, students should be able to:
- Explain the forces and participants involved in the dynamics of the compromise of the Constitutional Convention, which shaped the establishment of an executive branch
- Identify the constitutional model and proper role of the president in the doctrine of separation of power
- Discuss the constitutional powers of the president that overlap within the other two branches. Include some relevant and modern issues that are sources of controversy regarding their administration.
- Trace the historical evolution of the president within the confines of the constitutional and non-constitutional functions of the office.
- Critique the present method of nominating presidential candidates and election of the chief executive.
- Identify those presidents who have made the most permanent contributions to the evolution of the office.
- Explain the impact of television, campaign financing and the expectations of the American people toward the office of president.
3 Credits 3 Weekly Lecture Hours

POL 200 World Affairs
This course deals with the theory and practice of international relations.
Upon successful completion of the course, students should be able to:
- Identify the principle characteristics of national states
- Analyze the role of power in international politics
- Identify the major constraints on a national state must deal with in the formulation and implementation of foreign policy
- Evaluate the relations between East and West in the post-World War I era
- Assess the impact of the United Nations on the relations between national states in the contemporary world
- Model appropriate strategies to acquire various methods for gathering information for the development, comprehension and practical application of said information in the deciphering of issues involved in world politics
- Relate the foundations of instruction to the practice of reading and interpreting texts at the secondary level
- Plan developmentally and culturally appropriate strategies to address individual differences among political adversaries
- Enrich interdisciplinary activities by incorporating innovative technology and multimedia activities
- Teach questioning and communication skills as an integral part of cultural development
Preq. ENG 050 or ENG 099 and POL 120 or REA 075
3 Credits 3 Weekly Lecture Hours

POL 210 Principles of Public Administration
The general principles and theories of administration are analyzed and related to the management of public business.
Upon successful completion of this course, students should be able to:
- Evaluate the trends and philosophies of bureaucracy in the public and private sectors
- Analyze the relationship of the public administrator to the various branches and levels of government and to the general public
- Describe the roles of the public administrator in terms of goal setting, organizational and personnel procedures, and financial management.
3 Credits 3 Weekly Lecture Hours

PSY 130 Personal and Career Development
This course examines the theoretical and empirical issues related to personal growth and career development. The purpose of this course is to increase self-awareness, understand the career development process, and practice the ability to effect personal change. Emphasis is on self-awareness, personal growth, and career exploration that is examined theoretically and applied to the self and others in a diverse society. Content includes identity development, self-assessment, social influence, self-esteem, mindfulness, career development, and behavior change.
Upon successful completion of this course, students should be able to:
- Describe and apply the psychological theories fundamental to identity (self) development, personality, and behavioral change.
- Demonstrate self-awareness by identifying their personality traits, interests, skills, and values.
- Identify the factors that contribute to an individual’s career development and apply this knowledge to their own career choices.
- Summarize psychological factors that can influence the pursuit of a healthy lifestyle.
3 Credits 3 Weekly Lecture Hours

PSY 225 Constitutional Law
This course introduces the student to the interpretation of the United States Constitution by the Supreme Court through a series of prominent decisions from leading cases. The parameters of the Court’s power over the states will be established by analyzing the history of federalism. The Supreme Court’s relationship to the executive and legislative branches will be ascertained by the role of the Court in determining the constitutionality of their actions. An examination of the rights of the citizen will be investigated through the balancing tests between protecting the rights of the individual and the well being of society as a whole as evidenced in their decisions regarding such rights.
Upon successful completion of this course, students should be able to:
- Discern the power relationships among branches of government (checks and balances) and between levels of government (federalism)
- Analyze important constitutional provisions, historically critical Supreme Court decisions, as well as areas of contemporary interest.
- Analyze the relationship between the government and its citizens, including restrictions on interference with individual freedom (civil liberties) and obligations to prevent discrimination and ensure equality (civil rights).
- Assess the primary arguments made by advocates on most sides of the controversies surrounding the structure, organization and functioning of government.
Preq. POL 120
3 Credits 3 Weekly Lecture Hours

POL 226 Comparative Politics
This course will introduce students to the processes of World politics. The origin of International governments will be examined in addition to current issues and challenges that have evolved from that structure. The origins of both national and international governments will be assessed with particular focus given to the role of the economy within nation states. Emphasis will be placed the role of international organizations aimed at mediating affairs between international actors.
Upon successful completion of this course, students should be able to:
- Examine how political systems are shaped by historical forces, political cultures, the international environment, economic conditions, ideologies, and the decisions of leaders and public participants in politics.
- Compare institutions, electoral and voting processes, political systems, public policies, and political and economic development of different countries.
- Assess the ways that ethnic, religious, and other minorities are affected by global decision making and power relations.
- Apply scientific methodologies within the Political Science discipline, and construct typologies and assess political systems.
Preq. POL 120
3 Credits 3 Weekly Lecture Hours

(PSY) Psychology
• Describe how coping strategies, including mindfulness, can be applied to everyday living.
• Explain how individual differences and worldview may influence beliefs, values, and interaction with others and vice versa.

College Academic Learning Goal Designation: Critical Reasoning (CR)
Coreq. ENG 050 or ENG 099 and REA 050 or REA 075

3 Credits 3 Weekly Lecture Hours

**PSY 140 General Psychology**

This course is a one-semester introduction to the basic principles and major theoretical approaches that are used to explain human behavior, with emphasis on understanding and application of such principles and theories as they relate to ourselves and our surroundings.

Upon successful completion of this course, students should be able to:

• Explain the nature of psychology and describe the methods used by psychologists to study behavior.
• Identify the major physiological structures involved in the study of behavior.
• Identify the principles of sensation and perception.
• Describe current theories of learning and thinking explaining their influence in education, lifespan development, and other life situations.
• Describe the major trends in explaining human emotion and motivation and how they are assessed.
• Identify the major theories of human personality and development.
• Evaluate the impact of major trends in analyzing ourselves, interpersonal and social relationships and the origins, classification and treatment of mental disorders.
• Explain the relationship among physiology, perception, learning, cognition, motivation, and personality, applying them to understanding life situations.

College Academic Learning Goal Designation: Critical Reasoning (CR)
Prereq. PSY 140, ENG 100

3 Credits 3 Weekly Lecture Hours

**PSY 190 Psychology Internship (1)**

College-Sponsored Experiential Learning (CSEL) is designated to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will ear 3 college credits for this experience.

Upon successful completion of this hands-on work experience, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulated a self-assessment for career growth and personal satisfaction.

Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).

3 Credits 3 Weekly Lecture Hours

**PSY 194 Psychology Internship (2)**

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

Upon successful completion of this hands-on work experience, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulated a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).

Prereq. To be eligible for an internship, student must: have completed a minimum of 18 or more credits within the last 5 years. Have begun course work in their major (at least 9 credits). Have an overall grade point average (GPA) of 2.5. Obtain a written recommendation by a DCCC faculty within the discipline of the internship. Submit an current resume to the Office of Student Employment Services.

1 Credit

**PSY 199 Psychology Internship (3)**

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

Upon successful completion of this hands-on work experience, students should be able to:

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.

3 Credits 3 Weekly Lecture Hours

**PSY 200 Personality Theories**

Emphasis in this course is on the understanding and application of basic concepts of psychodynamic, trait, behavioral, cognitive, and humanistic-existential perspectives to personal and interpersonal functioning. Biological influences on personality are also considered.

Upon successful completion of the course, students should be able to:

• Detail the characteristics of psychodynamic theories
• Describe the Five-Factor and other trait approaches to personality
• Describe behavioral perspectives on personality
• Identify the characteristics of cognitive theories of personality
• Describe humanistic and existential personality views and the basics of positive psychology
• Discuss the role of biological processes in personality development and expression
• Explain how an eclectic blend of several major personality theories can be applied to common life situations and experiences

College Academic Learning Goal Designation: Critical Reasoning (CR)
Prereq. PSY 140

3 Credits 3 Weekly Lecture Hours

**PSY 202 Theories of Counseling**

This course is a one-semester introduction to the basic theoretical-approaches used in counseling. This course is designed to give students an overview of the different psychological theories used by counselors, therapists and human service professionals. A goal of the course is to allow students with an interest in human services to better understand the options open to both counselors and clients when engaging in the therapeutic process. While the curriculum will not make counselors of the students who complete this course, it will provide a foundation of knowledge about the major theories.

Upon successful completion of this course students should be able to:

• Describe relevant counseling theories
• Understand various ethical issues in the practice of counseling
• Describe the terminology associated with various theories
• Identify the major contributors associated with various theories
• Explain the assumptions of each theory
• Identify the goals of each theory
• Identify the roles of the therapist and the client within each theory
• Explain the process of therapy for each theory
• Identify the various techniques associated with each theory
• Evaluate the strengths and limitations of each theory
• Explain the characteristics of a multiculturally competent counselor

Prereq. PSY 140, ENG 100

3 Credits 3 Weekly Lecture Hours
PSY 203 Counseling Skills
This experiential course is a one-semester introduction to the basic skills used in the helping process. The course is designed for individuals pursuing a career in social work, or other related human service fields of study. The focus is on development, synthesis, analysis and demonstration of critical reasoning in the use of the core skills that facilitate effective and culturally responsive helping relationships. This course includes both didactic instruction and the development of basic techniques through frequent, applied counseling skills lab activities and written self reflection assignments.

Upon successful completion of this course, students should be able:
• Apply the knowledge, values and skills of the Social Work or Psychology Counseling profession at the introductory level and analyze the decisions made for use of certain counseling skills in practice lab activities.
• Demonstrate the effective use of basic counseling skills for introductory practice.
• Assess self-awareness by personal reflection and self-correction in periodic written personal evaluations showing the development of a professional identity and cultural competency.
• Analyze and synthesize multiple sources of knowledge, including: prevention, intervention, theory, cultural competency and evaluation in the applied lab activities.
• Demonstrate, in alignment with the NASW or APA or ACA Standards for Cultural Competency, the introductory level knowledge, values and counseling skills necessary to work from a strengths perspective with diverse populations.

College Academic Learning Goals Designations: Critical Reasoning (CR) and Diversity and Social Justice (DJ)

Upon successful completion of this course, students should be able:
• Describe and explain the nature of human sexuality as a scientific discipline.
• Describe and analyze major theoretical perspectives of human sexuality from biological, behavioral, social, political, and historical perspectives.
• Identify and explain major research methods used to examine human sexuality and variations in sexual behavior.
• Discuss psychological concepts, theories, and research findings to issues addressing human sexuality, gender, and sexual orientation.
• Understand historical and contemporary issues surrounding sexuality in our society.
• Demonstrate an understanding of the role of emotions in sexual expression.

College Academic Learning Goals Designations: Critical Reasoning (CR) and Diversity and Social Justice (DJ)

Prereq, ENG 100, PSY 140 or SWO 101

3 Credits 3 Weekly Lecture Hours

PSY 204 Foundations of Addiction
The main goal of this course is for students to develop knowledge of the nature and complexity of addiction. Emphasis in this course is on developing an understanding of the addiction process utilizing a biopsychosocial perspective. Topics examined include, but are not limited to, addictions to substances, gambling, and other addictive behaviors. Prevention and treatment options will be discussed.

Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of the psychological perspectives of addiction.
• Describe societal issues associated to addiction.
• Explain the physiology of the addiction process.
• Identify and describe the major substances and behaviors of abuse.
• Explain the techniques involved in the treatment of addiction.
• Identify programs that provide prevention services as well as those which provide rehabilitation programs and support services.
• Identify populations where addiction is highly prevalent and explain the psychological and sociological factors that may be contributing to this phenomenon.
• Identify legal and ethical standards involved in working with clients with addiction.

Prereq, PSY 140 or BIO 110 or BIO 150

3 Credits 3 Weekly Lecture Hours

PSY 205 Human Sexuality
Utilizing a biopsychosocial model, this course seeks to foster healthy attitudes toward sexuality by providing knowledge and having discussions about the formation of sexual beliefs and myths, the anatomy and physiology of human sexual systems, the physiological and social aspects of sex and gender roles, love and sexuality, sexual minorities, and the legal aspects of sexuality. (Note: material of a sensitive nature will be discussed in this course).

Upon successful completion of this course, students should be able to:
• Define organizational behavior, list the key elements and understand why it is important to understand the psychological principles affecting the workplace.
• Understand and explain a motivational theory that pertains to industrial and organizational psychology.
• Understand the nature of organizational communications, including the factors that influence decision making.
• Understand the nature of leadership and be able to list at least three leadership skills.
• Explain “social environment” conformity.
• Understand the power of rumor and how it might be controlled.
• Explain the concept of industrial participation by employees including: (1) process, (2) prerequisites, (3) benefits, (4) types, and (5) limitations.
• Be familiar with the social problems and ethical issues that cause stress and distress in the workplace.
• Know the various responsibilities incumbent upon worker and employer regarding referral and treatment of social problems in industry.
• Understand the nature of “change” in the workplace.

Prereq, PSY 140

3 Credits 3 Weekly Lecture Hours

PSY 210 Lifespan Human Development
This course investigates how and why people of diverse backgrounds change over time. It surveys theories, research, and controversies of human development from conception to death. It analyzes the physical, cognitive and psychosocial development in ecological contexts from multidisciplinary perspectives. Emphasis is on how to promote well-being and growth, and to overcome developmental challenges throughout life span.

Upon successful completion of this course, students should be able to:
• Identify the basic universal principles underlying human development;
• Describe the physical, cognitive and psychosocial characteristics of lifespan development;
• Explain major theories and methodologies related to lifespan human development;
• Describe and analyze major changes across different stages throughout lifespan (prenatal, infancy, childhood, adolescence, adulthood, aging, and death and dying);
• Identify and discuss the multi-disciplinary and multi-contextual characteristics of lifespan human development in today's global context;
• Describe and discuss major crises, disabilities, undesirable developmental outcomes and the historical social/cultural influences (including inequality, discrimination) on developmental differences;
• Identify and apply strategies for well-being and growth for optimal personal development in today’s complex society.

College Academic Learning Goals Designations: Critical Reasoning (CR), Diversity and Social Justice (DJ) and Global Understanding (GU)

Prereq, PSY 140

3 Credits 3 Weekly Lecture Hours

PSY 215 Industrial Psychology
The study of organizations and groups from a psychological perspective. The course covers fundamentals of organizational behavior, motivation and reward systems, leadership and organizational change, rumor, resistance to change, management styles and stress as it applies to the workplace. It is designed to meet the special needs of business administration students, as well as business management and psychology majors. It will also prove of great value to anyone contemplating any supervisory or management position, such as in nursing, education, social work and construction technology.

Upon successful completion of this course, students should be able to:
• Apply psychological theory and research to social issues and problems.
• Describe aspects of the self as they relate to social and cultural influences.
• Assess the significance of attitudes on perception, moral judgment, prejudice and prosocial behavior.
• Depict the impact of violence and aggression on the individual, the group and society.
• Cite the ways in which social factors can dictate individual behavior.
• Analyze the ways humans relate to one another, including prejudice and discrimination.

College Academic Learning Goal Designation: Diversity and Social Justice (DJ)

Prereq, PSY 140 or SOC 110

3 Credits 3 Weekly Lecture Hours

PSY 220 Abnormal Psychology
The nature of abnormal behavior, its etiology and classification together with a brief examination of treatment methods are emphasized. Psychodynamic, behavioral, cognitive, humanistic-existential, and sociocultural perspectives will be considered. Upon successful completion of this course, students should be able to:
• Describe and compare ambiguities inherent in the psychological and cultural definitions of abnormality.
• Identify and describe major historical and current theoretical perspectives regarding the causation of abnormal behavior and explain how each is regarded in society.
• Identify and describe the major mental disorders and summarize the diagnostic criteria for each.
• Define and give examples of key terms and research methods used in studying abnormal psychology.
• Identify and describe the titles, training, and responsibilities of professionals working in the field of mental health.
• List and describe the major treatment methods of mental disorders.
• Identify major legal and ethical challenges in which law and abnormal psychology interact.

College Academic Learning Goals Designations: Critical Reasoning (CR) and Diversity and Social Justice (DJ)

Prereq, PSY 140

3 Credits 3 Weekly Lecture Hours

PSY 221 Social Psychology
This course examines theories and research in the study of the social influences on individual behavior. It explores the various ways people think about and relate to one another. Topics include self-concept, persuasion, conformity, and aggression. Emphasis is placed on diversity, social justice issues, and different perspectives on the interaction of person and context.

Upon successful completion of this course, students should be able to:
• Apply psychological theory and research to social issues and problems.
• Define the concepts of the self as they relate to social and cultural influences.
• Assess the significance of attitudes on perception, moral judgment, prejudice and prosocial behavior.
• Depict the impact of violence and aggression on the individual, the group and society.
• Cite the ways in which social factors can dictate individual behavior.
• Analyze the ways humans relate to one another, including prejudice and discrimination.

College Academic Learning Goal Designation: Diversity and Social Justice (DJ)

Prereq, PSY 140 or SOC 110

3 Credits 3 Weekly Lecture Hours
PSY 225 Experiences in Diversity
This course critically examines systems of stratification within the United States. Topics include: race and racism, ethnicity, sex and gender and sexual orientation. Upon successful completion of this course, students should clearly understand the legal and policy based frameworks which created group-based inequality for various groups within the U.S.
Upon successful completion of this course, students should be able to:
• Understand the etiology of racism, homophobie, ethniccentric, and sexist ideologies.
• Demonstrate critical thinking on issues of race and racism, ethnicity, sex and gender, and sexual orientation.
• Describe the impact of minority and majority status as it pertains to economic, psychological and social experience.
• List contradictions between the idea that we all have certain inalienable rights and the reality that certain groups in our society continue to be denied many of those rights.
• List contributions of those outside of the “mainstream” and understand how those marginalized “others” started social movements which challenged the U.S. to become more democratic, and inclusive.
College Academic Learning Goal Designation: Diversity and Social Justice (DJ)
Prereq. SOC 110 or PSY 140
3 Credits 3 Weekly Lecture Hours

PSY 235 Educational Psychology
This course introduces students to theories, research, and applied topics related to teaching and learning. It studies developmentally appropriate education with learner diversity and multicultural influences. Emphasis is on how to effectively motivate learners through appropriate teaching design, class management and assessment, and how to connect theory to teaching and learning practices in today’s global contexts.
Upon successful completion of this course, students should be able to:
• Identify and evaluate major theories and approaches related to cognitive development, teaching and learning;
• Analyze and evaluate learners - physical, cognitive and social-emotional characteristics of development;
• Describe and analyze teacher’s role in motivating learners;
• Identify and discuss effective instructional design, class management, assessment, and other teaching/learning practices in today’s global contexts;
• Identify and analyze social/cultural influences (including discrimination and inequality) on learner distress, and accommodations for students from diverse (such as special needs, poverty, multicultural, multilingual and other) backgrounds;
• Apply effective principles to promote self-understanding and personal/career development.
College Academic Learning Goals Designations: Critical Reasoning (CR), Diversity and Social Justice (DJ) and Global Understanding (GU)
Prereq. PSY 140
3 Credits 3 Weekly Lecture Hours

PSY 242 Adolescent Psychology
This course examines physical, cognitive and psychosocial development in ecological contexts from puberty to maturity. It surveys various theories and research of adolescent development. It examines social/cultural influences that may shape/compromise development and transitions in today's global contexts. Emphasis is on how to promote healthy growth and overcome developmental challenges during adolescence.
Upon successful completion of this course, students should be able to:
• Identify and explain the basic principles underlying adolescent development;
• Describe and analyze the physical, cognitive and psychosocial characteristics of development from puberty to maturity;
• Identify and discuss the multi-disciplinary and multi-contextual characteristics of adolescent development in today's global context;
• Describe and analyze social/cultural influences (including inequality, discrimination, etc.) on adolescent development and transitions;
• Identify and apply strategies for well-being and growth, to promote optimal personal/career development for both individual and family.
College Academic Learning Goals Designations: Critical Reasoning (CR), Diversity and Social Justice (DJ) and Global Understanding (GU)
Prereq. PSY 140
3 Credits 3 Weekly Lecture Hours

PSY 290 Adulthood and Aging
This course is an examination of the biological, physical, psychological, cognitive, affective, social and cultural changes that occur as people move from adulthood into old age. It explores the controversies, myths, and realities of growing older in America. As well, the course emphasizes the similarities and differences of adulthood and aging across cultures.
Upon successful completion of this course, students should be able to:
• Identify the basic principles underlying development from the adult years through the end of life.
• Identify the major physical and biological changes in adult development from adulthood to old age.
• Describe the various cognitive changes in adult development, such as those related to memory, intelligence, thinking, and problem solving.
• Evaluate the various theoretical explanations of cognitive, affective, socio-cultural and personality development in adult development through old age.
• Evaluate the relevance of cross-cultural research findings in adult development and aging.
• Examine multiple perspectives on death and dying, considering the individual, family and culture.
Prereq. PSY 140
3 Credits 3 Weekly Lecture Hours

(REA) Reading

REA 025 Academic Literacy Review
This course is focused on strengthening students' reading skills to support the successful second attempt of the Accuplacer Reading placement test (or chosen measure). The course includes computer-based, individualized, and class-room instruction. Students will be re-tested at the end of the class or when appropriate, to determine new placement after completing course work. Students who do not test at the appropriate placement level at the end of the class may only repeat this course one time to obtain this goal in one year.
Note: This course is a pilot/special studies course and cannot be required as a prerequisite course or a program course. One section of this course will be offered in Spring 2017, up to three sections in Summer 2017, and up to five sections in Fall 2017.
Upon successful completion of this course, students should be able to:
• Demonstrate basic reading comprehension skills.
• Identify and use language and structural clues as an aid to comprehension.
• Demonstrate critical thinking skills.
• Demonstrate strategic reading skills across a variety of materials.
Prereq. Placement test score or permission of the instructor, never attempted or withdrawn from REA 030 and never attempted or placed into ESL 025 and/or ESL 035.
0 Credits 3 Weekly Lecture Hours

REA 030 Reading I
This initial course is for students who need to improve upon basic skills that aid in reading. This course is designed for students who must strengthen their comprehension, language usage, and strategic reading skills.
Upon successful completion of the course, students should be able to:
• Demonstrate strategy for understanding unknown words.
• Demonstrate understanding in reading comprehension.
• Identify and use language and structural clues as an aid to comprehension in reading materials.
• Demonstrate critical reading through writing.
• Demonstrate strategic reading in a variety of materials.
Prereq. Placement test score
3 Credits 3 Weekly Lecture Hours

REA 050 Reading II
Reading II is designed for students who need to improve their ability to understand and retain the material they read in college. Emphasis is on reading comprehension, language clues, structural clues, critical thinking, and strategic reading.
Upon successful completion of this course, students should be able to:
• Demonstrate proficiency in reading comprehension skills.
• Identify and use language and structural clues as an aid to comprehension in reading materials.
• Demonstrate critical thinking through writing.
• Demonstrate strategic reading in a variety of materials.
Prereq. REA 030 or ESL 945 or placement test score
3 Credits 3 Weekly Lecture Hours

REA 075 Introduction to Reading and Writing
This class combines REA 050 and ENG 050 and emphasizes the relationship between reading and writing. It includes comprehensive review and writing practice in the fundamentals of English grammar, word choice, punctuation, and paragraph construction. Additionally, it is designed for students who need to improve their ability to understand and retain the materials they read in college. To this end, emphasis will be placed upon reading comprehension, language clues, structural clues, critical thinking, and strategic reading. Credits from the course are not applicable toward a degree.
Upon successful completion of this course, students should be able to:

- Demonstrate critical reading, thinking, and writing in various rhetorical situations and make appropriate rhetorical choices for given writing tasks.
- Demonstrate proficient comprehension of and a critical assessment of college-appropriate texts using strategic and critical reading.
- Identify and use language and structural clues as aids to comprehension of reading material.
- Develop a thesis for an essay that will be supported with evidence.
- Demonstrate that writing is a process.
- Utilize basic research skills to produce a final, polished written product.
- Apply formal conventions of written American English with respect to grammar, mechanics, and punctuation.

Prereq. Appropriate placement test scores or successful completion of all required ESL classes

5 Credits 5 Weekly Lecture Hours

(RTH) Respiratory Therapy

RTH 102 Respiratory Therapy Principles II

This course provides students with the information necessary to safely administer aerosolized respiratory drugs. The student will learn the method of action of the drugs used to treat respiratory diseases and proper dosages and frequency of administration. The student will understand the indications for mechanical ventilation as well as the monitoring of critically ill adult patients requiring ventilatory support. Complications involved in positive pressure ventilation will be reviewed. This course also covers the methods involved in removal of patients from mechanical ventilators.

Upon successful completion of this course, students should be able to:

- The student will have a basic knowledge of how drugs are administered.
- The student will be able to explain the mechanism of action for respiratory drugs.
- The student will be able to identify the basic functions of mechanical ventilators.
- The student will be able to describe why patients may require ventilatory support.
- Discuss the importance of monitoring patients requiring ventilatory support.
- Describe when and how to successfully wean a patient from mechanical ventilation.

Prereq. RTH 100, RTH 101, and BIO 150; each with a grade 'C' or better

Coreq. BIO 151, Concurrent RTH 103

2 Credits 2 Weekly Lecture Hours

RTH 103 Respiratory Therapy Practicum II

This course provides students with the knowledge and motor skills to deliver oxygen therapy bronchopulmonary hygiene airway management and ventilator management to the adult patient.

Upon successful completion of this course, students should be able to:

- Recommend respiratory care based on evaluation of a patient's medical history, physical examination and diagnostic studies.
- Perform cardiopulmonary resuscitation according to the protocols of the American Heart Association.
- Ensure the safety of patients and staff by adhering to infection control standards.
- Deliver bronchopulmonary hygiene therapies and modify according to the patient's response.
- Perform arterial and puncture.
- Maintain a patent airway.
- Manage ventilation of adult patients in the simulation laboratory.

Prereq. RTH 100, RTH 101, and BIO 150; each with a grade 'C' or better

Coreq. BIO 151, Concurrent RTH 102

6 Credits 12 Weekly Laboratory Hours

RTH 104 Respiratory Therapy Summer Clinical I

The purpose of this course is to provide the student with the opportunity to utilize the clinical skills learned and practiced during the simulation lab in the clinical area of the hospital or other clinical institution. Students will be expected to perform the duties of a Respiratory Therapist under the direction of a licensed and credentialed Respiratory Therapist. This course is only open to students in the Respiratory Therapy Program. Because some courses in the Respiratory Therapy Program must be taken in a specific sequence, this course is designed only for the summer semester. This allows the student the opportunity to gain extensive clinical experience, in an 8-hour day that would not be available during the Fall or Spring semesters. The RTH courses taken in the prior Fall and Spring semesters provide the necessary didactic and laboratory foundational experience necessary for the student to be successful in this clinical course. The student will also gain a realistic understanding of the professional requirements of a Respiratory Therapist while providing the continuity of caring for critically ill patients.

Upon successful completion of this course, students should be able to:

- Administer bronchopulmonary hygiene and modify therapy based on patient response.
- Administer bronchopulmonary hygiene and ventilatory support to critically ill adult patients.
- Assist physicians with special procedures and effectively communicate with the diverse members of the healthcare team during pulmonary procedures.
- Properly clean and disinfect, maintain, and troubleshoot respiratory care equipment.
- Demonstrate proficiency utilizing various Electronic Medical Record (EMR) systems.

College Academic Learning Goal Designation: Information Technology (TG) when taken with RTH 105

Prereq. RTH 102, RTH 103; each with a grade 'C' or better

5 Credits

RTH 105 Respiratory Therapy Summer Clinical II

This course is a continuation of RTH 104: Summer Clinical I. It is a supervised clinical practice. The student is provided the opportunity to utilize the clinical skills learned and practiced during the simulation lab, as well as skills learned during Summer Clinical I. Students will be expected to perform the duties of a Respiratory Therapist under the direction of a licensed and credentialed Respiratory Therapist. This course is only open to students in the Respiratory Therapy Program. Because all courses in the Respiratory Therapy Program must be taken in a specific sequence, this course is designed only for the summer semester. This allows the student the opportunity to gain extensive clinical experience, in an 8-hour day that would not be available during the Fall or Spring semesters. The RTH courses taken in the prior Fall and Spring semesters provide the necessary didactic and laboratory foundational experience necessary for the student to be successful in this clinical course.

Prereq. RTH 100, RTH 101, and BIO 150; each with a grade 'C' or better

Coreq. BIO 151, Concurrent RTH 103

8 Credits 12 Weekly Laboratory Hours

RTH 110 - Respiratory Therapy Principles and Practicum I

This course is designed for students majoring in Respiratory Therapy. The course begins with the study of the sciences and how they relate to the respiratory system and to respiratory care. An in-depth study of the anatomy and physiology of the cardiopulmonary system is also included. Students will be expected to learn Medical Terminology in a self-study format. Students will learn the indications and complications with administering medical gases to patients. Acid base balance within the body will be presented. The history of the field of Respiratory Care will be discussed.

Students are guided and directed by an instructor in the laboratory. This reinforces the principles taught utilizing the laboratory approach. Assignments applying the principles of physics and chemistry essential to respiratory care will be introduced in the simulation lab. Models and computer simulation will be utilized when appropriate.

Upon successful completion of this course, students should be able to:

- Discuss and apply the principles of the physical sciences as they relate to Respiratory Care.
- Discuss the principles of cardiopulmonary anatomy and physiology and apply in the clinical situation.
- Describe acid-base physiology and compensatory mechanisms and apply the knowledge in clinical situations.
- Discuss the concepts of team approach and patient-therapist interactions and apply the concepts in clinical situations.
- Recall the history and purpose of the field of Respiratory Therapy.
- Discuss the legal and ethical concepts as they relate to the field of Respiratory Care.
- Discuss how oxygen is manufactured and stored.
- Discuss the indications and complications involved in oxygen administration.
- Administer medical gas therapy utilizing the appropriate equipment for the patients medical condition.
- Ensure the accurate delivery of medical gas concentrations.
- Troubleshoot medical gas delivery devices.
- Communicate using medical terminology.

Completion of any algebra based math course: MAT 100 or above, (not including MAT 120 or MAT 131, MAT 125, MAT 126, MAT 210) with a grade of 'C' or better.

DCCC Placement test scores for Math Placement into MAT 125 or above.

Successful completion of the College Algebra CLEP exam (College Level Examination Program) Transfer of credit from another regionally accredited institution of a 'C' or better in a math course equivalent to MAT 100 or above, (not including MAT 120 or MAT 121, MAT 125, MAT 126, MAT 210)

Prereq. CHE 110, ENG 100, MAT 100/128 or MAT 135 or higher or placement into MAT 135 or higher; each with a grade 'C' or better.

Coreq. BIO 150 with a grade 'C' or better

This course must have been completed within 5 years of starting RTH 110.

8 Credits 12 Weekly Laboratory Hours

RTH 200 Respiratory Therapy Principles III

In this course students will study advanced topics in respiratory care including cardiovascular and renal physiology and the specialties of pulmonary function testing and pediatrics.

Upon successful completion of this course, students should be able to:

- Analyze tests of pulmonary function and modify therapies based upon results.
- Apply the principles of respiratory care, cognizant of the special physiologic and pathophysiologic processes of the neonatal and pediatric patient.
• Describe fundamental principles of normal renal physiology.
• Describe fundamental principles of normal cardiovascular physiology.

Prereq. RTH 205 with a grade ‘C’ or better Coreq. RTH 201, RTH 204
3 Credits 3 Weekly Lecture Hours

RTH 201 Respiratory Therapy Clinical Practicum III
This course is a supervised clinical practice.
Upon successful completion of this course, students should be able to:
• Administer bronchopulmonary hygiene, invasive and non-invasive ventilation and cardipulmonary resuscitation in the Emergency Room setting.
• Perform pulmonary function testing and analyze results to ensure appropriateness of respiratory care.
• Administer bronchopulmonary hygiene and ventilatory support to critically ill adult patients.
• Assist physicians with patient assessment, special procedure and communicate effectively with physicians.

Prereq. RTH 205 with a grade ‘C’ or better Coreq. RTH 200, RTH 204
6 Credits 12 Weekly Laboratory Hours

RTH 202 Respiratory Therapy Principles IV
This course includes the study of advanced cardiovascular and renal physiology and pathophysiology, and treatment regimens that impact respiratory care.
Upon successful completion of this course, students should be able to:
• Discuss the basic principles of pharmacology, drug administration methods, drug action and side effects with emphasis on respiratory and cardiovascular systems.
• Discuss the principles of fluid and electrolyte balance and how it relates to the respiratory system.
• Discuss the principles of cardiac and hemodynamic monitoring.
• Research and present a paper on an area or concept of respiratory therapy in the area of techniques equipment, or respiratory physiology.

Prereq. RTH 201 with a grade ‘C’ or better Coreq. RTH 203, RTH 205
3 Credits 3 Weekly Lecture Hours

RTH 203 Respiratory Therapy Practicum IV
This course is a supervised clinical practice.
Upon successful completion of this course, students should be able to:
• Administer bronchopulmonary hygiene and ventilator support to neonatal and pediatric patients.
• Perform respiratory care in the subacute setting.
• Administer bronchopulmonary hygiene and ventilatory support to critically ill adult patients.
• Perform and recommend cardiovascular diagnostic testing as appropriate to respiratory care.

Prereq. RTH 201, RTH 204, each with a grade ‘C’ or better Coreq. RTH 202; RTH 205
6 Credits 12 Weekly Laboratory Hours

RTH 204 Pulmonary Pathophysiology Clinical Rounds I
This course is a supervised clinical study of pulmonary pathophysiology.
Upon successful completion of this course, students should be able to:
• Describe the etiology, pathology, functional abnormality, PFT results, pulmonary assessment data, clinical features, treatment and prognosis of the major diseases affecting the respiratory system.

Prereq. RTH 105 with a grade ‘C’ or better Coreq. RTH 200, RTH 201
2 Credits 4 Weekly Laboratory Hours

RTH 205 Pulmonary Pathophysiology Clinical Rounds II
This course is a supervised clinical study of pulmonary pathophysiology.
Upon successful completion of this course, students should be able to:
• Describe the etiology, pathology, functional abnormality, PFT results, pulmonary assessment data, clinical features, treatment and prognosis of the major diseases affecting the respiratory system.

Prereq. RTH 201, RTH 204; each with a grade ‘C’ or better Coreq. RTH 202, RTH 203
2 Credits 4 Weekly Laboratory Hours

SCI 105 Introduction to Nanotechnology
This course will cover the application of nanotechnology to electronic, chemical, and biological fields including a review of the basic science concepts. The impact of the commercialization of nanotechnology on society and the environment will be discussed. It is intended primarily for students in any of the various technology programs who will seek employment as laboratory technicians in research and industrial laboratories. Emphasis will be placed on providing a broad overview of the field.
Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of scientific notation and size relationships between nanometers and other metric measures.
• Discuss the societal impacts of nanotechnology in modern society.
• List at least five biological applications of nanotechnology.
• Find, using Internet research, five commercial applications of nanotechnology.
• Describe the structures known as nanotubes and buccy balls, and one current application of each form.
• Describe the application of nanotechnology in environmental and medical sensors to electronic monitoring.
• Define key nanotechnology concepts such as "bottom-up", "self-assembly", and "molecular recognition".
• Discuss instrumentation, such as SEM and STM, which is used at the nano level.
• Hypothesize future applications of nanotechnology.

Prereq. RTH 203, RTH 205; each with a grade ‘C’ or better
3 Credits 3 Weekly Lecture Hours

SCI 110 History of Science
This course, designed as a non-laboratory science option for non-science majors or as an open elective for Natural Science majors, traces the philosophical, cultural, intellectual, and technological developments that influenced the evolution of modern science. By examining these developments made over a span of two millennia, students in the course identify the people, places, ideas, and discoveries that led to fundamental shifts in worldviews resulting in changes in the way people obtain knowledge about, investigate, and understand the physical world. Specifically, the course explores the origin and influence of scientific methodologies by tracing the changing role of experimenters, their experiments, and the tools they used. In addition, students document the converging influences that resulted in the Scientific Renaissance and the Scientific Revolution. The course concludes by highlighting important scientific discoveries up to the present day and the continuing struggle between science and long-held misconceptions and beliefs.
Upon successful completion of this course, students should be able to:
• Develop an answer to the question "What is science?", state the basic assumptions underlying modern science, and discuss the origins of these assumptions.
• Define "scientific paradigm", describe its influence on the development of science, and outline the factors that result in a change of the scientific paradigm.
• List the characteristics of a scientific methodology.
• Understand the role politics, religion, and commerce played in the history of science.
• Explain the difference between deductive and inductive arguments and their role in the study of the physical world, identify people who employed them, and give examples of each form.
• Describe the approaches and contributions to science of Greek, Islamic, Chinese, Indian, and European thinkers and identify the people and places associated with these approaches and contributions.
• Outline the changing role of experimentation in the history of science, the tools used in the experiments, and describe their influence on the origin of scientific methodology.
• List examples and relate the significance of the people, places, ideas, and discoveries that were part of the Scientific Revolution.
• Describe the emergence of the Scientific Revolution from the Scientific Renaissance and provide examples of important scientific discoveries over the past three hundred years.
• Identify current areas where scientific research is in conflict with popular beliefs and analyze a selected conflict by examining all arguments put forth in the context of the scientific method and the history of science.

Prereq. ENG 100
3 Credits 3 Weekly Lecture Hours

SCI 150 STEM Topics
STEM Topics is a 1-credit course designed to introduce students majoring in STEM fields to skills and topics of importance to Science, Technology, Engineering, and Mathematics. Presented by both Delaware County Community College faculty/staff and invited speakers, the weekly one-hour meetings include explorations of STEM-related transfer programs and careers, internet research methods, identification of primary research, research design, and technical writing and communication.
Upon successful completion of this course, students should be able to:
• Use the Internet as a research tool in STEM disciplines.
• Evaluate Internet sources for credibility and authority in STEM disciplines.
• Differentiate between primary and secondary research in STEM disciplines.
• Produce and present a research design to address a proposed hypothesis.
• Identify potential STEM transfer programs based on students' interest areas.
• Develop career goals in a chosen STEM field.

Prereq. ENG 050, RTH 050 or ENG 099 or RTH 075, MAT 060/060, or test scores
1 Credit 1 Weekly Lecture Hours
SOC 100 Human Relations
This course is designed as an introduction to the basic principles of sociology with emphasis on human relationships in community and industrial settings. Upon successful completion of this course, students should be able to:

• Explain the importance of human relations in the community and occupational spheres.
• Interact effectively in the social context.
• Describe the significance of self-awareness in building good human relationships.
• Distinguish between the formal and informal structures of an organization as they relate to appropriate human relations.
• Describe appropriate employee-on-the-job behavior, especially during the first few probationary months.
• Describe how the impact of human relations in the leadership and motivational areas can affect productivity.

3 Credits 3 Weekly Lecture Hours

SOC 110 Introduction to Sociology
This course studies the factors that determine social organization, social injustice, behavior change and how they are considered in relation to the individual student’s own life and society. Study is concentrated on social intervention, culture, social class, national and global inequality, institutions and socialization. Upon successful completion of this course, students should be able to:

• Apply the sociological perspective to their own lives.
• Further personal development through knowledge and in the socialization process.
• Describe the impact of the five major social institutions on society and themselves.
• Assess present and possible future effects of social change on their culture’s values.
• Depict the effects of living in a modern complex society.
• Use the three major sociological theoretical perspectives to analyze a major concept within sociology.
• Describe the systematic ways that oppression and privilege are built into and maintained by social institutions.
• Describe the various ways in which global interdependence impacts the social, economic and political society.

College Academic Learning Goals Designations: Diversity and Social Justice (DJ) and Global Understanding (GU)
Prereq. ENG 050, REA 050 or REA 075 or test scores or coreq. ENG 099

3 Credits 3 Weekly Lecture Hours

SOC 120 Social Problems
This course studies contemporary social problems from theoretical and practical perspectives. Theoretical assessments of the national and international origins and etiology that support and sustain social injustice, inequality, and conflict will be supported through data sources. Upon successful completion of this course, students should be able to:

• Apply the sociological perspective to the national and international social problems.
• Describe the origin, development, and society’s possible treatment of at least two contemporary and social problems detailing how the roles of society and its social institutions attempt to sustain, perpetuate and/or eradicate inequality and injustice.
• Describe the systematic ways that oppression is facilitated by powerful people and society’s social institutions.
• Describe the various ways in which global interdependence impacts the people in society.

College Academic Learning Goals Designations: Diversity and Social Justice (DJ) and Global Understanding (GU)
Prereq. (ENG 050, REA 050) or REA 075 or test scores or coreq. ENG 099

3 Credits 3 Weekly Lecture Hours

SOC 131 Sport, Culture and Society
are cultural phenomena encompassing many facets of social life. Sports, Culture, and Society is designed to analyze society’s engagement in competitive sports as spectators. The course will explore the role of sports in society and the various types of social responses to the culture of sports. Topics that will be analyzed include media and sports, social inequality and sports, youth and sports, education and sports, gender and sports, politics and sports, violence in sports, and ethics in sports. The course will focus upon current events in the American culture that influence how people in society respond to sports. Upon successful completion of this course, students should be able to:

• Understand how and why sports have been created and organized in particular ways.
• Articulate the ways that social, political and economic factors influence the growth, popularity and visibility of sports in society.
• Describe the role sports play in school activities for youth.
• List ways in which the media depict sports relative to gender.
• Describe the positive and negative outcomes of participation in sports on group engagement and social growth.
• Describe the manners in which sports motivate aggressive and violent behavior in society.
• Understand the social processes that occur in connection with sports (competition, conflict, socialization, group cooperation).
• Evaluate how sports have an impact on people’s thoughts about their bodies and about gender, race/ethnicity, social class and disability.

Prereq. ENG 050 and REA 050 or ENG 089 or REA 075

3 Credits 3 Weekly Lecture Hours

SOC 180 Marriage and The Family
This course explores various types of family relationships in society and how sustaining and changing the values, beliefs and rules in relationships are supported and altered through society’s institutions in diverse societies. Upon successful completion of this course, students should be able to:

• Describe the American family in terms of the three major sociological theories.
• Explain the concepts concerning who marries whom.
• Describe how the rules in institutions shape perceptions of what constitutes a family and may reinforce inequality and discrimination.
• Explain human reproduction, including prenatal aspects, childbirth, contraceptive techniques and socially transmitted diseases.
• Assess possible future changes in what family forms, marriage forms and living arrangements are as they may affect the American family.

College Academic Learning Goal Designation: Diversity and Social Justice (DJ)
Prereq. ENG 050 or ENG 099 and SOC 100 or REA 050 or REA 075

3 Credits 3 Weekly Lecture Hours

SOC 210 Cultural Anthropology
The societal and individualistic characteristics of culture are explored by examining and comparing several cultures. The evolution of community living from hunting and gathering societies to contemporary urban and suburban and there experiences were (and are) similar to, and different from one another; (2) theories of integration; and (3) the multiculturalism debate. Furthermore, we will examine the “other” from the viewpoint of those marginalized in society. Therefore, we will explore the relationship between the dominant - hegemonic culture, and sub-cultural beliefs, attitudes, challenges, and attempts to redefine group status. This means we will focus upon power relationships and the dynamics of group attempts to access power, and how social movements have shaped and transformed U.S. social fabric.

This class will be both historical in nature and present-day oriented. We will take the time to study the past because without such knowledge we can neither understand nor examine the current system of racial domination. Such inquiry will help shed light on how historical circumstances
continue to impact and shape current racialized identities and disparities.

A field trip may be required.

Upon successful completion of this course, students should be able to:

• Describe the social construction of racial and ethnic categories.
• Demonstrate critical thinking on issues of race, ethnicity, racism and racial stigmatization.
• List the racial contradictions inherent in U.S. society, and different strategies toward resolving them.
• Describe various immigrant experiences in the U.S. using macro theories of integration.
• Analyze public policies and laws which shape group identity and social movements.
• Present ideas clearly in a formal and professional manner.

College Academic Learning Goals Designation: Diversity and Social Justice (D)

PreReq. SOC 110 or SOC 215/PSY 225

3 Credits 3 Weekly Lecture Hours

SOC 260 Research Methodology

This course investigates and analyzes both quantitative and qualitative research methodology. It is designed to give students the skills to examine social science issues through creating and utilizing empirical research. Study is concentrated on experimentation, types of research sources, survey construction and field participation. Research papers are required.

Upon successful completion of this course, students should be able to:

• Describe the scientific method and its assumptions as a way of knowing and why it is used in research
• Detail information literacy concepts and describe the types of literature review sources that will be taught in this course
• Apply the steps in the research design and distinguish between correlational designs
• Describe and distinguish the difference between independent and dependent variables and techniques of experimental control
• Create a literature review on a relevant social science topic
• Detail the process of creating a hypothesis and question for examination through research
• Describe index and scales construction
• Explain the differences between quantitative and qualitative research including correlation, association and causation
• Describe the meaning of validity and reliability in research while demonstrating an understanding of construct, internal and external validity and the threats to validity
• Explain the importance of the IRB and ethics in research
• Explain the difference between random and systematic error
• Apply methods to measure causal and/or associative changes in a dependent variable
• Describe the difference between primary and secondary data
• Describe the experimental and quasi-experimental design
• Explain single IV, factorial and single case designs
• Conduct mock interview and debriefing
• Describe the purpose of a research proposal and write a sample proposal in APA research format to demonstrate an understanding of writing papers using the research process
• College Academic Learning Goal Designation: Information Literacy (IL)

Pre Req. MAT 050 and PSY 140, SOC 100 or SOC 110

3 Credits 3 Weekly Lecture Hours

(SPA) Spanish

SPA 101 Elementary Spanish I

This is a first semester introduction to the Spanish language and Hispanic cultures. It is designed for beginning students with little or no previous exposure to the language. The emphasis is on the development of the three modes of communication: interpersonal, presentational, and interpretive, through the mastery of basic grammatical structures. Through the use of language and additional methods, students will gain knowledge of cultural practices and perspectives in Spain and Latin America. Additionally, students will learn about political, economic and socio-cultural differences and similarities within the Hispanic community in a global context. This course requires active participation in online activities as a mandatory component. Online courses may require use of a webcam, Native, heritage and or speakers of Spanish are encouraged to take the CLEP exam before enrolling in this course.

College Academic Learning Goals Designation: Global Understanding (GU)

Upon successful completion of this course, students should be able to:

• Students engage in conversation, provide and obtain information, express feelings and emotions, and exchange opinions in Spanish.
• Students understand and interpret written and spoken Spanish on basic level on a variety of topics.
• In Spanish, students present or communicate information, concepts and ideas on a basic level to an audience of listeners or readers on a variety of global topics including, socio-economic issues, political issues, historical and environmental effects.
• Through a global perspective, students will demonstrate an in-depth knowledge of similarities and differences between Spanish speaking practices, artistic expression, and popular culture.
• Students demonstrate understanding of language through comparisons between Spanish and English.
• Two or less years of high school Spanish, or less than one semester of college study.

Pre Req. (ENG 080 and REA 050) or REA 075 or ENG 099 or test scores

3 Credits 3 Weekly Lecture Hours

SPA 102 Elementary Spanish II

This course is a continuation of Elementary Spanish language and Hispanic cultures. It is designed for students who have completed SPA 101 or at least two years of recent successful high school Spanish. The emphasis is on the development of the three modes of communication: interpersonal, presentational, and interpretive, through the mastery of basic grammatical structures. Through the use of language and additional methods, students will gain knowledge of cultural practices and perspectives in Spain and Latin America. Additionally, students will learn about political, economic and socio-cultural differences and similarities within the Hispanic community in a global context. This course requires active participation in online activities as a mandatory component. Online courses may require use of a webcam. Native, heritage and or speakers of Spanish are encouraged to take the CLEP exam before enrolling in this course.

College Academic Learning Goals Designation: Global Understanding (GU)

Upon successful completion of this course, students should be able to:

• Students engage in conversation, provide and obtain information, express feelings and emotions, and exchange opinions in Spanish.
• Students understand and interpret written and spoken Spanish on basic level on a variety of topics.
• In Spanish, students present or communicate information, concepts and ideas on a basic level to an audience of listeners or readers on a variety of global topics including, socio-economic issues, political issues, historical and environmental effects.
• Through a global perspective, students will demonstrate an in-depth knowledge of similarities and differences between Spanish speaking practices, artistic expression, and popular culture.
• Students demonstrate understanding of language through comparisons between Spanish and English.

Two years of recent successful high school Spanish or SPA 101 Elementary Spanish I.

Pre Req. Two years of recent successful high school Spanish and (ENG 080 and REA 050) or REA 075 or ENG 099 or test scores, or SPA 101

3 Credits 3 Weekly Lecture Hours

SPA 111 Intermediate Spanish I

Active review of Spanish pronunciation and of fundamental grammatical elements. Study and practice with new concepts of grammar and idiomatic language. Class discussion of selected cultural essays, news articles and/or literary excerpts. Laboratory practice is assigned for improving comprehension of Spanish spoken at normal conversation speeds.

Upon successful completion of this course, students should be able to:

• Speak the language in meaningful sentences and appropriate phrases that can be understood by the fluent speaker.
• Respond appropriately to questions on reading selections previously discussed.
• Recall vocabulary, grammatical structures and appropriate correspondence to idiomatic structures in Spanish writings.
SWO 201 Domestic Violence: Impact on Individuals, Families and Communities

This course is a one semester overview of the complexities underlying domestic violence in America, with a particular focus on Pennsylvania. Experts define domestic violence as behavioral patterns that are purposeful, often violent and used to maintain power and control over an intimate partner. Students will examine the historic and cultural context and expanded definitions of domestic violence along with the current best practices to prevent and eliminate this problem. This course is designed to enhance the knowledge of students interested in the field of social work as they critically evaluate the complex overlapping of family dynamics, work place concerns and other social problems with the impact of physical, sexual, emotional, economic and psychological abuse. Special attention will be paid to the current best practices designed to assist children, individuals, families and communities with the goals of safety and self-determination.

Upon successful completion of this course, students should be able to:

• Define domestic violence, the cycle of violence and related concepts.
• Identify and explain the roles of the perpetrator, victim and bystander.
• Describe the support/benefits and limitations of the current legal and police responses to domestic violence incidents.
• Identify governmental and social service agencies available to assist victims, perpetrators and bystanders.
• Describe the structure, content and limitations of a professional helping relationship.
• Identify local agencies and models of strength-based interventions and treatment practices.
• Demonstrate how knowledge of oppression, privilege, culture, racism, institutional racism, stereotypes, discrimination, and ethnic identity relate to the skills necessary to perform the tasks of a culturally competent social worker.
• Evaluate the ethical dilemmas surrounding the concept of self-determination in professional treatment as these relate to people who experience domestic violence.
• Identify the emotional and physical symptoms and causes of professional burnout along with the methods designed to prevent it.

Preqq. ENG 100, PSY 140

3 Credits

3 Weekly Lecture Hours

SWO 210 Human Behavior and the Social Environment

This course focuses on the internal and external variables that influence human development across the lifespan. Students will study the range of social systems in which people live, describe empirically-based knowledge of human behavior in the social environment, identify concepts, assumptions and critiques of developmental theories and assess the level of impact that diversity and socio-economic levels have on human development. In addition to exploring bio-psycho-social theories students will utilize social work conceptual frameworks to guide evaluation of existing case studies, programs, and interventions. Various constructs from the Social Work profession will be utilized throughout the course. These include but are not limited to: bio-psycho-social, Person in Environment (PIE), strengths-perspective, Problem Solving Process/Generalist Intervention Model, NASW Code of Ethics and systems theory. This course is a required course for the DCCC, Associate in Arts Degree in Social Work.

Students who are planning to transfer to a 4-year institution and complete a Bachelor of Social Work degree (BSW) are advised to plan early for transfer and meet with an advisor and transfer specialist.

Upon successful completion of this course, students should be able to:

• Describe, compare and contrast empirically-based theories of human behavior in the social environment throughout the lifespan, including: the Person in Environment Perspective, strengths-perspective, Problem Solving Process/Generalist Intervention Model, NASW Code of Ethics, systems theory and bio-psycho-social contexts.
• Demonstrate beginning knowledge of the various aspects of diversity and socio-economic levels that impact human development and behavior, including their own, by identifying concepts, assumptions and critiques of developmental theories related to all stages of life.
• Assess client functioning within the social environment from various perspectives, including the eco-system perspectives and explain how social institutions impact a client’s functioning in the dynamic environment over the lifespan.
• Evaluate results from a client case study, published within an academic Social Work textbook or journal (or related discipline), by applying the theories presented in this course to the case study and describe the individuals functioning from an eco-system perspective and how the interventions were used to support the client.
• Identify concepts, assumptions and critiques of developmental theories related to the stages of life across the lifespan.
• Utilize technology to access information.

Preqq. SWO/HSU101 and ENG 100

3 Credits

3 Weekly Lecture Hours

SWO 220 Social Welfare Policy

This course is designed to prepare the beginning social work practitioner with an awareness of the range and complexity of problems addressed by the social welfare system. Students will gain knowledge of the historical development of social welfare programs, in the United States, and the evolution of these programs over time. Students will identify and examine their own attitudes and values toward social issues. Knowledge of the social work profession and its contributions to social policy development will be also examined within this framework. This course supports the introductory competencies of one of the four major-specific content areas of the TOAC-PA agreement for transfer and is a required course for the Associate of Arts in Social Work degree at Delaware County Community College.
Students who are planning to transfer to a 4 year institution and complete a Bachelor of Social Work degree (BSW) are advised to plan early for transfer and meet with an advisor and transfer specialist. Upon successful completion of this course, students should be able to:

- Demonstrate an understanding of the concept that the present social welfare system is a product of historical forces.
- Develop an understanding of the history of social work as a profession and identify its values associated with social issues and related social policies.
- Identify key existing social problems as they relate to vulnerable populations.
- Demonstrate an awareness of how society has chosen to cope with and resolve a current social problem.
- Identify, discuss, and analyze key societal components of social systems that have supported the systematic devaluation and discrimination toward certain groups in our society.
- Examine one’s own attitudes and values as they relate to social issues.
- Articulate directives from the Social Work Code of Ethics which relate to social issues and social welfare policies.
- Explain what is meant by the Statement, “policy directs practice.”
- Explain how poverty is defined and measured in the U.S.
- Demonstrate the principles governing the setup and layout of technical drawings.
- Use appropriate sketching techniques to lay out a drawing, obtaining better understanding of residential and light-construction drawings.
- Use computer systems to create a design presentation package.
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- Identify, discuss, and analyze key societal components of social systems that have supported the systematic devaluation and discrimination toward certain groups in our society.
- Examine one’s own attitudes and values as they relate to social issues.
- Articulate directives from the Social Work Code of Ethics which relate to social issues and social welfare policies.
- Explain what is meant by the Statement, “policy directs practice.”
- Explain how poverty is defined and measured in the U.S.
- Demonstrate the principles governing the setup and layout of technical drawings.
- Use appropriate sketching techniques to lay out a drawing, obtaining better understanding of residential and light-construction drawings.
- Use computer systems to create a design presentation package.
- Demonstrate the process based rationale for approaching project management.
- Demonstrate ability to define project objectives and goals.
- Demonstrate knowledge of the principles of scope management, risk management, cost planning and control, resource capacity analysis and allocation, time management and project scheduling, as well as change management.
- Demonstrate the ability to create a Project Charter and Preliminary Planning Steps in the initiation phase, as indicated in the Project Management Book of Knowledge of PMI published by the Project Management Institute (PMI).
- Prepare a Project Task List that indicates task name, beginning and ending dates of a task, and the length of time it will be required to complete the task.
- Utilize Microsoft Project software to compile data, perform analysis, and generate project documentation.
- Simulate project meetings with meeting minutes on individual student projects.
- Verify the operation of current version of MS Project and insure the ability to integrate with other Microsoft and Industry acceptable standard.

Upon successful completion of this course, students should be able to:

- Develop, structure and manage related drawing files and previously prepared drawings to associate desired information and entities for the creation of a specific set of final drawings.
- Apply basic through intermediate techniques of drawing composition and development for plotting scaled views in various viewpoint configurations.
- Create two-dimensional engineering charts, graphs and tables.
- Develop User Coordinate Systems to facilitate drafting of intermediate through advanced drawing views to include orthographic, axonometric and auxiliary planar views.

TCC 122 2-D CADD

This is a course in computer-aided design and drafting using two-dimensional orthographic projection of drawings. Emphasis is placed on sketching/layout techniques for personal-computer-based CADD system operations. A series of increasingly difficult drafting assignments, ending with presentation-quality CADD drawings will be the major outcome of the course.

Upon successful completion of this course, students should be able to:

- Use appropriate sketching techniques to lay out a drawing, establish drawing parameters, and represent the conceptual aspects of views for a twodimensional drawing.
- Use various input devices, display, drawing and plotter commands to satisfy the specific requirements for completing drawings for both the mechanical and construction industries.
- Modify and correct redlined orthographic drawings, using Inquiry and Edit commands available in the CADD software.
- Provide annotation, in the form of standardized dimensions, notes, bill of materials, tabulation tables and other text on drawings.

Upon successful completion of this course, students should be able to:

- Develop, structure and manage related drawing files and previously prepared drawings to associate desired information and entities for the creation of a specific set of final drawings.
- Apply basic through intermediate techniques of drawing composition and development for plotting scaled views in various viewpoint configurations.
- Create two-dimensional engineering charts, graphs and tables.
- Develop User Coordinate Systems to facilitate drafting of intermediate through advanced drawing views to include orthographic, axonometric and auxiliary planar views.

Upon successful completion of this course, students should be able to:

- Demonstrate the principles governing the setup and layout of technical drawings.

Upon successful completion of this course, students should be able to:

- Develop, structure and manage related drawing files and previously prepared drawings to associate desired information and entities for the creation of a specific set of final drawings.
- Apply basic through intermediate techniques of drawing composition and development for plotting scaled views in various viewpoint configurations.
- Create two-dimensional engineering charts, graphs and tables.
- Develop User Coordinate Systems to facilitate drafting of intermediate through advanced drawing views to include orthographic, axonometric and auxiliary planar views.

Upon successful completion of this course, students should be able to:

- Demonstrate the principles governing the setup and layout of technical drawings.
TCS 105 Workplace Safety
This course is designed to provide students with a general awareness on recognition, avoidance, abatement and prevention of safety and health hazards on a construction site. Topics covered in the class include fall protection, personal protective equipment, scaffolding, ladder safety, as well as safe and proper handling of tools and other construction equipment.

Upon successful completion of this course, students should be able to:
- Demonstrate knowledge of worker rights that are protected under OSHA. Demonstrate knowledge of the responsibilities an employer has under OSHA. Demonstrate an understanding of general safety and health provisions.
- Identify major fall, electrocution and other types of work hazards.
- Demonstrate the use of personal protection equipment.
- Identify major health hazards common to the construction industry.
- Demonstrate workplace safety practices.

2 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TCS 108 Construction Supervision
Includes the basics of a supervisor’s duties while on a construction project. The supervisor must define objectives that meet with the overall strategy of the organization and achieve results through the efforts of others; constantly evaluate and control production performance and motivate subordinates; a “jack-of-all-trades” under the most adverse circumstances. All too often many skilled craftsmen are thrust into managerial positions without proper training and background and begin to learn by making mistakes in communicating, planning the job, human relations and the effective use of their own valuable, limited time. This course deals, in depth, with the what, why, how, when and where of construction supervision.

Upon successful completion of this course, students should be able to:
- Assume the responsibilities and authority of the supervisor’s position.
- Apply the various techniques employed in motivating subordinates.
- Use communication in leadership and utilize these necessary skills effectively.
- Use scientific techniques in problem solving and apply these to assigned case studies.
- Know what is expected of him/her relative to such items as contract documents; estimate preparation; state, federal and local forms; architectural specifications; building codes, etc.
- Apply construction supervisor’s responsibilities relative to setting up and controlling a job site.

Upon successful completion of this course, students should be able to:
- Describe the critical elements of pre-construction operations.
- Explain critical inputs to the process for construction planning and scheduling.
- Monitor work progress.
- Diagram the elementary work activities given for the job.
- Track time duration information for activity completion.
- Outline a logical order in which given work items must be done.
- Discuss the elements of a sound job philosophy and the means for implementation.
- Compare variations in type and elements of basic construction contracts.
- Define standard procedures for quality control in materials and workmanship.
- Define standard procedures for handling changes, claims and disputes.
- Administer standard documents and procedures for construction project closeout.
- Explain the documents required to recommend/allocate the final phase of payment and waiver of liens.

Prereq. ENG 050 or ENG 099 and REA 050 or REA 075

3 Credits 3 Weekly Lecture Hours

TCS 110 Construction Project Administration
This course provides an introduction to the principles and techniques of construction project administration (CPA). In addition to the tactical decision-making involved in site supervision, field personnel are required to contribute to the overall management system for planning and implementing the construction phases of a building project. The CPA system provides the overall contractor organization with an informed decision-making process, which guides the site supervisor in selecting the best means to expedite a job and provides the necessary data flow for accounting functions like billing and payroll. The CPA system also generates project records necessary for organizational processes such as liability management, costing and bidding, and organizational improvement. This course will prepare the student to participate in the CPA processes for project phasing and scheduling, cost estimating and control, and contract management.

Upon successful completion of this course, students should be able to:
- Identify and discuss building components from the perspective of material source and manufacture.
- Identify and discuss building systems from the perspective of material source and manufacture.
- Relate standard construction documentation to the materials and methods of general construction.
- Relate standard construction documentation to the materials and methods of general construction.
- Demonstrate fundamental estimating skills.
- Interpret construction plans and specifications.
- Develop an estimate to include summaries and costs by category.

Prereq. MAT 128 or MAT 151, TCS 100, TCC 111

3 Credits 3 Weekly Lecture Hours

TCS 111 Methods/Materials of Construction I
This is the first course of a two-part introduction to the materials, assemblies and methodologies of general construction organized around Construction Specifications Institute division format. Topics begin with site work and excavation techniques and proceed through basic building systems in concrete, masonry, wood, plastic and metal. Emphasis is placed on exploring the impact of design decisions and construction scenario on the final product. Case studies and project simulations are an integral part of the course.

Upon successful completion of this course, students should be able to:
- Relate standard construction documentation to the materials and methods of general construction.
- Identify and discuss building components from the perspective of material source and manufacture.
- Identify and discuss building systems from the perspective of component assemblies and construction methodology.
- Perform critical analysis and problem solving relative to construction project case studies and simulation scenarios.

Prereq. TCS 100

3 Credits 3 Weekly Lecture Hours

TCS 112 Methods/Materials of Construction II
This is the second course of the two-part introduction to the materials, assemblies and methodologies of general construction organized around Construction Specifications Institute division format. Topics begin with building envelope systems and proceed through finishes, building equipment and basic systems. Emphasis is placed on exploring the impact of design decisions and construction scenario on the final product. Case studies and project simulations are an integral part of the course.

Upon successful completion of this course, students should be able to:
- Relate standard construction documentation to the materials and methods of general construction.
- Identify and discuss building components from the perspective of material source and manufacture.
- Relate standard construction documentation to the materials and methods of general construction.
- Identify and discuss building systems from the perspective of component assemblies and construction methodology.
- Perform critical analysis and problem solving relative to construction project case studies and simulation scenarios.

Prereq. TCS 111

3 Credits 3 Weekly Lecture Hours

TCS 131 Estimating I
A method of standard construction estimating procedure from take-off to bid. The course includes excavation, concrete, steel, masonry, carpentry, alteration work, mechanical work, electrical work, and general conditions.

Upon successful completion of this course, students should be able to:
- Determine the horizontal location of a point and the direction to a second point utilizing coordinate geometry, azimuths, bearings and offsets.
- Describe the reasoning for accident prevention program development.
- Define the appropriate administrative requirements, as defined by OSHA, to effect an adequate accident prevention program.
- Develop and implement an accident prevention program.
- Administer first-aid/CPR or seek appropriate medical attention during a construction-related emergency.

3 Credits 3 Weekly Lecture Hours

TCS 132 Estimating II
A continuation of Estimating I. This course is a laboratory presentation utilizing all acquired knowledge to compile essential data for an actual estimate.

Upon successful completion of this course, students should be able to:
- Complete an actual estimate from drawings and specifications within the time limits allowed by the bid documents.
- Obtain experience with the functions performed in a builder's office.

Prereq. TCS 131

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TCS 141 Construction First Aid/Safety
Emergency first-aid and accident-prevention instruction for construction employees and managers. OSHA requirements are stressed in this course. Administrative aspects of recordkeeping requirements, rights and responsibilities, standards, safety program development and implementation are covered. Safety training includes identification and elimination of accident and health hazards, inspection techniques and administration of first-aid and CPR.

Upon successful completion of this course, students should be able to:
- Describe the reasoning for accident prevention program development.
- Identify the appropriate administrative requirements, as defined by OSHA, to effect an adequate accident prevention program.
- Develop and implement an accident prevention program.
- Administer first-aid/CPR or seek appropriate medical attention during a construction-related emergency.

3 Credits 3 Weekly Lecture Hours

TCS 221 Construction Survey and Layout
An introduction to the fundamentals of engineering construction and land surveys. Topics include surveying references, accuracy and errors, measurement of horizontal and vertical distances, and the measurement of angles.

Upon successful completion of this course, students should be able to:
- Determine the horizontal location of a point and the direction to a second point utilizing coordinate geometry, azimuths, bearings and offsets.
- Determine the degree of accuracy of a survey and distinguish between types of errors.
- Calculate horizontal distances through the application of correction factors for temperature, tension, slope and tape calibration to field measured distances.
- Determine the vertical location of a series of points with respect to a given datum.
- Determine the difference in elevation between two points.
- Measure accurate horizontal and vertical angles between two points.
- Establish a line at a given angle of intersection with a known line.
- Determine the magnetic bearing of a line.

Prereq. MAT 110 or MAT 128, TCC 111

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours
TDD 128 Detailing-Assembly-Fixture Design

Concentrating on the appropriate documentation of the engineering design intent, this course introduces the technician to the concepts, skills and tools for developing formal, precisely constructed detail, assembly, fixture and tooling drawings. Knowledge and application of graphical principles for the creation of mechanical drawings is demonstrated through freehand sketching as well as the use of a computer-aided drafting/design system. The importance of standards, documentation and the appropriate use of technical graphics to complement the communication process will be stressed throughout.

Upon successful completion of this course, students should be able to:
- Perform mathematical calculations associated with cost estimation, justification, design, build/purchase of parts, fixtures and tooling.
- Contrast various aspects of special, multipurpose and modular fixture/tooling system design.
- Discuss factors related to the determination of material usage, methods of construction and manufacture of work holding devices, fixtures and tools.
- Utilize software library references and data management techniques to assist in the design/drafting of parts, assemblies, fixtures and tools.
- Detail working drawings via standard practices associated with geometric dimensioning and tolerancing.
- Develop assembly drawings with associated bill of materials.

Prereq. MAT 110 or MAT 128, Coreq. TEC 111
3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours

TDD 190 CADD Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to expose career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 120 hour internship will earn 2 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.
- Complete three program-related concepts that have been applied during the work experience.
- Demonstrate how job-related competencies have improved.

Prereq. Prereq. MAT 110/128, PHY 100/107, TEC 111, TME 231
3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours

TDD 203 Kinematics

This course provides an introduction to mechanisms used for transmitting forces, controlling position, determining spatial interference and providing feedback information. Upon successful completion of this course, students should be able to:
- Set up and solve basic problems in spatial motion analysis, using both graphical and analytical methods.
- Design simple mechanisms.
- Draw simple mechanisms.
- Set up and solve kinematic problems involving straight-line motion, rotary motion, and combined motion.
- Solve problems involving cam, gears and gear trains.

Prereq. MAT 110/128, PHY 100/107, TEC 111, TME 231
3 Credits 2 Weekly Lecture Hours 3 Weekly Laboratory Hours

TDD 216 Three Dimensional CADD

This course provides instruction in advanced computer-aided design and drafting (CADD) techniques in addition to creation of three-dimensional drawings. Students progress from two-dimensional projection to wireframe, surface modeling, solids modeling and rendering techniques. Emphasis will be placed on maximizing a personal computer-based CADD system to develop a series of increasingly difficult drafting assignments and ending with a presentation quality final project and portfolio of completed drawings.

Upon successful completion of this course, students should be able to:
- Describe user coordinate systems, workplanes and coordinate data, using absolute, relative, polar and spherical coordinates, as well as coordinate filters, to create planar, prismatic and three-dimensional curved features on drawings.
- Create semi and logarithmic scales and charts, as well as three-dimensional pictorial line and pie charts, bar graphs, scatter plots and surface plots.
- Construct three-dimensional drawings consisting of wireframe, primitives and solids; and utilize software features to determine the mass properties of a three-dimensional solid models.
- Utilize descriptive geometry techniques to draft three-dimensional intersections and developments.
- Compose axonometric, oblique and perspective view drawings.
- Construct orthographic, isometric and auxiliary view drawings utilizing parametric modeling software.
- Develop three-dimensional drawings to include assembly drawings using parametric constraint/modeling techniques.
TDD 227 Advanced CADD
This course provides students with computer-aided drafting design (CADD) software customization techniques. Emphasis includes improvement of software function via menu customization, proper installation of the software, macro programming and management of electronic files. Additionally, activities associated with the evaluation of newly evolving CADD related systems provide skills appropriate for identifying specialized design and drafting career opportunities.
Upon successful completion of this course, students should be able to:
• Use a text editor to create and modify computer software files.
• Write macros to simplify CADD system operations and maximize speed and accuracy.
• Structure and edit menus to enhance CADD software module access and performance capabilities.
• Customize CADD support files such as prototype drawings, line types, hatches, text fonts, and styles and slide libraries.
• Create customized CADD Help files, icon and menus.
• Assemble a career growth portfolio to represent expertise in CADD customization.

TEC 280 Technical Study Assessment
This credit designation enables students to maximize the amount of credits they can earn for what they already know. College-designated subject matter experts evaluate the college-level knowledge and skills an individual has gained outside of the classroom for college credit. This evaluation is called Prior Learning Assessment (PLA). Prior Learning is learning gained in a variety of settings and through formal and non-formal means, including but not limited to: apprenticeship, workplace training, professional certifications, military training and service.
Upon successful completion of this course, students should be able to:
• Identify college-level knowledge gained outside of classroom.
• Assemble a portfolio for evaluation.
• Identify career advancement and degree completion goals.
• Create a professional Education Plan.
1 Credit

(TEL) Electronics Technology

TEL 101 D C Analysis
This course is a core requirement in all Electronics programs. The course covers the basic principles of direct current circuits containing passive elements, including transient circuit analysis. Circuit theory and conversions will also be examined. Troubleshooting of basic resistive circuits with both a theoretical and a hands-on approach will be applied. Experiments are performed in conjunction with all major topics. Basic electronic testing equipment will be used in conjunction with all lab experiments, including the Digital Multimeter and the Analog Multimeter.
Upon successful completion of this course, students should be able to:
• Understand and use electric circuit terminology.
• Analyze resistive circuits.
• Follow necessary safety precautions in dealing with electrical equipment.
• Connect simple circuits following schematic diagrams.
• Use basic electrical measuring equipment.
• Produce a readable, informative laboratory report.
PreReq. Understanding of Basic algebra
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 102 A C Analysis
This course extends the basic concepts introduced in DC Analysis (TEL 101) to incorporate time-varying voltages and currents. AC (Alternating Current) circuit analysis introduces the basic behavior of capacitors and inductors, as well as series/parallel circuits. Students also learn to analyze Power (real, reactive, apparent) in various AC circuit configurations, including series/parallel resonance.
Upon successful completion of this course, students should be able to:
• Convert circuit elements from time domain to phasor (complex) representation and from phasor back to time domain;
• Analyze currents and voltages in R, L, RLC circuits using phasors;
• Use software simulators to obtain various currents and voltages in R, L, RLC circuits;
• Calculate reactive, apparent, and real power in single phase and multiphase circuits;
• Analyze series and parallel resonant circuits;
• Analyze transformer circuits;
• Demonstrate knowledge of safety in the use of various test equipment;
• Produce an accurate and neat laboratory report.
PreReq. TEL 101
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours
TEL 111 Electronics II
This course covers differential amplifiers, operational amplifier operation, basic OP-AMP circuits, OP-AMP design considerations, components and timers as well as audio circuits to include audio amplifiers, power amplifiers and filters. Experiments are performed in conjunction with all major topics to reinforce theory.

Upon successful completion of this course, students should be able to:
- Define the properties, characteristics and applications of operational amplifiers. Recognize and describe the operation of basic OP-AMP circuit designs.
- Describe the OP-AMP design concepts.
- Describe the basic concept of the voltage regulator, voltage references and current references.
- Describe the concepts of audio circuits.

Prereq. TEL 110
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 120 Microprocessor I
This course covers the basics of microprocessor architecture and programming. Technical terms and conventions, program execution and addressing modes, and computer arithmetic and logical operations are covered in detail. Intel’s 8085 microprocessor is used to illustrate programming and architecture concepts incorporated in Intel’s more advanced microprocessors. Programming exercises are performed on the Hewlett-Packard trainer in weekly 2 hour lab sessions.

Upon successful completion of this course, students should be able to:
- Interpret binary, octal, hexadecimal, and ASCII codes and number systems. Define basic microprocessor terminology.
- Define the operation of a microprocessor. Define basic programming terminology.
- Describe the features of the 8085 microprocessor. Write assembly programs using proper syntax.
- Use basic flowchart techniques to clarify and troubleshoot program execution. Execute programs and verify results using the Hewlett-Packard microprocessor trainer.

Prereq. TEL 101 Coreq. TEL 121
4 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 121 Digital Electronics
This course is a basic electronics course dealing with digital techniques and circuits. The operation of digital logic gates as well as integrated circuit families used in digital equipment are discussed. Boolean algebra is used to analyze, design and troubleshoot combinational digital circuits. Flip-flops, counters and shift registers are also considered. Practical applications of digital circuit techniques are discussed and implemented in the weekly two-hour lab sessions. Lab design and measurements of the digital circuitry are also verified with computer simulation.

Upon successful completion of this course, students should be able to:
- Discuss the applications and advantages of using digital techniques.
- Implement logic functions using standard digital logic elements.
- Discuss flip-flops, counters and registers.
- Design and troubleshoot elementary digital circuits.

Prereq. TEL 101 Coreq. TEL 110
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 122 Microprocessor II
This course is a continuation of the study of microprocessors. Hardware and software concepts covered in Microprocessors I (TEL 124) are integrated into a study of the interfacing of various I/O devices. Hardware and software experiments are performed using the Hewlett-Packard trainer.

Upon successful completion of this course, students should be able to:
- Describe how to interface to the 8085 MPU.
- Describe and program various programmable devices, such as the 8155, 8255A, 8254 and 8251A.
- Interface D/A and A/D converters to the 8085 MPU.
- Describe serial I/O and data communications.
- Describe the use of interrupts in interfacing with I/O devices.

Prereq. TEL 124
3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 124 Computer System Electronics
The fundamentals of various components used in micro-computer systems and their hardware/software support are discussed. Methods of determining system faults at the system, unit, board and component levels are studied. Typical computer/digital systems and test equipment are introduced in the weekly laboratory session.

Upon successful completion of this course, students should be able to:
- Diagnose and troubleshoot hardware and software problems.
- Analyze signal flow at system levels.
- Differentiate between software and hardware problems.
- Construct hardware prototypes.
- Generate software.
- Perform system calibration and testing.
- Interface various computer devices and accessories.

Prereq. TEL 126
3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 200 Electro and Mechanical Systems
This course examines the behavior of electrical and mechanical components used in interfacing the machine environment to the outside world. The course concentrates on the behavior of input and output devices used to detect, measure and control mechanical, thermal, fluid, optical and electrical processes.

Upon successful completion of this course, students should be able to:
- Analyze the characteristics and behavior of various input devices and transducers.
- Analyze the characteristics and behavior of various output devices.
- Demonstrate various methods of modifying analog output signals of devices using amplification and filtering.
- Demonstrate various methods of modifying digital output signals of devices using digital techniques and devices including analog-to-digital/digital-to-analog converters. Describe various feedback techniques (from detection, modification and control) used to control various processes.
- Develop skills to troubleshoot input sensors, output devices and controllers.
- Be able to use various test equipment to localize probable faults in a control system.

Prereq. TEL 110
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 202 Biomedical Instrumentation
This course provides a perspective on the essential aspects of biomedical equipment. It covers practical matters such as operation, calibration, maintenance and troubleshooting of medical equipment. Topics covered by this course include an overview of the human body, the heart and the circulatory system. It also covers electrodes and transducers, bioelectric amplifiers, electrocardiographs, intensive care units, electro-optics, computers in biomedical equipment and electrical safety in the medical environment. Experiments are performed in conjunction with all major topics to reinforce theory.

Upon successful completion of this course, students should be able to:
- Define major systems, characteristics and principle functions of the human body.
- Describe the characteristics and properties of electrodes, transducers and bioelectric amplifiers.
- Describe the fundamentals and properties of electro-cardiographs, the intensive care unit and operating rooms.
- Define electrical safety as applied to medical institutions.
- Define the characteristics and properties of electro-optics in the biomedical field.
- Describe the operation and the characteristics of computers used in Biomedical Equipment.

Prereq. TEL 110 Coreq. TEL 111
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 210 Troubleshooting and Repair
This course is an applied course in Electronics, which aims to provide the student with clear and concise instruction on how to repair consumer electronic equipment. Students will discuss the operation of basic electronic systems such as amplifiers, power supplies, stereo receivers and CD players. Schematic diagrams and block diagrams will be studied for call type of device. The techniques utilized in this course are universally applicable to all types of electronic equipment regardless of their application. Theory and applications are acquired in pre-requisite electronic courses will be applied to Troubleshooting and Repair.

Upon successful completion of this course, students should be able to:
- Define safety procedures for troubleshooting electronic equipment.
- Demonstrate a process for finding fault in electronic circuits.
- Build and test audio amplifier.
- Demonstrate the ability to solder and unsolder components in a PCB board.
- Demonstrate ability to build and test an FM and AM kits.
- Demonstrate the ability to test a stereo receiver.

Prereq. TEL 110
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours
TEL 259 Nanofabrication Manufacturing Seminar

This course gives an overview of typical Nanofabrication applications and provides an introduction to Nanofabrication Manufacturing Technology.

Upon successful completion of this course, students should be able to:
- Understand the typical application of Nanofabrication Manufacturing and obtain an overview of the industry.
- In order to demonstrate this competency, the student should be able to:
  - Describe the various types of businesses in the nanotechnology field.
  - Explain the applications of the nano field.
  - Outline the career opportunities available in this field.

Prereq. TEL 101, Coreq. TEL 101 and TEL 106

1 Credit 2 Weekly Lecture Hours

TEL 260 Materials, Safety, Health Issues and Equipment

This course provides an overview of basic nanofabrication processing equipment and material chemistry and handling procedures. The focus is on cleanroom protocol, safety, environmental and health issues in equipment operation and materials handling. Safety and health issues will be covered for the following topics: cleanroom operation; vacuum pump systems operation; furnace operation; chemical vapor deposition system operation; and vacuum deposition/etching system operation. Specific materials handling issues will include deionization water, solvents, cleaners, ion implantation sources, diffusion sources, photoresists, developers, metals, dielectrics, and toxic, flammable, corrosive, and high purity gases as well as packaging materials.

Upon successful completion of this course, students should be able to:
- Identify the basic nanofabrication processing equipment.
- Describe the uses and applications of the basic nanofabrication processing equipment.
- Identify safety hazards associated with nanofabrication.
- Explain the fundamentals of vacuum technology including pumps, components, and metrology.
- Identify materials used in nanofabrication manufacturing.
- Operate material metrology equipment.
- Associate the material handling issues with each identified nanofabrication material.
- Explain basic chemical properties of materials.
- Summarize basic cleanroom operation and protocol.
- Demonstrate an understanding of basic cleanroom operation and protocol.

Prereq. TEL 111, TEL 121, TEL 210, MAT 210, ENG 112

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 261 Basic Nanofabrication Process

This course provides an overview of basic processing steps in Nanofabrication (contact lithography, basic etching and deposition techniques). The majority of the course details a step-by-step description of the equipment and processes needed to fabricate devices and structures. Processing flow will be examined for structures such as microelectronic devices including diode and the MOS capacitor. Students receive an in depth introduction to basic lithography from wafer preparation to final inspection. Contamination issues in nanofabrication are discussed in detail. Students will learn the similarities and differences in both equipment and process flows for each configuration by undertaking “hands-on” processing.

Upon successful completion of the course, students should be able to:
- Perform basic lithography processes.
- Operate contact lithography equipment.
- Operate optical microscopes and imaging software.
- Operate metrology equipment.
- Explain electrical characterization equipment.
- Describe the basic steps in p-n junction diode process flow.
- Identify the equipment in p-n junction diode process flow.
- Explain the complete p-n diode manufacturing process in a class 10 cleanroom.
- Describe the basic steps in a MOS capacitor process flow.
- Identify the equipment in a MOS capacitor process flow.
- Compare the similarities and differences in equipment and process flow for the process flows listed above.

Coreq. TEL 260

2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 262 Thin Film in Nanofabrication

This course covers advanced thin film deposition and etching practices in nanofabrication. Advanced deposition technologies covered in the first part of the course include atmosphere, low-pressure and plasma enhanced chemical vapor deposition, sputtering, thermal and electron beam evaporation. The study of materials includes dielectrics, polysilicon, and metals. The second part of the course focuses on advanced etching techniques and etching toxic reactive ion etching, high-density plasma systems, ion beam etching, and wet chemical etching.

Students will receive hands-on experience in depositing and etching diode, semiconductor, and metallic materials using state-of-the-art tools and practicing many of the steps critical to nanofabrication of semiconductor devices including microelectronics, MEMS devices, display structures, and structures used in the biotechnology field.

Upon successful completion of this course, students should be able to:
- Explain all chemical vapor deposition (CVD) processes used in nanofabrication.
- Explain the operation of CVD equipment.
- Describe the uses of different CVD thin films in nanofabrication.
- Explain all physical vapor deposition (PVD) processes used in nanofabrication.
- Set up and operate equipment to perform PVD.
- Describe the uses of different PVD thin films in nanofabrication.
- Explain the processes in wet chemical etching techniques.
- Set up and operate equipment to perform wet chemical etching.
- Describe the uses of wet chemical etching techniques.
- Explain the processes in plasma etching techniques used in nanofabrication.
- Set up and operate equipment to perform plasma etching.
- Describe the uses of plasma etching techniques.
- Operate a scanning electron microscope for materials characterization.

Coreq. TEL 261

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 263 Lithography for Nanofabrication

This course covers all aspects of advanced lithography from design and mask fabrication to pattern transfer and inspection. The course is divided into three major sections. The first section describes the advanced lithographic process from substrate preparation to exposure. Most of the emphasis is on understanding the nature and behavior of photore sist materials. The second section examines systems and techniques that define patterns. This section will introduce specialized optical masks and reticles, aligners, steppers and scanners. In addition, critical dimension (CD) control and profile control of photore sist will be investigated. The last section will discuss advanced optical lithographic techniques such as phase shifting masks and illumination schemes as well as e-beam, e-ray, EUV, and ion beam lithography. A section about engineering dielectrics is also discussed.

Upon successful completion of this course, students should be able to:
- Explain the process steps necessary to produce a photolithographic pattern in positive, negative and chemically amplified resists.
- Describe the nature and behavior of photoactive materials such as BCB.
- Describe all lithographic techniques in nanofabrication.
- Explain mask layout and fabrication for photolithography.
- Describe and perform alignment and registration in photolithography.
- Identify the equipment used in photolithography.
- Set up and operate equipment used in photolithography.
- Modify profiles in photore sist for lift-off applications.

Coreq. TEL 262

3 Credits 3 Weekly Lecture Hours

TEL 264 Materials Modification in Nanofabrication

This course will cover in depth the processing steps used in modifying material properties in nanofabrication. An intensive study of metals used in nanotechnology aids the student in understanding the various methods of metalization such as CVD, evaporation, and sputtering. Metal applications for interconnect technologies will be examined. Aluminum, redatory metals and copper deposition techniques and characterization will be discussed in detail along with topics such as diffusion barriers, contact resistance, electromigration, corrosion, stress effects, and adhesion. Other modification technologies such as ion implantation, diffusion and surface preparation and treatment are integrated as well.

An intensive study of dielectric and properties and materials including dielectric constant engineering, mechanical, optical, and electrical characteristics, poly, BSG, PSG, SOG, and BPSS gives the student further insight into advanced device fabrication. Material properties and basic device structures will be discussed for the optoelectronic market.

Upon successful completion of this course, students should be able to:
- Contrast thermally grown oxides with spin on dielectrics.
- Identify the processing equipment for slicing, etching and polishing.
- Describe the procedures for slicing, etching, polishing, and epitaxial growth.
- Perform advanced fabrication techniques.
- Determine the processing parameters of dielectric materials.
- Explain the concept of engineering dielectric constants for different nanofabrication applications.
- Explain metallization techniques and processing equipment.
- Select appropriate materials to match the design needs of nanofabricated devices.
- Describe the process of direct bandgap photonic emission.
- Examine common materials and properties for the optoelectronic market.
- Describe the need for optoelectronic devices.

Prereq. TEL 263 Coreq. TEL 265

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TEL 265 Characterization, Packaging, and Testing of Nanofabrication Structures

This course examines a variety of techniques and measurement essential for controlling device fabrication and final packaging. Students will revisit concepts such as residual gas analysis introduced in TEL 261, optical emission spectroscopy (OES) and end point detection as introduced in TEL 263. Characterization techniques such as surface profilometry, advanced optical microscopy, optical thin film measurements, ellipsometry, and resistivit/condutivity measurement will be implemented on nanofabricated samples. Basic electrical measurements on device structures for yield analysis and process control will also be stressed. These will include breakdown measurements, junction testing, and C-V and I-V tests and simple transistor characterization. In addition, students will examine mechanical as well as electrical characterizations of nanostructures for biological/biomedical applications. The students will perform DNA analysis by learning and performing the polymerase chain reaction for DNA replication. They will also study and manufacture microfluid channels for biological analysis.
extensive overview of biology will be given with emphasis on biocompatible materials. The students will also learn about the manufacturing issues involved in subjects such as interconnects, isolation, and final device assembly. The importance of planarization techniques such as deposition/etch-back and chemical/mechanical polishing will be emphasized. Lastly, packaging procedures such as die separation, inspection, bonding, sealing and final test for both conventional IC’s and novel MEM and biomedical devices will be examined.

Upon successful completion of this course, students should be able to:

• Describe various process monitoring techniques used in nanofabrication.
• Design a process flow for a NMOS transistor from water preparation to packaging.
• Present the NMOS transistor overflow in power point format, with emphasis on process interrelationships.
• Describe various material characterization techniques used in nanofabrication.
• Use the C/V and I/V testing techniques utilizing devices made using the process flows of TEL 262.
• Identify the equipment employed for final assembly.
• Explain the processes of final assembly.
• Describe the importance of nanofabricated biocompatible materials.
• Replicate and quantify DNA fragments utilizing the polymerase chain reaction and gel electrophoresis.
• Describe the issues associated with metalization and planarization.
• Identify the equipment associated with metalization and planarization.
• Operate equipment for metalization.
• Describe the test procedures associated with packaging.
• Describe the issues associated with packaging.
• Identify the equipment associated with packaging.

TME 115 Basic Technical Skills

This course introduces students to the basic hands-on technical skills required for skilled trades, manufacturing and other advanced technology trades. Students receive instruction in use of hand and power tools, operation of equipment, use of precision measuring instruments, as well as, basic heating, bending and cutting.

Upon successful completion of this course, students should be able to:

• Apply basic accident prevention practices and procedures relative to personal protection.
• Interpret sketches, drawings and schematics, and perform basic layout practices.
• Use English and Metric rules, weights and other instruments to make accurate measurements and layouts.
• Perform basic electrical measurements.
• Demonstrate the skills and knowledge required to utilize common hand and power tools.
• Conduct basic heating, bending and cutting.
• Demonstrate basic rigging and equipment moving procedures.

TME 301 Digital and Data Communications

This course provides a clear and comprehensive introduction into what makes up a data communications system. Topics such as LANS, Packet Switching and ISDN are introduced.

Upon successful completion of this course, students should be able to:

• Define the properties and the characteristics of various types of carriers and services.
• Distinguish the difference between various code sets.
• Define the characteristics of synchronous and asynchronous transmission.
• Discuss modern and interface. Describe system networks and architectures.

TME 111 Machining Technology

This course provides an introduction to the knowledge and skills associated with various conventional chip making machine tools their design, application, setup and operation. Theory and mathematical concepts and calculations associated with inspection techniques, tapers, digital readout quantifications, speeds, feeds, torque, horsepower, threading, indexing and unit cycle time determination will be covered. Emphasis will be placed on tooling and work holding requirements, and setup and cutting tool materials (H.S.S., carbide, ceramic and diamond) selection. Additional topics include: an introduction to process planning, quality control charting - Statistical Process Control (SPC) techniques, and Geometric Dimensioning and Tolerancing (GD&T).

Upon successful completion of this course, students should be able to:

• Describe and perform procedures and practices required to safely complete operations involving cutoff and contour saws, drill presses, vertical and horizontal milling machines, engine lathes, pedestal and surface grinders.
• Identify the basic principles and terms associated with the interpretation of drawings for the manufacture and inspection of parts, with an emphasis on Geometric Dimensioning and Tolerancing.
• Implement various aspects of design, planning and organization for the production of manufactured parts.
• Discuss, in general terms, the nature, properties and types of materials used to produce manufactured parts.
• Refer to manufacturers’ catalogs and the theory of cutting tools to determine the application and the identification of appropriate cutting tool holders, adapters, cutters and inserts, and to develop a machining operation plan, including set-up and job sheets.
• Perform algebraic and trigonometric computations associated with the manufacture of piece-parts to include speeds and feeds, tapers, threads and indexing; and other mathematical calculations related to various machining parameters, machine selection, set-up and inspection of piece-parts.
• Utilize engineering drawings and precision instruments to produce parts on machine tools, to include cut-off and contour saws, drill press, vertical and horizontal milling machines, engine lathe, pedestal and surface grinders.
• Describe, in basic terms, the various considerations associated with special purpose machines, processes, mass production, hard and soft automation, and assembly techniques.
TME 190 Advanced Technologies Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 60 hour internship will earn 1 college credit for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).

1 Credit

TME 194 Advanced Technologies Internship

College-Sponsored Experiential Learning (CSEL) is designed to integrate on-the-job learning experiences with classroom studies. These experiences are structured either to explore career options or to prepare for a specific occupation. Students participating in the Cooperative Education and Internship Program gain college credit and are graded for their learning/work experience by the appropriate faculty. Students participating in this 180 hour internship will earn 3 college credits for this experience.

To be eligible for an internship, students must:
- Have completed a minimum of 18 or more credits within the last 5 years
- Have begun course work in their major (at least 9 credits)
- Have an overall grade point average (GPA) of 2.5
- Obtain a written recommendation by a DCCC faculty within the discipline of the internship

Submit an current resume to the Office of Student Employment Services

Upon successful completion of this hands-on work experience, the student should be able to satisfy instructionally selected competencies from those below according to the number of credits to be awarded.

• Explain three program-related concepts that have been applied during the work experience.
• Describe the ways that technology is utilized in the work experience.
• Analyze the culture of the host organization.
• Analyze an operational process within the work experience.
• Demonstrate how assigned tasks depend on successful communication.
• Describe how time and activity are managed to meet work-imposed deadlines.
• Describe an instance where problem-solving skills were needed to analyze a situation in the work experience.
• Demonstrate specifically how job-related competence has improved.
• Formulate a self-assessment for career growth and personal satisfaction.
• Satisfy the competencies of the chosen CSEL placement (to be developed in consultation with the CSEL instructor).
• Work closely with a faculty mentor in the student’s program/major to complete a project which articulates how the experience helps the student achieve program outcomes

3 Credits

TME 210 CNC Operations

This course provides an introduction to the operation and manual programming of Computerized Numerically Controlled (CNC) machine tools including fundamental concepts, terminology and applications. The capabilities, advantages and disadvantages of numerically controlled equipment will be covered. Mathematical applications for definition of location, set-up, positioning and movement within specific coordinate systems will be presented. Various aspects of manual programming (G and M codes) and computerized conversational graphics modeling will be included. Criteria and practices basic to effective preventative maintenance, accident prevention practices and procedures, process planning, tooling, machine set-up and operation (dry-run, first and production runs) will be addressed also.

Upon successful completion of this course, students should be able to:

• Develop an appreciation for the aspects of Numerical Control (NC) and for production enhancement capabilities of Computerized Numerically Controlled (CNC) machine tools.
• Via manual methods, interpret and convert basic part drawings to procedural manufacturing process/operation, tooling and job plans for a CNC mill or a CNC lathe.
• Apply principles of mathematics, engineering piece-part print interpretation and geometric analysis techniques to describe a manufactured part’s datum points and planes, surfaces and feature locations in terms of two-dimensional, interpolated machine axes and tooling positions.

3 Credits
TME 212 Computer Aided Machining

This course provides students with an introduction to off-line programming of Computerized Numerically Controlled (CNC) machine tools via the use of Computer Aided Machining (CAM) software. Emphasis is placed on becoming comfortable and productive with a CAM system operated as an automated process modeling tool. Fundamental concepts terminology and applications are stressed, as is the use of Interactive software modules for modeling CNC operations. Topics include an introduction to the computer/plotter/printer as a work station, an overview of graphics modeling concepts, the application's Graphic User Interface (GUI) and a thorough familiarization of selected icons and definitions. Generalized and specific activities associated with introductory computer-aided drafting (CAD)/CAM operations, job planning, piece-part geometry/tool path definition and part modeling will be covered. An introduction to workplanes and MACROs, as well as CNC code generation and machine communications, will be addressed. Milling and turning (with a minor emphasis on fabrication) operations will be stressed. Process modeling software packages for production modeling and turning will be used as vehicles of instruction for this course.

Upon successful completion of this course, students should be able to:

• Develop the concepts necessary for interpretation and conversion of part drawings into proceduralized manufacturing process operation, tooling sheets and job plans.
• Use computer software and hardware (including peripherals) to interactively create, edit and communicate job plans (to include tooling operational information), CAM generated drawings and machine code files.
• Demonstrate a basic ability to transfer (and manipulate) 2D CAD/CAM design data for use in piece-part process modeling and experimentation.
• Formulate necessary logic (object/action techniques) and demonstrate knowledge of the software module's capabilities to define, create and edit drawings, and tool path elements using freeform and continuous part profile and surface creation techniques.
• Complete activities associated with the verification of tool path motion, and for the creation of machine ready code, for piece-part production.
• Utilize advanced software features to describe, manipulate and perform repetitive tasks associated with the creation of a manufacturing process model.
• Conduct part program origin and workplane/transformations.

Preq. TME 111 Correq. TCC 112

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TME 222 Advanced Computer Aided Machining

This course provides introductory instruction on advanced piece-part modeling techniques of Computer-Aided Drafting/Design-Computer Aided Machining (CADD/CAM). A broad based instructional approach provides concepts necessary to applying process modeling techniques for both advanced milling and turning. Three-dimensional (combined surface types) geometry and associated tool path coding on multiple work and tool planes will be covered. Advanced solutions for completing four-axis simultaneous cutting and integrated mill/tum (C-Axis) and five tooling operations for modern lathes will be included also. Process modeling software packages for advanced three-dimensional machining and advanced turning will be used in instruction for this course.

Upon successful completion of this course students should be able to:

• Describe the basic concepts and performance requirements for effecting translation and manipulation of Computer-Aided Drafting/Design to Computer Aided Machining (CADD/CAM) data for Computer Numerically Controlled (CNC) program creation.
• Complete advanced work and tool plane definitions, and manipulate software functions to perform operational activities involving same.
• Conduct four- and five-axis position and rotary axis modeling, as well as CNC code generation.
• Identify, create and perform operations on surface primitives and developed (3D composite) wireframe and surface geometry models.
• Create plans and 3D surface geometry tool path and associated CNC machine tool code for piece-part production.
• Plan, create and program synchronized four-axis turning operations.
• Apply appropriate techniques for modeling mill/tum operations and for creating machine tool code.
• Plan, develop, edit and execute macros for family of parts operations.

Preq. TME 212

3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TME 229 Fluid Power and Controls

This course provides a study of the basic principles of industrial fluid mechanics, hydraulics and pneumatics. Types of fluid, their condition and use in transmitting power throughout various circuits are addressed. Pumps and compressors, conductors, circuit components, application and control are also topics of coverage. Characteristics such as flow, pressure/vacuum, force, temperature, torque, speed, horsepower, efficiency, fluid and system conditions, process modeling, as well as component and circuit performance will be addressed. System design, component specifications and selection, will be examined also. Pilot and electromechanical control system features will be discussed and investigated. Instructional emphasis is placed on the relevant theoretical and practical aspects of the subject.

Upon successful completion of this course, students should be able to:

• Cite basic maintenance and accident prevention practices and procedures for fluid power and control system service and operation.
• Identify criteria and methods used to specify components, as well as commonly used fluids for pneumatic and hydraulic systems.
• Identify, classify and specify hydraulic and pneumatic prime movers, compressor/pumps, valves, conductors, filters and strainers.
• Determine cylinder load, speed, volume, pressure/vacuum, flow rate, and horsepower requirements.
• Size fluid conductors, receivers, reservoirs and accumulators based on fluid pressure, flow rates and volumetric requirements.
• Recognize standard graphic symbols for common pneumatic and hydraulic components.
• Lay out and sketch simple circuits using standard graphic symbols.
• Construct, demonstrate and investigate the use of various control devices, circuits and systems including pilot and electro/mechanical controls.

TME 231 Technical Mechanics
This course provides students with the concepts and skills required to apply the principles of mechanics for the solution of problems commonly encountered in the fields of drafting and design mechanical and automated manufacturing and robotics technologies.

Upon successful completion of this course, students should be able to:
• Review force systems using free bodies in equilibrium.
• Solve friction problems for wedge, belt, rolling and bearing systems.
• Review the center of gravity and moment of inertia for distributed area and mass systems.
• Describe motion of a particle or rigid body.
• Determine the effect of forces on moving bodies.
• Analyze simple systems subjected to impulse and momentum.
• Calculate work, energy and power during mechanical operations.

Prereq. PHY 100 Coreq. MAT 120 or higher, TME 220
4 Credits 3 Weekly Lecture Hours 2 Weekly Laboratory Hours

TME 232 Robotic Systems
Offered as a continuation of Robotics and Programmable Logic Controllers (TME 220) this course provides instruction in robotic work-cell development and applications. This course focuses on the application of robots and manufacturing automation systems. Cell layout, documentation, programming and the integration of sensory feedback systems to monitor a control process within a manipulative and transporting system are stressed.

Upon successful completion of this course, students should be able to:
• Analyze the processes and operations involved and prepare a plan for the layout and integration of various components within a robotic work cell.
• Read and create drawings, circuits and logic diagrams applicable to installing, interfacing, programming and repairing automated systems.
• Describe the basic function of a sensory monitoring/feedback system and discuss the concepts involved for accomplishing system interfacing, and system control.
• Perform off-line programming functions for Robotic and Programmable Logic Controllers (PLC) devices.
• Monitor the performance of a PLC microprocessor/computer automated system.
• Interact with supervisory personnel and assist with the installation of a programmable automated system.

Prereq. TME 220
3 Credits 2 Weekly Lecture Hours 2 Weekly Laboratory Hours

TME 290 Fluid Mechanics
This course provides a study of the basic principles of industrial fluid mechanics and pneumatics. Included are topics related to types of fluid and their use to transmit power throughout various circuits, together with pumps and compressors, circuit components, their application and control will be investigated. Characteristics such as flow, pressure/vacuum, force, temperature, torque, speed, horsepower, efficiency, fluid and system conditioning, as well as component and circuit performance will be addressed.

System design, component specifications and selection, will be examined. Pilot and electromechanical control system features will be discussed and investigated. Instructional emphasis is placed on the relevant theoretical and practical aspects of the subject matter.

Upon successful completion of this course, students should be able to:
• Cite basic maintenance and accident prevention practices and procedures for fluid power and control systems operation.
• Identify methods and criteria used to specify pneumatic prime movers, motors, pumps, valves, filters and strainers.
• Determine cylinder load and speed and calculate fluid volume, pressure/vacuum, flow rate and horsepower requirements.
• Size fluid conductors, receivers, reservoirs, and accumulators based on fluid pressure, flow rates, and volumetric requirements.
• Recognize standard graphic symbols for the more common pneumatic and hydraulic components.
• Sketch simple circuits using standard graphic symbols.
• Describe the function of basic fluidic devices, circuits and control systems.
• Construct, demonstrate and investigate the use of various control devices, circuits and systems; to include pilot and electro/mechanical controls.

3 Credits 3 Weekly Lecture Hours

(WLD) Welding

WLD 102 Oxy-Fuel Welding
This course provides instruction in welding of mill steel. Emphasis is placed on showing correct torch size and angle welding rod size, flame effects on metal, characteristics of the weld, welding in different positions.

Upon successful completion of this course, students should be able to:
• Utilize correct method of welding mill steel.
• Explain the effects of flame on metal.
• Demonstrate ability to weld a variety of joints in any position.
• Demonstrate an understanding of safety issues as they pertain to shop safety, occupational safety and personal safety.

Prereq. WLD 101
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 103 Shielded Metal Arc Welding I
This course is designed to enable student learn the fundamentals of Shield Metal Arc Welding. This course covers the principles of electric arc welding, using electrodes 6010, 6011, 6012, 6013 in the flat position, correct angles and methods.

Upon successful completion of this course, students should be able to:
• Set correct amperage for welding.
• Explain and calculate effects of changing arc length, angle and travel speed on a weld.
• Weld in the flat position.
• Demonstrate ability to control undercut, overlap, porosity and slag inclusion when welding.
• Demonstrate job safety in the set-up and operation of arc welding equipment.

2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 104 Shielded Metal Arc Welding II
This course covers effects of current settings, arc lengths, electrode angles and electrode manipulation on the quality of weld joint. Students also learn to weld in horizontal, vertical and overhead positions.

Upon successful completion of this course, students should be able to:
• Demonstrate the effects of current settings on the weld.
• Control electrodes in the correct manner.
• Demonstrate the proper handling and storage of electrodes.
• Weld in vertical, overhead, and horizontal positions using 6010 and 6011, 6012 and 6013 electrodes.

Prereq. WLD 103
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 105 Intermediate Shielded Metal Arc Welding I
This course reviews the theories related to Shielded Metal Arc Welding. Students continue to learn and use the proper welding processes and procedures. Various joint designs are emphasized for the various positions using such electrodes as 7018 and 8018.

Upon successful completion of this course, students should be able to:
• Detail various joint designs.
• Identify joint designs.
• Weld joints from designs.
• Weld in various positions using E7018 and E8018 electrodes.

Prereq. WLD 104
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours
WLD 106 Intermediate Shielded Metal Arc Welding II
This course continues the theories covered in Intermediate SMAW 1. Students are taught how to weld typical joints in both flat and horizontal positions using various electrodes. Students are introduced to A.W.S., A.S.M.E. and A.P.I. Welding codes.
Upon successful completion of this course, students should be able to:
• Prepare, set up and design tee joints for welding.
• Demonstrate procedures for fillet welds in the flat and horizontal positions.
• Create E6010 and E6011 fillet welds in flat and horizontal positions.
PreReq. WLD 105
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 111 Printing Reading and Shop Math for Fabricators
This course provides the student with an introduction and review of basic mathematical concepts and applications required to accomplish standard fabrication functions. Students also learn to use common ruled measuring tools and scales in order to perform linear measurements. Students are taught how to locate, interpret and utilize information found in working drawings, blueprints and technical documents.
Upon successful completion of this course, students should be able to:
• Perform mathematical calculations required to complete fabrication tasks.
• Identify common measurement units in both English (U.S. Convention) and Metric standards.
• Demonstrate how to locate and utilize data on blueprints.
• Interpret technical drawings, sketches, blueprints.
• Demonstrate an understanding of the techniques and design-drafting practices used to create working drawings.
3 Credits 3 Weekly Lecture Hours

WLD 150 Welding Design
This course emphasizes the use of basic drafting skills for lay out of plate steel, sheet metal, and patterns and the selection of welding processes and joint design. Students will calculate and estimate weldment and weld metal, and learn how to allow for distortion and the use of jigs, fixtures and positioners.
Upon successful completion of this course, students should be able to:
• Calculate material costs.
• Demonstrate the layout of plate and sheet metals.
• Demonstrate the use of fixtures and jigs for design purposes.
• Identify and apply approved methods to control distortion.
PreReq. WLD 202 and WLD 205
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 151 Testing and Inspection of Welds
This course introduces the principles and applications of non destructive testing using liquid penetrant, magnetic particles, and ultrasonic and radiographic testing methods. Emphasis is placed on non-destructive procedures and interpretation of code specifications and standards.
Upon successful completion of this course, students should be able to:
• Demonstrate the principles of non-destructive testing.
• Demonstrate the use of liquid penetrant, magnetic particle and ultrasonic and radiographic testing.
• Work with welding and safety codes and standards.
• Apply approved safety principles.
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 152 Welding Codes and Specifications
This course is designed to assist students in understanding welding industry codes and specifications. Students also learn to properly apply the codes and specifications.
Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of welding codes and their use.
• Use welding specifications.
• Apply proper use of A.P.I., A.W.S. and A.S.M.E. codes.
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 153 Brazing and Brake Welding
This course discusses the advantages of Soldering and Brazing. Soldering and Brazing methods including building up surfaces, filling holes, filler metals and fluxes are covered.
Upon successful completion of this course, students should be able to:
• Explain the use of Soldering and Brazing.
• Use methods involved in Soldering and Brazing.
• Demonstrate basic Soldering and Brazing of varied joint designs.
• Explain the weldability of commercial alloys.
• Describe the function of fluxes in making proper liquid-solid passed bonded joints.
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 200 Gas Metal Arc I
This course covers GMAW equipment set-up and operation. The theory of gas metal arc welding is applied to mild steel and plate steel in all positions. Students are introduced to single and multi phase welds using a variety of electrode (wire) diameters.
Upon successful completion of this course, students should be able to:
• Explain GMAW as applied to nonferrous metals.
• Demonstrate different modes of metal transfer.
• Practice welding sheet and plate steel in all positions.
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 201 Gas Metal Arc II
This course covers the application of gas metal arc welding theory to non-ferrous materials and their alloys. Different modes of metal transfer are addressed.
Upon successful completion of this course, students should be able to:
• Show proper GMAW equipment set-up.
• Demonstrate threading GMAW wire.
• State how to set appropriate gas flow rate and current.
• Describe the various methods of metal transfer.
• Explain the effect of slope and indutance in gas metal arc welding.
• Perform welds in all positions using the short-circuiting metal transfer method.
• Weld in the IF, SF and IG positions using the globular metal transfer method.
• Perform welds in the IG and IG positioning using the axial spray metal transfer method.
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 202 Advanced Shielded Arc Welding I
The Advanced Shielded Metal Arc course continues the theory covered in Shielded Metal Arc Welding II. A variety of electrodes are discussed. The American Welding Society (A.W.S.) numbering system is emphasized. Specifications of A.S.M.E., A.W.S. and A.P.I. codes are covered. Students learn mild steel with E6010 in all positions. Students will learn A.W.S. welding symbols and how they are used.
Upon successful completion of this course, students should be able to:
• Demonstrate an understanding of the variety of electrodes in SMAW and their uses.
• Explain the A.W.S. numbering system.
• Apply A.S.M.E., A.W.S. and A.P.I. codes.
• Weld with E6010 on heavy plate in all positions.
PreReq. WLD 106
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 203 Advanced Shielded Arc Welding II
Upon successful completion of the course, students should be able to:
• Weld in all positions using a variety of electrodes.
• Weld in accordance with A.W.S., A.S.M.E. and A.P.I. specifications.
• Interpret welding blueprints.
• Interpret technical information used on industrial working and assembly drawings.
• Perform non-destructive testing procedures.
PreReq. WLD 202
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 204 Gas Tungsten Arc Welding I
This course emphasizes the set up and operation of the GTAW process. Various types of tungsten electrodes are covered, along with tolerances and color codes. Welding machines and polar lines that are commonly used are discussed.
Upon successful completion of this course, students should be able to:
• Differentiate GTAW welding equipment.
• Set up and operate GTAW equipment for welding.
• List the types of tungsten and their uses.
• Identify the different torches used in GTAW.
• Explain the polarities used in GTAW processes.
PreReq. WLD 106
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours

WLD 205 Gas Tungsten Arc Welding II
Gas Tungsten Arc Welding is covered in various positions, using ferrous and non-ferrous Sheet and plate. Different welding gases are also used with GTAW processes.
Upon successful completion of this course, students should be able to:
• Perform gas tungsten arc weld in various positions.
• Use different welding gases in the GTAW process.
• Demonstrate gas tungsten arc weld on ferrous and non-ferrous metals.
PreReq. WLD 204
2 Credits 1 Weekly Lecture Hours 2 Weekly Laboratory Hours
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Hines, Melinda R., Educational Advisor, Southeast Center and Upper Darby Center; B.S., New York University

Holley, Eratha A., Professor; B.A., Oakland University; M.A., University of Illinois
Hopkins, Elena M., Professor; M.A., Ph.D., Minsk Linguistics University
Horton, Lea, Enrollment Management Programmer/Analyst; B.S., Shippensburg University; M.S., Widener University
Hossler, Elaine S., Associate Professor; B.S.N., Eastern University; M.S.N., West Chester University
Jackson, Debra A., Financial Aid Advisor
Jackson, Shamell M., Assistant Director, Southeast Center and Upper Darby Center; B.A., Temple University; M.S., Drexel University
Jeral, Ryan A., Assistant Dean, Counseling and Completion Services; B.A., Alvernia College; M.S., West Chester University
Joarder, Melissa M., Associate Professor; B.A., University of Delaware; M.A., Temple University
Johnson, Marcia A., Professor; B.S.Ed., M.S.Ed., Western Illinois University; M.Mgmt., The Pennsylvania State University; CNE (Certified Novell Engineer); MCSA (Microsoft Certified Systems Administrator)
Johnson, Michael R., Professor Emeritus, Business
Johnson, Robert Rex, Professor (Counselor), Career and Counseling Center; B.A., Alderson-Broaddus College; M.Div., Andover-Newton Theological School; M.Ed., Temple University
Jones, Grace M., Associate Professor; B.S., Shippensburg University; M.Ed., Temple University
Jones, Robert J., Professor; B.F.A., Kutztown University; M.F.A., Syracuse University
Jones, Walter J., Jr., Web Programmer/Analyst
Joseph, Teneshia B., Financial Aid Advisor/Social Services Facilitator; B.S., Philadelphia University
Kacmi, Jennifer L., Program Assistant ABLE; B.A., Indiana University of Pennsylvania
Kalinowski, Maria, Associate Professor; A.S., R.N., Delaware County Community College; B.S.N., M.S.N., West Chester University of Pennsylvania
Kalligonis, Jennifer A., Professor (Counselor), Career and Counseling Center; B.A., M.S., West Chester University
Kanak, Daniel J., Executive Director of Marketing and Communications; B.S., La Salle University; M.B.A., St. Joseph's University
Karr Remington, Elaine E., Director, Emergency Services Education; A.A.S., Delaware County Community College; B.A., Neumann College; M.S., St. Joseph's University
Keenan, Tanya M., Financial Aid Student Services Coordinator; B.A., M.B.A., Widener University
Keevill, Michele, Educational Advisor; A.A., Delaware County Community College; B.A., Villanova University
Kennedy, Janet A., Payroll Manager; A.A.S., Delaware County Community College; B.S., Albright College
Kerner, Charles L., Professor Emeritus, Mathematics
Kohute, Christine, Assessment Advisor; B.A., M.Ed., West Chester University
Kolpas, Sidney J., Associate Professor; B.A., M.S., California State University; Ed.D., University of Southern California
Kozachyn, Karen, Dean, Workforce Development and Community Education; A.A.S. (Marketing), A.A.S. (Retailing), Camden County College; B.S., LaSalle University; M.S., Neumann College
Kriebel, Jeffery C., Program Coordinator ABLE; B.A., University of Mary Washington; M.A., University of Maryland
Lacey, Nyia K., Associate Professor; B.A., M.A., West Chester University
Lachimia, Philip, Assistant Dean, Workforce Development and Community Education; B.A., DeSales University; M.S., Saint Joseph's University; Ed.D., Temple University
LaMagna, Michael A., Associate Professor, Reference Librarian; B.A., Susquehanna University; M.A., Villanova University; M.L.S., St. John's University; Ed.D., Northeastern University
LaMonica, Jeffrey, Associate Professor; B.A., LaSalle University; M.A., Villanova University
Landman, Kelly M., Assistant Professor; B.S., University of Scranton; M.A., Ph.D., Bowling Green State University
Latourell, John S., Professor; B.A., Fairhaven College; M.A., University of Washington
Lawrence, Debra L., Assistant Professor; B.S., Empire State College; M.A., University of Colorado; Ph.D., Walden University
Lefkof, Mark A., Assistant Director, Plant Operations and Construction Services; B.A., the Pennsylvania State University
Lenker, Holly J., Administrative Project Coordinator; B.A., Millersville University
Lipscomb, Darren L., Director of Outreach, Recruiting and Enrollment Services, Admissions; B.S., West Chester University
Lin, Steve Li-Hsiuen, Associate Professor; D.V.M., National PingTung Institute of Agriculture; Ph.D., The Ohio State University
Lochett, Stephen M., Assistant Professor; B.S., University of Miami; M.S., Villanova University
Logan, Deborah E., Assistant Professor; B.A., California State University; M.A., State University of New York at Stony Brook; M.A.T., National-Louis University
Lozier, Kathryn A., Director, International Student Services and Recruitment; B.A., Dickinson College; M.S.Ed., University of Pennsylvania
Luciani, Arlene M., Payroll Administrator; A.A., Harcum Junior College; A.S., Delaware County Community College; B.A., The Pennsylvania State University; M.S.M., Rosemont College
Lugo, Andru M., Associate Professor; B.A., M.A., San Diego State University
Luna, Ernestina, Associate Professor; Organic Chemistry Licentiate (B.S. equivalent), Ph.D., Universidad Nacional de Córdoba, Córdoba, Argentina
Maaß, Dorothy, Professor Emerita, Business
Machell, Naomi H., Associate Professor; B.S., Dalhousie University, Halifax, Nova Scotia; M.S., University of Victoria, Victoria, British Columbia; Ph.D., McGill University, Montreal, Quebec
Makowski, Anthony J., Associate Professor; B.A., University of Delaware; M.A., Villanova University
Malfitano, Jennifer, Professor; B.S., Mount St. Mary's College; M.B.A., Virginia Polytechnic Institute and State University; Certified Public Accountant
Mangini, Sabatino M., Associate Professor; B.A., M.A., Rowan University
Manz, M. Nora, Associate Director, Transfer/Articulation; B.S., Alfred University; M.A., Ed.D., Teachers College, Columbia University
Marano, Ralph, Associate Professor (Counselor), Southeast Center; A.A.S., Delaware County Community College; B.S.N., LaSalle University; M.S., West Chester University; Licensed Professional Counselor
Marks, Beverly C., Professor Emerita, Reading
Marucci, Raymond, Professor; B.A., St. John's University; M.A., Fordham University
Mazenett, Jose Francisco, Associate Professor; B.A., M.A. (Spanish), M.A. (French), Ph.D., Texas Tech University
McDaid, Patrick, Professor Emeritus, Drama, English, and Communications
McFadden, Richard T., Jr., Assistant Dean, Business, Computing and Social Science; B.S., The Pennsylvania State University; M.S., Saint Joseph’s University

McGarry, Edward, Web Services Developer; A.A.S., Delaware County Community College

McGorry, Marian, Dean, Business, Computing and Social Science; B.S., Ed.M., Temple University; Ph.D., Capella University

McKenna, Maryann V., Professor Emerita, Nursing

McMeans, Bonnie L., Professor; B.A., West Chester University; M.I., Temple University; M.A., Saint Joseph’s University

McNicholas, Thomas P., Professor Emeritus, Vice President, Instruction, Academic and Student Affairs

Mears, James L., Adjunct Faculty, Director, Clinical Education for Respiratory Therapy; A.A.S., Delaware County Community College; B.A., West Chester University; M.Div., Lancaster Theological Seminary

Meenen, Judith M., Laboratory Coordinator; A.A.S., Delaware County Community College

Meloy, Faye A., Dean, Allied Health, Emergency Services and Nursing; B.S.N., Thomas Jefferson University; M.S.N., University of Pennsylvania; M.B.A., Widener University; Ph.D., Drexel University

Mitchell-Wallace, Keeley P., Director of Paralegal Programs; B.A., New York University; J.S., Georgetown University

Mitsuka, Kara M., Student Facilitator; B.A., Shippensburg University

Moore, Amber M., Assistant Director, Admissions and Enrollment Services; B.A., University of Delaware; M.A., M.A., Monmouth University; Ed.M., University of Illinois

Moscarello, Dawn M., Director, Strategic and Academic Initiatives; B.S.Ed., Temple University; M.Ed., Widener University; Ed.D., Northeastern University

Much, Meredith E., Assistant Professor; B.S., Guilford College; M.S., Saint Joseph’s University; M.Ed., Ed.D., Widener University

Mullin, Carol A., Director, Assessment Services; B.S., West Chester University; M.S., Neumann College

Mulvaney, Richard G., Professor Emeritus, English

Mumley, Cynthia A., Helpdesk Support II/Server Support Specialist; A.A., Delaware County Community College; B.S., Neumann College

Murphy, Christopher A., Director, Workforce Training Programs; B.S., Widener University

Murtha, Mitchell, Dean of Counseling and Completion Services; B.S., Moravian College; M.S., Chestnut Hill College; Ph.D., Widener University

Myers, Joseph P., Associate Professor; B.A., The University of Texas at Austin; M.A., The University of Texas at Arlington; Ph.D., Temple University

Myrick, Gail P., Educational Advisor; A.A., Delaware County Community College; B.S., M.Ed., California University of Pennsylvania

Navarro, Evelyn W., Assistant Director, Dual Enrollment and High School Initiatives; B.S., M.S. (Criminal Justice); M.S. (Higher Education and Student Affairs), West Chester University

Navarro, Pedro, Professor Emeritus, Dean, Learning Support Services

Nelson, Hayley K., Assistant Professor; B.A., State University of New York; M.A., Ph.D., Johns Hopkins University

Nguyen, Kieu-Uyen N., Educational Assistant, B.A., Temple University

Nolan, Timothy W., Helpdesk Support/Computer Technician Specialist

Northern, Lametha E., Director, Learning Commons/ACT 101; B.A., Widener University; M.Ed., Kutztown State College

Novielli, Michael J., Helpdesk Support II/Evenings and Weekends; B.S., DeVry University

Oakley, Susan, Assistant Director, Dual Enrollment and High School Initiatives; B.A., Neumann University

O’Brien, Joanne M., Professor; B.S.N., West Chester University; M.S.N., Villanova University

Ollinger, William M., Professor; B.A., University of New Hampshire; B.S., M.S., Ph.D., Rutgers, the State University of New Jersey

Orazi, Jennifer M., Associate Director, Student Employment Services and Co-op; B.A., Indiana University of Pennsylvania; M.S., West Chester University

Pacula, Ronald M., Professor Emeritus, Early Childhood Education

Panza, Bridget H., Associate Professor (Counselor), Exton Center; B.S., Chestnut Hill College; M.S., West Chester University

Parsons, Amy J., Assistant Director, Dual Enrollment and High School Initiatives; B.S., Temple University

Pat, Pol-Paul, Associate Professor; B.A., Eastern University; M.F.A., The Pennsylvania State University

Patten, Rachael H., Vice President, Institutional Advancement; Executive Director, DCCC Educational Foundation; B.A., Ithaca College

Payne, Chatina R., Educational Technology Specialist; A.A.S., Pennsylvania Institute of Technology; B.S., Neumann College; M.S. Wilmington University

Peich, Diane, Professor Emerita, English

Perrotti, Nicholas, Helpdesk Support/Desktop Engineer

Petrole, Susan K., Assistant Professor; B.A., Moravian College; M.A., West Chester University

Picciani, Diane M., Professor; Director, Center to Promote Excellence in Teaching and Learning; B.S, Temple University; M.A., West Chester University; Ed.D., Widener University

Piorkowski, Joseph D., Professor Emeritus, Director, Admissions

Pitcher, Paula R., Vice President, Enrollment Management; A.A.S., Texas State Technical College; B.S., M.B.A., Bethel College; D.M., University of Maryland University College

Pitt, Nancy E., Student Facilitator, KEYS Grant Program; B.A., Gettysburg College

Pichhuta, Alexander, Interim Dean, E-Learning; B.S., West Chester University; M.S., Kean University; M.S., California State University; Ed.D., Northeastern University

Pullin, Beverly D., Professor Emerita, Payroll Supervisor

Rakowski, Christine A., Assistant Professor; B.A., Daemen College; M.S., University of Delaware

Ralph, Matthew R., Assistant Director, Web Content and Digital Marketing Specialist; B.A., Lebanon Valley College

Ramirez-Wrease, Gladys, Director, Tutoring/Supplemental Support Services; A.A.S., Delaware County Community College; B.S., Indiana University of Pennsylvania; M.S., Eastern University; Ed.D., Wilmington University

Randall, Catherine A., Associate Professor; B.S.N, State University of New York at Buffalo; M.S., Buffalo State College

Rapp, Susan M. Shisler, Director, Grants Management; B.A., Our Lady of Angels College

Raschka, James G., Professor Emeritus, Drafting and CAD

Ray, Susan E., Assistant Professor; B.A., The Pennsylvania State University; M.A., Ph.D., State University of New York at Binghamton
Shannon, Patricia M., Director, Dual Enrollment and High School Initiatives; B.A., M.S., West Chester University
Shin, Henry, Testing Coordinator
Shuman, Labron K., Professor Emeritus, Administration of Justice
Sidoti, Michael F., Professor (Counselor), Career and Counseling Center; B.S., Kent State University; M.A., Villanova University
Silage, Kathleen R., Professor; R.N., Philadelphia General Hospital, Training School for Nurses; B.S.N., M.S.Ed., University of Pennsylvania; M.S.N., Wilmington University
Singer, Sarah, Professor Emerita, Communications
Siripakarn, Thanit, Business Intelligence Analyst; B.E., King Mongkut’s Institute of Technology Ladkrabang (Thailand); M.S., Southern Illinois University Edwardsville
Sloat, Donald R., Director, Technical Services; B.S., Peirce College
Sloat, Philip N., Systems Integration Engineer; A.S., Delaware County Community College
Smith, Ann-Marie M., Professor; B.A., Muhlenberg College; M.S., Philadelphia University
Smith, Arthur E., Professor Emeritus, Counselor
Smith, Stephen P., Associate Professor; B.A., M.A., Villanova University; M.F.A., University of Delaware
Snyder, Grant S., Vice Provost, Student and Instructional Support Services; B.A., M.Ed., University of Delaware; Ph.D., University of Pennsylvania
Solderitsch, Ellen M., Human Resources Generalist-HRIS; B.A., Fordham University
Somerville-Reeves, Madeline O., Professor (Counselor), Career and Counseling Center; B.A., East Stroudsburg State College; M.A., Glassboro State College
Sonchaeng, Chayawan, Associate Professor; A.A., Lansing Community College; B.A., Chulalongkorn University; M.A., Michigan State University
Soong, Chi-Shang (Tony), Professor; B.S., National Taiwan University; M.A., Temple University; M.S., University of North Carolina at Chapel Hill; Ph.D., Temple University
Spelina, Jill McAfee, Professor; B.S., State University of New York College at Oswego; M.S. (Mathematical Sciences), M.S. (Industrial Engineering), Clemson University; M.Eng., The Pennsylvania State University; Ph.D., Villanova University
Stewart, Orita E., Human Resources Generalist; B.A., M.S., Mercy College
Stone, Carolyn A., Finance Programmer/Analyst; B.A., University of Pittsburg; M.S., Philadelphia College of Osteopathic Medicine
Stout, Andrew, Assistant Director, Exton; B.A., Bloomsburg University; M.A., West Chester University of Pennsylvania
Stozek, Victoria, Financial Aid Advisor; B.A., University of Delaware
Straccione, Anthony, Associate Professor; B.A., Neumann University; M.Ed., American InterContinental University
Stranix, Susan, Associate Professor; A.S., Delaware County Community College; B.S., Shippensburg University; M.B.A., Widener University
Suran, Robert M., Associate Professor; B.S., The Pennsylvania State University; Ph.D., Cornell University
Svendsen, Alf, Professor Emeritus, Art
Sviridovsky, Tatiana, Associate Professor; B.S., M.S., Gertsen State Pedagogical University
Szalai, Imre A., Professor Emeritus, Physics
Szybowski, Patricia A., Budget Director; B.A., Widener University
Talebi, Mujtaba, Director, Web Services; B.S., M.S., Villanova University
Tegethoff, Bonnie E., Financial Aid Advisor

Thomas, Pramod, Learning Resource Administrator; B.E., University of Madras; B.Tech., College of Aeronautics; M.B.A., Dowling College; M.S., The Pennsylvania State University

Tokpah, Christopher L., Associate Vice Provost of Institutional Effectiveness; B.S., University of Liberia; M.B.A., Ph.D., Kent State University

Tooker, Michelle M., Assistant Director, Public Relations and Publications; B.A., M.A., Arcadia University

Toole, Raymond L., Director, Financial Aid; B.S., University of Scranton; M.B.A., Saint Joseph’s University

Treadwell, Jaime B., Associate Professor; B.A., State University of New York at Cortland; M.F.A., University of Pennsylvania

Trent, Monica Parrish, Provost and Vice President for Academic and Student Affairs; B.A., M.A., George Mason University; Ph.D., Darden College of Education, Old Dominion University

Trexler, Megan M., Assistant Professor; B.S., West Chester University; M.A., University of Massachusetts

Troppman, Karen B., Simulation Lab Specialist; B.S.N., Messiah College

Twyman, Anthony S., Assistant to the President for Communications; A.B., College of the Holy Cross

Urbanelli, Janet L., Professor Emerita, English

Valente, Blanca, Chief Information Officer; A.A.S., Delaware County Community College; B.A., West Chester University; M.C.S., Villanova University

Varacalli, Mary Anne, Professor Emerita, Dean, Community and Corporate Education

Verenna, Anne-Marie A., Associate Professor; B.S., The Pennsylvania State University; M.S., Barry University

Videon, Carol G., Professor Emerita, Librarian

Viscusi, Raymond J., Director of Safety and Security

Vorndran, Patricia, Assistant Professor; A.A., Delaware County Community College; B.A., M.A., West Chester University

Wallace, Michelle L., Project Specialist; B.S., Michigan State University

Walliser, Richard L., Executive Director, Integrated Enrollment Services; B.S., The Ohio State University

Ward, Susan M., Associate Professor; B.A., Southwest Baptist University; M.A., West Chester University; Ph.D., Regent University

Watson, Sherrod S., Director, Advanced Technology; B.S., Cheyney University of Pennsylvania

Weislogel, Kellie S., Professor; B.S., Carnegie-Mellon University; M.Ed., California University of Pennsylvania

Wenger, Patricia A., Administrative Specialist

Wernicki, Nicholas J., Dean, Communications, Arts and Humanities; B.S., DeSales University; M.A., Villanova University; Ph.D., Drew University

Wheeler, Nancy J., Assistant Director, Admissions; B.S., M.A.T., Fairleigh Dickinson University

Wiesner, Carolyn J., Assistant Professor; B.S.N., Widener University; M.S.N., University of Phoenix

Williams, S. Ife., Professor; B.A., Lincoln University; M.A., Atlanta University; Ph.D., Clark Atlanta University

Wilson, Ashlee M., Biology Laboratory Coordinator/Senior Laboratory Coordinator/Day; B.S., University of Delaware

Wolick McCann, Douglas M., Supervisor, Learning Resource Center, Pennocks Bridge Campus; B.A., M.A., Rosemont College

Woodward, Lawrence A., Professor Emeritus, Technologies

Woomer, William H., Esq., Professor; B.S., M.B.A., J.D., Widener University

Wrease, Robert J. Jr., Workforce Liaison

Wushensky, Lori, Educational Technology Specialist; B.A., Widener University; M.Ed., The Pennsylvania State University

Wyman, Bruce T., Professor Emeritus, Sociology

Yeager, William, Professor Emeritus, Mathematics

Yonkoske, Denise Ann, Associate Professor; B.S.N., M.S.N., Immaculata University

Yox, David E., Professor; B.F.A., University of Arizona, M.F.A., The School of the Art Institute of Chicago

A student athlete plays in a basketball game.
# Academic Calendar

## Fall 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Report</td>
<td>August 22</td>
</tr>
<tr>
<td>Late Registration</td>
<td>August 22</td>
</tr>
<tr>
<td>Part-Time Faculty Professional Development Evening</td>
<td>August 23</td>
</tr>
<tr>
<td>Professional Development Days</td>
<td>August 24</td>
</tr>
<tr>
<td>Fall Classes Begin</td>
<td>August 27</td>
</tr>
<tr>
<td>Labor Day Holiday (No Classes – College Closed)</td>
<td>September 1-3</td>
</tr>
<tr>
<td>No-Show Withdrawal Dates</td>
<td>September 17-21</td>
</tr>
<tr>
<td>Professional Development Days (No Classes)</td>
<td>October 16-17</td>
</tr>
<tr>
<td>Part-Time Faculty Professional Development Evening</td>
<td>October 16</td>
</tr>
<tr>
<td>Registration for Spring 2019 Begins for Veterans</td>
<td>October 25-26</td>
</tr>
<tr>
<td>Mid-Term Grade Warning Date</td>
<td>October 26</td>
</tr>
<tr>
<td>Registration for Spring 2019 Begins for Students</td>
<td>October 29</td>
</tr>
<tr>
<td>Registration for Spring 2019 Begins for New Students</td>
<td>November 5</td>
</tr>
<tr>
<td>Deadline to Apply for Winter Graduation</td>
<td>November 15</td>
</tr>
<tr>
<td>Thanksgiving Holiday (No Classes – College Closed)</td>
<td>November 22-25</td>
</tr>
<tr>
<td>Fall Classes End</td>
<td>December 9</td>
</tr>
<tr>
<td>Final Examinations</td>
<td>December 10-16</td>
</tr>
<tr>
<td>Deadline for Faculty Submission of Grades (10:00 AM)</td>
<td>December 18</td>
</tr>
</tbody>
</table>

## Fall 2018 Accelerated Terms

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Accelerated 1 Classes Begin</td>
<td>August 27</td>
</tr>
<tr>
<td>(Accelerated Saturday only classes start September 8)</td>
<td>October 17</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Fall Accelerated 1</td>
<td>September 5-6</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Fall Accelerated 1</td>
<td>September 28</td>
</tr>
<tr>
<td>Fall Accelerated 1 Classes End</td>
<td>October 14</td>
</tr>
<tr>
<td>(Accelerated Saturday only classes end October 20)</td>
<td>October 14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2 Classes Begin</td>
<td>September 17</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Fall 2</td>
<td>October 1-5</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Fall 2</td>
<td>November 9</td>
</tr>
<tr>
<td>Fall 2 Classes End</td>
<td>December 9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Accelerated 2 Classes Begin</td>
<td>October 22</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Fall Accelerated 2</td>
<td>October 22</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Fall Accelerated 2</td>
<td>November 21</td>
</tr>
<tr>
<td>Fall Accelerated 2 Classes End</td>
<td>November 9</td>
</tr>
<tr>
<td>(Accelerated Saturday only classes end December 15)</td>
<td>December 9</td>
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</tbody>
</table>

## Winter 2018-2019

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Winter Classes Begin</td>
<td>December 10</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Winter</td>
<td>December 17-19</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Winter</td>
<td>January 4</td>
</tr>
<tr>
<td>Winter Classes End</td>
<td>January 11</td>
</tr>
</tbody>
</table>

## Spring, 2019

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Report</td>
<td>January 9</td>
</tr>
<tr>
<td>Late Registration</td>
<td>January 9</td>
</tr>
<tr>
<td>Part-Time Faculty Professional Development Evening</td>
<td>January 10</td>
</tr>
<tr>
<td>Professional Development Days</td>
<td>January 10-11</td>
</tr>
<tr>
<td>Spring Classes Begin</td>
<td>January 14</td>
</tr>
<tr>
<td>Martin Luther King Holiday (No Classes – College Closed)</td>
<td>January 21</td>
</tr>
<tr>
<td>No-Show Withdrawal Dates</td>
<td>February 4-8</td>
</tr>
<tr>
<td>Part-Time Faculty Professional Development Evening</td>
<td>February 14</td>
</tr>
<tr>
<td>Professional Development Days (No Classes)</td>
<td>February 14-15</td>
</tr>
<tr>
<td>President’s Day Weekend Holiday (No Classes – College Closed)</td>
<td>February 16-18</td>
</tr>
<tr>
<td>Spring Break</td>
<td>March 11-17</td>
</tr>
<tr>
<td>Deadline to Apply for Spring Graduation</td>
<td>March 15</td>
</tr>
<tr>
<td>Registration for Summer 2019 and Fall 2019 Begins for Veterans</td>
<td>March 21-22</td>
</tr>
<tr>
<td>Mid-term Grade Warning Date</td>
<td>March 22</td>
</tr>
<tr>
<td>Registration for Summer 2019 and Fall 2019 Begins for Current Students</td>
<td>March 25</td>
</tr>
<tr>
<td>Registration for Summer 2019 and Fall 2019 Begins for New Students</td>
<td>April 1</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals</td>
<td>April 12</td>
</tr>
<tr>
<td>Spring Classes End</td>
<td>May 6</td>
</tr>
<tr>
<td>Final Examinations</td>
<td>May 7-13</td>
</tr>
<tr>
<td>Faculty Summer Institute</td>
<td>May 14-15</td>
</tr>
<tr>
<td>Deadline for Faculty Submission of Grades (10:00 AM)</td>
<td>May 15</td>
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</tbody>
</table>

## Spring Accelerated 1

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Spring Accelerated 1 Classes Begin</td>
<td>January 14</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Spring Accelerated 1</td>
<td>January 23-24</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Spring Accelerated 1</td>
<td>February 22</td>
</tr>
<tr>
<td>Spring Accelerated 1 Classes End</td>
<td>March 10</td>
</tr>
</tbody>
</table>

## Spring 2

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2 Classes Begin</td>
<td>February 4</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Spring 2</td>
<td>February 25 – March 1</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Spring 2</td>
<td>April 12</td>
</tr>
<tr>
<td>Spring 2 Classes End</td>
<td>May 6</td>
</tr>
</tbody>
</table>

## Spring Accelerated 2

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Accelerated 2 Classes Begin</td>
<td>March 18</td>
</tr>
<tr>
<td>No Show Withdrawal Dates for Spring Accelerated 2</td>
<td>March 27-28</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals for Spring Accelerated 2</td>
<td>April 19</td>
</tr>
<tr>
<td>Spring Accelerated 2 Classes End</td>
<td>May 6</td>
</tr>
</tbody>
</table>

## Summer 1

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Registration</td>
<td>May 15</td>
</tr>
<tr>
<td>Summer I Classes Begin</td>
<td>May 20</td>
</tr>
<tr>
<td>Memorial Day Holiday (No Classes – College Closed)</td>
<td>May 27</td>
</tr>
<tr>
<td>No-Show Withdrawal Dates</td>
<td>May 29-30</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals</td>
<td>June 17</td>
</tr>
<tr>
<td>Summer I Classes End</td>
<td>June 26</td>
</tr>
<tr>
<td>Deadline for Faculty Submission of Grades (10:00 AM)</td>
<td>July 1</td>
</tr>
</tbody>
</table>

## PowerUp! and ESL Summer Sessions

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of PowerUp! and ESL Summer Sessions</td>
<td>June 3</td>
</tr>
<tr>
<td>No-Show Withdrawal Dates</td>
<td>June 19-20</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals</td>
<td>July 18</td>
</tr>
<tr>
<td>Classes End for Power Up and ESL Sessions</td>
<td>August 8</td>
</tr>
<tr>
<td>Deadline for Faculty Submission of Grades (10:00 AM)</td>
<td>August 13</td>
</tr>
</tbody>
</table>

## Summer 2

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Registration</td>
<td>June 26</td>
</tr>
<tr>
<td>Summer II Classes Begin</td>
<td>July 2</td>
</tr>
<tr>
<td>Independence Day Holiday (No Classes – College Closed)</td>
<td>July 4</td>
</tr>
<tr>
<td>No-Show Withdrawal Dates</td>
<td>July 10-11</td>
</tr>
<tr>
<td>Deadline to Apply for Summer Graduation</td>
<td>July 15</td>
</tr>
<tr>
<td>Deadline for Student Withdrawals</td>
<td>July 29</td>
</tr>
<tr>
<td>Summer II Classes End</td>
<td>August 8</td>
</tr>
<tr>
<td>Deadline for Faculty Submission of Grades (10:00 AM)</td>
<td>August 13</td>
</tr>
</tbody>
</table>

The College reserves the right to modify the Academic Calendar. Changes will be communicated to students.

For other accelerated courses besides the sessions listed, the deadline for student withdrawals will be the Friday ending the first full week past the 60% point of the course.
EMERGENCY SCHOOL CLOSINGS

In the event of a major snowstorm or other emergency, students who registered for emergency notifications will be contacted directly by telephone or text through an automated system.

The College makes the closing or delayed opening decision available to the public in the following ways:
- On the College's website at www.dccc.edu
- Online at CBSPhilly.com
- Broadcast on CBS Channel 3 television

There are times when off-campus classes held in facilities of other institutions are cancelled because of the closing of that particular facility. You may need to check with the facility or institution for up-to-date closing information if you have questions.

<table>
<thead>
<tr>
<th>ASSIGNED CODE #</th>
<th>CLASS TIME</th>
<th>COUNTY</th>
<th>CLASS LOCATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>470</td>
<td>Day</td>
<td>Delaware</td>
<td>Marple, Southeast Center, Upper Darby Center</td>
</tr>
<tr>
<td>2470</td>
<td>Evening</td>
<td>Delaware</td>
<td>Marple, Southeast Center, Upper Darby Center</td>
</tr>
<tr>
<td>483</td>
<td>Day</td>
<td>Chester</td>
<td>Brandywine Campus, Downingtown Campus, Exton Center</td>
</tr>
<tr>
<td>2483</td>
<td>Evening</td>
<td>Chester</td>
<td>Brandywine Campus, Downingtown Campus, Exton Center</td>
</tr>
<tr>
<td>1295</td>
<td>Day</td>
<td>Chester</td>
<td>Pennocks Bridge Campus</td>
</tr>
<tr>
<td>2295</td>
<td>Evening</td>
<td>Chester</td>
<td>Pennocks Bridge Campus</td>
</tr>
<tr>
<td>1420</td>
<td>Day</td>
<td>Chester</td>
<td>Phoenixville Campus</td>
</tr>
<tr>
<td>2420</td>
<td>Evening</td>
<td>Chester</td>
<td>Phoenixville Campus</td>
</tr>
</tbody>
</table>

Students and staff should use their own judgment as to whether they can make it to campus without jeopardizing their own safety and the safety of others.