college-level credit course descriptions

704.330.CPCC
www.cpcc.edu
ACA - Academic/College Success Skills

ACA 111 College Student Success
Prerequisites: None
Corequisites: None

This course introduces the college’s physical, academic, and social environment and promotes the personal development essential for success. Topics include campus facilities and resources; policies, procedures, and programs; study skills; and life management issues such as health, self-esteem, motivation, goal-setting, diversity, and communication. Upon completion, students should be able to function effectively within the college environment to meet their educational objectives. This course is also available through the Virtual Learning Community (VLC).

ACA 118 College Study Skills
Prerequisites:
Corequisites: None

This course covers skills and strategies designed to improve study behaviors. Topics include time management, note taking, test taking, memory techniques, active reading strategies, critical thinking, communication skills, learning styles, and other strategies for effective learning. Upon completion, students should be
able to apply appropriate study strategies and techniques to the development of an effective study plan.

**ACC 120 Career Assessment**  
Prerequisites:  
Corequisites: None

This course provides the information and strategies necessary to develop clear personal, academic, and professional goals. Topics include personality styles, goal setting, various college curricula, career choices, and campus leadership development. Upon completion, students should be able to clearly state their personal, academic, and professional goals and have a feasible plan of action to achieve those goals.

**ACA 121 Managing a Team**  
Prerequisites: None  
Corequisites: None

This course focuses on the process of the individual with an awareness of the reality in the collective teamwork approach for the workplace emphasizing process-orientation. Topics include how teams work, team effectiveness, team-building techniques, positive thinking, and leadership principles. Upon completion, students should be able to demonstrate an understanding of how teamwork strengthens ownership, involvement, and responsibility in the workplace.

**ACA 220 Professional Transition**  
Prerequisites: None  
Corequisites: None

This course provides preparation for meeting the demands of employment or education beyond the community college experience. Emphasis is placed on strategic planning, gathering information on workplaces or colleges, and developing human interaction skills for professional, academic, and/or community life. Upon completion, students should be able to successfully make the transition to appropriate workplaces or senior institutions.

**ACC - Accounting**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 110</td>
<td>Ten-Key Skills</td>
<td>1</td>
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<td></td>
<td>Prerequisites:</td>
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<td></td>
<td>Corequisites: None</td>
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<tr>
<td></td>
<td>This course is designed to enable mastery of the “touch system” on a ten-key device. Emphasis is placed on the “touch system” on a ten-key device. Upon completion, students should be able to use the “touch system” on a ten-key device in making computations necessary in accounting.</td>
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<tr>
<td>ACC 115</td>
<td>College Accounting</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: RED 090 and MAT 070 with grades of C or better or appropriate placement test scores.</td>
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<tr>
<td></td>
<td>Corequisites: None</td>
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<td></td>
<td>This course introduces basic accounting principles for a business. Topics include the complete accounting cycle with end-of-period statements, bank reconciliation, payrolls, and petty cash. Upon completion, students should be able to demonstrate an understanding of accounting principles and apply those skills to a business organization.</td>
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<tr>
<td>ACC 120</td>
<td>Principles of Financial Accounting</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: RED 090 and MAT 070 with grades of C or better or appropriate placement test scores.</td>
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<td>Corequisites: None</td>
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<td></td>
<td>This course introduces business decision-making using accounting information systems. Emphasis is placed on analyzing, summarizing, reporting, and interpreting financial information. Upon completion, students should be able to prepare financial statements, understand the role of financial information in decision-making and address ethical considerations.</td>
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<tr>
<td>ACC 121</td>
<td>Principles of Managerial Accounting</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: ACC 120 with a grade of C or better.</td>
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<td>Corequisites: None</td>
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<td></td>
<td>This course is a continuation of accounting principles. Emphasis is placed on managerial accounting concepts for external and internal analysis, reporting and decision-making. Upon completion, students should be able to analyze and interpret transactions relating to managerial concepts including product costing systems.</td>
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<tr>
<td>ACC 129</td>
<td>Individual Income Taxes</td>
<td>2</td>
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<tr>
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<td>Prerequisites: ACC 120 with a grade of C or better.</td>
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<td>Corequisites: None</td>
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<td>This course introduces the relevant laws governing individual income taxation. Topics include tax law, electronic research and methodologies, and the use of technology for preparation of individual tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various individual tax forms.</td>
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<tr>
<td>ACC 130</td>
<td>Business Income Taxes</td>
<td>2</td>
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<tr>
<td></td>
<td>Prerequisites: ACC 129 with a grade of C or better.</td>
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<tr>
<td></td>
<td>Corequisites: None</td>
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<tr>
<td></td>
<td>This course introduces the relevant laws governing business and fiduciary income taxes. Topics include tax law relating to business organizations, electronic research and methodologies, and the use of technology for the preparation of business tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various business tax forms.</td>
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<tr>
<td>ACC 140</td>
<td>Payroll Accounting</td>
<td>1</td>
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<td></td>
<td>Prerequisites: ACC 115 or ACC 120 with a grade of C or better.</td>
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<td>Corequisites: None</td>
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<td>This course covers federal and state laws pertaining to wages, payroll taxes, payroll tax forms, and journal and general ledger transactions. Emphasis is placed on computing wages; calculating social security, income, and unemployment taxes; preparing appropriate payroll tax forms; and journalizing/posting transactions. Upon completion, students should be able to analyze data, make appropriate computations, complete forms, and prepare accounting entries using appropriate technology.</td>
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<tr>
<td>ACC 149</td>
<td>Introduction to Accounting</td>
<td>1</td>
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<tr>
<td></td>
<td>Spreadsheets</td>
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<td></td>
<td>Prerequisites: CIS 110 and ACC 115 or ACC 120 with grades of C or better.</td>
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<td></td>
<td>Corequisites: None</td>
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<td></td>
<td>This course provides a working knowledge of computer spreadsheets and their use in accounting. Topics include pre-programmed problems, model-building problems, beginning-level macros, graphics, and what-if analysis enhancements of</td>
<td></td>
</tr>
</tbody>
</table>

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**ACC 110 Ten-Key Skills**

Prerequisites:  
Corequisites: None

This course is designed to enable mastery of the “touch system” on a ten-key device. Emphasis is placed on the “touch system” on a ten-key device. Upon completion, students should be able to use the “touch system” on a ten-key device in making computations necessary in accounting.

**ACC 115 College Accounting**

Prerequisites: RED 090 and MAT 070 with grades of C or better or appropriate placement test scores.  
Corequisites: None  
This course introduces basic accounting principles for a business. Topics include the complete accounting cycle with end-of-period statements, bank reconciliation, payrolls, and petty cash. Upon completion, students should be able to demonstrate an understanding of accounting principles and apply those skills to a business organization.
ACC 150  Accounting Software
Applications  1 2 2
Prerequisites: ACC 115 or ACC 120 with a grade of C or better.
Corequisites: None
This course introduces computer applications related to accounting systems. Topics include general ledger, accounts receivable, accounts payable, inventory, payroll, and correcting, adjusting, and closing entries. Upon completion, students should be able to use a computer accounting software package to solve accounting problems.

ACC 151  Accounting Spreadsheet
Application  1 2 2
Prerequisites: ACC 149 with a grade of C or better.
Corequisites: None
This course is designed to facilitate the use of spreadsheet technology as applied to accounting principles. Emphasis is placed on using spreadsheet software as a problem-solving and decision-making tool. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 220  Intermediate Accounting I  3 2 4
Prerequisites: ACC 121 with a grade of C or better.
Corequisites: None
This course is a continuation of the study of accounting principles with in-depth coverage of theoretical concepts and financial statements. Topics include generally accepted accounting principles and extensive analyses of financial statements. Upon completion, students should be able to demonstrate competence in the conceptual framework underlying financial accounting, including the application of financial standards.

ACC 221  Intermediate Accounting II  3 2 4
Prerequisites: ACC 220 with a grade of C or better.
Corequisites: None
This course is a continuation of ACC 220. Emphasis is placed on special problems which may include leases, bonds, investments, ratio analyses, present value applications, accounting changes, and corrections. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 225  Cost Accounting  3 0 3
Prerequisites: ACC 121 with a grade of C or better.
Corequisites: None
This course introduces the nature and purposes of cost accounting as an information system for planning and control. Topics include direct materials, direct labor, factory overhead, process, job order, and standard cost systems. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 240  Government and Not-for-Profit Accounting  3 0 3
Prerequisites: ACC 121 with a grade of C or better.
Corequisites: None
This course introduces principles and procedures applicable to governmental and not-for-profit organizations. Emphasis is placed on various budgetary accounting procedures and fund accounting. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

ACC 250  Advanced Accounting  3 0 3
Prerequisites: ACC 220 with a grade of C or better.
Corequisites: None
This course is designed to analyze special accounting issues, which may include business combinations, partnerships, international accounting, estates, and trusts. Emphasis is placed on analyzing transactions and preparing working papers and financial statements. Upon completion, students should be able to solve a wide variety of problems by advanced application of accounting principles and procedures.

ACC 269  Auditing  3 0 3
Prerequisites: ACC 220 with a grade of C or better.
Corequisites: None
This course introduces selected topics pertaining to the objectives, theory and practices in engagements providing auditing and other assurance services. Coverage will include planning, conducting and reporting, with emphasis on the related professional ethics and standards. Upon completion, students should be able to demonstrate an understanding of the types of professional services, the related professional standards, and engagement methodology.

ACC 270  International Accounting  3 0 3
Prerequisites: ACC 120 and INT 220 with grades of C or better.
Corequisites: None
This course includes identifying, recording, and interpreting financial information for accounting systems used in different countries. Topics include currency exchange rates, methods of setting and selecting transfer prices, practices used to account for rates of inflation, and major types of taxes. Upon completion, students should be able to describe accounting systems and their impacts on different currencies and demonstrate a basic knowledge of international accounting. This course is a unique concentration requirement in the International Business concentration in the Business Administration program.

Advertising
(See GRD Graphic Design)

AHR - Air Conditioning, Heating and Refrigeration

AHR 110 Introduction to Refrigeration  2 6 5
Prerequisites: None
Corequisites: None
This course introduces the basic refrigeration process used in refrigeration systems. Topics include terminology, safety, and identification and function of components; refrigeration cycle; and tools and instrumentation used in refrigeration systems. Upon completion, students should be able to identify refrigeration systems and components, explain the refrigeration process, and use the tools and instrumentation of the trade.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Corequisites</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHR 111</td>
<td>HVACR Electricity</td>
<td>2 2 3</td>
<td>None</td>
<td>None</td>
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<tr>
<td></td>
<td>This course introduces electricity as it applies to HVACR equipment. Emphasis is placed on power sources, interaction of electrical components, wiring of simple circuits, and the use of electrical test equipment. Upon completion, students should be able to demonstrate good wiring practices and the ability to read simple wiring diagrams.</td>
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<tr>
<td>AHR 112</td>
<td>Heating Technology</td>
<td>2 4 4</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course covers the fundamentals of heating including oil, gas, and electric heating systems. Topics include safety, tools and instrumentation, system operating characteristics, installation techniques, efficiency testing, electrical power, and control systems. Upon completion, students should be able to explain the basic oil, gas, and electrical heating systems and describe the major components of a heating system.</td>
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<tr>
<td>AHR 113</td>
<td>Comfort Cooling</td>
<td>2 4 4</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course covers the installation procedures, system operations, and maintenance of residential and light commercial comfort cooling systems. Topics include terminology, component operation, and testing and repair of equipment used to control and produce assured comfort levels. Upon completion, students should be able to use psychrometers, manufacturer specifications, and test instruments to determine proper system operation.</td>
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<tr>
<td>AHR 114</td>
<td>Heat Pump Technology</td>
<td>2 4 4</td>
<td>None</td>
<td>None</td>
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<td>This course covers the principles of air source and water source heat pumps. Emphasis is placed on safety, modes of operation, defrost systems, refrigerant charging, and system performance. Upon completion, students should be able to understand and analyze system performance and perform routine service procedures.</td>
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<tr>
<td>AHR 115</td>
<td>Refrigeration Systems</td>
<td>1 3 2</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course introduces refrigeration systems and applications. Topics include defrost methods, safety and operational control, refrigerant piping, refrigerant recovery and charging, and leak testing. Upon completion, students should be able to assist in installing and testing refrigeration systems and perform simple repairs.</td>
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<tr>
<td>AHR 120</td>
<td>HVACR Maintenance</td>
<td>1 3 2</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course introduces the basic principles of industrial air conditioning and heating systems. Emphasis is placed on preventive maintenance procedures for heating and cooling equipment and related components. Upon completion, students should be able to perform routine preventive maintenance tasks, maintain records, and assist in routine equipment repairs.</td>
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<tr>
<td>AHR 125</td>
<td>HVAC Electronics</td>
<td>1 3 2</td>
<td>None</td>
<td>AHR 111 or ELC 111</td>
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<td>This course introduces the common electronic control components in HVAC systems. Emphasis is placed on identifying electronic components and their functions in HVAC systems and motor-driven control circuits. Upon completion, students should be able to identify components, describe control circuitry and functions, and use test instruments to measure electronic circuit values and identify malfunctions.</td>
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<tr>
<td>AHR 130</td>
<td>HVAC Controls</td>
<td>2 2 3</td>
<td>None</td>
<td>AHR 111 or ELC 111</td>
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<tr>
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<td>This course covers the types of controls found in residential and commercial comfort systems. Topics include electrical and electronic controls, control schematics and diagrams, test instruments, and analysis and troubleshooting of electrical systems. Upon completion, students should be able to diagnose and repair common residential and commercial comfort system controls.</td>
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<tr>
<td>AHR 133</td>
<td>HVAC Servicing</td>
<td>2 6 4</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course covers the maintenance and servicing of HVAC equipment. Topics include testing, adjusting, maintaining, and troubleshooting HVAC equipment and record keeping. Upon completion, students should be able to adjust, maintain, and service HVAC equipment.</td>
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<tr>
<td>AHR 140</td>
<td>All-Weather Systems</td>
<td>1 3 2</td>
<td>None</td>
<td>AHR 112 or AHR 113</td>
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<td></td>
<td>This course covers the principles of combination heating and cooling systems including gas-electric, all-electric, and oil-electric systems. Topics include PTAC’s and package and split-system units. Upon completion, students should be able to understand systems performance and perform routine maintenance procedures.</td>
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<tr>
<td>AHR 160</td>
<td>Refrigerant Certification</td>
<td>1 0 1</td>
<td>None</td>
<td>None</td>
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<td>This course covers the requirements for the EPA certification examinations. Topics include small appliances, high pressure systems, and low pressure systems. Upon completion, students should be able to demonstrate knowledge of refrigerants and be prepared for the EPA certification examinations.</td>
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<tr>
<td>AHR 180</td>
<td>HVACR Customer Relations</td>
<td>1 0 1</td>
<td>None</td>
<td>None</td>
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<td>This course introduces common business and customer relation practices that may be encountered in HVACR. Topics include business practices, appearance of self and vehicle, ways of handling customer complaints, invoices, telephone communications, and warranties. Upon completion, students should be able to present themselves to customers in a professional manner, understand how the business operates, complete invoices, and handle complaints.</td>
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<tr>
<td>AHR 211</td>
<td>Residential System Design</td>
<td>2 2 3</td>
<td>None</td>
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<td>This course introduces the principles and concepts of conventional residential heating and cooling system design. Topics include heating and cooling load estimating, basic psychometrics, equipment selection, duct system selection, and system design. Upon completion, students should be able to design a basic residential heating and cooling system.</td>
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</tbody>
</table>
### AHR 212 Advanced Comfort Systems
- **Prerequisites:** AHR 114
- **Corequisites:** None

This course covers water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pump systems including variable speed drives and controls. Emphasis is placed on the application, installation, and servicing of water-source systems and the mechanical and electronic control components of advanced comfort systems. Upon completion, students should be able to test, analyze, and troubleshoot water-cooled comfort systems, water-source/geothermal heat pumps, and high efficiency heat pumps.

### AHR 215 Commercial HVAC Controls
- **Prerequisites:** AHR 111 or ELC 111
- **Corequisites:** None

This course introduces HVAC control systems used in commercial applications. Topics include electric/electronic control systems, pneumatic control systems, DDC temperature sensors, humidity sensors, pressure sensors, wiring, controllers, actuators, and controlled devices. Upon completion, students should be able to verify or correct the performance of common control systems with regard to sequence of operation and safety.

### AHR 220 Commercial Building Codes
- **Prerequisites:** None
- **Corequisites:** None

This course covers the appropriate sections of the North Carolina State Building Code that govern the installation of commercial comfort, refrigeration, and mechanical systems. Emphasis is placed on using and understanding applications sections of the North Carolina State Building Code. Upon completion, students should be able to use the North Carolina State Building Code to locate information regarding the installation of commercial systems.

### AHR 225 Commercial System Design
- **Prerequisites:** None
- **Corequisites:** None

This course covers the principles of designing heating and cooling systems for commercial buildings. Emphasis is placed on commercial heat loss/gain calculations, applied psychometrics, airflow calculations, air distribution system design, and equipment selection. Upon completion, students should be able to calculate heat loss/gain, design and size air and water distribution systems, and select equipment.

### AHR 235 Refrigeration Design
- **Prerequisites:** AHR 110
- **Corequisites:** None

This course covers the principles of commercial refrigeration system operation and design. Topics include walk-in coolers, walk-in freezers, system components, load calculations, equipment selection, defrost systems, refrigerant line sizing, and electric controls. Upon completion, students should be able to design, adjust, and perform routine service procedures on a commercial refrigeration system.

### AHR 240 Hydronic Heating
- **Prerequisites:** AHR 112
- **Corequisites:** None

This course covers the accepted procedures for proper design, installation, and balance of hydronic heating systems for residential or commercial buildings. Topics include heating equipment; pump, terminal unit, and accessory selection; piping system selection and design; and pipe sizing and troubleshooting. Upon completion, students should be able to assist with the proper design, installation, and balance of typical hydronic systems.

### AHR 293 Selected Topics in HVACR
- **Prerequisites:** None
- **Corequisites:** None

This course covers selected topics in HVACR not covered in the regular courses. Subject matter covered will provide the student with up-to-date information on various heating, ventilating, air conditioning and refrigeration applications.

### ASL - American Sign Language

(See also IPP Interpreter Education)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL 111</td>
<td>Elementary ASL I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ASL 112</td>
<td>Elementary ASL II</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ASL 120</td>
<td>ASL for the Workplace</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ASL 181</td>
<td>ASL Lab 1</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>ASL 182</td>
<td>ASL Lab 2</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
### ASL - American Sign Language

**ASL 211 Intermediate ASL I**
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3
- **Prerequisites:** ASL 112
- **Corequisites:** ASL 281
  This course provides a review and expansion of the essential skills of American Sign Language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

**ASL 212 Intermediate ASL II**
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3
- **Prerequisites:** ASL 211
- **Corequisites:** ASL 282
  This course provides a continuation of ASL 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication.

**ASL 281 ASL Lab 3**
- **Lecture:** 0
- **Lab:** 2
- **Credit:** 1
- **Prerequisites:** ASL 112
- **Corequisites:** ASL 211
  This course provides an opportunity to enhance the review and expansion of the essential skills of American Sign Language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of various supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future.

**ASL 282 ASL Lab 4**
- **Lecture:** 0
- **Lab:** 2
- **Credit:** 1
- **Prerequisites:** ASL 211
- **Corequisites:** ASL 212
  This course provides an opportunity to enhance the review and expansion of the essential skills of American Sign Language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously, and accurately with increasing complexity and sophistication.

### ANT - Anthropology

**ANT 210 General Anthropology**
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3
- **Prerequisites:** None
- **Corequisites:** None
  This course introduces the physical, archaeological, linguistic, and ethnological fields of anthropology. Topics include human origins, genetic variations, archaeology, linguistics, primatology, and contemporary cultures. Upon completion, students should be able to demonstrate an understanding of the four major fields of anthropology. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

**ANT 220 Cultural Anthropology**
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3
- **Prerequisites:** None
- **Corequisites:** None
  This course introduces the nature of human culture. Emphasis is placed on cultural theory, methods of fieldwork, and cross-cultural comparisons in the areas of ethology, language, and the cultural past. Upon completion, students should be able to demonstrate an understanding of basic cultural processes and how cultural data are collected and analyzed. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

### ARC - Architectural Technology

**ARC 111 Introduction to Arch Technology**
- **Lecture:** 1
- **Lab:** 6
- **Credit:** 3
- **Prerequisites:** None
- **Corequisites:** None
  This course introduces basic architectural drafting techniques, lettering, use of architectural and engineer scales, and sketching. Topics include orthographic, axonometric, and oblique drawing techniques using architectural plans, elevations, sections, and details; reprographic techniques; and other related topics. Upon completion, students should be able to prepare and print scaled drawings within minimum architectural standards.

**ARC 112 Construction Materials & Methods**
- **Lecture:** 3
- **Lab:** 2
- **Credit:** 4
- **Prerequisites:** None
- **Corequisites:** None
  This course introduces construction materials and their methodologies. Topics include construction terminology, materials and their properties, manufacturing processes, construction techniques, and other related topics. Upon completion, students should be able to detail construction assemblies and identify construction materials and properties.

**ARC 113 Residential Arch Tech**
- **Lecture:** 1
- **Lab:** 6
- **Credit:** 3
- **Prerequisites:** None
- **Corequisites:** None
  This course covers intermediate residential working drawings. Topics include residential plans, elevations, sections, details, schedules, and other related topics. Upon completion, students should be able to prepare a set of residential working drawings that are within accepted architectural standards.

**ARC 114 Architectural CAD**
- **Lecture:** 1
- **Lab:** 3
- **Credit:** 2
- **Prerequisites:** None
- **Corequisites:** None
  This course introduces basic architectural CAD techniques. Topics include basic commands and system hardware and software. Upon completion, students should be able to prepare and plot architectural drawings to scale within accepted architectural standards.

**ARC 120 Interior Design-Residential**
- **Lecture:** 1
- **Lab:** 6
- **Credit:** 3
- **Prerequisites:** None
- **Corequisites:** None
  This course covers principles of light construction and materials. Topics include terminology, components, and light construction codes. Upon completion, students should be able to understand light construction principles.

**ARC 131 Building Codes**
- **Lecture:** 2
- **Lab:** 2
- **Credit:** 3
- **Prerequisites:** None
- **Corequisites:** None
  This course covers the methods of researching building codes for specific projects. Topics include residential and commercial building codes. Upon completion, students should be able to determine the code constraints governing residential and commercial projects.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Hours</th>
<th>Prerequisites</th>
<th>Corequisites</th>
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<tbody>
<tr>
<td>ARC 132</td>
<td>Specifications and Contracts</td>
<td>2</td>
<td>0-2</td>
<td>ARC 112, ARC 133</td>
<td>None</td>
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<tr>
<td>ARC 133</td>
<td>Construction Document Analysis</td>
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<td>ARC 160</td>
<td>Residential Design</td>
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<td>ARC 192</td>
<td>Selected Topics in Architectural Technology</td>
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<td>ARC 197</td>
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<td>ARC 212</td>
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<tr>
<td>ARC 213</td>
<td>Design Project</td>
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<td>Corequisites: ARC 131, ARC 212, ARC 230, and CIV 220</td>
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<td>ARC 220</td>
<td>Advanced Architect CAD</td>
<td>1</td>
<td>3</td>
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<tr>
<td>ARC 221</td>
<td>Architectural 3-D CAD</td>
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<tr>
<td>ARC 230</td>
<td>Environmental Systems</td>
<td>3</td>
<td>3</td>
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<tr>
<td>ARC 231</td>
<td>Arch Presentations</td>
<td>2</td>
<td>4</td>
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<tr>
<td>ARC 235</td>
<td>Architectural Portfolio</td>
<td>2</td>
<td>3</td>
<td>Corequisites: None</td>
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<td>ARC 240</td>
<td>Site Planning</td>
<td>2</td>
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<tr>
<td>ARC 250</td>
<td>Survey of Architecture</td>
<td>3</td>
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<td>Corequisites: None</td>
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</table>

This course covers the development of written specifications and the implications of different contractual arrangements. Topics include specification development, contracts, bidding material research, and agency responsibilities. Upon completion, students should be able to write a specification section and demonstrate the ability to interpret contractual responsibilities.

This course covers the analysis of building construction drawings. Emphasis is placed on material identification, understanding construction details, and the relationships of building structural, mechanical, plumbing, and electrical systems. Upon completion, students should be able to analyze a set of construction drawings by identifying building construction materials and understanding construction details and engineering systems.

This course introduces the methodology of basic residential design. Topics include residential site design, space organization and layout, residential styles, and the development of schematic design. Upon completion, students should be able to design a residence.

This course provides an opportunity to explore topics of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

This course introduces regional construction techniques for commercial plans, elevations, sections, and details. Topics include production of a set of commercial contract documents and other related topics. Upon completion, students should be able to prepare a set of working drawings in accordance with building codes.

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This course provides an opportunity to present ideas graphically and do rendered presentation drawings.

This course covers the methodology for the creation of an architectural portfolio. Topics include preparation of marketing materials and a presentation strategy using conventional and/or digital media. Upon completion, students should be able to produce an architectural portfolio of selected projects.

This course introduces finger planning, grading plans, and earthwork calculations. Topics include site analysis, site work, site utilities, cut and fill, soil erosion control, and other related topics. Upon completion, students should be able to prepare site development plans and details and perform cut and fill calculations.

This course introduces the historical trends in architectural form. Topics include historical and current trends in architecture. Upon completion, students should be able to demonstrate an understanding of significant historical and current architectural styles.
**ART 111 Art Appreciation**  
**Prerequisites:** None  
This course covers three dimensional architectural animation. Topics include story boarding, rendered animation creation, audio and video input/output, and techniques for camera and object movement in and around buildings. Upon completion, students should be able to produce rendered architectural animations with sound and archive data to selected media.

**ART 114 Art History Survey I**  
**Prerequisites:** None  
This course covers the development of art forms from ancient times to the Renaissance. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to identify and analyze a variety of artistic styles, periods, and media. Concepts related to media and technique will be introduced. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

**ART 115 Art History Survey II**  
**Prerequisites:** None  
This course covers the development of art forms from the Renaissance to the present. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of human social development. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

**ART 121 Design I**  
**Prerequisites:** None  
This course introduces the elements and principles of design as applied to two-dimensional art. Emphasis is placed on the structural elements, the principles of visual organization, and the theories of color mixing and interaction. Upon completion, students should be able to understand and use critical and analytical approaches as they apply to two-dimensional visual art.

**ART 122 Design II**  
**Prerequisites:** ART 121  
**Corequisites:** None  
This course introduces basic studio problems in three-dimensional visual design. Emphasis is placed on the structural elements and organizational principles as applied to mass and space. Upon completion, students should be able to apply three-dimensional design concepts. Students will demonstrate an understanding of these concepts in assigned projects.

**ART 131 Drawing I**  
**Prerequisites:** None  
This course introduces the language of drawing and the use of various drawing materials. Emphasis is placed on drawing techniques, media, and graphic principles. Upon completion, students should be able to demonstrate competence in the use of graphic form and various drawing processes. Students will apply theories of perspective and composition using media that includes graphite, ink, charcoal and conte crayon.

**ART 132 Drawing II**  
**Prerequisites:** ART 131  
**Corequisites:** None  
This course continues instruction in the language of drawing and the use of various drawing materials. Emphasis is placed on experimentaton in the use of drawing techniques, media, and graphic materials. Upon completion, students should be able to demonstrate increased competence in the expressive use of graphic form and techniques. Approaches to drawing the human form and color problems will be introduced.

**ART 135 Figure Drawing I**  
**Prerequisites:** ART 131  
**Corequisites:** None  
This course introduces rendering the human figure with various drawing materials. Emphasis is placed on the use of the visual elements, anatomy, and proportion in the representation of the draped and undraped figure. Upon completion, students should be able to demonstrate competence in drawing the human figure.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Prerequisites</th>
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</thead>
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<tr>
<td>ART 230</td>
<td>Printmaking I</td>
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<tr>
<td>ART 231</td>
<td>Printmaking II</td>
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<td>ART 230</td>
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<tr>
<td>ART 240</td>
<td>Painting I</td>
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<td>ART 241</td>
<td>Painting II</td>
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<td>ART 242</td>
<td>Landscape Painting</td>
<td>06</td>
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<td>ART 243</td>
<td>Portrait Painting</td>
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<td>ART 244</td>
<td>Watercolor</td>
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<td>ART 245</td>
<td>Metals I</td>
<td>06</td>
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<tr>
<td>ART 246</td>
<td>Metals II</td>
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<td>ART 247</td>
<td>Jewelry I</td>
<td>06</td>
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<tr>
<td>ART 248</td>
<td>Jewelry II</td>
<td>06</td>
<td>ART 247</td>
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<tr>
<td>ART 251</td>
<td>Figure Drawing II</td>
<td>06</td>
<td>ART 135</td>
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<tr>
<td>ART 252</td>
<td>Figure Drawing III</td>
<td>06</td>
<td>None</td>
</tr>
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</table>

This course introduces the use of the computer as a tool for solving visual problems. Emphasis is placed on fundamentals of computer literacy and design through bit-mapped image manipulation. Upon completion, students should be able to demonstrate an understanding of paint programs, printers, and scanners to capture, manipulate, and output images.

This course introduces printmaking: its history, development techniques, and processes. Emphasis is placed on basic applications with investigation into image source and development. Upon completion, students should be able to produce printed images utilizing a variety of methods. This course introduces relief, intaglio, serigraphy and planographic processes.

This course introduces the use of the computer as a tool for solving visual problems. Emphasis is placed on fundamentals of computer literacy and design through bit-mapped image manipulation. Upon completion, students should be able to demonstrate an understanding of paint programs, printers, and scanners to capture, manipulate, and output images.

This course introduces printmaking: its history, development techniques, and processes. Emphasis is placed on basic applications with investigation into image source and development. Upon completion, students should be able to produce printed images utilizing a variety of methods. This course introduces relief, intaglio, serigraphy and planographic processes.

This course extends the study and rendering of the draped and undraped human figure. Emphasis is placed on the exploration of materials and approaches to drawing. Upon completion, students should be able to demonstrate creativity in the representation of the figure.

This course introduces basic methods and techniques in traditional and nontraditional concepts used in watercolor media. Emphasis is placed on application, materials, content, and individual expression. Upon completion, students should be able to demonstrate competence in the traditional approach to portrait painting.

This course introduces the origins and historical development of photography. Emphasis is placed on the study of composition and history of photography as an art form. Upon completion, students should be able to recognize and produce, using color transparencies, properly exposed, well-composed
photographs. Using their own 35mm cameras, students will receive instruction and practice in camera handling, films, filters, lenses, and composition.

**ART 261 Photography I**

- Prerequisites: ART 260
- Corequisites: None
- This course introduces photographic equipment, theory, and processes. Emphasis is placed on camera operation, composition, darkroom technique, and creative expression. Upon completion, students should be able to successfully expose, develop, and print a well-conceived composition. Using their own 35mm camera to take photographs, students will develop printing techniques such as burning, dodging, controlling density and contrast, and basic photo finishing.

**ART 262 Photography II**

- Prerequisites: ART 261
- Corequisites: None
- This course introduces the creative manipulation of alternative photographic materials and processes such as toning, hand coloring, infrared, and multiple exposure. Emphasis is placed on personal vision and modes of seeing. Upon completion, students should be able to create properly exposed images using a variety of photographic materials and processes.

**ART 263 Color Photography**

- Prerequisites: ART 262
- Corequisites: None
- This course provides an introduction to the procedures and processes involved in color photography. Emphasis is placed on the study of light, filtration, exposure, and films along with the processing and printing of color negative materials. Upon completion, students should be able to demonstrate an understanding of color principles, theories, and processes by using them creatively in the production of color prints.

**ART 271 Computer Art I**

- Prerequisites: ART 171
- Corequisites: None
- This course includes advanced computer imaging techniques. Emphasis is placed on creative applications of digital technology. Upon completion, students should be able to demonstrate command of computer systems and applications to express their personal vision.

**ART 281 Sculpture I**

- Prerequisites: None
- Corequisites: None
- This course provides an exploration of the creative and technical methods of sculpture with an emphasis on the traditional process. Emphasis is placed on developing basic skills as they pertain to three-dimensional expression in various media. Upon completion, students should be able to show competence in a variety of sculptural approaches. Students will develop an understanding of historical as well as contemporary ideas related to sculpture.

**ART 282 Sculpture II**

- Prerequisites: ART 281
- Corequisites: None
- This course builds on the visual and technical skills learned in ART 281. Emphasis is placed on developing original solutions to sculptural problems in a variety of media. Upon completion, students should be able to express individual ideas using the techniques and materials of sculpture. Students will be expected to be experiential in their concepts and approaches to sculpture.

**ART 283 Ceramics I**

- Prerequisites: None
- Corequisites: None
- This course provides an introduction to three-dimensional design principles using the medium of clay. Emphasis is placed on fundamentals of forming, surface design, glaze application, and firing. Upon completion, students should be able to demonstrate skills in slab and coil construction, simple wheel forms, glaze technique, and creative expression. Assignments are structured to encourage students to explore their own personal expression.

**ART 284 Ceramics II**

- Prerequisites: ART 283
- Corequisites: None
- This course covers advanced hand building and wheel techniques. Emphasis is placed on creative expression, surface design, sculptural quality, and glaze effect. Upon completion, students should be able to demonstrate a high level of technical competence in forming and glazing with a development of three-dimensional awareness. The aesthetics of pottery form are explored.

**ART 285 Ceramics III**

- Prerequisites: ART 284
- Corequisites: None
- This course provides an opportunity for advanced self-determined work in sculptural and functional ceramics. Emphasis is placed on the technical awareness of clay bodies, slips, engobes, and firing procedures necessary to fulfill the student’s artistic goals. Upon completion, students should be able to demonstrate knowledge of materials and techniques necessary to successfully create original projects in the clay medium. Through contractual agreement with the instructor, students continue to explore personal expression using the medium of clay.

**ART 286 Ceramics IV**

- Prerequisites: ART 285
- Corequisites: None
- This course provides an opportunity for self-determined work in sculptural and functional ceramics. Emphasis is placed on the technical awareness of glaze materials, glaze formulation, and firing techniques necessary to fulfill the student’s artistic goals. Upon completion, students should be able to demonstrate knowledge of materials and techniques necessary to successfully create original projects in the clay medium. Through contractual agreement with the instructor, students continue to explore personal expression using the medium of clay.

**ART 288 Studio**

- Prerequisites: None
- Corequisites: None
- This course provides the opportunity for advanced self-determined work beyond the limits of regular studio course sequences. Emphasis is placed on creative self-expression and in-depth exploration of techniques and materials. Upon completion, students should be able to create original projects specific to media, materials, and techniques. Through contractual agreement with the instructor, students continue to explore personal expressions in their chosen media.
### AST - Astronomy

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>AST 111</td>
<td>Descriptive Astronomy</td>
<td>3</td>
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<tr>
<td>AST 111A</td>
<td>Descriptive Astronomy Lab</td>
<td>0</td>
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<tr>
<td>AST 151</td>
<td>General Astronomy I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>AST 151A</td>
<td>General Astronomy I Lab</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Prerequisites:** None

This course introduces an overall view of modern astronomy. Topics include an overview of the solar system, the sun, stars, galaxies, and the larger universe. Upon completion, students should be able to demonstrate an understanding of the universe around them. This course may be taken concurrently or subsequent to the completion of AST 111. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**Corequisites:** None

**Prerequisites:** None

This course introduces the science of modern astronomy with a concentration on the solar system. Emphasis is placed on the history and physics of astronomy and an introduction to the solar system, including the planets, comets, and meteors. Upon completion, students should be able to demonstrate a general understanding of the solar system. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**Corequisites:** None

This course is a laboratory to accompany AST 151. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 151 and which provide practical experience. Upon completion, students should be able to demonstrate a general understanding of the solar system. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**Corequisites:** None

This course is a laboratory to accompany AST 152. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 152 and which provide practical experience. Upon completion, students should be able to demonstrate a working knowledge of astronomy. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**Corequisites:** None

This course covers the operation of the telescope and related observatory equipment. Emphasis is placed on the use of the telescope and related observatory equipment, including techniques of data collection, measurements, and data analysis. Upon completion, students should be able to set up a telescope and use the coordinate system to locate objects, collect data, and make measurements with the telescope.

### ATR - Automation Training

**Prerequisites:** None

This course introduces the basic principles of automated manufacturing and describes the tasks that technicians perform on the job. Topics include the history, development, and current applications of robots and automated systems including their configuration, operation, components, and controls. Upon completion, students should be able to understand the basic concepts of automation and robotic systems.

**Corequisites:** None

This course provides the operational characteristics of industrial robots and programming in their respective languages. Topics include robot programming utilizing teach pendants, PLCs, and personal computers; and the interaction of external sensors, machine vision, network systems, and other related devices. Upon completion, students should be able to program and demonstrate the operation of various robots.
# AUB - Automotive Body Repair

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>AUB 111</td>
<td>Painting &amp; Refinishing I</td>
<td>2</td>
<td>6</td>
<td>4</td>
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<tr>
<td>Prerequisites:</td>
<td>AUB 111</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corequisites:</td>
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</tbody>
</table>

This course introduces the proper procedures for using automotive refinishing equipment and materials in surface preparation and application. Topics include federal, state, and local regulations, personal safety, refinishing equipment and materials, surface preparation, masking, application techniques, and other related topics. Upon completion, students should be able to identify and use proper equipment and materials in refinishing following accepted industry standards.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>AUB 112</td>
<td>Painting &amp; Refinishing II</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>AUB 111</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Corequisites:</td>
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</tbody>
</table>

This course covers advanced painting techniques and technologies with an emphasis on identifying problems encountered by the refinishing technician. Topics include materials application, color matching, correction of refinishing problems, and other related topics. Upon completion, students should be able to perform spot, panel, and overall refinishing repairs and identify and correct refinishing problems.

<table>
<thead>
<tr>
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<th>Lab</th>
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<tbody>
<tr>
<td>AUB 114</td>
<td>Special Finishes</td>
<td>1</td>
<td>2</td>
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<td>Prerequisites:</td>
<td>AUB 111</td>
<td></td>
<td></td>
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<tr>
<td>Corequisites:</td>
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</table>

This course introduces multistage finishes, custom painting, and protective coatings. Topics include base coats, advanced intermediate coats, clear coats, and other related topics. Upon completion, students should be able to identify and apply specialized finishes based on accepted industry standards.

<table>
<thead>
<tr>
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<th>Lab</th>
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<tbody>
<tr>
<td>AUB 121</td>
<td>Non-Structural Damage I</td>
<td>1</td>
<td>4</td>
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<td>Prerequisites:</td>
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<td></td>
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<td></td>
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<tr>
<td>Corequisites:</td>
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</table>

This course introduces safety, tools, and the basic fundamentals of body repair. Topics include shop safety, damage analysis, tools and equipment, repair techniques, materials selection, materials usage, and other related topics. Upon completion, students should be able to identify and repair minor direct and indirect damage including removal/repairing/replacing of body panels to accepted standards.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
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<tbody>
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<td>AUB 122</td>
<td>Non-Structural Damage II</td>
<td>2</td>
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<td>Prerequisites:</td>
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<tr>
<td>Corequisites:</td>
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</table>

This course covers safety, tools, and advanced body repair. Topics include shop safety, damage analysis, tools and equipment, advanced repair techniques, materials selection, materials usage, movable glass, and other related topics. Upon completion, students should be able to identify and repair or replace direct and indirect damage to accepted standards including movable glass and hardware.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
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<td>AUB 131</td>
<td>Structural Damage I</td>
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<tr>
<td>Prerequisites:</td>
<td>AUB 111</td>
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<td></td>
<td></td>
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<tr>
<td>Corequisites:</td>
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</table>

This course introduces safety, equipment, structural damage analysis, and damage repairs. Topics include shop safety, design and construction, structural analysis and measurement, equipment, structural glass, repair techniques, and other related topics. Upon completion, students should be able to analyze and perform repairs to a vehicle which has received light/moderate structural damage.

<table>
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<tr>
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<tr>
<td>Prerequisites:</td>
<td>AUB 131</td>
<td></td>
<td></td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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</tbody>
</table>

This course provides an in-depth study of structural damage analysis and repairs to vehicles that have received moderate to heavy structural damage. Topics include shop safety, structural analysis and measurement, equipment, structural glass, advanced repair techniques, structural component replacement and alignment, and other related topics. Upon completion, students should be able to analyze and perform repairs according to industry standards.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUB 134</td>
<td>Autobody MIG Welding</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>AUB 131</td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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</table>

This course covers the terms and procedures for welding the various metals found in today’s autobody repair industry with an emphasis on personal/environmental safety. Topics include safety and precautionary measures, setup/operation of MIG equipment, metal identification methods, types of welds/joints, techniques, inspection methods, and other related topics. Upon completion, students should be able to demonstrate a basic knowledge of welding operations and safety procedures according to industry standards.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUB 136</td>
<td>Plastics &amp; Adhesives</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>AUB 111</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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</table>

This course covers safety, plastic and adhesive identification, and the various repair methods of automotive plastic components. Topics include safety, identification, preparation, material selection, and the various repair procedures including refinishing. Upon completion, students should be able to identify, remove, repair, and/or replace automotive plastic components in accordance with industry standards.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>AUB 141</td>
<td>Mechanical &amp; Electrical Components I</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>AUB 131</td>
<td></td>
<td></td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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</table>

This course covers the basic principles of automotive mechanical and electrical components. Topics include personal and environmental safety and suspension and steering, electrical, brake, heating and air-conditioning, cooling, drive train, and restraint systems. Upon completion, students should be able to identify system components and perform basic system diagnostic checks and/or repairs according to industry standards.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>AUB 162</td>
<td>Autobody Estimating</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisites:</td>
<td>AUB 131</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Corequisites:</td>
<td>None</td>
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</tbody>
</table>

This course provides a comprehensive study of autobody estimating. Topics include collision damage analysis, industry regulations, flat-rate and estimated time, and collision estimating manuals. Upon completion, students should be able to prepare and interpret a damage report.
### AUT - Automotive Technology

<table>
<thead>
<tr>
<th>Course</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td><strong>AUT 110 Introduction to Auto Technology</strong></td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: None</td>
<td></td>
<td></td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the basic concepts and terms of automotive technology, workplace safety, North Carolina state inspection, safety and environmental regulations, and use of service information resources. Topics include familiarization with components along with identification and proper use of various automotive hand and power tools. Upon completion, students should be able to describe terms associated with automobiles, identify and use basic tools and shop equipment, and conduct North Carolina safety/emissions inspections.</td>
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</tbody>
</table>

| **AUT 111 Basic Auto Technology**           | 1       | 2   | 2      |
| Prerequisites: None                          |         |     |        |
| Corequisites: None                           |         |     |        |
| Start Term: 1997*02                          |         |     |        |
| This course introduces basic concepts, terms, workplace safety, regulations, and service information relating to automotive components along with basic identification and proper use of various hand and power tools and shop equipment. Upon completion, students should be able to define and use terms associated with automobiles and identify and use basic tools and shop equipment. |         |     |        |

| **AUT 113 Automotive Servicing**            | 2       | 6   | 4      |
| Prerequisites: AUT 115, AUT 141, AUT 151, AUT 161, AUT 171 |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers diagnostic procedures necessary to determine the nature and cause of auto service problems and the procedures used to repair/replace components. Emphasis is placed on troubleshooting, testing, adjusting, repairing, and replacing components using appropriate test equipment and service information. Upon completion, students should be able to perform a variety of automotive repairs using proper service procedures and operate appropriate equipment. |         |     |        |

| **AUT 115 Engine Fundamentals**             | 2       | 3   | 3      |
| Prerequisites: None                          |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers the theory, construction, inspection, diagnosis, and repair of internal combustion engines and related systems. Topics include fundamental operating principles of engines and diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon completion, students should be able to perform basic diagnosis/repair of automotive engines using appropriate tools, equipment, procedures, and service information. |         |     |        |

| **AUT 116 Engine Repair**                   | 1       | 3   | 2      |
| Prerequisites: None                          |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers service/repair/rebuilding of block, head, and internal engine components. Topics include engine repair/reconditioning using service specifications. Upon completion, students should be able to rebuild/recondition an automobile engine to service specifications. |         |     |        |

| **AUT 141 Suspension & Steering Systems**   | 2       | 4   | 4      |
| Prerequisites: None                          |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers principles of operation, types, and diagnosis/repair of suspension and steering systems to include steering geometry. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair various steering and suspension components, check and adjust various alignment angles, and balance wheels. |         |     |        |

| **AUT 151 Brake Systems**                   | 2       | 2   | 3      |
| Prerequisites: None                          |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers principles of operation and types, diagnosis, service, and repair of brake systems. Topics include drum and disc brakes involving hydraulic, vacuum boost, hydra-boost, electrically powered boost, and anti-lock and parking brake systems. Upon completion, students should be able to diagnose, service, and repair various automotive braking systems. |         |     |        |

| **AUT 152 Brake Systems Lab**               | 0       | 2   | 1      |
| Prerequisites: AUT 151                      |         |     |        |
| Corequisites: None                           |         |     |        |
| This course provides a laboratory setting to enhance brake system skills. Emphasis is placed on practical experiences that enhance the topics presented in AUT 151. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in AUT 151. |         |     |        |

| **AUT 161 Electrical Systems**              | 2       | 6   | 4      |
| Prerequisites: Corequisites: None           |         |     |        |
| Corequisites: AUT 164                       |         |     |        |
| This course covers basic electrical theory and wiring diagrams, test equipment, and diagnosis/repair/replacement of batteries, starters, alternators, and basic electrical accessories. Topics include diagnosis and repair of battery, starting, charging, lighting, and basic accessory systems problems. Upon completion, students should be able to diagnose, test, and repair the basic electrical components of an automobile. |         |     |        |

| **AUT 162 Chassis Elect & Electronics**     | 2       | 2   | 3      |
| Prerequisites: AUT 151, AUT 164             |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers electrical/electronic diagnosis/repair, including wiring diagrams, instrumentation, and electronic/computer-controlled devices and accessories. Topics include interpreting wiring diagrams and diagnosis and repair of chassis electrical and electronic systems. Upon completion, students should be able to read and interpret wiring diagrams and determine/perform needed repairs on chassis electrical and electronic systems. |         |     |        |

| **AUT 164 Automotive Electronics**          | 2       | 2   | 3      |
| Prerequisites: AUT 161                      |         |     |        |
| Corequisites: None                           |         |     |        |
| This course covers fundamentals of electrical/electronic circuitry, semi-conductors, and microprocessors. Topics include Ohm's law, circuits, AC/DC current, solid state components, digital applications, and the use of digital multimeters. Upon completion, students should be able to apply Ohm's law to diagnose and repair electrical/electronic circuits using digital multimeters and appropriate service information. |         |     |        |
AUT 171 Heating & Air Conditioning  2 3 3
Prerequisites: 
Corequisites: None
This course covers the theory of refrigeration and heating, electrical/electronic/pneumatic controls, and diagnosis/repair of climate control systems. Topics include diagnosis and repair of climate control components and systems, recovery/recycling of refrigerants, and safety and environmental regulations. Upon completion, students should be able to describe the operation, diagnose, and safely service climate control systems using appropriate tools, equipment, and service information.

AUT 181 Engine Performance-Electrical  2 3 3
Prerequisites: None: 
Corequisites: None
This course covers the principles, systems, and procedures required for diagnosing and restoring engine performance using electrical/electronics test equipment. Topics include procedures for diagnosis and repair of ignition, emission control, and related electronic systems. Upon completion, students should be able to describe operation of and diagnose/repair ignition/emission control systems using appropriate test equipment and service information.

AUT 182 Engine Performance-Elec. Lab  0 3 1
Prerequisites: None: 
Corequisites: AUT 181
This course provides a laboratory setting to enhance the skills for diagnosing and restoring engine performance using electrical/electronics test equipment. Emphasis is placed on practical experiences that enhance the topics presented in AUT 181. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in AUT 181.

AUT 183 Engine Performance-Fuels  2 3 3
Prerequisites: 
Corequisites: None
This course covers the principles of fuel delivery/management, exhaust/emission systems, and procedures for diagnosing and restoring engine performance using appropriate test equipment. Topics include procedures for diagnosis/repair of fuel delivery/management and exhaust/emission systems using appropriate service information. Upon completion, students should be able to describe, diagnose, and repair engine fuel delivery/management and emission control systems using appropriate service information and diagnostic equipment.

AUT 184 Engine Performance-Fuels Lab  0 3 1
Prerequisites: 
Corequisites: AUT 183
This course provides a laboratory setting to enhance the skills for diagnosing and repairing fuel delivery/management and emission systems. Emphasis is placed on practical experiences that enhance the topics presented in AUT 183. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in AUT 183.

AUT 186 Automotive Computer Appl  1 2 2
Prerequisites: None: 
Corequisites: None
This course introduces computer operating systems, word processing and electronic automotive service information systems. Emphasis is placed on operation systems, word processing, and electronic automotive service information systems. Upon completion, students should be able to use an operating system to access information pertaining to automotive technology and perform word processing.

AUT 221 Automatic Transmissions  2 6 4
Prerequisites: 
Corequisites: None
This course covers operation, diagnosis, service, and repair of automatic transmissions/transaxles. Topics include hydraulic, pneumatic, mechanical, and electrical/electronic operation of automatic drive trains and the use of appropriate service tools and equipment. Upon completion, students should be able to explain operational theory and diagnose and repair automatic drive trains.

AUT 222 Advanced Auto Drive Trains  2 2 3
Prerequisites: None: 
Corequisites: None
This course covers advanced diagnosis and repair of automatic drive trains. Topics include testing of sensors, actuators, and control modules using on-board diagnostics, appropriate service information, and equipment. Upon completion, students should be able to perform advanced automatic drive train diagnosis and repair.

AUT 231 Manual Drive Trains/Axles  2 3 3
Prerequisites: None: 
Corequisites: None
This course covers the operation, diagnosis, and repair of manual transmissions/transaxles, clutches, driveshafts, axles, and final drives. Topics include theory of torque, power flow, and manual drive train service and repair using appropriate service information, tools, and equipment. Upon completion, students should be able to explain operational theory and diagnose and repair manual drive trains.

AUT 232 Manual Drive Trains/Axles Lab  0 3 1
Prerequisites: None: 
Corequisites: AUT 231
This course provides a laboratory setting to enhance the skills for diagnosing and repairing manual transmissions/transaxles, clutches, driveshafts, axles, and final drives. Emphasis is placed on practical experiences that enhance the topics presented in AUT 231. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in AUT 231.

AUT 281 Adv Engine Performance  2 2 3
Prerequisites: AUT 161, AUT 183
Corequisites: None
This course utilizes service information and specialized test equipment to diagnose/repair power train control systems. Topics include computerized ignition, fuel and emission systems, related diagnostic tools and equipment, data communication networks, and service information. Upon completion, students should be able to perform advanced engine performance diagnosis and repair.

BIO -Biology

BIO 110 Principles of Biology  3 3 4
Prerequisites: 
Corequisites: None
This course provides a survey of fundamental biological
principles for non-science majors. Emphasis is placed on basic chemistry, cell biology, metabolism, genetics, taxonomy, evolution, ecology, diversity, and other related topics. Upon completion, students should be able to demonstrate increased knowledge and better understanding of biology as it applies to everyday life. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**BIO 111 General Biology I**
- **Prerequisites:** None
- **Corequisites:** None
- This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, evolution, classification, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**BIO 112 General Biology II**
- **Prerequisites:** BIO 111 or equivalent
- **Corequisites:** None
- This course is a continuation of BIO 111. Emphasis is placed on organisms, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate comprehension of life at the organismal and ecological levels. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**BIO 120 Introductory Botany**
- **Prerequisites:** BIO 110, BIO 111 BIO 1500, BIO 1502 or equivalent
- **Corequisites:** None
- This course provides an introduction to the classification, relationships, structure, and function of plants. Topics include reproduction and development of seed and non-seed plants, levels of organization, form and function of systems, and a survey of major taxa. Upon completion, students should be able to demonstrate comprehension of plant form and function, including selected taxa of both seed and non-seed plants. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**BIO 130 Introductory Zoology**
- **Prerequisites:** BIO 110, BIO 111 BIO 1500, BIO 1501 or equivalent
- **Corequisites:** None
- This course provides an introduction to the classification, relationships, structure, and function of major animal phyla. Emphasis is placed on levels of organization, reproduction and development, comparative systems, and a survey of selected phyla. Upon completion, students should be able to demonstrate comprehension of animal form and function including comparative systems of selected groups. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**BIO 143 Field Biology Minicourse**
- **Prerequisites:** None
- **Corequisites:** None
- This course introduces the biological and physical components of a field environment. Emphasis is placed on a local field environment with extended field trips to other areas. Upon completion, students should be able to demonstrate an understanding of the biological and physical components of the specific biological environment.

**BIO 145 Ecology**
- **Prerequisites:** BIO 110 or BIO 111
- **Corequisites:** None
- This course provides an introduction to ecological concepts using an ecosystems approach. Topics include energy flow, nutrient cycling, succession, population dynamics, community structure, and other related topics. Upon completion, students should be able to demonstrate comprehension of basic ecosystem structure and dynamics.

**BIO 155 Nutrition**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers the biochemistry of foods and nutrients with consideration of the physiological effects of specialized diets for specific biological needs. Topics include cultural, religious, and economic factors that influence a person’s acceptance of food as well as nutrient requirements of the various life stages. Upon completion, students should be able to identify the functions and sources of nutrients, the mechanisms of digestion, and the nutritional requirements of all age groups.

**BIO 161 Intro to Human Biology**
- **Prerequisites:** None
- **Corequisites:** None
- This course provides a basic survey of human biology. Emphasis is placed on the basic structure and function of body systems and the medical terminology used to describe normal and pathological states. Upon completion, students should be able to demonstrate an understanding of normal anatomy and physiology and the appropriate use of medical terminology.

**BIO 163 Basic Anatomy & Physiology**
- **Prerequisites:** None
- **Corequisites:** None
- This course provides a basic study of the structure and function of the human body. Topics include a basic study of the body systems as well as an introduction to homeostasis, cells, tissues, nutrition, acid-base balance, and electrolytes. Upon completion, students should be able to demonstrate a basic understanding of the fundamental principles of anatomy and physiology and their interrelationships.

**BIO 168 Anatomy and Physiology I**
- **Prerequisites:** None
- **Corequisites:** None
- This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization, homeostasis, cytology, histology, and the integumentary, skeletal, muscular, nervous systems, and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

**BIO 169 Anatomy and Physiology II**
- **Prerequisites:** BIO *168
- **Corequisites:** None
- This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory,
digestive, urinary, and reproductive systems as well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

**BIO 175 General Microbiology** 2 2 3
Prerequisites: BIO 110, BIO 163, BIO 166, BIO 169, BIO 1500, or BIO 1505 or equivalent
Corequisites: None
This course covers principles of microbiology with emphasis on microorganisms and human disease. Topics include an overview of microbiology and aspects of medical microbiology, identification and control of pathogens, disease transmission, host resistance, and immunity. Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques.

**BIO 191 Selected Topics in Biology** 0-1 0-3 1
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study. Students wishing to take any biology topics course must have an instructor’s permission.

**BIO 193 Selected Topics in Biology** 1-3 0-6 3
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study. Students wishing to take any biology topics must have an instructor’s permission.

**BIO 235 Ornithology** 3 3 4
Prerequisites: BIO 110, BIO 111, BIO 1500 or equivalent
Corequisites: None
This course introduces the biology of birds. Emphasis is placed on the systematic, recognition, distribution, anatomy, physiology, behavior, and ecology of birds. Upon completion, students should be able to identify various avian species and demonstrate a knowledge of their biology and ecology.

**BIO 243 Marine Biology** 3 3 4
Prerequisites: BIO 110 or BIO 111
Corequisites: None
This course covers the physical and biological components of the marine environment. Topics include major habitats, the diversity of organisms, their biology and ecology, marine productivity, and the use of marine resources by humans. Upon completion, students should be able to identify various marine habitats and organisms and to demonstrate a knowledge of their biology and ecology.

**BIO 275 Microbiology** 3 3 4
Prerequisites: BIO 110, BIO 112, BIO 163, BIO 165, or BIO 168, BIO 1500, BIO 1504 or equivalent
Corequisites: None
This course covers principles of microbiology and the impact these organisms have on man and the environment. Topics include the various groups of microorganisms, their structure, physiology, genetics, microbial pathogenicity, infectious diseases, immunology, and selected practical applications. Upon completion, students should be able to demonstrate knowledge and skills including microscopy, aseptic technique, staining, culture methods, and identification of microorganisms.

**BPR - Blueprint Reading**

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>BPR 111 Blueprint Reading</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Prerequisites: None
Corequisites: None
This course introduces the basic principles of blueprint reading. Topics include line type, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic blueprints and visualize the features of a part.

**BUS - Business**

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>BUS 110 Introduction to Business</td>
<td>3</td>
<td>0</td>
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</tbody>
</table>
Prerequisites: None
Corequisites: None
This course provides a survey of the business world. Topics include the basic principles and practices of contemporary business. Upon completion, students should be able to demonstrate an understanding of business concepts as a foundation for studying other business subjects.

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<tr>
<th>Lecture</th>
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<tbody>
<tr>
<td>BUS 115 Business Law I</td>
<td>3</td>
<td>0</td>
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</tbody>
</table>
Prerequisites: BUS 115
Corequisites: None
This course introduces the ethics and legal framework of business. Emphasis is placed on contracts, negotiable instruments, Uniform Commercial Code, and the working of the court systems. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations.

<table>
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<tr>
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<tbody>
<tr>
<td>BUS 116 Business Law II</td>
<td>3</td>
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</tbody>
</table>
Prerequisites: BUS 115
Corequisites: None
This course continues the study of ethics and business law. Emphasis is placed on bailments, sales, risk-bearing, forms of business ownership, and copyrights. Upon completion, students should be able to apply ethical issues and laws covered to selected business decision-making situations.

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<thead>
<tr>
<th>Lecture</th>
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<th>Credit</th>
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<tbody>
<tr>
<td>BUS 121 Business Math</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Prerequisites: RED 090 and MAT 070 or grades of C or better or appropriate placement test scores.
Corequisites: None
This course covers fundamental mathematical operations and their application to business problems. Topics include payroll, pricing, interest and discount, commission, taxes, and other pertinent uses of mathematics in the field of business. Upon completion, students should be able to apply mathematical concepts to business.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 125</td>
<td>Personal Finance</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BUS 135</td>
<td>Principles of Supervision</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BUS 137</td>
<td>Principles of Management</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BUS 153</td>
<td>Human Resource Management</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BUS 210</td>
<td>Investment Analysis</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BUS 217</td>
<td>Employment Law and Regulations</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BUS 225</td>
<td>Business Finance</td>
<td>2 2 3</td>
</tr>
<tr>
<td>BUS 230</td>
<td>Small Business Management</td>
<td>3 0 3</td>
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<tr>
<td>BUS 234</td>
<td>Training and Development</td>
<td>3 0 3</td>
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<tr>
<td>BUS 255</td>
<td>Org Behavior in Business</td>
<td>3 0 3</td>
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<tr>
<td>BUS 258</td>
<td>Compensation and Benefits</td>
<td>3 0 3</td>
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<tr>
<td>BUS 259</td>
<td>HRM Applications</td>
<td>3 0 3</td>
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</tbody>
</table>

**BUS 125 Personal Finance**
Prerequisites: None
Corequisites: None
This course provides a study of individual and family financial decisions. Emphasis is placed on building useful skills in buying, managing finances, increasing resources, and coping with current economic conditions. Upon completion, students should be able to develop a personal financial plan.

**BUS 135 Principles of Supervision**
Prerequisites: None
Corequisites: None
This course introduces the basic responsibilities and duties of the supervisor and his/her relationship to higher-level supervisors, subordinates, and associates. Emphasis is placed on effective utilization of the work force and understanding the role of the supervisor. Upon completion, students should be able to apply supervisory principles in the work place.

**BUS 137 Principles of Management**
Prerequisites: None
Corequisites: None
This course is designed to be an overview of the major functions of management. Emphasis is placed on planning, organizing, controlling, directing, and communicating. Upon completion, students should be able to work as contributing members of a team utilizing these functions of management.

**BUS 153 Human Resource Management**
Prerequisites: None
Corequisites: None
This course introduces the functions of personnel/human resource management within an organization. Topics include equal opportunity and the legal environment, recruitment and selection, performance appraisal, employee development, compensation planning, and employee relations. Upon completion, students should be able to anticipate and resolve human resource concerns.

**BUS 210 Investment Analysis**
Prerequisites: ACC 120 with a grade of C or better.
Corequisites: None
This course examines the concepts related to financial investment and the fundamentals of managing investments. Emphasis is placed on the securities markets, stocks, bond, and mutual funds, as well as tax implications of investment alternatives. Upon completion, students should be able to analyze and interpret investment alternatives and report findings to users of financial information.

**BUS 217 Employment Law and Regulations**
Prerequisites: None
Corequisites: None
This course introduces the principle laws and regulations affecting public and private organizations and their employees or prospective employees. Topics include fair employment practices, EEO, affirmative action, and employee rights and protections. Upon completion, students should be able to evaluate organization policy for compliance and assure that decisions are not contrary to law.

**BUS 225 Business Finance**
Prerequisites: ACC 120 with a grade of C or better.
Corequisites: None
This course provides an overview of business financial management. Emphasis is placed on financial statement analysis, time value of money, management of cash flow, risk and return, and sources of financing. Upon completion, students should be able to interpret and apply the principles of financial management.

**BUS 230 Small Business Management**
Prerequisites: None
Corequisites: None
This course introduces the challenges of entrepreneurship including the startup and operation of a small business. Topics include market research techniques, feasibility studies, site analysis, financing alternatives, and managerial decision making. Upon completion, students should be able to develop a small business plan.

**BUS 234 Training and Development**
Prerequisites: None
Corequisites: None
This course covers developing, conducting, and evaluating employee training with attention to adult learning principles. Emphasis is placed on conducting a needs assessment, using various instructional approaches, designing the learning environment, and locating learning resources. Upon completion, students should be able to design, conduct, and evaluate a training program.

**BUS 255 Org Behavior in Business**
Prerequisites: None
Corequisites: None
This course covers the impact of different management practices and leadership styles on worker satisfaction and morale, organizational effectiveness, productivity, and profitability. Topics include a discussion of formal and informal organizations, group dynamics, motivation, and managing conflict and change. Upon completion, students should be able to analyze different types of interpersonal situations and determine an appropriate course of action.

**BUS 256 Recruit Selection and Personnel Planning**
Prerequisites: None
Corequisites: None
This course introduces the basic principles involved in managing the employment process. Topics include personnel planning, recruiting, interviewing and screening techniques, maintaining employee records; and voluntary and involuntary separations. Upon completion, students should be able to acquire and retain employees who match position requirements and fulfill organizational objectives. This course is a unique concentration requirement of the Human Resources Management concentration in the Business Administration program.

**BUS 258 Compensation and Benefits**
Prerequisites: None
Corequisites: None
This course is designed to study the basic concepts of pay and its role in rewarding performance. Topics include wage and salary surveys, job analysis, job evaluation techniques, benefits, and pay-for-performance programs. Upon completion, students should be able to develop and manage a basic compensation system to attract, motivate, and retain employees. This course is a unique concentration requirement of the Human Resources Management concentration in the Business Administration program.

**BUS 259 HRM Applications**
Prerequisites: BUS 217, BUS 234, BUS 256, and BUS 258
Corequisites: None
This course provides students in the Human Resource Man-
management concentration the opportunity to reinforce their learning experiences from preceding HRM courses. Emphasis is placed on application of day-to-day HRM functions by completing in-basket exercises and through simulations. Upon completion, students should be able to determine the appropriate actions called for by typical events that affect the status of people at work. This course is a unique concentration requirement of the Human Resources Management concentration in the Business Administration program.

BUS 260 Business Communication 3 0 3
Prerequisites: ENG 111
Corequisites: None
This course is designed to develop skills in writing business communications. Emphasis is placed on business reports, correspondence, and professional presentations. Upon completion, students should be able to communicate effectively in the work place.

## CVT - Cardiovascular Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
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<td>ICT 114</td>
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<td>ICT 134</td>
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<tr>
<td>ICT 136</td>
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<td>ICT 214</td>
<td>Cardiac Cath II</td>
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<td>ICT 234</td>
<td>Cardiac Cath III</td>
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<td></td>
<td>Corequisites: None</td>
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</table>

This course provides advanced study of diagnostic and interventional techniques utilized in the cardiac catheterization lab. Emphasis is placed on analysis of hemodynamic data, apply concepts of interventional procedures and increased competence in clinical skills.

### ICT 234 Cardiac Cath III
- Prerequisites: ICT 214
- Corequisites: None

This course will provide continued opportunity for clinical experience for the student by utilizing a full-time clinical internship. Emphasis is placed on supervised participation in the cardiac catheterization lab. Upon completion, students should be able to describe cardiac catheterization techniques and demonstrate entry level skills.

### NCT 113 Electrocardiography
- Prerequisites: None
- Corequisites: ICT 114 and ICT 134

This course introduces the principles of electrocardiography, cardiac exercise testing, ambulatory monitoring and cardiac pacemakers. Emphasis is placed on understanding the concepts of electrophysiology of the heart, arrhythmia detection and management. Upon completion, students should be able to perform and interpret the electrocardiogram and describe noninvasive cardiac testing modalities in the evaluation of cardiovascular diseases.

### NCT 133 Noninvasive Cardiovascular Fundamentals
- Prerequisites: ICT 114, ICT 134 and NCT 113
- Corequisites: ICT 136 and NCT 143

This course introduces the basic principles and applications of echocardiography. Emphasis is placed on the physical assessment and physical principles of diagnostic ultrasound. Upon completion, students should be able to apply echocardiographic principles for diagnostic examinations.

### NCT 143 Echocardiography I
- Prerequisites: ICT 114, ICT 134 and NCT 113
- Corequisites: ICT 136 and NCT 133

This course introduces echocardiographic procedures, imaging modalities and their applications in the diagnosis of cardiovascular diseases. Emphasis is placed on the diagnostic capabilities of noninvasive procedures in relation to clinical presentations of cardiovascular diseases and development of basic imaging skills. Upon completion, students should be able to perform basic echocardiographic examinations and describe the diagnostic information obtained by noninvasive procedures.

### NCT 251 Echocardiography II
- Prerequisites: ICT 136, NCT 133 and NCT 143
- Corequisites: NCT 253

This course provides an advanced study of echocardiographic applications and techniques utilized in the diagnosis of acquired cardiovascular diseases. Emphasis is placed on the correlation of echocardiographic findings with the disease state and the ability to relate these findings with clinical presentation. Upon completion, students should be able to perform an echocardiogram, with recognition of normal and abnormal pathology.

### NCT 253 Hemodynamic Echo
- Prerequisites: ICT 136, NCT 133 and NCT 143
- Corequisites: NCT 251

This course provides an introduction to the hemodynamic principles of interventional procedures and increased competence in clinical skills.
College-Level Credit Course Descriptions

**CHM 115 Concepts in Chemistry**

Lecture Lab Credit

| CHM 115 Concepts in Chemistry | 3 | 0 | 3 |

Prerequisites: Corequisites: CHM 115A or equivalent
This course introduces basic chemical concepts and their applications to daily life for non-science majors. Topics include air pollution, global warming, energy, world of polymers, water and its importance to a technological society, food, drugs, and nuclear chemistry. Upon completion, students should be able to discuss, apply, and appreciate the impact of chemistry on modern society. You must register for both CHM 115 and CHM 115A unless you have received prior credit for one of these classes.

**CHM 115A Concepts in Chemistry Laboratory**

| CHM 115A Concepts in Chemistry Laboratory | 0 | 2 | 1 |

Prerequisites: Corequisites: CHM 115 or equivalent
This course is a laboratory for CHM 115. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 115. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical concepts presented in CHM 115. You must register for both CHM 115 and CHM 115A unless you have received prior credit for one of these classes.

**CHM 121 Foundations of Chemistry**

Lecture Lab Credit

| CHM 121 Foundations of Chemistry | 3 | 0 | 3 |

Prerequisites: Corequisites: CHM 121 or equivalent
This course is a laboratory for CHM 121. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 121. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 121. You must register for both CHM 121 and CHM 121A unless you have received prior credit for one of these classes.

**CHM 130 General, Organic and Biochemistry**

| CHM 130 General, Organic and Biochemistry | 3 | 0 | 3 |

Prerequisites: Corequisites: CHM 130 or equivalent
This course provides a survey of basic facts and principles of general, organic, and biochemistry. Topics include measurement, molecular structure, nuclear chemistry, solutions, acid-base chemistry, gas laws, and the structure, properties, and reactions of major organic and biological groups. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts. This class is recommended for Allied Health programs and you must register for both CHM 130 and CHM 130A unless you have received prior credit for one of these classes.

**CHM 130A General, Organic and Biochemistry Lab**

| CHM 130A General, Organic and Biochemistry Lab | 0 | 2 | 1 |

Prerequisites: Corequisites: CHM 130 or equivalent
This course is a laboratory for CHM 130. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 130. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 130. You must register for both CHM 130 and CHM 130A unless you have received prior credit for one of these classes.

**CHM 131 Introduction to Chemistry**

| CHM 131 Introduction to Chemistry | 3 | 0 | 3 |

Prerequisites: Corequisites: CHM 131A or equivalent
This course introduces the fundamental concepts of inorganic chemistry. Topics include measurement, matter and energy, atomic and molecular structure, nuclear chemistry, stoichiometry, chemical formulas and reactions, chemical bonding, gas laws, solutions, and acids and bases. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. You must register for both CHM 131 and CHM 131A unless you have received prior credit for one of these classes. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**CHM 131A Introduction to Chemistry Lab**

| CHM 131A Introduction to Chemistry Lab | 0 | 3 | 1 |

Prerequisites: Corequisites: CHM 131 or equivalent
This course is a laboratory to accompany CHM 131. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 131. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 131. You must register for both CHM 131 and CHM 131A unless you have received
prior credit for one of these classes. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**CHM 132 Organic and Biochemistry**  
3 3 4  
Prerequisites: CHM 131, CHM 1501 or equivalent  
Corequisites: None  
This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts needed to pursue studies in related professional fields. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**CHM 151 General Chemistry I**  
3 3 4  
Prerequisites: MAT 080, MAT 9510 along with CHM 121 and CHM 121A or CHM 1500 or equivalent (High School Algebra and Chemistry)  
Corequisites: None  
This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**CHM 152 General Chemistry II**  
3 3 4  
Prerequisites: CHM 151, CHM 1505 or equivalent  
Corequisites: None  
This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

**CHM 191 Selected Topics in Chemistry**  
0-1 0-3 1  
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study. Student wishing to take any chemistry topics courses must have completed two semesters of chemistry and have instructor permission.

**CHM 193 Selected Topics in Chemistry**  
1-3 0-6 3  
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study. Student wishing to take any chemistry topics courses must have completed two semesters of chemistry and have instructor permission.

**CHM 251 Organic Chemistry I**  
3 3 4  
Prerequisites: CHM 152, CHM 1506 or equivalent  
Corequisites: None  
This course provides a systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of hydrocarbons, alkyl halides, alcohols, and others; further topics include isomerization, stereochemistry, and spectroscopy. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of covered organic topics as needed in CHM 252.

**CHM 252 Organic Chemistry II**  
3 3 4  
Prerequisites: CHM 251 CHM 2614 or equivalent  
Corequisites: None  
This course provides continuation of the systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of aromatics, aldehydes, ketones, carboxylic acids and derivatives, amines and heterocyclics; multi-step synthesis will be emphasized. Upon completion, students should be able to demonstrate an understanding of organic concepts as needed to pursue further study in chemistry and related professional fields.

**CHM 293 Selected Topics in Chemistry**  
1-3 0-6 3  
Prerequisites: None  
Corequisites: None  
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study. Students wishing to take CHM 293 must have completed three semesters of chemistry and have instructor permission.

**CHM -Developmental Studies (CHM 090)**

See Pre-College section of this catalog.

**CIV -Civil Engineering Technology**

(See also SRV Surveying Technology, and EGR Engineering for other Course Descriptions)

**CIV 110 Statics/Strength of Materials**  
Prerequisites: MAT 121 or MAT 171  
Corequisites: None  
This course includes vector analysis, equilibrium of force systems, friction, sectional properties, stress/strain, and deformation. Topics include resultants and components of forces, moments and couples, free-body diagrams, shear and moment diagrams, trusses, frames, beams, columns, connections, and combined stresses. Upon completion, students should be able to analyze simple structures.

**CIV 111 Soils and Foundations**  
Prerequisites: CIV 110 or MEC 250  
Corequisites: None  
This course provides an overview of soil as a construction material using both analysis and testing procedures. Topics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Co-requisites</th>
</tr>
</thead>
</table>
| CIV 125     | Civil/Surveying CAD                             | 1 6 3  | Prerequisites: CIS 111 SRV 110  
Corequisites: None  
This course introduces civil/surveying computer-aided drafting (CAD) software. Topics include drawing, editing, and dimensioning commands; plotting; and other related civil/surveying topics. Upon completion, students should be able to produce civil/surveying drawings using CAD software. |
| CIV 210     | Engineering Materials                           | 1 3 2  | Prerequisites: CIV 110  
Corequisites: None  
This course covers the behavior and properties of Portland cement and asphaltic concretes and laboratory and field testing. Topics include cementing agents and aggregates; water and admixtures; proportioning, production, placing, consolidation, and curing; and inspection methods. Upon completion, students should be able to proportion concrete mixes to attain predetermined strengths and other properties and perform standard control tests. |
| CIV 211     | Hydraulics and Hydrology                        | 2 3 3  | Prerequisites: CIV 110 or MEC 250  
Corequisites: None  
This course introduces the basic engineering principles and characteristics of hydraulics and hydrology. Topics include precipitation and runoff, fluid statics and dynamics, flow measurement, and pipe and open channel flow. Upon completion, students should be able to analyze and size drainage structures. |
| CIV 212     | Environmental Planning                          | 2 3 3  | Prerequisites: CIV 211  
Corequisites: None  
This course covers water and waste water technology, erosion and sedimentation control, and other related topics. Topics include collection, treatment, and distribution of water and waste water and erosion and sedimentation control law. Upon completion, students should be able to demonstrate knowledge of water and waste water systems and prepare erosion and sedimentation control plans. |
| CIV 215     | Highway Technology                              | 1 3 2  | Prerequisites: SRV 111  
Corequisites: CIV 211  
This course introduces the essential elements of roadway components and design. Topics include subgrade and pavement construction, roadway drawings and details, drainage, superelevation, and North Carolina Department of Transportation Standards. Upon completion, students should be able to use roadway drawings and specifications to develop superelevation, drainage, and general highway construction details. |
| CIV 220     | Basic Structural Concepts                       | 1 3 2  | Prerequisites: CIV 110 or MEC 250  
Corequisites: None  
This course covers the historical perspective of structures as well as types, materials, common elements, and mechanical principles of structures. Topics include basic structure shapes, advantages and disadvantages of standard building materials, application of structural concepts, and other related topics. Upon completion, students should be able to demonstrate an understanding of basic structural concepts. |
| CIV 221     | Steel and Timber Design                         | 2 3 3  | Prerequisites: CIV 110 or MEC 250  
Corequisites: None  
This course introduces the basic elements of steel and timber structures. Topics include the analysis and design of steel and timber beams, columns, and connections and the use of appropriate manuals and codes. Upon completion, students should be able to analyze, design, and draw simple steel and timber structures. |
| CIV 222     | Reinforced Concrete                             | 2 3 3  | Prerequisites: CIV 111 and CIV 210  
Corequisites: None  
This course introduces the basic elements of reinforced concrete and masonry structures. Topics include analysis and design of reinforced concrete beams, slabs, columns, footings, and retaining walls; load-bearing masonry walls; and ACI manuals and codes. Upon completion, students should be able to analyze and design components of a structure using reinforced concrete and masonry elements and utilize appropriate ACI publications. |
| CIV 230     | Construction Estimating                         | 2 3 3  | Prerequisites: ARC 111, CIS 110, CIS 111, or EGR 115  
Corequisites: None  
This course covers quantity take-offs of labor, materials, and equipment and calculation of direct and overhead costs for a construction project. Topics include the interpretation of working drawings and specifications, types of contracts and estimates, building codes, bidding techniques and procedures, and estimating software. Upon completion, students should be able to prepare a detailed cost estimate and bid documents for a construction project. |
| CIV 240     | Project Management                              | 2 3 3  | Prerequisites: CIV 230  
Corequisites: None  
This course introduces construction planning and scheduling techniques and project management software. Topics include construction safety, operation analysis, construction scheduling, construction control systems, claims and dispute resolutions, project records, and documentation. Upon completion, students should be able to demonstrate an understanding of the roles of construction project participants, maintain construction records, and prepare construction schedules. |
| CIV 250     | Civil Engineering Tech Project                  | 1 3 2  | Prerequisites: Successful completion of three semesters of the Civil Engineering Technology program  
Corequisites: None  
This course includes an integrated team approach to civil engineering technology projects. Emphasis is placed on project proposal, site selection, analysis/design of structures, construction material selection, time and cost estimating, planning, and management of a project. Upon completion, students should be able to apply team concepts, prepare estimates, submit bid proposals, and manage projects. |
| COM 110     | Introduction to Communication                   | 3 0 3  | Prerequisites:  
Corequisites: None  
This course provides an overview of the basic concepts of communication and the skills necessary to communicate in various contexts. Emphasis is placed on communication theories and techniques used in interpersonal, group, public, intercultur-
COM 111 Voice and Diction I 3 0 3
Prerequisites: 
Corequisites: None
This course provides guided practice in the proper production of speech. Emphasis is placed on improving speech, including breathing, articulation, pronunciation, and other vocal variables. Upon completion, students should be able to demonstrate effective natural speech in various contexts. Students will analyze regional and international speech differences and standards.

COM 112 Voice and Diction II 3 2 4
Prerequisites: COM 111 
Corequisites: None
This course provides continued practice with articulation, pronunciation, expressiveness, and vocal quality while building skills for adapting the voice to different situations and performance materials. Topics include individual articulation, fluency, quality, and performance problems; specific broadcast/public speaking materials and styles; and Standard English grammar and pronunciation for career success. Upon completion, students should be able to adapt voice and pronunciation style to various situations and use Standard English dialect, grammar, and pronunciation.

COM 120 Interpersonal Communication 3 0 3
Prerequisites: 
Corequisites: None
This course introduces the practices and principles of interpersonal communication in both dyadic and group settings. Emphasis is placed on the communication process, perception, listening, self-disclosure, speech apprehension, ethics, nonverbal communication, conflict, power, and dysfunctional communication relationships. Upon completion, students should be able to demonstrate interpersonal communication skills, apply basic principles of group discussion, and manage conflict in interpersonal communication situations. This course has been approved to satisfy the comprehensive articulation agreement general education core requirement in speech/communication.

COM 140 Intercultural Communication 3 0 3
Prerequisites: 
Corequisites: None
This course introduces techniques of cultural research, definitions, functions, characteristics, and impacts of cultural differences in public address. Emphasis is placed on how diverse backgrounds influence the communication act and how cultural perceptions and experiences determine how people send and receive messages. Upon completion, students should be able to demonstrate an understanding of the principles and skills needed to become effective in communicating outside their primary culture.

COM 232 Election Rhetoric 3 0 3
Prerequisites: 
Corequisites: None
This course provides an overview of communication styles and topics characteristic of election campaigns. Topics include election speeches, techniques used in election campaigns, and election speech topics. Upon completion, students should be able to identify and analyze techniques and styles typically used in election campaigns.

COM 233 Persuasive Speaking 3 0 3
Prerequisites: ENG 112 or ENG 113 or permission of Program Chair
Corequisites: None
This course introduces theory and history of persuasive speaking, covering critical thinking skills in analyzing problems, assessing solutions, and communicating the information to an audience. Emphasis is placed on analysis, evidence, reasoning, and library and field research used to enhance persuasive public speaking skills. Upon completion, students should be able to apply the principles of persuasive speaking in a public setting. Students will demonstrate an understanding of the complexities of social persuasion inherent in mass media, ethics, propaganda, political and public information campaigns.

COM 251 Debate I 3 0 3
Prerequisites: 
Corequisites: None
This course introduces the principles of debate. Emphasis is placed on argument, refutation, research, and logic. Upon completion, students should be able to use research skills and logic in the presentation of ideas within the context of formal debate.

CET - Computer Engineering Technology
See also ELN Electronics and ELC Electricity for other courses.

CET 111 Computer Upgrade/Repair I 2 3 3
Prerequisites: None
Corequisites: None
This course is the first of two courses covering repairing, servicing, and upgrading computers and peripherals in preparation for industry certification. Topics include safety practices, CPU/memory/bus identification, disk subsystem, hardware/software installation/configuration, common device drivers, data recovery, system maintenance, and other related topics. Upon completion, students should be able to safely repair and/or upgrade computer systems to perform within specifications. This course is offered through the CISCO Academy and will help prepare students for A+ certification.

CET 125 Voice and Data Cabling 2 3 3
Prerequisites: None
Corequisites: None
This course provides an understanding of the industry and its
CET 211 Computer Upgrade/Repair II  2  3  3  
Prerequisites: CET 111  
Corequisites: None  
This course is the second of two courses covering repairing, servicing, and upgrading computers and peripherals in preparation for industry certification. Topics include resolving resources conflicts and system bus specifications, configuration and troubleshooting peripherals, operating system configuration and optimization, and other related topics. Upon completion, students should be able to identify and resolve system conflicts and optimize system performance. This course is offered through the CISCO Academy and (along with CET 111) will help students prepare for server + certification.

### CIS / CSC / NET - Computer Information Systems

*(See also ITN – Internet Technologies)*

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<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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<td><strong>Corequisites:</strong> None</td>
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<td>This course covers fundamental functions and operations of the computer. Topics include identification of components, overview of operating systems, and other basic computer operations. Upon completion, students should be able to operate computers, access files, print documents and perform basic applications operations.</td>
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<td>CIS 103 Data Entry Operations</td>
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<td><strong>Prerequisites:</strong> CIS 111 and OST 131</td>
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<td><strong>Corequisites:</strong> None</td>
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<td>This course covers computer center organization and operation, duties of data entry operators, data entry techniques and equipment, and data entry terminology. Emphasis is placed on speed and accuracy requirements for data entry operations using microcomputers. Upon completion, students should be able to accurately and quickly enter data, use correct terminology and equipment, and carry out all appropriate duties.</td>
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<td>CIS 110 Introduction to Computers</td>
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<td>This course provides an introduction to computers and computing. Topics include the impact of computers on society, ethical issues, and hardware/software applications, including spreadsheets, databases, word processors, graphics, the Internet, and operating systems. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems. This course uses Microsoft Office Professional applications (Word, Excel, Access and PowerPoint) and requires hands-on lab sessions with a PC system. <strong>This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.</strong></td>
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<tr>
<td>CIS 111 Basic PC Literacy</td>
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<td><strong>Prerequisites:</strong></td>
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<td><strong>Corequisites:</strong> None</td>
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<td>This course provides a brief overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and workplace use. Upon completion, students should be able to demonstrate basic personal computer skills. This course uses Microsoft Office Professional applications (Word, Excel, and PowerPoint) and requires hands-on lab sessions with a PC system. <strong>NOTE:</strong> Students who have little or no keyboarding skills should consider taking OST 131X prior to or in conjunction with this course.</td>
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<tr>
<td>CIS 112 Windows</td>
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<td><strong>Prerequisites:</strong></td>
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<td><strong>Corequisites:</strong> None</td>
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<td>This course includes the fundamentals of the Windows’ software. Topics include graphical user interface, icons, directories, file management, accessories, and other applications. Upon completion, students should be able to use Windows’ software in an office environment.</td>
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<tr>
<td>CIS 115 Introduction to Programming and Logic</td>
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<td><strong>Prerequisites:</strong> MAT 070</td>
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<td><strong>Corequisites:</strong> None</td>
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<td>This course introduces computer programming and problem solving in a programming environment, including an introduction to operating systems, text editor, and a language translator. Topics include language syntax, data types, program organization, problem-solving methods, algorithm design, and logic control structures. Upon completion, students should be able to manage files with operating system commands, use top-down algorithm design, and implement algorithmic solutions in a programming language. A programming language will be used to illustrate concepts and programming logic. <strong>This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.</strong></td>
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<td>CIS 116 Introduction to PC Application Development</td>
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<td><strong>Prerequisites:</strong> CIS 110 or (CIS 111 and CIS 154)</td>
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<td><strong>Corequisites:</strong> None</td>
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<td>This course provides an introductory study of the principles of application development and end-user interface design principles. Emphasis is placed on tables, file management, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design and program a PC application at the introductory level. This course uses Microsoft Office Professional applications (WORD, EXCEL, ACCESS, &amp; PowerPoint) making use of MACROS to program functions and requires hands-on lab sessions with a PC system.</td>
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<td>CIS 120 Spreadsheet I</td>
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<td><strong>Prerequisites:</strong> CIS 110 or CIS 111</td>
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<td><strong>Corequisites:</strong> None</td>
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<tr>
<td>This course introduces basic spreadsheet design and development. Topics include writing formulas, using functions, enhancing spreadsheets, creating charts, and printing. Upon completion, students should be able to design and print basic spreadsheets.</td>
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spreadsheets and charts. This course assumes some familiarity with a PC and spreadsheets, and will utilize EXCEL software.

CIS 121 User Support and Software Evaluation  
Prerequisites: CIS 110 or CIS 111  
Corequisites: None  
This course provides an opportunity to evaluate software and hardware and make recommendations to meet end-user needs. Emphasis is placed on software and hardware evaluation, installation, training, and support. Upon completion, students should be able to present proposals and make hardware and software recommendations based on their evaluations.

CIS 130 Survey of Operating Systems  
Prerequisites:  
Corequisites: None  
The course covers operating system concepts which are necessary for maintaining and using computer systems. Topics include disk, file, and directory structures; installation and setup; resource allocation, optimization, and configuration; system security; and other related topics. Upon completion, students should be able to present proposals and make hardware and software recommendations based on their evaluations.

CIS 144 Operating System - DOS  
Prerequisites:  
Corequisites: CIS 130  
This course introduces operating systems concepts for DOS operating systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating system functions at the support level in a DOS environment.

CIS 147 Operating System - Windows  
Prerequisites:  
Corequisites: CIS 130  
This course introduces operating systems concepts for a Windows operating system. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating system functions at the support level in a Windows environment.

CIS 148 Operating System - Windows NT  
Prerequisites:  
Corequisites: CIS 130  
This course introduces operating systems concepts for the Windows NT operating system. Topics include hardware management, file and memory management, system configuration/optimization, networking options, and utilities. Upon completion, students should be able to perform operating system functions at the single/multi-user support level in a Windows NT environment.

CIS 149 Operating System - MVS  
Prerequisites:  
Corequisites: CIS 130  
This course introduces operating systems concepts for MVS operating systems. Topics include hardware management, file and memory management, system configuration/optimization, utilities, Job Control Language, and support functions. Upon completion, students should be able to perform operating system functions at the support level in an MVS environment.

CIS 152 Database Concepts and Applications  
Prerequisites: CIS 110 or CIS 111, or CIS 115  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and Internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software.

This course introduces database design and creation using a DBMS product. Topics include database terminology, usage in industry, design theory, types of DBMS models, and creation of simple tables, queries, reports, and forms. Upon completion, students should be able to create simple database tables, queries, reports, and forms which follow acceptable design practices. A representative database software will be used capable of SQL.

CIS 153 Database Applications  
Prerequisites: CIS 152  
Corequisites: None  
This course covers advanced database functions continued from CIS 152. Topics include manipulating multiple tables, advanced queries, screens and reports, linking, and command files. Upon completion, students should be able to create multiple table systems that demonstrate updates, screen, and reports representative of industry requirements.

CIS 154 Database Utilization  
Prerequisites: CIS 110 or CIS 111  
Corequisites: None  
This course introduces basic database functions and uses. Emphasis is placed on database manipulation with queries, reports, forms, and some table creation. Upon completion, students should be able to enter and manipulate data from the end-user mode. Hands-on experience in using a database software (such as ACCESS) on a PC is utilized for demonstrating concepts and performing lab assignments.

CIS 157 Database Programming I  
Prerequisites: CIS 130, CIS 152, and CIS 153  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software.

This course is designed to develop programming proficiency in a selected DBMS. Emphasis is placed on the Data Definition Language (DDL) and Data Manipulation Language (DML) of the DBMS as well as on report generation. Upon completion, students should be able to write programs which create, update, and produce reports representative of industry requirements.

CIS 169 Business Presentations  
Prerequisites: CIS 110 or CIS 111  
Corequisites: None  
This course provides hands-on experience with a graphics presentation package. Topics include terminology, effective
Upon completion, students should be able to design and demonstrate an effective presentation.

CIS 172 Introduction to the Internet 2 3 3
Prerequisites: None
Corequisites: None
This course introduces the various navigational tools and services of the Internet. Topics include using Internet protocols, search engines, file compression/decompression, FTP, e-mail, list servers, and other related topics. Upon completion, students should be able to use Internet resources, retrieve/decompress files, and use e-mail, FTP, and other Internet tools. Also, topics include Java, the World Wide Web, news groups, and homepages.

CIS 173 Network Theory 2 2 3
Prerequisites: NET 110
Corequisites: None
This course examines Token Ring, Ethernet, and Arcnet networks. Topics include LAN topologies and design; cable characteristics; cable, interface cards, server, and client installation; basic management techniques; linking networks; and troubleshooting LAN problems. Upon completion, students should be able to install both hardware and software for a small client/server LAN and troubleshoot common network problems.

CIS 174 Network System Manager I 2 2 3
Prerequisites: None
Corequisites: None
This course covers effective network management. Topics include network file system design and security, login scripts and user menus, printing services, e-mail, and backup. Upon completion, students should be able to administer an office network system.

CIS 175 Network Management I 2 2 3
Prerequisites: None
Corequisites: None
This course covers fundamental network administration and system management. Topics include accessing and configuring basic network services, managing directory services, and using network management software. Upon completion, students should be able to apply system administrator skills in developing a network management strategy. This covers the Microsoft Official Curriculum for Course 2272, Implementing and Supporting Microsoft Windows XP Professional.

CIS 184 TCP/IP and NFS 2 2 3
Prerequisites:CIS 175 and CIS 174 and NET 110
Corequisites: None
This course focuses on installation and configuration of TCP/IP on a network. Topics include an overview of TCP/IP, SNMP, application of programming interfaces, Network File System (NFS), IP addresses, and routing and tunneling. Upon completion, students should be able to install, monitor, manager, diagnose, and troubleshoot common problems in IP networks and internetworks.

CIS 193 Selected Topics in Information Systems 1-3 0-6 3
Prerequisites: Enrollment in the program
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

CIS 196 Seminar in Information Systems 0-1 0-3 1
Prerequisites: Enrollment in the program
Corequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

CIS 211 AS/400 Maintenance and Operations 2 3 3
Prerequisites: None
Corequisites: None
This course is designed to cover the fundamental AS/400 System operations, screens, utilities, and terminology. Topics include: an introduction to the AS/400 operating system, security, backup and restore, handling spooled files, using command menus to create and manipulate objects. Upon completion, students should be able to: use utilities, create libraries, save and restore files, monitor and control jobs and queues, and know AS/400 operations.

CIS 218 Introduction to Artificial Intelligence 3 0 3
Prerequisites: CIS 130
Corequisites: None
This course introduces artificial intelligence. Emphasis is placed on expert systems. Upon completion, students should be able to discuss the basic concepts and procedures in the development of artificial intelligence systems.

CIS 219 Advanced PC Application Development 2 3 3
Prerequisites: CIS 115 and CIS 116
Corequisites: None
This course provides an advanced study of the principles of application development and end-user interface design principles. Emphasis is placed on advanced arrays/tables, file management, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design and program a PC application at the advanced level. Students will participate in the joint development of a project that illustrates all phases of project development, including documentation.

CIS 244 Operating System - AS/400 2 3 3
Prerequisites: None
Corequisites: None
This course includes operating systems concepts for AS/400 systems. Topics include hardware management, file and memory management, system configuration/optimization, utilities, Job Control Language, and support functions. Upon completion, students should be able to perform operating system functions in an AS/400 environment. The students will develop CL programs on CPCC’s AS/400 using SEU and PDM, CALL interactive jobs, submit batch jobs, handle messages, monitor for errors, create and use Database Physical and Logical files, and work with spool files.

CIS 245 Operating System - Multi-User 2 3 3
Prerequisites: None
Corequisites: None
This course includes operating systems concepts for multi-user systems. Topics include hardware management, file and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating system functions in a multi-user environment.
CIS 246 Operating System - UNIX  
Prerequisites: None  
Corequisites: None  
This course includes operating systems concepts for UNIX operating systems. Topics include hardware management, file and memory management, system configuration/optimization, utilities, and other related topics. Upon completion, students should be able to effectively use the UNIX operating system and its utilities. This is a Cisco sponsored curriculum course using Sun Solaris UNIX, and Red Hat Linux.

CIS 254 Database Administrative Issues  
Prerequisites: CIS 153 and CIS 157  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software. This course covers database administration issues and distributed database concepts. Topics include database administrator (DBA) goals and functions, backup and recovery, standards and procedures, training, and database security and performance evaluation. Upon completion, students should be able to produce DBA functions’ documentation.

CIS 255 DBMS Systems in Corporate Environment  
Prerequisites: CIS 115 and CIS 152  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software. This course covers database systems as they relate to the corporate environment. Topics include knowledge-based, decision-support, and expert systems; database choice issues; corporate structure; and a survey of types of firms whose business is the database. Upon completion, students should be able to identify the database systems needed by a corporation.

CIS 256 Database Analysis & Design  
Prerequisites: CIS 115 and CIS 255  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software. This course is an exploration of the established and evolving methodologies for the analysis, design, and development of a database system. Emphasis is placed on business systems characteristics, managing information systems projects, prototyping, CASE tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.

CIS 257 Database Programming  
Prerequisites: CIS 157 and CIS 256  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software. This course is designed to enhance programming skills developed in CIS 157. Topics include application development with GUI front ends and embedded programming. Upon completion, students should be able to develop a DBMS application which includes a GUI front end and report generation.

CIS 258 Database Project  
Prerequisites: CIS 254, CIS 255, CIS 256 and CIS 257  
Corequisites: None  
Online Requirements: This course is taught online and web enhanced. Online testing and internet access will be utilized. Installation of ORACLE Personal Edition is required for online sections, but not required for lecture sections. Distance education students must have a PC that meets minimum configuration requirements for ORACLE software. This course provides an opportunity to complete a significant database systems project with minimal instructor support. Emphasis is placed on written and verbal communication skills, documentation, presentation, and user training. Upon completion, students should be able to present an operational database system which they have created.

CIS 274 Network System Manager II  
Prerequisites: CIS 174  
Corequisites: None  
This course is a continuation of CIS 174, focusing on advanced network management, configuration, and installation. Emphasis is placed on server configuration files, startup procedures, server protocol support, memory and performance concepts, and management and maintenance. Upon completion, students should be able to install and upgrade networks and servers for optimal performance. This course is part of the Microsoft Official Curriculum for Course 2152, Implementing Microsoft Windows 2000 Professional, and Server.

CIS 275 Network Management II  
Prerequisites: CIS 175  
Corequisites: None  
This course is a continuation of CIS 175, focusing on advanced enterprise networks. Topics include directory service tree planning, management distribution and protection, improving network security, auditing the network, printing, networking, and system administration of an Internet node. Upon completion, students should be able to manage client services and network features and optimize network performance. This course is part of the Microsoft Official Curriculum for Course 2152, Implementing Microsoft Windows 2000 Professional, and Server.
CIS 277  **Network Design & Implementation**  
Prerequisites: CIS 175  
Corequisites: None  
This course focuses on the design, analysis, and integration of a network operating system. Topics include determination of a directory tree structure and object placement, creation of time synchronization strategy, security, and routing services. Upon completion, students should be able to implement a network design strategy, develop a migration strategy, and create a network implementation schedule. This covers the Microsoft Official Curriculum for Course 2154, *Implementing Microsoft Windows 2000 Directory Services*.

CIS 286  **Systems Analysis and Design**  
Prerequisites: CIS 115  
Corequisites: None  
This course examines established and evolving methodologies for the analysis, design, and development of a business information system. Emphasis is placed on business systems characteristics, managing information systems projects, prototyping, CASE tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques. Other introductory programming language courses can be used as a prerequisite in lieu of CIS 115.

CIS 287  **Network Support**  
Prerequisites: CIS 274 or CIS 275  
Corequisites: None  
This course provides experience using CD ROM and on-line research tools and hands-on experience for advanced hardware support and troubleshooting. Emphasis is placed on troubleshooting network adapter cards and cabling, network storage devices, the DOS workstation, and network printing. Upon completion, students should be able to analyze, diagnose, research, and fix network hardware problems. This covers the Microsoft Official Curriculum for Course 2126, *Managing a Microsoft Windows 2000 Network Environment*.

CIS 288  **Systems Project**  
Prerequisites: CSC 244 and CIS 286  
Corequisites: None  
This course provides an opportunity to complete a significant systems project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete a project from the definition phase through implementation. Students will implement a team project using the COBOL language compiler, and the CICS teleprocessing monitor software.

CSC 120  **Computing Fundamentals I**  
Prerequisites: MAT 080 or MAT 090  
Corequisites: None  
This course provides the essential foundation for the discipline of computing and a program of study in computer science, including the role of the professional. Topics include algorithm design, data abstraction, searching and sorting algorithms, and procedural programming techniques. Upon completion, students should be able to solve problems, develop algorithms, specify data types, perform sorts and searches, and use an operating system. This course has been approved to satisfy the comprehensive articulation agreement pre-major and/or elective course requirement.

CSC 130  **Computing Fundamentals II**  
Prerequisites: CSC 120  
Corequisites: None  
This course provides in-depth coverage of the discipline of computing and the role of the professional. Topics include software design methodologies, analysis of algorithm and data structures, searching and sorting algorithms, and file organization methods. Upon completion, students should be able to use software design methodologies and choice of data structures and understand social/ethical responsibilities of the computing professional. This course has been approved to satisfy the comprehensive articulation agreement pre-major and/or elective course requirement.

CSC 133  **C Programming**  
Prerequisites:  
Corequisites: None  
This course introduces computer programming using the C programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays, tables, pointers, and other related topics. Upon completion, students should be able to design, code, test, and debug C language programs.

CSC 134  **C++ Programming**  
Prerequisites:  
Corequisites: None  
This course introduces object-oriented computer programming using the C++ programming language. Topics include input/output operations, iteration, arithmetic operations, arrays, pointers, filters, and other related topics. Upon completion, students should be able to design, code, test, and debug C++ language programs. This course has been approved to satisfy the comprehensive articulation agreement pre-major and/or elective course requirement.

CSC 135  **COBOL Programming**  
Prerequisites:  
Corequisites: CIS 115  
This course introduces computer programming using the COBOL programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays, tables, and other related topics. Upon completion, students should be able to design, code, test, and debug COBOL language programs.

CSC 138  **RPG Programming**  
Prerequisites: CIS 115 or programming knowledge  
Corequisites: None  
This course introduces computer programming using the RPG programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays, tables, and other related topics. Upon completion, students should be able to design, code, test, and debug RPG language programs. Emphasis will be placed on writing structured programs which generate reports, including control levels, using an AS/400 midrange computer.

CSC 139  **Visual BASIC Programming**  
Prerequisites:  
Corequisites: None  
This course introduces event-driven computer programming using the Visual BASIC programming language. Topics include input/output operations, sequence, selection, iteration, arithmetic
operations, arrays, forms, sequential files, and other related topics. Upon completion, students should be able to design, code, test, and debug Visual BASIC language programs.

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<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSC 143</td>
<td>Object-Oriented Programming</td>
<td>2 3 3</td>
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</table>

Prerequisites: None

This course introduces the concepts of object-oriented programming. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, test, debug, and implement objects at the application level using the appropriate environment.

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<tr>
<td>CSC 144</td>
<td>AS/400 CL Programming</td>
<td>2 3 3</td>
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</table>

Prerequisites: CIS 211 and CIS 115

Corequisites: None

This course introduces computer programming using the CL programming language. Topics include CL command structure, command parameters, creating CL programs, manipulating variables, writing commands to control jobs and workflow, and other related topics. Upon completion, students should be able to design, code, test, and debug CL programs.

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<th>Course Code</th>
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<tr>
<td>CSC 148</td>
<td>JAVA Programming</td>
<td>2 3 3</td>
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</table>

Prerequisites: None

This course introduces computer programming using the JAVA language. Topics include selection, iteration, arithmetic and logical operators, classes, inheritance, methods, arrays, user interfaces, basic applet creations and other related topics. Upon completion, students should be able to design, code, test, and debug JAVA language programs.

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<th>Course Code</th>
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<tr>
<td>CSC 193</td>
<td>Selected Topics in Information Systems</td>
<td>0-3 0-6 3</td>
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Prerequisites: Enrollment in the program

Corequisites: None

This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

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<th>Course Code</th>
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<tr>
<td>CSC 196</td>
<td>Seminar in Information Systems</td>
<td>0-1 0-3 1</td>
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</table>

Prerequisites: Enrollment in the program

Corequisites: None

This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

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<tr>
<td>CSC 220</td>
<td>Machine Implementation of Algorithm</td>
<td>3 2 4</td>
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</table>

Prerequisites: CSC 120 and CSC 130

Corequisites: MAT 271

This course covers the organization and operation of real computer systems at the assembly language level. Topics include mapping of statements and constructs onto machine instruction sequences, internal data types and structures representation, numerical computation, and iterative approximation methods. Upon completion, students should be able to analyze computer system organization, implement procedural language elements, and describe the programming language translation process.

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<th>Course Code</th>
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<tr>
<td>CSC 234</td>
<td>Advanced C++</td>
<td>2 3 3</td>
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Prerequisites: CSC 134

Corequisites: None

This course is a continuation of CSC 134 using C++ with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions. Also, this course introduces event-driven computer programming using a Visual C++ programming language.

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<th>Course Name</th>
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<tbody>
<tr>
<td>CSC 235</td>
<td>Advanced COBOL</td>
<td>2 3 3</td>
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</table>

Prerequisites: CSC 135

Corequisites: None

This course is a continuation of CSC 135 using COBOL with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions.

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<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSC 238</td>
<td>Advanced RPG</td>
<td>2 3 3</td>
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</table>

Prerequisites: CSC 138

Corequisites: None

This course is a continuation of CSC 138 using RPG with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions. Emphasis will be placed on screen design fundamentals, defining screens using DDS and SDA, and incorporating subfiles in programs using an AS/400 midrange computer.

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CSC 239</td>
<td>Advanced Visual BASIC</td>
<td>2 3 3</td>
</tr>
</tbody>
</table>

Prerequisites: CSC 139

Corequisites: None

This course is a continuation of CSC 139 using Visual BASIC with structured programming principles. Emphasis is placed on advanced arrays/tables, file management/processing techniques, data structures, sub-programs, interactive processing, sort/merge routines, and libraries. Upon completion, students should be able to design, code, test, debug, and document programming solutions.

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CSC 244</td>
<td>CICS</td>
<td>4 2 5</td>
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</table>

Prerequisites: CSC 235

Corequisites: None

This course provides an in-depth study of interactive transaction processing using command level CICS. Topics include pseudoconversational programming, basic mapping support, control tables, storage areas, file maintenance, screen design, and EDF debugging. Upon completion, students should be able to design, code, test, debug, and document command level COBOL programs for menuing, record processing, browsing, and temporary storage. Additional topics include multiple screen control (paging), multiple map control, user-defined symbolic maps, extended attributes, and VSAM variable-length records.

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<tbody>
<tr>
<td>CSC 248</td>
<td>Adv Internet Prog</td>
<td>2 3 3</td>
</tr>
</tbody>
</table>

Prerequisites: CSC 148

Corequisites: None

This course covers advanced programming skills required to design Internet applications. Emphasis is placed on program-
CSC 258 Java Enterprise Programs
Prerequisites: CSC 148
Corequisites: None
This course provides a continuation to CSC 148 using the Java Enterprise Edition (JEE) programming architecture. Topics include distributed network applications, database connectivity, Enterprise Java Beans, servlets, collection frameworks, JNDI, RMI, JSP, multithreading XML and multimedia development. Upon completion, students should be able to program a client/server enterprise application using the JEE framework. This course is the Advanced Java class.

NET 110 Data Communication/Networking
Prerequisites: None
Corequisites: None
This course introduces data communication and networking. Topics include telecommunication standards, protocols, equipment, network topologies, communication software, LANs, WANs, the Internet, and network operating systems. Upon completion, students should be able to demonstrate understanding of the fundamentals of telecommunication and networking. When combined with CET 125, Voice and Data Cabling will prepare the student for the Comptia Network+ exam.

NET 125 Routing and Switching I
Prerequisites: None
Corequisites: None
This course introduces the OSI model, network topologies, IP addressing, and subnet masks, simple routing techniques, and basic switching terminology. Topics include the basic functions of the seven layers of the OSI model, different classes of IP addressing and subnetting, router login scripts. Upon completion, students should be able to list the key internetworking functions of the OSI Networking Layer and how they are performed in a variety of router types. This is the first course in the Cisco Networking Academy Certificate. This is the first course in the Cisco Network Academy CCNA Program.

NET 126 Routing and Switching II
Prerequisites: NET 125
Corequisites: None
This course introduces router configurations, router protocols, switching methods, and hub terminology. Topics include the basic flow control methods, router startup commands, manipulation of router configuration files, IP and data link addressing. Upon completion, students should be able to prepare the initial router configuration files, as well as enable, verify, and configure IP addresses. This is the second course in the Cisco Networking Academy Certificate. This is the second course in the Cisco Network Academy CCNA Program.

NET 225 Adv. Router and Switching I
Prerequisites: NET 126
Corequisites: None
This course introduces advanced router configuration, advanced LAN switching theory and design, VLANS, Novell IPX, and threaded case studies. Topics include router elements and operations, adding routing protocols to a configuration, monitoring IPX operations on the router, LAN segmentation, and advanced switching methods. Upon completion, students should be able to describe LAN and network segmentation with bridges, routers and switches and describe a virtual LAN. This is the third course in the Cisco Networking Academy Certificate.

NET 226 Adv. Router and Switching II
Prerequisites: NET 225
Corequisites: None
This course introduces WAN theory and design, WAN technology, PPP, Frame Relay, ISDN, and additional case studies. Topics include network congestion problems, TCP/IP transport and network layer protocols, advanced routing and switching configuration, ISDN protocols, PPP encapsulation operations on a router. Upon completion, students should be able to provide solutions for networking routing problems, identify ISDN protocols, channels, and function groups, describe the Spanning Tree protocol. This is the fourth course in the Cisco Networking Academy Certificate. This is the fourth course in the Cisco Network Academy CCNA Program.

NET 260 Internet Dev & Support
Prerequisites: NET 110
Corequisites: None
This course covers issues relating to the development and implementation of Internet related tools and services. Topics include Internet organization, site registration, e-mail servers, Web servers, Web page development, legal issues, firewalls, multimedia, TCP/IP, service providers, FTP, list servers, and gateways. Upon completion, students should be able to develop and support the Internet services needed within an organization. Hands-on experience in the setup and management of internet server hardware and software is included.

Computer Programming
(See CIS/CSC/NET Computer Information Systems)

Computer Science
(See CIS/SCS/NET Computer Information Systems)

Cooperative Education

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Corequisites</th>
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<tbody>
<tr>
<td>COE 110</td>
<td>World of Work</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>COE 111</td>
<td>Co-op Work Experience I</td>
<td>None</td>
<td>None</td>
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</tbody>
</table>
of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work related competencies.

**COE 112 Co-op Work Experience I**

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
<th>Prerequisites:</th>
<th>Corequisites:</th>
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<tr>
<td>Co-op Work Experience I</td>
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**COE 113 Co-op Work Experience I**

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<th>Course Code</th>
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**COE 114 Co-op Work Experience I**

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**COE 115 Work Experience Seminar I**

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<th>Course Code</th>
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**COE 121 Co-op Work Experience II**

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**COE 122 Co-op Work Experience II**

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**COE 124 Co-op Work Experience II**

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**COE 125 Work Experience Seminar II**

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**COE 131 Co-op Work Experience III**

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<tr>
<td>Co-op Work Experience III</td>
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**COE 132 Co-op Work Experience III**

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<th>Course Code</th>
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<tr>
<td>Co-op Work Experience III</td>
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**COE 133 Co-op Work Experience III**

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<th>Course Code</th>
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<th>Prerequisites:</th>
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<tbody>
<tr>
<td>Co-op Work Experience III</td>
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<td>0 0 30 3</td>
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</table>
### COE 134  Co-op Work Experience III
- **Lecture:** 0
- **Lab:** 0
- **Credit:** 40

**Prerequisites:**
None

**Corequisites:**
None

This course provides work experience with a college-approved employer in an area related to the student’s program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work related competencies.

### COE 211  Co-op Work Experience IV
- **Lecture:** 0
- **Lab:** 0
- **Credit:** 10

**Prerequisites:**
None

**Corequisites:**
None

This course provides work experience with a college-approved employer in an area related to the student’s program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work related competencies.

### COE 212  Co-op Work Experience IV
- **Lecture:** 0
- **Lab:** 0
- **Credit:** 20

**Prerequisites:**
None

**Corequisites:**
None

This course provides work experience with a college-approved employer in an area related to the student’s program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work related competencies.

### COE 213  Co-op Work Experience IV
- **Lecture:** 0
- **Lab:** 0
- **Credit:** 30

**Prerequisites:**
None

**Corequisites:**
None

This course provides work experience with a college-approved employer in an area related to the student’s program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work related competencies.

### COE 214  Co-op Work Experience IV
- **Lecture:** 0
- **Lab:** 0
- **Credit:** 40

**Prerequisites:**
None

**Corequisites:**
None

This course provides work experience with a college-approved employer in an area related to the student’s program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work related competencies.

### CJC 100  Basic Law Enforcement Training
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:**
None

**Corequisites:**
None

This course covers the skills and knowledge needed for entry-level employment as a law enforcement officer in North Carolina. Emphasis is placed on topics and areas as defined by the North Carolina Administrative Code. Upon completion, students should be able to demonstrate competence in the topics and areas required for the state comprehensive examination.

### CJC 111  Introduction to Criminal Justice
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:**
None

**Corequisites:**
None

This course introduces the components and processes of the criminal justice system. Topics include history, structure, functions, and philosophy of the criminal justice system and their relationship to life in our society. Upon completion, students should be able to define and describe the major system components and their interrelationships and evaluate career options.

### CJC 112  Criminology
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:**
None

**Corequisites:**
None

This course introduces deviant behavior as it relates to criminal activity. Topics include theories of crime causation; statistical analysis of criminal behavior; past, present, and future social control initiatives; and other related topics. Upon completion, students should be able to explain and discuss various theories of crime causation and societal response.

### CJC 113  Juvenile Justice
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:**
None

**Corequisites:**
None

This course covers the juvenile justice system and related juvenile issues. Topics include an overview of the juvenile justice system, treatment and prevention programs, special areas and laws unique to juveniles, and other related topics. Upon completion, students should be able to identify/discuss juvenile court structure/procedures, function and jurisdiction of juvenile agencies, processing/detention of juveniles, and case disposition.

### CJC 114  Investigative Photography
- **Lecture:** 1
- **Lab:** 2
- **Credit:** 2

**Prerequisites:**
None

**Corequisites:**
None

This course covers the operation of various photographic equipment and its application to criminal justice. Topics include using various cameras, proper exposure of film, developing film/prints, and preparing photographic evidence. Upon completion, students should be able to demonstrate and explain the role of photography and proper film exposure and development techniques.

### CJC 120  Interviews/Interrogations
- **Lecture:** 1
- **Lab:** 2
- **Credit:** 2

**Prerequisites:**
None

**Corequisites:**
None

This course covers basic and special techniques employed in criminal justice interviews and interrogations. Emphasis is placed on the interview/interrogation process, including interpretation of verbal and physical behavior and legal perspectives. Upon completion, students should be able to conduct interviews/interrogations in a legal, efficient, and professional manner and obtain the truth from suspects, witnesses, and victims.

### CJC 121  Law Enforcement Operations
- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:**
None

**Corequisites:**
None

This course introduces fundamental law enforcement operations. Topics include the contemporary evolution of law enforcement operations and related issues. Upon completion, students should be able to explain theories, practices, and issues related to law enforcement operations.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CJC 122</td>
<td>Community Policing</td>
<td>3</td>
</tr>
<tr>
<td>CJC 131</td>
<td>Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>CJC 132</td>
<td>Court Procedure and Evidence</td>
<td>3</td>
</tr>
<tr>
<td>CJC 141</td>
<td>Corrections</td>
<td>3</td>
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<tr>
<td>CJC 212</td>
<td>Ethics and Community Relations</td>
<td>3</td>
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<tr>
<td>CJC 213</td>
<td>Substance Abuse</td>
<td>3</td>
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<tr>
<td>CJC 214</td>
<td>Victimology</td>
<td>3</td>
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<tr>
<td>CJC 215</td>
<td>Organization and Administration</td>
<td>3</td>
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<tr>
<td>CJC 222</td>
<td>Criminalistics</td>
<td>3</td>
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<tr>
<td>CJC 223</td>
<td>Organized Crime</td>
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<tr>
<td>CJC 224</td>
<td>Constitutional Law</td>
<td>3</td>
</tr>
</tbody>
</table>

**CJC 122 Community Policing**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers the historical, philosophical, and practical dimensions of community policing. Emphasis is placed on the empowerment of police and the community to find solutions to problems by forming partnerships. Upon completion, students should be able to define community policing, describe how community policing strategies solve problems, and compare community policing to traditional policing.

**CJC 131 Criminal Law**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers the history/evolution/principles and contemporary applications of criminal law. Topics include sources of substantive law, classification of crimes, parties to crime, elements of crimes, matters of criminal responsibility, and other related topics. Upon completion, students should be able to discuss the sources of law and identify, interpret, and apply the appropriate statutes/elements.

**CJC 132 Court Procedure and Evidence**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers judicial structure/process/procedure from incident to disposition, kinds and degrees of evidence, and the rules governing admissibility of evidence in court. Topics include consideration of state and federal courts, arrest, search and seizure laws, exclusionary and statutory rules of evidence, and other related issues. Upon completion, students should be able to identify and discuss procedures necessary to establish a lawful arrest/search, proper judicial procedures, and the admissibility of evidence.

**CJC 141 Corrections**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers the history, major philosophies, components, and current practices and problems of the field of corrections. Topics include historical evolution, functions of the various components, alternatives to incarceration, treatment programs, inmate control, and other related topics. Upon completion, students should be able to explain the various components, processes, and functions of the correctional system.

**CJC 212 Ethics and Community Relations**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers ethical considerations and accepted standards applicable to criminal justice organizations and professionals. Topics include ethical systems; social change, values, and norms; cultural diversity; citizen involvement in criminal justice issues; and other related topics. Upon completion, students should be able to apply ethical considerations to the decision-making process in identifiable criminal justice situations.

**CJC 213 Substance Abuse**
- **Prerequisites:** None
- **Corequisites:** None
- This course is a study of substance abuse in our society. Topics include the history and classifications of drug abuse and the social, physical, and psychological impact of drug abuse. Upon completion, students should be able to identify various types of drugs, their effects on human behavior and society, and treatment modalities.

**CJC 214 Victimology**
- **Prerequisites:** None
- **Corequisites:** None
- This course introduces the study of victims. Emphasis is placed on roles/characteristics of victims, victim interaction with the criminal justice system and society, current victim assistance programs, and other related topics. Upon completion, students should be able to discuss and identify victims, the uniqueness of victims’ roles, and current victim assistance programs.

**CJC 215 Organization and Administration**
- **Prerequisites:** None
- **Corequisites:** None
- This course introduces the components and functions of organization and administration as it applies to the agencies of the criminal justice system. Topics include operations/functions of organizations; recruiting, training, and retention of personnel; funding and budgeting; communications; span of control and discretion; and other related topics. Upon completion, students should be able to identify and discuss the basic components and functions of a criminal justice organization and its administrative operations.

**CJC 221 Investigative Principles**
- **Prerequisites:** None
- **Corequisites:** None
- This course introduces the theories and fundamentals of the investigative process. Topics include crime scene/incident processing, information gathering techniques, collection/preservation of evidence, preparation of appropriate reports, court presentations, and other related topics. Upon completion, students should be able to identify, explain, and demonstrate the techniques of the investigative process, report preparation, and courtroom presentation.

**CJC 222 Criminalistics**
- **Prerequisites:** None
- **Corequisites:** None
- This course covers the functions of the forensic laboratory and its relationship to successful criminal investigations and prosecutions. Topics include advanced crime scene processing, investigative techniques, current forensic technologies, and other related topics. Upon completion, students should be able to identify and collect relevant evidence at simulated crime scenes and request appropriate laboratory analysis of submitted evidence.

**CJC 223 Organized Crime**
- **Prerequisites:** None
- **Corequisites:** None
- This course introduces the evolution of traditional and nontraditional organized crime and its effect on society and the criminal justice system. Topics include identifying individuals and groups involved in organized crime, areas of criminal activity, legal and political responses to organized crime, and other related topics. Upon completion, students should be able to identify the groups and activities involved in organized crime and the responses of the criminal justice system.

**CJC 231 Constitutional Law**
- **Prerequisites:** None
- **Corequisites:** None
- The course covers the impact of the Constitution of the United States and its amendments on the criminal justice system. Topics include the structure of the Constitution and its amendments, court decisions pertinent to contemporary crim-
inal justice issues, and other related topics. Upon completion, students should be able to identify/discuss the basic structure of the United States Constitution and the rights/procedures as interpreted by the courts.

**CJC 232 Civil Liability** 3 0 3  
**Prerequisites:**  
This course covers liability issues for the criminal justice professional. Topics include civil rights violations, tort liability, employment issues, and other related topics. Upon completion, students should be able to explain civil trial procedures and discuss contemporary liability issues.

**CJC 233 Correctional Law** 3 0 3  
**Prerequisites:**  
This course introduces statutory/case law pertinent to correctional concepts, facilities, and related practices. Topics include examination of major legal issues encompassing incarceration, probation, parole, restitution, pardon, restoration of rights, and other related topics. Upon completion, students should be able to identify/discuss legal issues which directly affect correctional systems and personnel.

**CJC 241 Community-Based Corrections** 3 0 3  
**Prerequisites:**  
This course covers programs for convicted offenders that are used both as alternatives to incarceration and in post-incarceration situations. Topics include offenders, diversion, house arrest, restitution, community service, probation and parole, including both public and private participation, and other related topics. Upon completion, students should be able to identify/discuss the various programs from the perspective of the criminal justice professional, the offender, and the community.

**CJC 251 Forensic Chemistry I** 3 2 4  
**Prerequisites:**  
This course provides a study of the fundamental concepts of chemistry as it relates to forensic science. Topics include physical and chemical properties of substances, metric measurements, chemical changes, elements, compounds, gases, and atomic structure. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of forensic chemistry.

**CUL - Culinary**

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<th>Course</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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<tbody>
<tr>
<td><strong>CUL 110 Sanitation and Safety</strong></td>
<td>2</td>
<td>0</td>
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<tr>
<td><strong>Prerequisites:</strong> CPT sentence skills 86-120; CPT reading score 80-120; MAT 060</td>
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<tr>
<td><strong>Corequisites:</strong> This course introduces the basic principles of sanitation and safety and their relationship to the hospitality industry. Topics include personal hygiene, sanitation and safety regulations, use and care of equipment, the principles of food-borne illness, and other related topics. Upon completion, students should be able to demonstrate an understanding of sanitation and safety procedures in the hospitality industry.</td>
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**CUL 112 Nutrition for Foodservice** 3 0 3  
**Prerequisites:** CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
**Corequisites:** This course introduces the principles of nutrition and its relationship to the foodservice industry. Topics include fundamentals of personal nutrition over the life cycle, weight management and exercise, health aspects of nutrition, developing healthy recipes and menus, healthy cooking techniques and marketing nutrition in a foodservice operation. Upon completion, students should be able to apply basic nutritional concepts to food preparation and selection.

**CUL 120 Purchasing** 2 0 2  
**Prerequisites:** CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
**Corequisites:** This course covers purchasing for hotels and restaurants. Emphasis is placed on procurement, yield tests, inventory control, specification, planning, forecasting, market trends, terminology, cost controls, pricing, and food service ethics. Upon completion, students should be able to apply effective purchasing techniques based on the end-use of the product.

**CUL 135 Food and Beverage Service** 2 0 2  
**Prerequisite:** CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
**Corequisites:** This course covers the practical skills and knowledge for effective food and beverage service in a variety of settings. Topics include reservations, greeting and service of guests, styles of service, handling complaints, and sales and merchandising. Upon completion, students should be able to demonstrate competence in human relations and technical skills required in the service of foods and beverages.

**CUL 135A Food and Beverage Service Lab** 0 2 1  
**Prerequisites:** CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
**Corequisites:** CUL 135  
This course is a laboratory to accompany CUL 135. Emphasis is placed on practical experiences that enhance the materials presented in CUL 135. Upon completion, students should be able to demonstrate practical applications of skills required in the service of foods and beverages.

**CUL 140 Basic Culinary Skills** 2 6 5  
**Prerequisites:** CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
**Corequisites:** This course introduces the fundamental concepts, skills, and techniques involved in basic cookery. Emphasis is placed on recipe conversion, measurements, terminology, knife skills, safe food handling, cooking methods, flavorings, seasonings, stocks/sauces/soups, and other related topics. Upon completion, students should be able to exhibit the basic cooking skills used in the food service industry. Guest service may be a course component.

**CUL 160 Baking I** 1 4 3  
**Prerequisites:** CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
**Corequisites:** This course covers basic ingredients, weights and measures, baking terminology, and formula calculations. Topics include yeast-raised products, quick breads, pastry dough, various cakes.
and cookies, and appropriate filling and finishing techniques. Upon completion, students should be able to prepare and evaluate baked products.

**CUL 170 Garde Manger I**  
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
Corequisites:  
This course introduces basic cold food preparation techniques and pantry production. Topics include salads, sandwiches, appetizers, dressings, basic garnishes, cheeses, cold sauces, and related food items. Upon completion, students should be able to lay out a basic cold food display and exhibit an understanding of the cold kitchen and its related terminology.

**CUL 180 International and American Regional Cuisine**  
Prerequisites: CUL 240, CUL 110  
Corequisites: CUL 110  
This course provides practical experience in the planning, preparation, and service of representative foods from different countries and regions of America. Emphasis is placed on eating habits, indigenous foods and customs, nutritional concerns, and traditional equipment. Upon completion, students should be able to research and execute international and domestic menus. Guest service may be a course component.

**CUL 214 Wine Appreciation**  
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060  
Corequisites:  
This course provides comprehensive and detailed information about wine from all the major wine producing countries. Emphasis is placed on the history of wine, production characteristics, laws, and purchasing and storing requirements. Upon completion, students should be able to determine what wines compliment varies cuisine and particular tastes.

**CUL 240 Advanced Culinary Skills**  
Prerequisites: CUL 140  
Corequisites:  
This course is a continuation of CUL 140. Emphasis is placed on meat fabrication and butchery; vegetable, starch, and protein cookery; compound sauces; plate presentation; breakfast cookery; and quantity food preparation. Upon completion, students should be able to plan, execute, and successfully serve entrees with complementary side items. Guest service may be a course component.

**CUL 260 Baking II**  
Prerequisites: CUL 160  
Corequisites:  
This course is a continuation of CUL 160. Topics include specialty breads, pastillage, marzipan, chocolate, pulled-sugar, confections, classic desserts, pastries, and cake decorating. Upon completion, students should be able to demonstrate pastry preparation and plating, cake decorating, and show-piece production skills.

**CUL 270 Garde Manger II**  
Prerequisites: CUL 170  
Corequisites:  
This course is a continuation of CUL 170. Topics include pâtés, terrines, galantines, ice and tallow carving, chaud-froid/aspic work, charcuterie, smoking, canapés, hors d’œuvres, and related food items. Upon completion, students should be able to design, set up, and evaluate a catering function to include a classical cold buffet with appropriate show pieces.

**CUL 280 Pastry and Confections**  
Prerequisites: CUL 260, CUL 110  
Corequisites: CUL 110  
This course covers the operations of the pastry shop, emphasizing advanced techniques in the production of continental and classical pastries. Topics include advanced work in French pastries, hot and cold desserts, and decorative display pieces. Upon completion, students should be able to plan, execute, and evaluate dessert platters, individual plated desserts, and show pieces.

**CYT - Cytotechnology**

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**DAN - Dance**

**DAN 110 Dance Appreciation**

Prerequisites: None

This course provides an overview of diverse dance forms and the religious and cultural values that shape them. Topics include dances from Europe, Africa, Asia, and America. Upon completion, students should be able to demonstrate a moderate understanding of the diverse forms and values that dance embraces. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirements in humanities/fine arts.

**DAN 121 Tap Dance I**

Prerequisites: None

This course provides the fundamentals of elementary tap dance technique. Emphasis is placed on sounds, rhythms, terminology, and body placement. Upon completion, students should be able to demonstrate significant progress in elementary tap skills.

**DAN 122 Tap Dance II**

Prerequisites: DAN 121

This course is the second in a series and provides an expansion of elementary tap dance techniques. Emphasis is placed on weight shifts, turns, and more complex rhythm patterns. Upon completion, students should be able to demonstrate a moderate mastery of elementary/intermediate tap dance skills.

**DAN 124 Jazz Dance I**

Prerequisites: None

This course provides the fundamentals of elementary jazz technique. Emphasis is placed on body placement, stretching, jazz movements, and syncopated rhythms. Upon completion, students should be able to demonstrate significant progress in fundamental jazz dance technique and simple center combinations.
DAN 125 Jazz Dance II 0 3 1
Prerequisites: DAN 124
Corequisites: None
This course is the second in a series and provides an expansion of elementary/intermediate jazz dance. Emphasis is placed on “Cool Jazz,” theatrical jazz styles, and extended sequences of movement (routines). Upon completion, students should be able to demonstrate moderate mastery of elementary/intermediate-level jazz dance and be able to perform routines.

DAN 127 Dance for Musical Theatre 0 4 2
Prerequisites: None
This course is designed to teach alignment fundamentals and different styles of jazz, tap, and folk dance used in musical theatre performances. Emphasis is placed on stretching, ballet barre, jazz, tap, and folk dance fundamentals. Upon completion, students should be able to demonstrate proper posture and fundamental techniques of jazz, tap, and folk dance.

DAN 128E Dance Sources I 1 2 2
Prerequisites: None
This course is designed to introduce and expand the fundamentals of a specific ethnic/national dance form and its historical and social background. Emphasis is placed on the historical and social background of culture, basic steps, fundamental forms, and themes of specific dances. Upon completion, students should be able to demonstrate in performance the types and styles of dances characteristic of a specific culture/nation. DAN 128E is African dancing I.

DAN 128I Dance Sources I 1 2 2
Prerequisites: None
This course is designed to introduce and expand the fundamentals of a specific ethnic/national dance form and its historical and social background. Emphasis is placed on the historical and social background of culture, basic steps, fundamental forms, and themes of specific dances. Upon completion, students should be able to demonstrate in performance the types and styles of dances characteristic of a specific culture/nation. DAN 128I is East Indian dancing I.

DAN 128S Dance Sources I 1 2 2
Prerequisites: None
This course is designed to introduce and expand the fundamentals of a specific ethnic/national dance form and its historical and social background. Emphasis is placed on the historical and social background of culture, basic steps, fundamental forms, and themes of specific dances. Upon completion, students should be able to demonstrate in performance the types and styles of dances characteristic of a specific culture/nation. DAN 128S is Spanish dancing I.

DAN 129E Dance Sources II 1 2 2
Prerequisites: DAN 128E
Corequisites: None
This course covers a specific ethnic/national dance form and its historical and cultural background. Emphasis is placed on basic steps, forms, and themes of specific dances and their social contexts. Upon completion, students should be able to demonstrate by performance the types and styles of dance of a specific culture/nation. DAN 129E is African dancing II.

DAN 129I Dance Sources II 1 2 2
Prerequisites: DAN 128I
Corequisites: None
This course covers a specific ethnic/national dance form and its historical and cultural background. Emphasis is placed on basic steps, forms, and themes of specific dances and their social contexts. Upon completion, students should be able to demonstrate by performance the types and styles of dance of a specific culture/nation. DAN 129I is East Indian dancing II.

DAN 129S Dance Sources II 1 2 2
Prerequisites: DAN 128S
Corequisites: None
This course covers a specific ethnic/national dance form and its historical and cultural background. Emphasis is placed on basic steps, forms, and themes of specific dances and their social contexts. Upon completion, students should be able to demonstrate by performance the types and styles of dance of a specific culture/nation. DAN 129S is Spanish dancing II.

DAN 130 Ballet I 0 4 2
Prerequisites: None
This course introduces the elementary elements of ballet technique. Emphasis is placed on simple positions, body placement, classroom discipline, and the Dalcroze method of counting music. Upon completion, students should be able to recognize the names and rhythms of basic steps and be able to perform those movements at barre and in center.

DAN 131 Ballet II 0 4 2
Prerequisites: DAN 130
Corequisites: None
This course is the second in a series of elementary ballet techniques. Emphasis is placed on motor skill development, elementary allegro steps, and body positions. Upon completion, students should be able to exhibit moderate technical skill in elementary ballet.

DAN 132 Intermediate Ballet I 0 4 2
Prerequisites: DAN 131
Corequisites: None
This course introduces the intermediate elements of ballet technique. Emphasis is placed on intermediate steps, memory of set patterns, and progress in skills, especially turns and allegros. Upon completion, students should be able to exhibit significant progress in intermediate ballet technique and the ability to memorize extended combinations of steps.

DAN 133 Intermediate Ballet II 0 4 2
Prerequisites: DAN 132
Corequisites: DAN 134
This course is the second in a series of intermediate ballet technique. Emphasis is placed on progress in intermediate skills, memory and execution of steps, especially Grande Allegro. Upon completion, students should be able to exhibit significant achievement in intermediate ballet technique and the ability to quickly learn and retain combinations.

DAN 134 Ballet Pointe Work 0 2 1
Prerequisites: None
Corequisites: DAN 132 or DAN 133
This course provides the fundamentals of pointe work. Emphasis is placed on releve, piques (pose), body placement, and foot strengthening. Upon completion, students should be able to execute simple ballet steps on pointe at the barre and in center.
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<td>This course introduces the elementary elements of modern dance technique. Emphasis is placed on floor, barre, and center floor exercises. Upon completion, students should be able to exhibit a basic understanding and skill in performing elementary modern dance technique.</td>
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<td>This course is the second in a series of elementary modern dance technique. Emphasis is placed on motor skill development and simple combinations in center floor. Upon completion, students should be able to exhibit moderate technical skill in elementary modern dance technique.</td>
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<td>This course introduces intermediate modern dance technique. Emphasis is placed on progress in intermediate skills, musical phrasing, and introduction to selections of modern dance repertoire. Upon completion, students should be able to demonstrate significant progress in intermediate technique and extended movement sequences.</td>
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<td>This course is the second in a series of intermediate modern dance technique. Emphasis is placed on progress in intermediate skills, spatial qualities, and simple combinations in floor and center. Upon completion, students should be able to demonstrate significant progress in intermediate technique and extended movement sequences.</td>
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<td>This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.</td>
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<td>This course provides an in-depth study of world dance from pre-history to 1800. Emphasis is placed on examining the dance and dancers of diverse cultures including Africa, Asia, and Europe. Upon completion, students should be able to analyze the common need to dance and the forms, religions, and cultural values it embodies. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<td>This course provides an in-depth study of world dance from 1800 to the present. Emphasis is placed on Western theatrical dance (ballet, modern dance, tap, and jazz) and the personalities that shaped it. Upon completion, students should be able to analyze culturally diverse dance forms and their cross-pollination which have produced the “pan world dance of today.” This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<td>This course introduces the advanced elements of modern dance technique. Emphasis is placed on advanced movements, mastery of technical skills, and spatial divisions. Upon completion, students should be able to demonstrate significant progress in the execution of all movements and to demonstrate a sense of quality in them.</td>
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<td>This course is the second in a series of advanced modern dance technique. Emphasis is placed on advanced movements, mastery of technical skills, and spatial divisions. Upon completion, students should be able to demonstrate significant progress in the execution of all movements and to demonstrate a sense of quality in them.</td>
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dance technique. Emphasis is placed on mastery and quality of technical skills and execution of complicated movement variations in extended sequence. Upon completion, students should be able to demonstrate significant achievement in modern dance skills and the ability to perform modern dance repertoire.

**DAN 225 Choreography I**

Prerequisites: DAN 140
Corequisites: Enrollment in DAN 142 or higher-level dance class

This course introduces the fundamental techniques of modern dance choreography. Emphasis is placed on improvisation and development of movement phrases. Upon completion, students should be able to create simple movements, improvise upon them, and develop longer movement phrases to create short dances.

**DAN 226 Choreography II**

Prerequisites: DAN 140
Corequisites: Enrollment in DAN 142 or higher-level dance class

This course introduces the advanced elements of dance (time, space, form) and structural forms as used to choreograph. Emphasis is placed on the use of design, dynamics, rhythm, motivation, and musical forms to create dances. Upon completion, students should be able to utilize the elements of time, space, and form and form manipulation to choreograph and rehearse a group dance.

**DAN 236 Advanced Ballet I**

Prerequisites: DAN 133
Corequisites: None

This course introduces the advanced elements of ballet technique. Emphasis is placed on refinement of all technical skills, learning advanced movements, pointe (female) and big jumps (male). Upon completion, students should be able to exhibit significant progress in the execution of all movements and to demonstrate a sense of quality in them.

**DAN 237 Advanced Ballet II**

Prerequisites: DAN 236
Corequisites: None

This course is the second in a series of advanced ballet technique. Emphasis is placed on mastery and quality of all skills, refinement of movements, pointe (female) and big jumps (male). Upon completion, students should be able to demonstrate significant achievement in all ballet skills and the ability to perform ballet repertoire.

**DAN 262B Dance Performance**

Prerequisites:
Corequisites: Enrollment in a dance technique class

This course includes audition, casting, rehearsal, and video performance of a new ballet. Emphasis is placed on universal rehearsal techniques, improvement of dance techniques, teamwork, and performance of new choreography. Upon completion, students should be able to demonstrate through video performance a basic knowledge of the creation of a new ballet. DAN 262B is ballet performance.

**DAN 262M Dance Performance**

Prerequisites:
Corequisites: Enrollment in a dance technique class

This course includes audition, casting, rehearsal, and video performance of a new ballet. Emphasis is placed on universal rehearsal techniques, improvement of dance techniques, teamwork, and performance of new choreography. Upon completion, students should be able to demonstrate through video performance a basic knowledge of the creation of a new ballet. DAN 262M is modern dance performance.

**DEN - Dental Programs (Dental Assisting and Dental Hygiene)**

**DEN 100 Basic Orofacial Anatomy**

Prerequisites: Enrollment in the Dental Assisting Program
Corequisites: DEN 101

This course provides a basic introduction to the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to demonstrate knowledge of normal structures and development and how they relate to the practice of dental assisting. This is a diploma-level course.

**DEN 101 Preclinical Procedures**

Prerequisites: Enrollment in the Dental Assisting Program
Corequisites: DEN 101, DEN 102

This course provides instruction in procedures for the clinical dental assistant as specified by the North Carolina Dental Practice Act. Emphasis is placed on orientation to the profession, infection control techniques, instruments, related expanded functions, and diagnostic, operative, and specialty procedures. Upon completion, students should be able to demonstrate proficiency in clinical dental assisting procedures. This is a diploma-level course.

**DEN 102 Dental Materials**

Prerequisites: Enrollment in the Dental Assisting Program
Corequisites: DEN 101

This course provides instruction in identification, properties, evaluation of quality, principles, and procedures related to manipulation and storage of operative and specialty dental materials.
materials. Emphasis is placed on the understanding and safe application of materials used in the dental office and laboratory. Upon completion, students should be able to demonstrate proficiency in the laboratory and clinical application of routinely used dental materials. This is a diploma-level course.

DEN 103 Dental Sciences 2 0 0 2
Prerequisites: DEN 100
Corequisites: None
This course is a study of oral pathology, pharmacology, and dental office emergencies. Topics include oral pathological conditions, dental therapeutics, and management of emergency situations. Upon completion, students should be able to recognize abnormal oral conditions, identify classifications, describe actions and effects of commonly prescribed drugs, and respond to medical emergencies. This is a diploma-level course.

DEN 104 Dental Health Education 2 2 0 3
Prerequisites: DEN 101, DEN 111, DEN 100
Corequisites: None
This course covers the study of preventive dentistry to prepare dental assisting students for the role of dental health educator. Topics include etiology of dental diseases, preventive procedures, and patient education theory and practice. Upon completion, students should be able to demonstrate proficiency in patient counseling and oral health instruction in private practice or public health settings. This is a diploma-level course.

DEN 105 Practice Management 2 0 0 2
Prerequisites: DEN 101
Corequisites: None
This course provides a study of principles and procedures related to management of the dental practice. Emphasis is placed on maintaining clinical and financial records, patient scheduling, and supply and inventory control. Upon completion, students should be able to demonstrate fundamental skills in dental practice management. This is a diploma-level course.

DEN 106 Dental Clinical Practice I 1 0 12 5
Prerequisites: All required DEN courses
Corequisites: None
This course is designed to provide experience assisting in a clinical setting. Emphasis is placed on the application of principles and procedures of four-handed dentistry and laboratory and clinical support functions. Upon completion, students should be able to utilize classroom theory and laboratory and clinical skills in a dental setting. This is a diploma-level course.

DEN 107 Dental Clinical Practice II 1 0 12 5
Prerequisites: DEN 106
Corequisites: None
This course is designed to increase the level of proficiency in assisting in a clinical setting. Emphasis is placed on the application of principles and procedures of four-handed dentistry and laboratory and clinical support functions. Upon completion, students should be able to combine theoretical and ethical principles necessary to perform entry-level skills including functions delegable to a DA II. This is a diploma-level course.

DEN 110 Orofacial Anatomy 2 2 0 3
Prerequisites: Acceptance into Dental Hygiene Program
Corequisites: None
This course introduces the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to relate the identification of normal structures and development to the practice of dental assisting and dental hygiene.

DEN 111 Infection and Hazard Control 2 0 0 2
Prerequisites: Acceptance into Dental Hygiene or Dental Assisting program
Corequisites: None
This course introduces the infection and hazard control procedures necessary for the safe practice of dentistry. Topics include microbiology, practical infection control, sterilization and monitoring, chemical disinfectants, aseptic technique, infectious diseases, OSHA standards, and applicable North Carolina laws. Upon completion, students should be able to understand infectious diseases, disease transmission, infection control procedures, biohazard management, OSHA standards, and applicable North Carolina laws.

DEN 112 Dental Radiography 2 3 0 3
Prerequisites: Acceptance into Dental Hygiene or Dental Assisting program
Corequisites: DEN 100 or DEN 110 and DEN 111
This course provides a comprehensive view of the principles and procedures of radiology as they apply to dentistry. Topics include techniques in exposing, processing, and evaluating radiographs, as well as radiation safety, quality assurance, and legal issues. Upon completion, students should be able to demonstrate proficiency in the production of diagnostically acceptable radiographs using appropriate safety precautions.

DEN 120 Dental Hygiene Preclinical Lecture 2 0 0 2
Prerequisites: Acceptance into Dental Hygiene program
Corequisites: DEN 121
This course introduces preoperative and clinical dental hygiene concepts. Emphasis is placed on the assessment phase of patient care as well as the theory of basic dental hygiene instrumentation. Upon completion, students should be able to collect and evaluate patient data at a basic level and demonstrate knowledge of dental hygiene instrumentation.

DEN 121 Dental Hygiene Preclinical Lab 0 6 0 2
Prerequisites: Acceptance into Dental Hygiene program
Corequisites: DEN 120
This course provides the opportunity to perform clinical dental hygiene procedures discussed in DEN 120. Emphasis is placed on clinical skills in patient assessment and instrumentation techniques. Upon completion, students should be able to demonstrate the ability to perform specific preclinical procedures.

DEN 123 Nutrition/Dental Health 2 0 0 2
Prerequisites: None
This course introduces basic principles of nutrition with emphasis on nutritional requirements and their application to
individual patient needs. Topics include the study of the food pyramid, nutrient functions, Recommended Daily Allowances, and related psychological principles. Upon completion, students should be able to recommend and counsel individuals on their food intake as related to their dental health.

DEN 124 Periodontology  
Prerequisites: DEN 110  
Corequisites: None  
This course provides an in-depth study of the periodontium, periodontal pathology, periodontal monitoring, and the principles of periodontal therapy. Topics include periodontal anatomy and a study of the etiology, classification, and treatment modalities of periodontal diseases. Upon completion, students should be able to describe, compare, and contrast techniques involved in periodontal/maintenance therapy, as well as patient care management.

DEN 125 Dental Office Emergencies  
Prerequisites: Acceptance in Dental Hygiene Program  
Corequisites: None  
This course provides a study of the management of dental office emergencies. Topics include methods of prevention, necessary equipment/drugs, medicolegal considerations, recognition and effective initial management of a variety of emergencies. Upon completion, the student should be able to recognize, assess and manage various dental office emergencies and activate advanced medical support when indicated.

DEN 130 Dental Hygiene Theory I  
Prerequisites: DEN 120  
Corequisites: DEN 131  
This course is a continuation of the didactic dental hygiene concepts necessary for providing an oral prophylaxis. Topics include deposits/removal, instrument sharpening, patient education, fluorides, planning for dental hygiene treatment, charting, and clinical records and procedures. Upon completion, students should be able to demonstrate knowledge needed to complete a thorough oral prophylaxis.

DEN 131 Dental Hygiene Clinic I  
Prerequisites: DEN 121, DEN 112  
Corequisites: DEN 130  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of the recall patients with gingivitis or light deposits. Upon completion, students should be able to assess these patients’ needs and complete the necessary dental hygiene treatment.

DEN 140 Dental Hygiene Theory II  
Prerequisites: DEN 130  
Corequisites: DEN 141  
This course provides a continuation of the development, theory, and practice of patient care. Topics include modification of treatment for special needs patients, advanced radiographic interpretation, and ergonomics. Upon completion, students should be able to differentiate necessary treatment modifications, effective ergonomic principles, and radiographic abnormalities.

DEN 141 Dental Hygiene Clinic II  
Prerequisites: DEN 131  
Corequisites: DEN 140  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with early periodontal disease and subgingival deposits. Upon completion, students should be able to assess these patients’ needs and complete the necessary dental hygiene treatment.

DEN 220 Dental Hygiene Theory III  
Prerequisites: DEN 140  
Corequisites: DEN 221  
This course provides a continuation in developing the theories and practices of patient care. Topics include periodontal debridement, pain control, subgingival irrigation, air polishing, and case presentations. Upon completion, students should be able to demonstrate knowledge of methods of treatment and management of periodontally compromised patients.

DEN 221 Dental Hygiene Clinic III  
Prerequisites: DEN 141  
Corequisites: DEN 220  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with moderate to advanced periodontal involvement and moderate deposits. Upon completion, students should be able to assess these patients’ needs and complete the necessary dental hygiene treatment.

DEN 222 General and Oral Pathology  
Prerequisites: BIO 163 or BIO 165 or BIO 168  
Corequisites: None  
This course provides a general knowledge of oral pathological manifestations associated with selected systemic and oral diseases. Topics include developmental and degenerative diseases, selected microbial diseases, specific and nonspecific immune and inflammatory responses with emphasis on recognizing abnormalities. Upon completion, students should be able to differentiate between normal and abnormal tissues and refer unusual findings to the dentist for diagnosis.

DEN 223 Dental Pharmacology  
Prerequisites:  
Corequisites: BIO 163 or BIO 165 or BIO 168  
This course provides basic drug terminology, general principles of drug actions, dosages, routes of administration, adverse reactions, and basic principles of anaesthesiology. Emphasis is placed on knowledge of drugs in overall understanding of patient histories and health status. Upon completion, students should be able to recognize that each patient’s general health or drug usage may require modification of the treatment procedures.

DEN 224 Materials and Procedures  
Prerequisites: DEN 111  
Corequisites: None  
This course introduces the physical properties of materials and related procedures used in dentistry. Topics include restorative and preventive materials, fabrication of casts and appliances, and chairside functions of the dental hygienist. Upon
completion, students should be able to demonstrate proficiency in the laboratory and/or clinical application of routinely used dental materials and chairside functions.

**DEN 230 Dental Hygiene Theory IV**  
1 0 0 1  
Prerequisites: DEN 220  
Corequisites: DEN 231  
This course provides an opportunity to increase knowledge of the profession. Emphasis is placed on dental specialties and completion of a case presentation. Upon completion, students should be able to demonstrate knowledge of various disciplines of dentistry and principles of case presentations.

**DEN 231 Dental Hygiene Clinic IV**  
0 0 12 4  
Prerequisites: DEN 221  
Corequisites: DEN 230  
This course continues skill development in providing an oral prophylaxis. Emphasis is placed on periodontal maintenance and on treating patients with moderate to advanced/refractory periodontal disease. Upon completion, students should be able to assess these Patient’s’ needs and complete the necessary dental hygiene treatment.

**DEN 232 Community Dental Health**  
2 0 3 3  
Prerequisites: DEN 123, DEN 131  
Corequisites: None  
This course provides a study of the principles and methods used in assessing, planning, implementing, and evaluating community dental health programs. Topics include epidemiology, research methodology, biostatistics, preventive dental care, dental health education, program planning, and financing and utilization of dental services. Upon completion, students should be able to assess, plan, implement, and evaluate a community dental health program.

**DEN 233 Professional Development**  
2 0 0 2  
Prerequisites: Acceptance in Dental Hygiene Program  
Corequisites: None  
This course includes professional development, ethics, and jurisprudence with applications to practice management. Topics include conflict management, state laws, résumé, interviews, and legal liabilities as health care professionals. Upon completion, students should be able to demonstrate the ability to practice dental hygiene within established ethical standards and state laws.

**DDF - Design Drafting**  
See also ATR-Automation, DFT-Drafting, ISC-Industrial Science, MEC-Mechanical Engineering Technology, and PLA-Plastics for other courses.

**DES - Interior Design**  
See also ARC Architectural Technology for other descriptions.

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<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
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<td>Color Theory</td>
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<td>DES 125</td>
<td>Graphic Presentation I</td>
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<td>DES 135</td>
<td>Principles and Elements of Design I</td>
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<td>DES 210</td>
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<td>DES 220</td>
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<td>DES 225</td>
<td>Textiles / Fabrics</td>
<td>2</td>
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**DDF 221 Design Drafting Project**  
0 4 2  
Prerequisites: DFT 112  
Corequisites: None  
This course incorporates ideas from concept to final design. Topics include reverse engineering, design for manufacturability, and mock-up construction. Upon completion, students should be able to generate working drawings and models based on physical design parameters.
DES 230 Residential Design I  1 6 3
Prerequisites: ARC 111, DES 125, DES 220, DES 135, ARC 120
Corequisites: None
This course includes principles of interior design for various residential design solutions. Emphasis is placed on visual presentation and selection of appropriate styles to meet specifications. Upon completion, students should be able to complete scaled floor plans, elevations, specifications, color schemes and fabrics, and finishes and furniture selection.

DES 231 Residential Design II  1 6 3
Prerequisites: DES 230, ARC 111, DES 125, DES 135, ARC 120, DES 220, DES 230
Corequisites: None
This course provides advanced projects with a client profile that utilizes the skills developed in DES 230. Emphasis is placed on a total concept and the presentation of appropriate and creative design solutions. Upon completion, students should be able to complete a detailed floor plan, space planning, furniture plan, specifications, program schedules, finishes, and detailed window treatments.

DES 235 Products  2 2 3
Prerequisites: None
Corequisites: None
This course provides an overview of interior finishing materials and the selection of quality upholstery and case goods. Topics include hard and resilient floor coverings; wall coverings and finishes; ceilings, moldings, and furniture construction techniques; and other interior components. Upon completion, students should be able to recognize and use correct terminology, select appropriate materials for interior surfaces, and choose furniture based on sound construction.

DES 240 Non-Residential Design I  1 6 3
Prerequisites: DES 220, ARC 111, ARC 120, DES 125, DES 135, DES 220
Corequisites: None
This course introduces commercial/contract design including retail, office, institutional, restaurant, and hospitality design. Emphasis is placed on ADA requirements, building codes and standards, space planning, and selection of appropriate materials for non-residential interiors. Upon completion, students should be able to analyze and design introductory non-residential projects using graphic presentation concepts.

DES 241 Non-Residential Design II  1 6 3
Prerequisites: DES 240, ARC 111, ARC 120, DES 125, DES 135, DES 220, DES 240
Corequisites: None
This course provides an in-depth study of non-residential design exploring more comprehensive design solutions such as health care facilities, furniture gallery design, and large office complexes. Emphasis is placed on design of commercial interiors and suitability of materials to meet ADA requirements, codes, and standards. Upon completion, students should be able to design non-residential spaces meeting ADA requirements and select furniture, materials, fabrics, and accessories meeting codes and flammability standards.

DES 245 Sales and Marketing / Interior Design  2 0 2
Prerequisites: None
Corequisites: None
This course introduces retail/wholesale sales and marketing concepts, product distribution, and terminology for the interior design profession. Topics include current retail/wholesale marketing techniques, sales terminology, acceptable business practices, and basic retail/wholesale computations. Upon completion, students should be able to demonstrate knowledge of specific design marketing and sales organizations and techniques and compute basic mark-ups and mark-downs.

DES 255 History / Interior and Furnishings I  3 0 3
Prerequisites: None
Corequisites: None
This course covers interiors, exteriors, and furnishings from ancient Egypt through French Neo-Classic. Emphasis is placed on vocabulary, chronology, and style recognition. Upon completion, students should be able to classify and date interior and exterior architecture and furnishings and be conversant with pertinent vocabulary.

DES 257 History of American Homes  3 0 3
Prerequisites: None
Corequisites: None
This course provides an overview of American architectural styles from Medieval frame dwellings through the International style. Emphasis is placed on vocabulary, characteristics of architectural styles, and chronology as well as research of a historic home. Upon completion, students should be able to identify and use correct terminology regarding the history of American homes.

DES 275 Furniture Design and Construction  2 2 3
Prerequisites: ARC 111, ARC 120, DES 125, DES 220, and DES 135
Corequisites: None
This course introduces contemporary furniture design and construction techniques used in custom and handmade furniture building. Topics include design and manufacturing processes and materials selection for handmade and production, case goods, and upholstery manufacturing. Upon completion, students should be able to design and describe manufacturing processes used in both case goods and upholstered furniture manufacturing.

DES 280 Codes and Standards / Interior Design  3 0 3
Prerequisites: ARC 120
Corequisites: None
This course introduces institutional and residential building codes as they relate to interior design. Topics include state and federal codes and standards related to physically disadvantaged access, fire codes, space allocation codes, and bathroom facility codes. Upon completion, students should be able to research and interpret state and federal building codes.

DES 285 Capstone / Interior Design  2 6 4
Prerequisites: DES 210, DES 230, and DES 240
Corequisites: None
This course provides additional studio time to investigate areas of special interest, upgrade weaknesses, and/or capitalize on strengths. Topics include a broad range of options, both residential and non-residential, combining individual research and
instructional guidance. Upon completion, students should be able to complete the graphics, client folder, and all schedules for a professional project.

**DFT - Drafting**

*See also ATR-Automation, DDF-Design Drafting, ISC-Industrial Science, MEC-Mechanical Engineering Technology, and PLA-Plastics for other courses.*

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<th>Credit</th>
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<td>DFT 111</td>
<td>Technical Drafting I</td>
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<td>Prerequisites: None</td>
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<td>Corequisites: None</td>
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<td>This course introduces basic drafting skills, equipment, and applications. Topics include sketching, measurements, lettering, dimensioning, geometric construction, orthographic projections and pictorials drawings, sections, and auxiliary views. Upon completion, students should be able to understand and apply basic drawing principles and practices.</td>
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<td>DFT 112</td>
<td>Technical Drafting II</td>
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<td>Corequisites: None</td>
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<td>This course provides for advanced drafting practices and procedures. Topics include detailed working drawings, hardware, fits and tolerances, assembly and sub-assembly, geometric dimensioning and tolerancing, intersections, and developments. Upon completion, students should be able to produce detailed working drawings.</td>
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<td>DFT 121</td>
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<td>Corequisites: None</td>
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<td>This course introduces basic geometric dimensioning and tolerancing principles. Topics include symbols, annotation, theory, and applications. Upon completion, students should be able to interpret and apply basic geometric dimensioning and tolerancing principles to drawings.</td>
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<td>DFT 151</td>
<td>CAD I</td>
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<td>Prerequisites: DFT 111</td>
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<td>This course introduces CAD software as a drawing tool. Topics include drawing, editing, file management, and plotting. Upon completion, students should be able to produce and plot a CAD drawing.</td>
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<td>DFT 152</td>
<td>CAD II</td>
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<td>Prerequisites: DFT 151</td>
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<td>This course is a continuation of DFT 151. Topics include advanced two-dimensional, three-dimensional, and solid modeling and extended CAD applications. Upon completion, students should be able to generate and manage CAD drawings and models to produce engineering documents.</td>
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<td>DFT 170</td>
<td>Engineering Graphics</td>
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<td>Prerequisites: None</td>
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<td>This course introduces basic engineering graphics skills, equipment and applications (manual and computer-aided). Topics include sketching, measurements, lettering, dimensioning, geometric construction, orthographic projections and pictorial drawings, and sectional and auxiliary views. Upon completion, students should be able to demonstrate an understanding of basic engineering graphics principles and practices. This course is intended for A.S. Engineering transfer students.</td>
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**DDT - Developmental Disabilities**

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<td>This course identifies the characteristics and causes of various disabilities. Topics include history of service provision, human rights, legislation and litigation, advocacy, and accessing support services. Upon completion, students should be able to demonstrate an understanding of current and historical developmental disability definitions and support systems used throughout the life span.</td>
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<td>This course covers teaching modalities which enhance learning among people with developmental disabilities. Topics include assessment, support strategies, writing behavioral strategies, teaching methods, and documentation. Upon completion, students should be able to demonstrate competence in individual program plan development and implementation. This course is a unique concentration requirement of the Developmental Disabilities concentration in the Human Services Technology program.</td>
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<td>DDT 210</td>
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<td>This course introduces the health and medical aspects of assisting people with developmental disabilities. Topics include universal precautions, medication, wellness, nutrition, human sexuality, and accessing medical services. Upon completion, students should be able to identify and implement strategies to promote wellness and manage chronic health conditions. Upon completion, students should be able to identify and implement strategies for the maintenance, prevention, and treatment of predominant health conditions affecting the developmentally disabled. This course is a unique concentration requirement of the Developmental Disabilities concentration in the Human Services Technology program.</td>
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<tr>
<td></td>
<td>Prerequisites: None</td>
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<td></td>
<td>This course covers the individual program planning process used in services for people with developmental disabilities. Topics include basic components and benefits of the process, the effect of values on outcomes, and group problem-solving methods. Upon completion, students should be able to demonstrate an understanding of effective group process in program planning and the individual roles of team members. This course is a unique concentration requirement of the Developmental Disabilities concentration in the Human Services Technology program.</td>
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</tbody>
</table>
DDT 230  Supported Employment Methods 3 0 0 3
Prerequisites: None
Corequisites: None
This course introduces the concept of supported employment and the action steps needed to assist individuals with disabilities to participate in the world of work. Topics include a history of vocational services, supported employment values, organizational marketing, consumer assessment, job development, employment selection, job site training and long-term supports. Upon completion, students will be able to develop a customer profile, marketing plan, and assist individuals with disabilities to obtain and maintain employment. This course is a unique concentration requirement of the Developmental Disabilities concentration in the Human Services Technology Program.

DRA -Drama/Theatre

DRA 111  Theatre Appreciation 3 0 3
Prerequisites: 
Corequisites: None
This course provides a study of the art, craft, and business of the theatre. Emphasis is placed on the audience’s appreciation of the work of the playwright, director, actor, designer, producer, and critic. Upon completion, students should be able to demonstrate a vocabulary of theatre terms and to recognize the contributions of various theatre artists. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

DRA 120  Voice for Performance 3 0 3
Prerequisites: 
Corequisites: None
This course provides guided practice in the proper production of speech for the theatre. Emphasis is placed on improving speech, including breathing, articulation, pronunciation, and other vocal variables. Upon completion, students should be able to demonstrate effective theatrical speech.

DRA 130  Acting I 0 6 3
Prerequisites: 
Corequisites: None
This course provides an applied study of the actor’s craft. Topics include role analysis, training the voice, and body concentration, discipline, and self-evaluation. Upon completion, students should be able to explore their creativity in an acting ensemble.

DRA 131  Acting II 0 6 3
Prerequisites: DRA 130 or Division Consent
Corequisites: None
This course provides additional hands-on practice in the actor’s craft. Emphasis is placed on further analysis, characterization, growth, and training for acting competence. Upon completion, students should be able to explore their creativity in an acting ensemble.

DRA 135  Acting for the Camera I 1 4 3
Prerequisites: 
Corequisites: None
This course provides an applied study of the camera actor’s craft. Topics include commercial, dramatic, and print performance styles. Upon completion, students should be able to explore their creativity in on-camera performance.

DRA 136  Acting for the Camera II 1 4 3
Prerequisites: DRA 135 or Division Consent
Corequisites: None
This course provides additional hands-on study of the camera actor’s craft. Emphasis is placed on more advanced camera acting theories, auditioning techniques, daytime drama, feature film, and print advertisement performance styles. Upon completion, students should be able to explore their creativity in on-camera performance.

DRA 140  Stagecraft I 0 6 3
Prerequisites: 
Corequisites: None
This course introduces the theory and basic construction of stage scenery and properties. Topics include stage carpentry, scene painting, stage electrics, properties, and backstage organization. Upon completion, students should be able to pursue vocational and avocational roles in technical theatre.

DRA 141  Stagecraft II 0 6 3
Prerequisites: DRA 140 or Division Consent
Corequisites: None
This course provides additional hands-on practice in the elements of stagecraft. Emphasis is placed on the design and implementation of the arts and crafts of technical theatre. Upon completion, students should be able to pursue vocational or avocational roles in technical theatre.

DRA 142  Costuming 2 2 3
Prerequisites: 
Corequisites: None
This course covers the techniques of costume construction and crafts processes. Emphasis is placed on learning costuming techniques, using equipment and materials, and finishing production-appropriate costumes. Upon completion, students should be able to demonstrate an understanding of pattern drafting, construction techniques, and costume fitting procedures.

DRA 145  Stage Make-up 1 2 2
Prerequisites: 
Corequisites: None
This course covers the research, design, selection of materials, and application of stage make-up prosthetics, wigs, and hairpieces. Emphasis placed on e development of technics, style, and presentation of the finished make-up. Upon completion, students should be able to create and apply make-up, prosthetics, and hairpieces.

DRA 170  Play Production I 0 9 3
Prerequisites: 
Corequisites: None
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

DRA 171  Play Production II 0 9 3
Prerequisites: DRA 170 or Division Consent
Corequisites: None
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned
DRA 175  Teleplay Production I 0 9 3
Prerequisites: None
Corequisites: None
This course provides an applied laboratory study of the processes involved in production of a dramatic television program. Emphasis is placed on the fundamental practices, principles, and techniques associated with producing dramatic television programming. Upon completion, students should be able to participate in an assigned position with a college dramatic television production.

DRA 176  Teleplay Production II 0 9 3
Prerequisites: DRA 175 or Division Consent
Corequisites: None
This course provides an applied laboratory study of the processes involved in production of a sit-com television program. Emphasis is placed on the fundamental practices, principles, and techniques associated with producing sit-com television programming. Upon completion, students should be able to participate in an assigned position with a college sit-com television production.

DRA 191  Selected Topics in Drama 0-1 0-3 1
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DRA 192  Selected Topics in Drama 0-2 0-6 2
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DRA 193  Selected Topics in Drama 1-3 0-6 3
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DRA 270  Play Production III 0 9 3
Prerequisites: DRA 171 or Division Consent
Corequisites: None
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

DRA 271  Play Production IV 0 9 3
Prerequisites: DRA 270 or Division Consent
Corequisites: None
This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production.

DRA 275  Teleplay Production III 0 9 3
Prerequisites: DRA 175 or Division Consent
Corequisites: None
This course provides an applied laboratory study of the processes involved in production of an action television program. Emphasis is placed on the fundamental practices, principles, and techniques associated with producing action television programming. Upon completion, students should be able to participate in an assigned position with a college action television production.

DRA 276  Teleplay Production IV 0 9 3
Prerequisites: DRA 275
Corequisites: None
This course provides an applied laboratory study of the processes involved in production of a variety television program. Emphasis is placed on the fundamental practices, principles, and techniques associated with producing variety television programming. Upon completion, students should be able to participate in an assigned position with a college variety television production.

DRA 291  Selected Topics in Drama 0-1 0-3 1
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DRA 292  Selected Topics in Drama 0-2 0-6 2
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DRA 293  Selected Topics in Drama 1-3 0-6 3
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

DRA 294  Selected Topics in Drama 1-3 0-6 3
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ECM - Electronic Commerce

ECM 210  Intro to Electronic Commerce 2 2 3
Prerequisites: None
Corequisites: None
This course introduces the concepts and tools to implement electronic commerce via the Internet. Topics include application and server software selection, securing transactions, use and verification of credit cards, publishing of catalogues, and site administration. Upon completion, students should be able to set up a working Electronic Commerce Internet web site. This course is a unique concentration requirement of the E-Commerce con-


**ECO - Economics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 151</td>
<td>Survey of Economics</td>
<td>MAT 070 or Placement Test score</td>
<td>None</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

This course, for those who have not received credit for ECO 251 or 252, introduces basic concepts of micro- and macroeconomics. Topics include supply and demand, optimizing economic behavior, prices and wages, money, interest rates, banking system, unemployment, inflation, taxes, government spending, and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors. Students should complete any developmental courses prior to taking this class.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 251</td>
<td>Principles of Microeconomics</td>
<td>MAT 070 or Placement Test score</td>
<td>None</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

This course introduces economic analysis of choices made by individuals, businesses, and industries in the market economy. Topics include the price mechanism, supply and demand, optimizing economic behavior, costs and revenue, market structures, factor markets, income distribution, market failure, and government intervention. Upon completion, students should be able to identify and evaluate consumer and business alternatives in order to efficiently achieve economic objectives. This course is intended for those who have not received credit for ECO 151. **This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. Students should complete any Advancement Studies courses prior to taking this class.**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 252</td>
<td>Principles of Macroeconomics</td>
<td>MAT 070 or Placement Test score</td>
<td>None</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

This course introduces economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. Upon completion, students should be able to evaluate national economic components, conditions, and alternatives for achieving socioeconomic goals. This course is intended for those who have not received credit for ECO 151. **This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences. Students should complete any Advancement Studies courses prior to taking this class.**

**EDU - Early Childhood Associate**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 111</td>
<td>Early Childhood Credential I</td>
<td>None</td>
<td>None</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

This course introduces early childhood education and the role of the teacher in environments that encourage exploration and learning. Topics include professionalism, child growth and development, individuality, family, and culture. Upon completion, students should be able to identify and demonstrate knowledge of professional roles, major areas of child growth and development, and diverse families.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 112</td>
<td>Early Childhood Credential II</td>
<td>None</td>
<td>None</td>
<td>2</td>
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<td>2</td>
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</tbody>
</table>

This course introduces developmentally appropriate practices, positive guidance, and standards of health, safety, and nutrition. Topics include the learning environment, planning developmentally appropriate activities, positive guidance techniques, and health, safety, and nutrition standards. Upon completion, students should be able to demonstrate developmentally appropriate activities and positive guidance techniques and describe health/sanitation/nutrition practices that promote healthy environments for children.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 113</td>
<td>Family / Early Child Credentials</td>
<td>None</td>
<td>None</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

This course covers business/professional practices for family early childhood providers, developmentally appropriate practices, positive guidance, and methods of providing a safe and healthy environment. Topics include developmentally appropriate practices; health, safety and nutrition; and business and professionalism. Upon completion, students should be able to develop a handbook of policies, procedures, and practices for a family child care home.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 119</td>
<td>Early Childhood Education</td>
<td>None</td>
<td>None</td>
<td>3</td>
<td>2</td>
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</tr>
</tbody>
</table>

This course covers the foundations of the education profession, types of programs, professionalism, and planning quality programs for children. Topics include historical foundations, career options, types of programs, professionalism, observational skills, and planning developmentally appropriate schedules, environments, and activities for children. Upon completion, students should be able to demonstrate observational skills, identify appropriate schedules and environments, develop activity plans, and describe influences on the profession.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 131</td>
<td>Child, Family and Community</td>
<td>None</td>
<td>None</td>
<td>3</td>
<td>0</td>
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</tbody>
</table>

This course covers the relationships between the families, programs for children/schools, and the community. Emphasis is placed on establishing and maintaining positive collaborative relationships with families and community resources. Upon completion, students should be able to demonstrate strategies for effectively working with diverse families and identifying and utilizing community resources.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 144</td>
<td>Child Development I</td>
<td>None</td>
<td>None</td>
<td>3</td>
<td>0</td>
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</table>

This course covers the theories of child development and the developmental sequences of children from conception through the pre-school years for early childhood educators. Emphasis is placed on sequences in physical/motor, social, emotional, cognitive, and language development and appropriate experiences for the young child. Upon completion, students should be able to identify developmental milestones, plan experiences to enhance development, and describe appropriate interaction techniques and environments for typical/atypical development.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 145</td>
<td>Child Development II</td>
<td>3 0 3</td>
<td>None</td>
<td>None</td>
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<tr>
<td></td>
<td>This course covers theories of child development and developmental sequences of children from pre-school through middle childhood for early childhood educators. Emphasis is placed on characteristics of physical/motor, social, emotional, and cognitive/language development and appropriate experiences for children. Upon completion, students should be able to identify developmental characteristics, plan experiences to enhance development, and describe appropriate interaction techniques and environments.</td>
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<tr>
<td>EDU 146</td>
<td>Child Guidance</td>
<td>3 0 3</td>
<td>None</td>
<td>None</td>
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<td>This course introduces practical principles and techniques for developmentally appropriate guidance. Emphasis is placed on encouraging self-esteem and cultural awareness, effective communication skills, and direct and indirect guidance techniques and strategies. Upon completion, students should be able to demonstrate strategies which encourage positive social interactions, promote conflict resolution, and develop self-control, self-motivation, and self-esteem in children.</td>
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<tr>
<td>EDU 151</td>
<td>Creative Activities</td>
<td>3 0 3</td>
<td>EDU151A</td>
<td>None</td>
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<td></td>
<td>This course covers creative learning environments, planning and implementing developmentally appropriate experiences, and developing appropriate teaching materials for the classroom. Emphasis is placed on creative activities for children in art, music, movement and physical skills, and dramatics. Upon completion, students should be able to select and evaluate developmentally appropriate learning materials and activities.</td>
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<tr>
<td>EDU 151A</td>
<td>Creative Activities Lab</td>
<td>0 2 1</td>
<td>EDU 151</td>
<td>None</td>
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<tr>
<td></td>
<td>This course provides a laboratory component to complement EDU 151. Emphasis is placed on practical experiences that enhance concepts introduced in the classroom. Upon completion, students should be able to demonstrate a practical understanding of the development and implementation of appropriate creative activities.</td>
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<tr>
<td>EDU 153</td>
<td>Health, Safety and Nutrition</td>
<td>3 0 3</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course focuses on promoting and maintaining the health and well-being of children. Topics include health and nutritional needs, safe and healthy environments, and recognition and reporting of child abuse and neglect. Upon completion, students should be able to set up and monitor safe indoor and outdoor environments and implement a nutrition education program.</td>
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<tr>
<td>EDU 188</td>
<td>Issues in Early Child Education</td>
<td>2 0 2</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course covers topics and issues in early childhood education. Emphasis is placed on current advocacy issues, emerging technology, professional growth experiences, and other related topics. Upon completion, students should be able to list, discuss, and explain current topics and issues in early childhood education.</td>
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<tr>
<td>EDU 197</td>
<td>Seminar in Early Childhood Education</td>
<td>2 0 2</td>
<td>Enrollment in the program or permission</td>
<td>COE 111N</td>
</tr>
<tr>
<td></td>
<td>This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.</td>
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<tr>
<td>EDU 221</td>
<td>Children with Special Needs</td>
<td>3 0 3</td>
<td>EDU 144 and EDU 145 or PSY 244 and PSY 245</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>This course introduces working with children with special needs. Emphasis is placed on the characteristics and assessment of children and strategies for adapting the home and classroom environment. Upon completion, students should be able to recognize atypical development, make appropriate referrals, and work collaboratively to plan, implement, and evaluate inclusion strategies.</td>
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<tr>
<td>EDU 234</td>
<td>Infants, Toddlers and Twos</td>
<td>3 0 3</td>
<td>None</td>
<td>None</td>
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<tr>
<td></td>
<td>This course covers the skills needed to effectively implement group care for infants, toddlers, and two-year olds. Emphasis is placed on child development and developmentally appropriate practices. Upon completion, students should be able to identify, plan, select materials and equipment, and implement and evaluate a developmentally appropriate curriculum.</td>
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<tr>
<td>EDU 235</td>
<td>School-Age Dev &amp; Program</td>
<td>2 0 2</td>
<td>None</td>
<td>None</td>
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<tr>
<td></td>
<td>This course presents developmentally appropriate practices in group care for school-age children. Topics include principles of development, environmental planning, and positive guidance techniques. Upon completion, students should be able to discuss developmental principles for children five to twelve years of age and plan and implement age-appropriate activities.</td>
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<tr>
<td>EDU 241</td>
<td>Adult-Child Relations</td>
<td>2 0 2</td>
<td>None</td>
<td>None</td>
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<td></td>
<td>This course covers self-concept and effective and active listening skills in positive one-to-one interactions with individuals and groups of children. Emphasis is placed on self-concept development and effective communication techniques used with children. Upon completion, students should be able to identify principles underlying self-concept and demonstrate effective listening and communication skills used by adults with children.</td>
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<tr>
<td>EDU 251</td>
<td>Exploration Activities</td>
<td>3 0 3</td>
<td>EDU 251A</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>This course covers discovery experiences in science, math, and social studies. Emphasis is placed on developing concepts for each area and encouraging young children to explore, discover, and construct concepts. Upon completion, students should be able to discuss the discovery approach to teaching, explain major concepts in each area, and plan appropriate experiences for children.</td>
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</table>
EDU 251A Exploration Act Lab 0 2 1
Prerequisites: 
Corequisites: EDU 251
This course provides a laboratory component to complement EDU 251. Emphasis is placed on practical experiences that enhance concepts introduced in the classroom. Upon completion, students should be able to demonstrate a practical understanding of the development and implementation of appropriate science, math, and social studies activities for children.

EDU 254 Music & Move for Children 1 2 2
Prerequisites: 
Corequisites: None
This course covers the use of music and creative movement for children. Topics include a general survey of the basic elements of music and planning, designing, and implementing music and movement experiences for creative learning. Upon completion, students should be able to use voice and various musical instruments to provide musical and movement activities for children.

EDU 259 Curriculum Planning 3 0 3
Prerequisites: EDU 112, EDU 113, or EDU 119
Corequisites: None
This course covers early childhood curriculum planning. Topics include philosophy, curriculum, indoor and outdoor environmental design, scheduling, observation and assessment, and instructional planning and evaluation. Upon completion, students should be able to assess children and curriculum; plan for daily, weekly, and long-range instruction; and design environments with appropriate equipment and supplies.

EDU 261 Early Childhood Administration I 2 0 2
Prerequisites: 
Corequisites: None
This course covers the policies, procedures, and responsibilities for the management of early childhood education programs. Topics include implementation of goals, principles of supervision, budgeting and financial management, and meeting the standards for a NC Child Day Care license. Upon completion, students should be able to develop program goals, explain licensing standards, determine budgeting needs, and describe effective methods of personnel supervision.

EDU 262 Early Childhood Administration II 3 0 3
Prerequisites: EDU 261
Corequisites: None
This course provides a foundation for budgetary, financial, and personnel management of the child care center. Topics include budgeting, financial management, marketing, hiring, supervision, and professional development of a child care center. Upon completion, students should be able to formulate marketing, financial management, and fund development plans and develop personnel policies, including supervision and staff development plans.

EDU 263 Dev School-Age Program 2 0 2
Prerequisites: 
Corequisites: None
This course introduces the methods and procedures for operating a school-age program in either the public or proprietary setting. Emphasis is placed on construction and organizing the physical environment as well as planning and developing a school-age program. Upon completion, students should be able to plan and develop a quality school-age program.

EDU 280 Literacy Experiences 3 0 3
Prerequisites: 
Corequisites: EDU280A
This course covers literacy, early literacy development, and appropriate early experiences with books and writing. Emphasis is placed on reading and writing readiness, major approaches used in teaching literacy, and strategies for sharing quality in children’s literature. Upon completion, students should be able to select, plan, and evaluate appropriate early literacy experiences.

EDU 280A Literacy Experiences Lab 0 2 1
Prerequisites: 
Corequisites: EDU 280
This course provides a laboratory component to complement EDU 280. Emphasis is placed on practical experiences that enhance concepts introduced in the classroom. Upon completion, students should be able to demonstrate a practical understanding of the development and implementation of appropriate early literacy experiences.

EDU 288 Advanced Issues in Early Child Education 2 0 2
Prerequisites: 
Corequisites: None
This course covers advanced topics and issues in early childhood. Emphasis is placed on current advocacy issues, emerging technology, professional growth experiences, and other related topics. Upon completion, students should be able to list, discuss, and explain advanced current topics and issues in early childhood education.

EDU 297 Seminar in Early Childhood Education 2 0 2
Prerequisites: Enrollment in the program or permission
Corequisites: COE121N
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

ELC - Electricity
See also ELN Electronics and CET Computer Engineering Technology for additional courses.

ELC 110 Telecom Circuits/Devices 3 3 4
Prerequisites: 
Corequisites: None
This course introduces the basic AC/DC components, semiconductor-based devices, and other related components as applied to telecom circuits. Emphasis is placed on analysis, applications, and testing of these circuits. Upon completion, students will be able to construct, verify, analyze, and troubleshoot these circuits.

ELC 111 Introduction to Electricity 2 2 3
Prerequisites: 
Corequisites: None
This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronic majors. Topics include basic DC and AC principles (voltage, resistance, current, impedance); components (resistors, inductors, and capacitors); power; and operation of test equipment. Upon completion,
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours</th>
<th>Lab</th>
<th>Theory</th>
<th>Clinical</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>ELC 112</strong></td>
<td>DC/AC Electricity</td>
<td>3</td>
<td>6</td>
<td>5</td>
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<td>Prerequisites:</td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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<tr>
<td>This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment, and other related topics. Upon completion, students should be able to construct, verify, and analyze simple DC/AC circuits.</td>
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</tbody>
</table>

| **ELC 113** | Basic Wiring I                             | 2       | 6     | 4   |        |          |       |
| Prerequisites: | ELC 113                                    |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course introduces the care/usage of tools and materials used in electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical blueprint reading; planning, layout, and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations. |

| **ELC 114** | Basic Wiring II                            | 2       | 6     | 4   |        |          |       |
| Prerequisites: | ELC 113                                    |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course provides additional instruction in the application of electrical tools, materials, and test equipment associated with electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion, students should be able to properly install equipment and conduit associated with electrical installations. |

| **ELC 115** | Industrial Wiring                          | 2       | 6     | 4   |        |          |       |
| Prerequisites: | ELC 113                                    |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course covers layout, planning, and installation of wiring systems in industrial facilities. Emphasis is placed on industrial wiring methods and materials. Upon completion, students should be able to install industrial systems and equipment. |

| **ELC 117** | Motors and Controls                        | 2       | 6     | 4   |        |          |       |
| Prerequisites: | ELC 112 or ELC 131                         |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits. |

| **ELC 118** | National Electrical Code                   | 1       | 2     | 2   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course covers the use of the current National Electrical Code. Topics include the NEC history, wiring methods, overcurrent protection, materials, and other related topics. Upon completion, students should be able to effectively use the NEC. |

| **ELC 119** | NEC Calculations                           | 1       | 2     | 2   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course covers branch circuit, feeder, and service calculations. Emphasis is placed on sections of the National Electrical Code related to calculations. Upon completion, students should be able to use appropriate code sections to size wire, conduit, and overcurrent devices for branch circuits, feeders, and service. |

| **ELC 121** | Electrical Estimating                      | 1       | 2     | 2   |        |          |       |
| Prerequisites: | ELC 113                                    |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course covers the principles involved in estimating electrical projects. Topics include take-offs of materials and equipment, labor, overhead, and profit. Upon completion, students should be able to estimate simple electrical projects. |

| **ELC 125** | Diagrams and Schematics                    | 1       | 2     | 2   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course covers the interpretation of electrical diagrams, schematics, and drawings common to electrical applications. Emphasis is placed on reading and interpreting electrical diagrams and schematics. Upon completion, students should be able to read and interpret electrical diagrams and schematics. |

| **ELC 126** | Electrical Computations                    | 2       | 2     | 3   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course introduces the fundamental applications of mathematics which are used by an electrical/electronics technician. Topics include whole numbers, fractions, decimals, powers, roots, simple electrical formulas, and usage of a scientific calculator. Upon completion, students should be able to solve simple electrical mathematical problems. |

| **ELC 127** | Software for Technicians                   | 1       | 2     | 2   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course introduces computer software which can be used to solve electrical/electronics problems. Topics include electrical/electronics calculations, applications, and controls. Upon completion, students should be able to utilize a personal computer for electrical/electronics-related applications. |

| **ELC 128** | Introduction to Programmable Logic Controller (PLC) | 2       | 3     | 3   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to install PLCs and create simple programs. |

| **ELC 131** | DC/AC Circuit Analysis                     | 4       | 3     | 5   |        |          |       |
| Prerequisites: | Placement Testing                          |         |       |     |        |          |       |
| Corequisites: | MAT 121 or MAT 171                         |         |       |     |        |          |       |
| This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation software, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, verify, and analyze DC/AC circuits; and properly use test equipment. |

| **ELC 132** | Electrical Drawings                        | 1       | 3     | 2   |        |          |       |
| Prerequisites: |                                            |         |       |     |        |          |       |
| Corequisites: | None                                       |         |       |     |        |          |       |
| This course introduces the technical documentation that is typically found or used in the industrial environment. Topics include interpretation of service manuals, freehand sketching of
lines, orthographic views and dimensions, and blueprint reading. Upon completion, students should be able to interpret technical documents and blueprints and use basic drafting skills to prepare usable field drawings.

**ELC 133 Advanced Circuit Analysis**  
Prerequisites: ELC 131  
Corequisites: None  
This course covers additional concepts of DC/AC electricity, the use of test equipment, and measurement techniques for electrical/electronics majors. Topics include the application of network theorems such as delta/wye transformations, Superposition Theorem, and other advanced circuit analysis principles. Upon completion, students should be able to construct and analyze DC/AC circuits used advanced circuit analysis theorems, circuit simulators, and test equipment.

**ELC 135 Electrical Machines I**  
Prerequisites: ELC 131  
Corequisites: None  
This course covers magnetic circuits, transformers, DC/AC generators, and a review of the three-phase circuit fundamentals including power factor. Topics include magnetic terms and calculations, transformer calculations based on primary or secondary equivalent circuits, and generator regulation and efficiency calculations. Upon completion, students should be able to perform regulation and efficiency calculations for DC/AC single- and three-phase transformer and generator circuits. Emphasis will be placed upon the experimental measurement of machine operational data and its use in performance evaluation.

**ELC 136 Electrical Machines II**  
Prerequisites: ELC 135  
Corequisites: None  
This course covers DC/AC motor fundamentals including applications and control. Topics include control devices, synchronous and induction single and polyphase AC motors, DC motors, stepper, and special purpose motors. Upon completion, students should be able to perform regulation and efficiency calculations and apply motor theory to practical control applications. Laboratory experiments will be used to relate calculated machine data to actual performance.

**ELC 213 Instrumentation**  
Prerequisites: ELC 131  
Corequisites: ELN 132  
This course covers the fundamentals of instrumentation used in industry. Emphasis is placed on electric, electronic, and pneumatic instruments. Upon completion, students should be able to design, install, maintain, and calibrate instrumentation.

**ELC 215 Electrical Maintenance**  
Prerequisites: ELC 117  
Corequisites: None  
This course introduces the theory of maintenance and the skills necessary to maintain electrical equipment found in industrial and commercial facilities. Topics include maintenance theory, predictive and preventive maintenance, electrical equipment operation and maintenance, and maintenance documentation. Upon completion, students should be able to perform maintenance on electrical equipment in industrial and commercial facilities.

**ELC 228 Programmable Logic Controllers (PLC) Applications**  
Prerequisites: ELC 128  
Corequisites: None  
This course continues the study of the programming and applications of programmable logic controllers. Emphasis is placed on advanced programming, networking, advanced I/O modules, reading and interpreting error codes, and troubleshooting. Upon completion, students should be able to program and troubleshoot programmable logic controllers.

**ELC 229 Applications Project**  
Prerequisites: ELC 112, ELC 113, or ELC 140  
Corequisites: None  
This course provides an individual and/or integrated team approach to a practical project as approved by the instructor. Topics include project selection and planning, implementation and testing, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented project.

**ELC 231 Electric Power Systems**  
Prerequisites: ELC 135  
Corequisites: None  
This course covers the basic principles of electric power systems, including transmission lines, generator and transformer characteristics, and fault detection and correction. Emphasis is placed on line diagrams and per unit calculations for circuit performance analysis in regards to voltage regulation, power factor, and protection devices. Upon completion, students should be able to analyze simple distribution subsystems, calculate fault current, and determine the size and type of circuit protection devices. Students will also investigate electronic power control applications in a practical laboratory environment.

**ELC 234E Electrical System Design**  
Prerequisites: ELC 131  
Corequisites: None  
This course introduces the principles of electrical design for commercial and industrial facilities. Topics include services, high and low power distribution, switchboards, panel boards, motor control centers, switch gear, overcurrent protection, and grounding. Upon completion, students should be able to design services, feeders, and branch circuits for typical commercial/industrial applications in accordance with the National Electrical Code.

**ELN - Electronics**

*See also ELC Electricity and CET Computer Engineering Technology for additional courses.*

**ELN 131 Electronic Devices**  
Prerequisites: ELC 112, ELC 131, or ELC 140  
Corequisites: None  
This course includes semiconductor-based devices such as diodes, bipolar transistors, FETs, thyristors, and related components. Emphasis is placed on analysis, selection, biasing, and applications in power supplies, small signal amplifiers, and switching and control circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot discrete component circuits using appropriate techniques and test equipment.
### ELN 131E  Electronic Devices  
**Prerequisites:** ELC 131  
**Corequisites:** None  
This course includes semiconductor-based devices such as diodes, bipolar transistors, FETs, thyristors, and related components. Emphasis is placed on analysis, selection, biasing, and applications in power supplies, small signal amplifiers, and switching and control circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot discrete component circuits using appropriate techniques and test equipment. ELN 131E is more indepth than ELN 131 and is meant for Computer/Electrical/Electronics Engineering Technology students.

### ELN 132  Linear Integrated Circuits Applications  
**Prerequisites:** ELN 131E  
**Corequisites:** None  
This course introduces the characteristics and applications of linear integrated circuits. Topics include op-amp circuits, differential amplifiers, instrumentation amplifiers, waveform generators, active filters, PLLs, and IC voltage regulators. Upon completion, students should be able to construct, analyze, verify, and troubleshoot linear integrated circuits using appropriate techniques and test equipment.

### ELN 133  Digital Electronics  
**Prerequisites:** ELC 111, ELC 112  
**Corequisites:** None  
This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, MSI and LSI circuits, AC/DC conversion, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment.

### ELN 133E  Digital Electronics  
**Prerequisites:** ELC 131  
**Corequisites:** None  
This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, MSI and LSI circuits, AC/DC conversion, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment. ELN 133E is more in depth than ELN 133 and is meant for Computer/Electrical/Electronics Engineering Technology students.

### ELN 150  CAD for Electronics  
**Prerequisites:** CIS 110 or CIS 111  
**Corequisites:** ELN 131E  
This course introduces computer-aided drafting (CAD) with an emphasis on applications in the electronics field. Topics include electronics industry standards (symbols, schematic diagrams, layouts); drawing electronic circuit diagrams; and specialized electronic drafting practices and components such as resistors, capacitors, and ICs. Upon completion, students should be able to prepare electronic drawings with CAD software.

### ELN 193  Selected Topics in Electronics Engineering Technology  
**Prerequisites:** Enrollment in the program  
**Corequisites:** None  
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

### ELN 229  Industrial Electronics  
**Prerequisites:** ELC 112, ELC 131, or ELC 140  
**Corequisites:** None  
This course covers semiconductor devices used in industrial applications. Topics include the basic theory, application, and operating characteristics of semiconductor devices (filters, rectifiers, FET, SCR, Diac, Triac, Op-amps, etc). Upon completion, students should be able to install and/or troubleshoot these devices for proper operation in an industrial electronic circuit.

### ELN 232  Introduction to Microprocessors  
**Prerequisites:** ELN 133E  
**Corequisites:** None  
This course introduces microprocessor architecture and microcomputer systems including memory and input/output interfacing. Topics include assembly language programming, bus architecture, bus cycle types, I/O systems, memory systems, interrupts, and other related topics. Upon completion, students should be able to interpret, analyze, verify, and troubleshoot fundamental microprocessor circuits and programs using appropriate techniques and test equipment.

### ELN 233  Microprocessor Systems  
**Prerequisites:** ELN 232  
**Corequisites:** None  
This course covers the application and design of microprocessor control systems. Topics include control and interfacing of systems using AD/DA, serial/parallel I/O, communication protocols, and other related applications. Upon completion, students should be able to design, construct, program, verify, analyze, and troubleshoot fundamental microprocessor interface and control circuits using related equipment.

### ELN 234  Communication Systems  
**Prerequisites:** ELN 132 or ELN 140  
**Corequisites:** None  
This course introduces the fundamentals of electronic communication systems. Topics include the frequency spectrum, electrical noise, modulation techniques, characteristics of transmitters and receivers, and digital communications. Upon completion, students should be able to interpret analog and digital communication circuit diagrams, analyze transmitter and receiver circuits, and use appropriate communication test equipment.

### ELN 236  Fiber Optics and Lasers  
**Prerequisites:** ELN 234  
**Corequisites:** None  
This course introduces the fundamentals of fiber optics and lasers. Topics include the transmission of light; characteristics of fiber optic and lasers and their systems; fiber optic production; types of lasers; and laser safety. Upon completion, students should be able to understand fiber optic communications and basic laser fundamentals.

### ELN 247  Electronic Application Project  
**Prerequisites:** ELN 131E  
**Corequisites:** None  
This course provides a structured approach to an application-oriented electronics project. Emphasis is placed on selecting, planning, implementing, testing, and presenting an application-oriented project. Upon completion, students should be able to present and demonstrate an electronics application-oriented project. Project analysis, measurement, and performance evaluation will serve as the basis for a project final report.
ELN 260  Program Logic Controllers  
Prerequisites: ELN 133 or ELN 133E  
Corequisites: None  
This course provides a detailed study of PLC applications, with a focus on design of industrial control circuits using the PLC. Topics include PLC components, memory organization, math instructions, programming documentation, input/output devices, and applying PLCs in the design of industrial control systems. Upon completion, students should be able to design and program a PLC system to perform a wide variety of industrial control functions.

ELN 275  Troubleshooting  
Prerequisites:  
Corequisites: ELN 133E and ELN 132  
This course covers techniques of analyzing and repairing failures in electronic equipment. Topics include safety, signal tracing, use of service manuals, and specific troubleshooting methods for analog, digital, and other electronics-based circuits and systems. Upon completion, students should be able to logically diagnose and isolate faults and perform necessary repairs to meet manufacturers’ specifications. Students will utilize the relationship of system hardware failures to component failures to establish diagnose-and-repair processes.

EGR - Engineering  
See also CIV Civil Engineering Technology, and SRV Surveying Technology for other Technology courses.

ENG - English  

ENG 101  Applied Communications I  
Prerequisites: None  
Corequisites: None  
This course is designed to enhance reading and writing skills for the workplace. Emphasis is placed on technical reading, job-related vocabulary, sentence writing, punctuation, and spelling. Upon completion, students should be able to identify main ideas with supporting details and produce mechanically correct short writings appropriate to the workplace. This is a diploma-level course.

ENG 111  Expository Writing  
Prerequisites: As required by placement test score(s), ENG 090 with a grade of C or higher and/or RED 090 with a grade of C or higher or appropriate placement test score(s) or consent of division director.  
Corequisites: None  
This course is the required first course in a series of two designed to develop the ability to produce clear expository prose. Emphasis is placed on the writing process including audience analysis, topic selection, thesis support and development, editing, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.

ENG 112  Argument-Based Research  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.  
Corequisites: None  
This course, the second in a series of two, introduces research techniques, documentation styles, and argumentative strategies. Emphasis is placed on analyzing data and incorporating research findings into documented argumentative essays and research projects. Upon completion, students should be able to summarize, paraphrase, interpret, and synthesize information from primary and secondary sources using standard research format and style. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.

ENG 113  Literature-Based Research  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.  
Corequisites: None  
This course, the second in a series of two, expands the concepts developed in ENG 111 by focusing on writing that involves literature-based research and documentation. Emphasis is placed on critical reading and thinking and the analysis and interpretation of prose, poetry, and drama: plot, characterization, theme, cultural context, etc. Upon completion, students should be able to construct mechanically-sound, documented essays and research papers that analyze and respond to literary works. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.

ENG 114  Professional Research and Reporting  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.  
Corequisites: None  
This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 125</td>
<td>Creative Writing I</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.</td>
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<td>This course is designed to provide students with the opportunity to practice the art of creative writing. Emphasis is placed on writing fiction, poetry, and sketches. Upon completion, students should be able to craft and critique their own writing and critique the writing of others. The primary focus of this course is poetry and fiction although some time will be devoted to non-fiction. Note: This course is a Writing Intensive Elective for UNCC.</td>
</tr>
<tr>
<td>ENG 126</td>
<td>Creative Writing II</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 125 or consent of division director.</td>
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<td>This course is designed as a workshop approach for advancing imaginative and literary skills. Emphasis is placed on the discussion of style, techniques, and challenges for first publications. Upon completion, students should be able to submit a piece of their writing for publication. The main focus of this course will be on poetry and fiction; however, some attention will be devoted to creative non-fiction. Note: This course is a Writing Intensive Elective for UNCC.</td>
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<tr>
<td>ENG 133</td>
<td>Introduction to the Novel</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.</td>
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<td>Corequisites: ENG 112, ENG 113 or ENG 114</td>
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<td>This course provides intensive study of the novel as a literary form, based on close reading of representative texts. Emphasis is placed on the development and analysis of the novel. Upon completion, students should be able to interpret, analyze, and discuss the distinguishing features of the novel.</td>
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<tr>
<td>ENG 231</td>
<td>American Literature I</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 112, ENG 113, or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course covers selected works in American literature from its beginnings to 1865. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical, and cultural contexts. Students will be introduced to traditional and nontraditional writers, significant literary trends and movements, literary terminology, and a variety of critical approaches. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
</tr>
<tr>
<td>ENG 232</td>
<td>American Literature II</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 112, ENG 113, or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course covers selected works in American literature from 1865 to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. Students will be introduced to traditional and nontraditional writers, significant literary trends and movements, literary terminology and a variety of critical approaches. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
</tr>
<tr>
<td>ENG 241</td>
<td>British Literature I</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 112, ENG 113, or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course covers selected works in British literature from its beginnings to the Romantic Period. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
</tr>
<tr>
<td>ENG 242</td>
<td>British Literature II</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 112, ENG 113, or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course covers selected works in British literature from the Romantic Period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
</tr>
<tr>
<td>ENG 251</td>
<td>Western World Literature I</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 112, ENG 113, or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course provides a survey of selected European works from the Classical period through the Renaissance. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
</tr>
<tr>
<td>ENG 252</td>
<td>Western World Literature II</td>
<td>3 0 3</td>
<td>Prerequisites: ENG 112, ENG 113 or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course provides a survey of selected European works from the Neoclassical period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<tr>
<td>ENG 253</td>
<td>The Bible as Literature</td>
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<td>Prerequisites: ENG 112, ENG 113, or ENG 114 or consent of division director.</td>
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<td>Corequisites: None</td>
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<td>This course introduces the Hebrew Old Testament and the Christian New Testament as works of literary art. Emphasis is placed on the bible’s literary aspects including history, composition, structure, and cultural contexts. Upon completion, students should be able to identify and analyze selected books and passages using appropriate literary conventions.</td>
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### EHS - Environment Health and Safety

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<tbody>
<tr>
<td>EHS 111</td>
<td>Occupational Safety / Engineering</td>
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<td>engineer in business, industrial, and</td>
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<td>institutional settings. Topics</td>
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<td>include Workers Compensation, record</td>
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<td>keeping and training, and correct</td>
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<td>handling procedures for hazardous</td>
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<td>materials. Upon completion, students</td>
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<td>should be able to perform preliminary</td>
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<td>hazards analysis, fault tree analysis,</td>
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<td>and other safety monitoring and</td>
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<td>compliance practices.</td>
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<td>understanding of the history and</td>
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<td>development of the industrial hygiene</td>
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<td>movement, with emphasis on</td>
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<td>recognizing specific health hazards.</td>
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<td>Topics include an introduction</td>
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<td>to harmful agents, routes of entry,</td>
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<td>skin diseases, types of airborne</td>
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<td>contaminants, and a review of</td>
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<td>federal agencies. Upon completion,</td>
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<td>students should be able to identify</td>
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<td>the role and function of the</td>
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<td>industrial hygienist relative to</td>
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<td>the industrial environment.</td>
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<td>on controlling electrical hazards in</td>
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<td>the workplace, understanding ground</td>
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<td>paths, recognizing electrical hazards,</td>
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<td>and interpreting electrical standards.</td>
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<td>of OSHA electrical safety regulations</td>
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<td>within general industry.</td>
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<td>This course covers OSHA regulations</td>
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<td>should be able to identify incidents</td>
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<td>of non-compliance and recommend</td>
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<td>compliance strategies.</td>
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<td>environmental processes in</td>
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<td>on environmental chemistry, air</td>
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<td>toxicology, waste disposal techniques,</td>
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<td>and air emission technology. Upon</td>
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<td>completion, students should be able to</td>
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<td>provide leadership in the environ-</td>
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<td>mental management area and</td>
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<td>demonstrate knowledge of applicable</td>
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<td>environmental management techniques.</td>
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<td>This course introduces general</td>
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<td>industry environmental regulations.</td>
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<td>regulations are identified and</td>
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<td>Industrial Hygiene Sampling</td>
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<td>and sampling. Topics include the</td>
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<td>calibration and operation of sampling</td>
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<td>equipment and instruments. Upon</td>
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<td>perform basic industrial hygiene</td>
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<td>sampling procedures and interpret the</td>
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<td>EHS 213</td>
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<td>state laws concerning environmental</td>
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**EHS 218 Industrial Ergonomics**

- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:** None

This course covers ergonomic issues, including cumulative trauma disorders and carpal tunnel syndrome. Emphasis is placed on biomechanics, hand-wrist injuries, repetitive-motion disorders, and appropriate record keeping requirements. Upon completion, students should be able to provide ergonomic assistance throughout the facility, conduct ergonomic audits, and recognize ergonomic problems in the work place.

**FIP - Fire Protection Technology**

**FIP 120 Introduction to Fire Protection**

- **Lecture:** 2
- **Lab:** 0
- **Credit:** 2

**Prerequisites:** None

This course provides an overview of the history, development, methods, systems, and regulations as they apply to the fire protection field. Topics include history, evolution, statistics, suppression, organizations, careers, curriculum, and other related topics. Upon completion, students should be able to demonstrate a broad understanding of the fire protection field.

**FIP 124 Fire Prevention and Public Education**

- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:** None

This course introduces fire prevention concepts as they relate to community and industrial operations. Topics include the development and maintenance of fire prevention programs, educational programs, and inspection programs. Upon completion, students should be able to research, develop, and present a fire safety program to a citizens or industrial group.

**FIP 128 Arson Investigation**

- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:** None

This course covers procedures for determining the origin and cause of accidental and incendiary fires. Topics include collection and preservation of evidence, detection and determination of accelerants, courtroom procedure and testimony, and documentation of the fire scene. Upon completion, students should be able to conduct a competent fire investigation and present those findings to appropriate officials or equivalent.

**FIP 132 Building Construction**

- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:** None

This course covers the principles and practices related to various types of building construction, including residential and commercial, as impacted by fire conditions. Topics include types of construction and related elements, fire resistive aspects of construction materials, building codes, collapse, and other related topics. Upon completion, students should be able to understand and recognize various types of construction and their positive or negative aspects as related to fire conditions.

**FIP 136 Inspections and Codes**

- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:** None

This course covers the fundamentals of fire and building codes and procedures to conduct an inspection. Topics include review of fire and building codes, writing inspection reports, identifying hazards, plan reviews, site sketches, and other related topics. Upon completion, students should be able to conduct a fire code compliance inspection and produce a written report.

**FIP 140 Industrial Fire Protection**

- **Lecture:** 2
- **Lab:** 0
- **Credit:** 2

**Prerequisites:** None

This course covers fire protection systems in industrial facilities. Topics include applicable health and safety standards, insurance carrier regulations, other regulatory agencies, hazards of local industries, fire brigade operation, and loss prevention programs. Upon completion, students should be able to prepare a procedure to plan, organize, and evaluate an industrial facility's fire protection.

**FIP 144 Sprinklers and Auto Alarms**

- **Lecture:** 3
- **Lab:** 2
- **Credit:** 4

**Prerequisites:** None

This course introduces various types of automatic sprinklers, standpipes, and fire alarm systems. Topics include wet or dry systems, testing and maintenance, water supply requirements, fire detection and alarm systems, and other related topics. Upon completion, students should be able to demonstrate a working knowledge of various sprinkler and alarm systems and required inspection and maintenance.

**FIP 148 Fixed and Portable Extinguishing Systems**

- **Lecture:** 2
- **Lab:** 2
- **Credit:** 3

**Prerequisites:** None

This course provides a study of various types of fixed and portable extinguishing systems, their operation, installation, and maintenance. Topics include applications, testing, and maintenance of Halon, carbon dioxide, dry chemical, and special extinguishing agents in fixed and portable systems. Upon completion, students should be able to identify various types of fixed and portable systems, including their proper application and maintenance.

**FIP 152 Fire Protection Law**

- **Lecture:** 2
- **Lab:** 0
- **Credit:** 2

**Prerequisites:** None

This course covers fire protection law. Topics include torts, legal terms, contracts, liability, review of case histories, and other related topics. Upon completion, students should be able to discuss laws, codes, and ordinances as they relate to fire protection.

**FIP 220 Fire Fighting Strategies**

- **Lecture:** 3
- **Lab:** 0
- **Credit:** 3

**Prerequisites:** None

This course provides preparation for command of initial incident operations involving emergencies within both the public and private sector. Topics include incident management, fire-ground tactics and strategies, incident safety, and command/control of emergency operations. Upon completion, students should be able to describe the initial incident system as it relates to operations involving various emergencies in fire and non-fire situations.
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<td>Advanced Fire Fighting Strategies</td>
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<td></td>
<td>This course covers command-level operations for multi-company/agency operations involving fire and non-fire emergencies. Topics include advanced ICS, advanced incident analysis, command-level fire operations, and control of both man made and natural major disasters. Upon completion, students should be able to describe proper and accepted systems for the mitigation of emergencies at the level of overall scene command.</td>
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<tr>
<td>FIP 224</td>
<td>Instructional Methodology</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: None</td>
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<td></td>
<td>Corequisites: None</td>
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<td>This course covers the knowledge, skills, and abilities needed to train others in fire service operations. Topics include planning, presenting, and evaluating lesson plans, learning styles, use of media, communication, and other related topics. Upon completion, students should be able to meet all requirements of NFPA 1041 Fire Service Instructor Level Two.</td>
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<tr>
<td>FIP 230</td>
<td>Chemistry of Hazardous Materials I</td>
<td>5</td>
<td>0</td>
<td>5</td>
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<tr>
<td></td>
<td>Prerequisites: None</td>
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<td></td>
<td>Corequisites: None</td>
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<td>This course covers the evaluation of hazardous materials. Topics include use of the periodic table, hydrocarbon derivatives, placards and labels, parameters of combustion, and spill and leak mitigation. Upon completion, students should be able to demonstrate knowledge of the chemical behavior of hazardous materials.</td>
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<tr>
<td>FIP 231</td>
<td>Chemistry of Hazardous Materials II</td>
<td>4</td>
<td>2</td>
<td>5</td>
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<tr>
<td></td>
<td>Prerequisites: FIP 230</td>
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<td></td>
<td>Corequisites: None</td>
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<td>This course covers hazardous materials characterization, properties, location, handling and response guidelines, hazard survey principles, and other related topics. Topics include radiation hazards, instruments, inspections, and detection of the presence of hazardous materials in industrial/commercial occupancies. Upon completion, students should be able to inspect chemical/radioactive sites and use on-site visits to gasoline and/or LPG storage facilities/chemical plants to develop a pre-plan.</td>
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<tr>
<td>FIP 232</td>
<td>Hydraulics and Water Distribution</td>
<td>3</td>
<td>2</td>
<td>4</td>
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<td></td>
<td>Prerequisites: MAT 115</td>
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<td></td>
<td>Corequisites: None</td>
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<td>This course covers the flow of fluids through fire hoses, nozzles, appliances, pumps, standpipes, water mains, and other devices. Emphasis is placed on supply and delivery systems, fire flow testing, hydraulic calculations, and other related topics. Upon completion, students should be able to perform hydraulic calculations, conduct water availability tests, and demonstrate knowledge of water distribution systems.</td>
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<tr>
<td>FIP 264</td>
<td>Flame Propagation and Materials Rating</td>
<td>1</td>
<td>4</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: None</td>
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<td></td>
<td>Corequisites: None</td>
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<td>This course covers the role of interior finishes in fires, smoke obscuration and density, flame spread, pyrolysis, and other related topics. Emphasis is placed on testing equipment which includes Rack Impingement, Bench Furnace, and the two-foot tunnel. Upon completion, students should be able to understand the operation of the testing equipment and compile a reference notebook.</td>
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### FLO - Floriculture

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Level</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLO 189</td>
<td>Basic Floral Design</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td></td>
<td>Prerequisites: None</td>
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<td></td>
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<tr>
<td></td>
<td>Corequisites: None</td>
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<td>This course provides general knowledge of floral design on a non-commercial level. Topics include simple corsage work, vase arrangements, and holiday novelty items. Upon completion, students should be able to tie a bow and construct simple corsages, bud vases, and holiday items.</td>
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### FRE - French

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Level</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRE 111</td>
<td>Elementary French I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: None</td>
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<tr>
<td></td>
<td>Corequisites: FRE 181</td>
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<td>This course introduces the fundamental elements of the French language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French and demonstrate cultural awareness. When registering for this class, students also need to register for FRE 181, French Lab 1. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<tr>
<td>FRE 112</td>
<td>Elementary French II</td>
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<td>3</td>
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<td>Prerequisites: FRE 111 or consent of division director.</td>
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<td>Corequisites: FRE 182</td>
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<td></td>
<td>This course is a continuation of FRE 111 focusing on the fundamental elements of the French language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written French and demonstrate further cultural awareness. When registering for this class, students will also need to register for FRE 182, French Lab 2. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<tr>
<td>FRE 120</td>
<td>French for the Workplace</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: None</td>
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<tr>
<td></td>
<td>Corequisites: None</td>
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<td>This course offers applied French for the workplace to facilitate basic communication with people whose native language is French. Emphasis is placed on oral communication and career-specific vocabulary that targets business and industry. Upon completion, students should be able to communicate at a functional level.</td>
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</table>
level with native speakers and demonstrate cultural sensitivity.

**FRE 161 Cultural Immersion**  
Prerequisites: FRE 111  
Corequisites: None  
This course explores Francophone culture through intensive study on campus and field experience in a host country or area. Topics include an overview of linguistic, historical, geographical, sociopolitical, economic, and/or artistic concerns of the area visited. Upon completion, students should be able to exhibit first-hand knowledge of issues pertinent to the host area and demonstrate an understanding of cultural differences. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

**FRE 181 French Lab 1**  
Prerequisites: None  
Corequisites: FRE 111  
This course provides an opportunity to enhance acquisition of the fundamental elements of the French language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

**FRE 182 French Lab 2**  
Prerequisites: FRE 181 or consent of division director.  
Corequisites: FRE 112  
This course provides an opportunity to enhance acquisition of the fundamental elements of the French language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written French and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

**FRE 211 Intermediate French I**  
Prerequisites: FRE 112 or consent of division director.  
Corequisites: FRE 281  
This course provides a review and expansion of the essential skills of the French language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. When registering for this class, students will also need to register for FRE 281, French Lab 3. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

**FRE 212 Intermediate French II**  
Prerequisites: FRE 211 or consent of division director.  
Corequisites: None  
This course is a continuation of FRE 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. When registering for this class, students will also need to register for FRE 282, French Lab 4. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

**FRE 221 French Conversation**  
Prerequisites: FRE 212  
Corequisites: None  
This course provides an opportunity for intensive communications in spoken French. Emphasis is placed on vocabulary acquisition and interactive communication through the discussion of media materials and authentic texts. Upon completion, students should be able to discuss selected topics, express ideas and opinions clearly, and engage in formal and informal conversations. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

**FRE 281 French Lab 3**  
Prerequisites: FRE 182 or consent of division director.  
Corequisites: FRE 211  
This course provides an opportunity to enhance the review and expansion of the essential skills of the French language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

**FRE 282 French Lab 4**  
Prerequisites: FRE 281 or consent of division director.  
Corequisites: FRE 282  
This course provides an opportunity to enhance the review and expansion of the essential skills of the French language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

### GEO - Geography

**GEO 111 World Regional Geography**  
Prerequisites:  
Corequisites: None  
This course introduces the regional concept which emphasizes the spatial association of people and their environment. Emphasis is placed on the physical, cultural, and economic systems that interact to produce the distinct regions of the earth. Upon completion, students should be able to describe variations in physical and cultural features of a region and demonstrate an understanding of their functional relationships. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

**GEO 131 Physical Geography I**  
Prerequisites:  
Corequisites: None  
This course introduces the basic physical components that help shape the earth. Emphasis is placed on the geographic grid,
This course provides an opportunity to enhance acquisition of the fundamental elements of the German language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written German and demonstrate further cultural awareness. When registering for this class, students will also need to register for GER 182, German Lab 2. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

GER 181 German Lab 1
Prerequisites: None
Corequisites: GER 111
This course provides an opportunity to enhance acquisition of the fundamental elements of the German language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written German and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

GER 182 German Lab 2
Prerequisites: GER 181 or consent of division director.
Corequisites: GER 112
This course provides an opportunity to enhance acquisition of the fundamental elements of the German language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written German and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.
proficiency to spoken and written German and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

GER 211 Intermediate German I 3 0 3
Prerequisites: GER 112 or consent of division director.
Corequisites: GER 281
This course provides a review and expansion of the essential skills of the German language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. When registering for this class, students will also need to register for GER 281, German Lab 3. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

GER 212 Intermediate German II 3 0 3
Prerequisites: GER 211 or consent of division director.
Corequisites: GER 282
This course provides a continuation of GER 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. When registering for this class, students will also need to register for GER 282, German Lab 4. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

GER 221 German Conversation 3 0 3
Prerequisites: GER 212
Corequisites: None
This course provides an opportunity for intensive communication in spoken German. Emphasis is placed on vocabulary acquisition and interactive communication through the discussion of media materials and authentic texts. Upon completion, students should be able to discuss selected topics, express ideas and opinions clearly, and engage in formal and informal conversations. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

GER 281 German Lab 3 0 2 1
Prerequisites: GER 182 or consent of division director.
Corequisites: GER 211
This course provides an opportunity to enhance the review and expansion of the essential skills of the German language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

GER 282 German Lab 4 0 2 1
Prerequisites: GER 281 or consent of division director.
Corequisites: GER 212
This course provides an opportunity to enhance the review and expansion of the essential skills of the German language. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts through the use of supplementary learning media and materials. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

GER 293 Selected Topics in German 3 0 3
Prerequisites: None
Corequisites: None
This course provides an opportunity to explore areas of current interest in the German everyday language and culture. Emphasis is placed on subject matter appropriate to oral communication/cross-cultural communication and the visiting of sites in Germany which are culturally and historically relevant. Upon completion, students should be able to demonstrate an understanding of German in various everyday situations. Topics include greetings and introductions, currencies, public transportation, German history, museum excursions and cultural awareness. Students must already be ticketed for Germany trip.

Government
(See POL Political Science)

GRA - Graphic Arts

GRA 110 Graphic Arts Orientation 2 0 2
Prerequisites: None
Corequisites: None
This course covers the history, development, and commercial applications of the major printing processes. Topics include offset lithography, screen printing, intaglio, relief printing, and emerging technologies. Upon completion, students should be able to demonstrate an understanding of the major characteristics, advantages, and disadvantages of each process.

GRA 121 Graphic Arts I 2 4 4
Prerequisites: None
Corequisites: None
This course introduces terminology, tools and materials, procedures, and equipment used in graphic arts production. Topics include copy preparation and pre-press production relative to printing. Upon completion, students should be able to demonstrate an understanding of graphic arts production.

GRA 140 Graphic Arts Imaging 1 2 2
Prerequisites: None
Corequisites: None
This course covers the use of photographic and electronic imaging techniques in the printing industry. Topics include exposure control and manipulation for a variety of processes, photography procedures and emerging electronic imaging techniques. Upon completion, students should be able to create line, special effect, and halftone images by both conventional and computer imaging methods.

GRA 151 Computer Graphics I 1 3 2
Prerequisites: None
Corequisites: None
This course introduces the use of hardware and software for production and design in graphic arts. Topics include graphical user interface and current industry uses such as design, layout, typography, illustration, and imaging for production. Upon completion, students should be able to understand and use the computer as a fundamental design and production tool.
This course covers advanced design and layout concepts utilizing illustration, page layout, and imaging software in graphic arts. Emphasis is placed on enhancing and developing the skills that were introduced in GRA 151. Upon completion, students should be able to select and utilize appropriate software for design and layout solutions.

This course is a continuation of GRA 152. Emphasis is placed on advanced computer graphics hardware and software applications. Upon completion, students should be able to demonstrate competence in selection and utilization of appropriate software for specialized applications.

Prerequisites: GRA 153
Corequisites: None
This course is a continuation of GRA 153. Emphasis is placed on advanced techniques using a variety of hardware and software to acquire, manipulate, and output images to satisfy design and production.

This course covers advanced typographic applications. Upon completion, students should be able to understand and demonstrate proficiency in design application, analysis, specification, and creation of typographic elements. Emphasis will be placed on an understanding of the structure of typography as a communications element as well as an image-making advertising/graphic design element.

Corequisites: None
This course is a continuation of GRA 152. Emphasis is placed on solving challenging typographic problems. Upon completion, students should be able to understand and demonstrate advanced typographic applications. Emphasis is placed on a variety of solutions utilizing computer and related software for advanced typographic experimentation.

Prerequisites: GRA 151
Corequisites: None
This course covers advanced typographic fundamentals, anatomy, measurements, composition, identification, and terminology. Upon completion, students should be able to demonstrate proficiency in design application, analysis, specification, and creation of typographic elements. Emphasis will be placed on an understanding of the structure of typography as a communications element as well as an image-making advertising/graphic design element.

Prerequisites: GRA 152
Corequisites: None
This course covers the history of graphic design and visual communications. Topics include major trends, developments, influences, and directions. Upon completion, students should be able to understand, recognize, and analyze important historical and world-wide cultural influences found in today’s marketing of ideas and products. Emphasis will be placed on the relationship of past accomplishments to advertising and graphic design currently being produced.

This course introduces the application of rendering techniques to create illustrations. Emphasis is placed on controlling various media, methods, surfaces, design problems, and the appropriate media selection process. Upon completion, students should be able to produce quality illustrations from conception through finished artwork. Emphasis is on traditional media with option(s) for computer experimentation.

Prerequisites: ART 131 or DES 125 or GRD 121
Corequisites: None
This course introduces the concept of electronic color separation and its relationship to multi-color printing. Topics include color theory, separation, color matching, proofing, and output of process and spot color images. Upon completion, students should be able to use hardware and image processing software to produce color separations and proofs for various printing processes.

This course covers management and supervision in the printing industry. Topics include planning, organization, plant layout, scheduling, goal setting, business ethics, personnel policies, leadership and personal development, OSHA and environmental laws, and employment laws. Upon completion, students should be able to demonstrate an understanding of management and supervision techniques and policies used in a variety of printing departments and organizations.

This course introduces the conceptualization process used in visual problem solving. Emphasis is placed on learning the principles of design and on the manipulation and organization of elements. Upon completion, students should be able to apply design principles and visual elements to projects. GRD 141 is for Graphic Arts students and will be taught only Fall semester.
GRD 142 Graphic Design II  
Prerequisites: ART 121, ART 131, GRD 151, GRD 110 or DES 135  
Corequisites: None  
This course covers the application of visual elements and design principles in advertising and graphic design. Topics include creation of various designs, such as logos, advertisements, posters, outdoor advertising, and publication design. Upon completion, students should be able to effectively apply design principles and visual elements to projects. Emphasis will be placed on an understanding of objective, target group and the development of the creative idea.

GRD 151 Computer Design Basics  
Prerequisites: ART 121  
Corequisites: None  
This course covers designing and drawing with various types of software applications for advertising and graphic design. Emphasis is placed on creative and imaginative use of space, shapes, value, texture, color, and typography to provide effective solutions to advertising and graphic design problems. Upon completion, students should be able to use the computer as a creative tool. Emphasis will be on QuarkXPress with options to experiment in other software programs.

GRD 152 Computer Design Tech I  
Prerequisites: GRD 151  
Corequisites: None  
This course covers complex design problems utilizing various design and drawing software applications. Topics include the expressive use of typography, image, and organization to communicate a message. Upon completion, students should be able to use appropriate computer software to professionally present their work. Emphasis will be placed on Macromedia FreeHand as a drawing/illustration software program, as well as additional study of QuarkXPress.

GRD 160 Photo Fundamentals I  
Prerequisites: None  
Corequisites: None  
This course introduces basic camera operations, roll film processing, and photographic print production. Topics include contrast, depth-of-field, subject composition, enlarger operation, and density control. Upon completion, students should be able to produce photographic prints with acceptable density values and quality. Students will also demonstrate their abilities and understanding of basic photofinishing methods, such as maintaining consistent borders and dry mounting.

GRD 241 Graphic Design III  
Prerequisites: DES 136 or GRD 142  
Corequisites: None  
This course is an advanced exploration of various techniques and media for advertising and graphic design. Emphasis is placed on advanced concepts and solutions to complex and challenging graphic design problems. Upon completion, students should be able to demonstrate competence and professionalism in visual problem solving. Competence in analyzing and translating ideas and design solutions to clear, comprehensive visual layouts and mockups is to be stressed.

GRD 242 Graphic Design IV  
Prerequisites: GRD 241  
Corequisites: None  
This course is a continuation of GRD 241. Emphasis is placed on using advanced media techniques, concepts, strategies, and professionalism in all aspects of design. Upon completion, students should be able to conceptualize, create, and produce designs for reproduction. Students should be able to design and produce projects which demonstrate understanding and experience through the printed stage or final production level.

GRD 263 Illustrative Imaging  
Prerequisites: GRD 151 or GRA 151  
Corequisites: None  
This course covers the creative manipulation of images utilizing digital techniques of masking, layering, airbrushing, and painting. Topics include the aesthetic analysis of visual imagery as well as the legalities of manipulating images. Upon completion, students should be able to utilize software applications to creatively manipulate and illustratively build digital images which accomplish design objectives. Emphasis is placed on PhotoShop and other plug-in software used to enhance or creatively alter images for print/multi-media output.

GRD 265 Digital Print Production  
Prerequisites: GRD 152 or GRA 152  
Corequisites: None  
This course covers preparation of digital files for output and reproduction. Emphasis is placed on output options, separations, color proofing, and cost and design considerations. Upon completion, students should be able to prepare files and select appropriate output methods for design solutions. Students will understand the various procedures and processes of printing.

GRD 280 Portfolio Design  
Prerequisites: GRD 152, GRD 111, GRD 241, GRD 113  
Corequisites: None  
This course covers the organization and presentation of a design/advertising or graphic art portfolio and appropriate related materials. Emphasis is placed on development and evaluation of the portfolio, design and production of a résumé and self-promotional materials, and interview techniques. Upon completion, students should be able to prepare and professionally present an effective portfolio and related self-promotional materials.

GRD 282 Advertising Copywriting  
Prerequisites: ENG 111  
Corequisites: None  
This course covers copywriting for print, electronic, and broadcast advertising and promotion. Topics include advertising strategies, proposals, headlines, slogans, and text copy for various types of advertising. Upon completion, students should be able to write and articulate advertising proposals and understand the ethical and regulatory environment for advertising.

GRO - Gerontology

GRO 120 Gerontology  
Prerequisites: PSY 150  
Corequisites: None  
This course covers the psychological, social, and physical aspects of aging. Emphasis is placed on the factors that promote mental and physical well-being. Upon completion, students should be able to recognize the aging process and its psychological, social, and physical aspects.

GRO 220 Psy/Soc Aspects of Aging  
Prerequisites: PSY 150  
Corequisites: None  
This course introduces the individual and social aspects of aging. Emphasis is placed on the psychological, social, and physical aspects of aging. Students will be able to understand the aging process and its psychological, social, and physical aspects.
the aging process. Topics include psychological and social factors of aging, roles of older adults within families, work, and community; and adjustments to aging and retirement. This course is a unique concentration requirement of the Gerontology concentration in the Human Services technology program.

GRO 230 Health, Wellness, & Nutri. 3 2 0 4
Prerequisites:
Corequisites: None
This course covers basic concepts of health, wellness, and nutrition related to aging. Emphasis is placed on nutrition and diet, physical activity and exercise, and maintenance of well-being. Upon completion, students should be able to identify health, wellness, and nutrition concepts related to aging. This course is a unique concentration requirement of the Gerontology concentration in the Human Services Technology program.

GRO 240 Gerontology Care Managing 2 0 0 2
Prerequisites: GRO 120
Corequisites: None
This course covers community resources, and discusses care management of older adults. Care management includes assessment, care planning, evaluation, issues of family care, high-risk care and self-care.

HEA - Health

HEA 110 Personal Health / Wellness 3 0 3
Prerequisites:
Corequisites: None
This course provides an introduction to basic personal health and wellness. Emphasis is placed on current health issues such as nutrition, mental health, and fitness. Upon completion, students should be able to demonstrate an understanding of the factors necessary to the maintenance of health and wellness. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

HEA 112 First Aid and CPR 1 2 2
Prerequisites:
Corequisites: None
This course introduces the basics of emergency first aid treatment. Topics include rescue breathing, CPR, first aid for choking and bleeding, and other first aid procedures. Upon completion, students should be able to demonstrate skills in providing emergency care for the sick and injured until medical help can be obtained. Students meeting the requirements of this course will receive certificates of completion. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

HEA 120 Community Health 3 0 3
Prerequisites:
Corequisites: None
This course provides information about contemporary community health and school hygienic issues. Topics include health education and current information about health trends. Upon completion, students should be able to recognize and devise strategies to prevent today’s community health problems. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

HEA 130 Health-Adult Sexuality 3 0 3
Prerequisites:
Corequisites: None
This course provides information about health issues related to adult human sexuality. Topics include basic reproductive anatomy, contraceptive methods, STDs, and related information. Upon completion, students should be able to identify various related community agencies and available resources relating to sexual issues.

HIT - Health Information Technology

HIT 110 Health Information Orientation 2 0 0 2
Prerequisites: None
Corequisites: None
This course introduces health information management and its role in health care delivery systems. Emphasis is placed on the role and responsibilities of health information professionals in a variety of settings. Upon completion, students should be able to demonstrate an understanding of health information management and health care organizations, professions, and trends.

HIT 112 Health Law and Ethics 3 0 0 3
Prerequisites: None
Corequisites: None
This course covers the impact of legal issues on health information management and provides an overview of the judicial system and legislative process. Topics include confidentiality, release of information, record retention, authentication, informed consent, subpoenaed information, security of computerized health information, liability, and legislative trends. Upon completion, students should be able to respond appropriately to requests for health information.

HIT 114 Record Systems / Standards 2 3 0 3
Prerequisites: None
Corequisites: None
This course covers basic concepts and techniques for managing and maintaining health record systems. Topics include health record content, qualitative analysis, format, record control, storage, retention, forms design/control, indices and registers, and numbering and filing systems. Upon completion, students should be able to demonstrate an understanding of health record systems, including their maintenance and control.

HIT 122 Directed Practice I 0 0 3 1
Prerequisites: HIT 112, HIT 114
Corequisites: None
This course provides supervised clinical experience in health care settings. Emphasis is placed on practical application of curriculum concepts to the health care setting. Upon completion, students should be able to apply health information theory to health care facility practices.

HIT 124 Directed Practice II 1 0 3 2
Prerequisites: HIT 216, HIT 210
Corequisites: None
This course provides supervised clinical experience in health care settings. Emphasis is placed on practical application of curriculum concepts to the health care setting. Upon completion, students should be able to apply health information theory to
health care facility practices.

**HIT 210 Health Care Statistics**  
3 2 0 4  
Prerequisites: MAT 115, HIT 114  
Corequisites: None  
This course covers maintenance, compilation, analysis, and presentation of health care statistics. Topics include basic statistical principles, morbidity and mortality, commonly computed hospital rates, uniform reporting requirements, and selection and construction of data displays. Upon completion, students should be able to calculate morbidity, mortality, and commonly computed hospital rates; comply with information reporting requirements; and analyze/present statistical data.

**HIT 222 Directed Practice III**  
0 0 6 2  
Prerequisites: HIT 122  
Corequisites: None  
This course provides guided clinical experience in health care settings. Emphasis is placed on practical application of curriculum concepts to the health care setting. Upon completion, students should be able to apply health information theory to health care facility practices.

**HIT 226 Principles of Disease**  
3 0 0 3  
Prerequisites: BIO 166 or BIO 169  
Corequisites: None  
This course covers disease etiology and organ system involvement, including physical signs and symptoms, diagnoses, and common complications and their management. Topics include basic microbiology, basic pharmacology, and principles of disease. Upon completion, students should be able to relate disease processes to etiology, physical signs and symptoms, prognosis, and common complications and their management.

**HIT 280 Professional Issues**  
2 0 0 2  
Prerequisites: HIT 112, HIT 212, HIT 210  
Corequisites: HIT 214  
This course provides a comprehensive discussion of topics common to the health information profession. Emphasis is placed on application of professional competencies, job search tools, and preparation for the certification examination. Upon completion, students should be able to demonstrate competency in entry-level domains, tasks, and subtasks for health information technology.

**HET - Heavy Equipment and Transport Technology – Diesel Mechanics**

See also HYD-Hydraulics for additional courses.

**HET 110 Diesel Engines**  
3 9 6  
Prerequisites:  
Corequisites: None  
This course introduces theory, design, terminology, and operating adjustments for diesel engines. Emphasis is placed on safety, theory of operation, inspection, measuring, and rebuilding diesel engines according to factory specifications. Upon completion, students should be able to measure, diagnose problems, and repair diesel engines.

**HET 112 Diesel Electrical Systems**  
3 6 5  
Prerequisites:  
Corequisites: None  
This course introduces electrical theory and applications as they relate to diesel powered equipment. Topics include lighting, accessories, safety, starting, charging, instrumentation, and gauges. Upon completion, students should be able to follow schematics to identify, repair, and test electrical circuits and components.
**HET 115  Electronic Engines**  
2 3 3  
Prerequisites: None  
Corequisites: None  
This course introduces the principles of electronically controlled diesel engines. Emphasis is placed on testing and adjusting diesel engines in accordance with manufacturers' specifications. Upon completion, students should be able to diagnose, test, and calibrate electronically controlled diesel engines.

**HET 116  Air Conditioning / Diesel Equipment**  
1 2 2  
Prerequisites:  
Corequisites: None  
This course provides a study of the design, theory, and operation of heating and air conditioning systems in newer models of medium and heavy duty vehicles. Topics include component function, refrigerant recovery, and environmental regulations. Upon completion, students should be able to use proper techniques and equipment to diagnose and repair heating/air conditioning systems according to industry standards.

**HET 118  Mechanical Orientation**  
2 0 2  
Prerequisites: None  
Corequisites: None  
Start Term: 1999*03  
This course introduces the care and safe use of power and hand tools. Topics include micrometers, dial indicators, torque wrenches, drills, taps dies, screw extractors, thread restorers, and fasteners. Upon completion, students should be able to select and properly use tools for various operations.

**HET 119  Mechanical Transmissions**  
2 2 3  
Prerequisites: None  
Corequisites: None  
This course introduces the operating principles of mechanical medium and heavy duty truck transmissions. Topics include multiple counter shafts, power take-offs, sliding idler clutches, and friction clutches. Upon completion, students should be able to diagnose, inspect, and repair mechanical transmissions.

**HET 125  Preventive Maintenance**  
1 3 2  
Prerequisites:  
Corequisites: None  
This course introduces preventive maintenance practices used on medium and heavy duty vehicles and rolling assemblies. Topics include preventive maintenance schedules, services, DOT rules and regulations, and roadabiliy. Upon completion, students should be able to set up and follow a preventive maintenance schedule as directed by manufacturers.

**HET 126  Prevent Maintenance Lab**  
0 3 1  
Prerequisites: None  
Corequisites: HET 125  
This course provides a laboratory setting to enhance preventive maintenance practices used on medium and heavy duty vehicles and rolling assemblies. Emphasis is placed on practical experiences that enhance the topics presented in HET 125. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in HET 125.

**HET 127  Shop Rules and Regulations**  
1 0 1  
Prerequisites:  
Corequisites: None  
This course introduces safety, OSHA, and EPA general requirements used in the mobile equipment industry. Topics include fire extinguisher use, MSDS sheets, oil contamination, protective gear, and other related topics. Upon completion, students should be able to properly use fire extinguishers and demonstrate knowledge of applicable general safety, OSHA, and EPA regulations.

**HET 128  Medium / Heavy Duty Tune-up**  
1 2 2  
Prerequisites:  
Corequisites: None  
This course introduces tune-up and troubleshooting according to manufacturers' specifications. Topics include troubleshooting engine systems, tune-up procedures, and use and care of special test tools and equipment. Upon completion, students should be able to troubleshoot, diagnose, and repair engines and compoments using appropriate diagnostic equipment.

**HET 230  Air Brakes**  
1 2 2  
Prerequisites:  
Corequisites: None  
This course introduces the operation and design of air braking systems used on trucks. Topics include safety, governors, compressors, and supporting systems. Upon completion, students should be able to diagnose, disassemble, inspect, repair, and reassemble air brake systems.

**HET 231  Medium / Heavy Duty Brake Systems**  
1 3 2  
Prerequisites:  
Corequisites: None  
This course covers the theory and repair of braking systems used in medium and heavy duty vehicles. Topics include air, hydraulic, and ABS system diagnosis and repair. Upon completion, students should be able to troubleshoot, adjust, and repair braking systems on medium and heavy duty vehicles.

**HET 233  Suspension and Steering**  
2 4 4  
Prerequisites:  
Corequisites: None  
This course introduces the theory and principles of medium and heavy duty steering and suspension systems. Topics include wheel and tire problems, frame members, fifth wheel, bearings, and coupling systems. Upon completion, students should be able to troubleshoot, adjust, and repair suspension and steering components on medium and heavy duty vehicles.

**HIS -History**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>HIS 111</td>
<td>World Civilizations I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Prerequisites:</td>
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<tr>
<td>Corequisites:</td>
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<tr>
<td>This course introduces world history from the dawn of civilization to the early modern era. Topics include Eurasian, African, American, and Greco-Roman civilizations and Christian, Islamic and Byzantine cultures. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in pre-modern world civilizations. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.</td>
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</table>

| HIS 112     | World Civilizations II | 3 | 0 | 3 |
| Prerequisites: | | | | |
| Corequisites: | | | | |
| This course introduces world history from the early modern era to the present. Topics include the cultures of Africa, Europe, India, China, Japan, and the Americas. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern world |
HIS 131 American History I  
Prerequisites: 
Corequisites: None 
This course is a survey of American history from pre-history through the Civil War era. Topics include the migrations to the Americas, the colonial and revolutionary periods, the development of the Republic, and the Civil War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early American history. **This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.**

HIS 132 American History II  
Prerequisites: 
Corequisites: None 
This course is a survey of American history from the Civil War era to the present. Topics include industrialization, immigration, the Great Depression, the major American wars, the Cold War, and social conflict. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in American history since the Civil War. **This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.**

HIS 165 Twentieth-Century World  
Prerequisites: 
Corequisites: None 
This course includes the major developments, issues, and ideas in twentieth-century world history. Emphasis is placed on contrasting political systems, the impact of science and technology, and the philosophical temperament of twentieth-century people. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the twentieth century.

HIS 221 African-American History  
Prerequisites: 
Corequisites: None 
This course is a study of African-American from the Colonial period to the present. Topics include African origins, the slave trade, the Civil War, Reconstruction, the Jim Crow era, the civil rights movement, and contributions of African Americans. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the history of African Americans.

HIS 226 The Civil War  
Prerequisites: 
Corequisites: None 
This course examines the social, political, economic, and ideological forces that led to the Civil War and Reconstruction. Topics include regional conflicts and sectionalism, dissolution of the Union, military campaigns, and the war’s socioeconomic impact, aftermath, and consequences. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the United States during the era of the Civil War.

HIS 231 Recent American History  
Prerequisites: 
Corequisites: None 
This course is a study of American society from the post-Depression era to the present. Topics include World War II, the Cold War, social unrest, the Vietnam War, the Great Society, and current political trends. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in recent America.

HIS 236 North Carolina History  
Prerequisites: 
Corequisites: None 
This course is a study of geographical, political, economic, and social conditions existing in North Carolina from America’s discovery to the present. Topics include native and immigrant backgrounds; colonial, ante-bellum, and Reconstruction periods; party politics; race relations; and the transition from an agrarian to an industrial economy. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in North Carolina.

**HOR - Horticulture Technology**

Also see FLO Floriculture, COE Cooperative Education and TRF Turfgrass Management for additional course descriptions.

<table>
<thead>
<tr>
<th>Course</th>
<th>Lectures</th>
<th>Labs</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HOR 112 Landscape Design I</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Prerequisites:</td>
<td>HOR 160 or HOR 260 or Division Permission</td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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<td>This course covers landscape principles and practices for residential and commercial sites. Emphasis is placed on drafting, site analysis, and common elements of good design, plant material selection, and proper plant utilization. Upon completion, students should be able to read, plan, and draft a landscape design.</td>
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<th>Course</th>
<th>Lectures</th>
<th>Labs</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HOR 114 Landscape Construction</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Prerequisites:</td>
<td>None</td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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<tr>
<td>This course introduces the design and fabrication of landscape structures/features. Emphasis is placed on safety, tool identification and use, material selection, construction techniques, and fabrication. Upon completion, students should be able to design and construct common landscape structures/features.</td>
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<th>Course</th>
<th>Lectures</th>
<th>Labs</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HOR 116 Landscape Management I</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Prerequisites:</td>
<td>None</td>
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<tr>
<td>Corequisites:</td>
<td>None</td>
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<td>This course covers information and skills necessary to analyze a property and develop a management schedule. Emphasis is placed on property measurement, plant condition, analysis of client needs, and plant culture needs. Upon completion, students should be able to analyze a property, develop management schedules, and implement practices based on client needs.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>HOR 118</td>
<td>Equipment Operation and Maintenance</td>
<td>1 3 2</td>
<td>Prerequisites: None</td>
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<td>This course covers the proper operation and maintenance of selected equipment used in horticulture. Emphasis is placed on the maintenance, minor repairs, safety devices, and actual operation of selected equipment. Upon completion, students should be able to design a maintenance schedule, service equipment, and demonstrate safe operation of selected equipment.</td>
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<tr>
<td>HOR 124</td>
<td>Nursery Operations</td>
<td>2 3 3</td>
<td>Prerequisites: None</td>
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<td>This course covers nursery site and crop selection, cultural practices, and production and marketing methods. Topics include site considerations, water availability, equipment, irrigation, fertilization, containers, media, and pest control. Upon completion, students should be able to design and implement a nursery operation and grow and harvest nursery crops.</td>
</tr>
<tr>
<td>HOR 134</td>
<td>Greenhouse Operations</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course covers the principles and procedures involved in the operation and maintenance of greenhouse facilities. Emphasis is placed on the operation of greenhouse systems, including the environmental control, record keeping, scheduling, and production practices. Upon completion, students should be able to demonstrate the ability to operate greenhouse systems and facilities to produce greenhouse crops.</td>
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<tr>
<td>HOR 150</td>
<td>Introduction to Horticulture</td>
<td>2 0 2</td>
<td>Prerequisites: None</td>
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<td>This course covers the history, development, and basic techniques of horticulture. Topics include propagation techniques, planting procedures, watering and fertility, plant growth, pest and disease control, and garden design and history. Upon completion, students should be able to demonstrate an understanding of the basic principles of horticulture. Students will explore horticultural careers, organizations, and reference materials.</td>
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<tr>
<td>HOR 154</td>
<td>Introduction to Horticulture Therapy</td>
<td>2 4 4</td>
<td>Prerequisites: None</td>
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<td>This course introduces the concept of horticulture therapy and how it can be applied to improve human well-being. Emphasis is placed on developing a horticulture therapy program, planning activities, and adjusting activities based on the age, disability, or need of the individual. Upon completion, students should be able to develop project ideas, write lesson plans, and lead informal classes using horticulture therapy techniques.</td>
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<tr>
<td>HOR 160</td>
<td>Plant Materials I</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course covers identification, culture, characteristics, and use of plants. Emphasis is placed on nomenclature, identification, growth requirements, cultural requirements, soil preferences, and landscape applications. Upon completion, students should be able to demonstrate knowledge of the proper selection and utilization of plant materials.</td>
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<tr>
<td>HOR 162</td>
<td>Applied Plant Science</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course introduces the basic concepts of botany as they apply to horticulture. Topics include nomenclature, physiology, morphology, and anatomy as they apply to plant culture. Upon completion, students should be able to apply the basic principles of botany to horticulture.</td>
</tr>
<tr>
<td>HOR 164</td>
<td>Horticulture Pest Management</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course covers the identification and control of plant pests including insects, diseases, and weeds. Topics include pest identification and chemical regulations, safety, and pesticide application. Upon completion, students should be able to meet the requirements for North Carolina Commercial Pesticide Ground Applicators license. Students will apply the Integrated Pest Management Model in plant management.</td>
</tr>
<tr>
<td>HOR 166</td>
<td>Soils &amp; Fertilizers</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course covers the physical and chemical properties of soils and soil fertility and management. Topics include soil formation, classification, physical and chemical properties, testing, fertilizer application, and other amendments. Upon completion, students should be able to analyze, evaluate, and properly amend soils/media.</td>
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<tr>
<td>HOR 168</td>
<td>Plant Propagation</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course is a study of sexual and asexual reproduction of plants. Emphasis is placed on seed propagation, grafting, stem and root propagation, micro-propagation, and other propagation techniques. Upon completion, students should be able to successfully propagate ornamental plants.</td>
</tr>
<tr>
<td>HOR 170</td>
<td>Horticulture Computer Application</td>
<td>1 3 2</td>
<td>Prerequisites: HOR 112 or Division permission</td>
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<td>This course introduces computer programs as they apply to the horticulture industry. Emphasis is placed on applications of software for plant identification, design, and irrigation. Upon completion, students should be able to use computer programs in horticultural situations. Students will create a CAD drawing of a landscape.</td>
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<tr>
<td>HOR 213</td>
<td>Landscape Design II</td>
<td>2 2 3</td>
<td>Prerequisites: HOR 112</td>
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<td>This course covers residential and commercial landscape design, cost analysis, and installation. Emphasis is placed on job cost estimates, installation of the landscape design, and maintenance techniques. Upon completion, students should be able to read landscape design blueprints, develop cost estimates, and implement the design. Students will expand their use of design styles, techniques, and materials and will improve their presentation skills.</td>
</tr>
<tr>
<td>HOR 215</td>
<td>Landscape Irrigation</td>
<td>2 2 3</td>
<td>Prerequisites: None</td>
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<td>This course introduces basic irrigation design, layout, and installation. Topics include site analysis, components of irriga-</td>
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</tbody>
</table>
HOR 251 Insects & Diseases 2 2 3
Prerequisites: None
Corequisites: None
This course introduces insects and diseases of economic importance to horticultural crops. Topics include insect life cycles and identifying characteristics; plant diseases, including their signs and symptoms; control methods; and insect scouting for IPM. Upon completion, students should be able to demonstrate an understanding of insect and disease identification, collection, and control.

HOR 253 Horticulture Turfgrass 2 2 3
Prerequisites: HOR 162 or HOR 166
Corequisites: None
This course covers information and skill development necessary to establish and manage landscape turfgrasses. Topics include grass identification, establishment, cultural requirements, application of control products, fertilization, and overseeding techniques. Upon completion, students should be able to analyze a landscape site and determine those cultural and physical activities needed to establish or manage a quality turf.

HOR 255 Interiorscapes 1 2 2
Prerequisites: None
Corequisites: None
This course covers plant selection, design, and management for interior settings. Topics include tropical plant identification, cultural requirements, insect and disease identification and control, and design and management requirements for interior plants. Upon completion, students should be able to design, install, and manage plants in interior settings.

HOR 257 Arboriculture Practices 1 3 2
Prerequisites: HOR 160
Corequisites: None
This course covers the culture and maintenance of trees and shrubs. Topics include fertilization, pruning, approved climbing techniques, pest control, and equipment use and safety. Upon completion, students should be able to properly prune trees and shrubs and perform arboricultural practices.

HOR 260 Plant Materials II 2 2 3
Prerequisites: None
Corequisites: None
This course is a continuation of HOR 160 and covers additional plants. Emphasis is placed on reinforcement of skills and the introduction of additional plants. Upon completion, students should be able to demonstrate knowledge of the proper selection and utilization of plant materials.

HOR 265 Advanced Plant Materials 1 2 2
Prerequisites: HOR 160 or HOR 260
Corequisites: None
This course covers important landscape plants which were not covered in HOR 160 and HOR 260. Emphasis is placed on identification, plant nomenclature, growth characteristics, cultural requirements, and landscape uses. Upon completion, students should be able to correctly select plants for specific landscape uses.

HOR 273 Horticulture Management and Marketing 3 0 3
Prerequisites: Corequisites: None
This course covers the steps involved in starting or managing a horticultural business. Topics include financing, regulations, market analysis, employer/employee relations, formulation of business plans, and operational procedures in a horticultural business. Upon completion, students should be able to assume ownership or management of a horticultural business.

HRM 110 Introduction to Hospitality 2 0 2
Prerequisites: Corequisites: None
This course covers the growth and progress of the hospitality industry. Topics include financing, hotels, restaurants, and clubs. Upon completion, students should be able to demonstrate an understanding of the background, context, and career opportunities that exist in the hospitality industry.

HRM 115 Housekeeping 3 0 3
Prerequisites: COM 110; CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites: None
This course covers the scope, responsibilities, communications, terminology, materials, and concerns specific to hotel housekeeping. Topics include management and supervision of housekeeping staff in the proper cleaning and sanitation of rooms and public areas, budgeting, purchasing, security, and inventory control. Upon completion, students should be able to understand and apply the principles of organization and management of a housekeeping department.

HRM 115A Housekeeping Lab 0 2 1
Prerequisites: COM 110; CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites: HRM 115
This course is a laboratory to accompany HRM 115. Emphasis is placed on the development of skills for the performance of housekeeping tasks. Upon completion, students should be able to demonstrate mastery of housekeeping skills.

HRM 120 Front Office Procedures 3 0 3
Prerequisites: CIS 111; CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites: HRM 120A
This course provides a systematic approach to hotel front office procedures. Topics include reservations, registration, guest satisfaction, occupancy and rate management, security, interdepartmental communications, and related guest services. Upon completion, students should be able to demonstrate a basic understanding of current front office operating systems, including efficient and courteous guest services. This is a computer-based class requiring basic computer competency.

HRM 120A Front Office Procedures Lab 0 2 1
Prerequisites: CIS 111; CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites: None
This course is laboratory to accompany HRM 120. Emphasis
is placed on practical computer applications of theory covered in HRM 120. Upon completion, students should be able to demonstrate a basic proficiency in computer-based, front office applications. This is a computer-based class requiring basic computer competency.

HRM 140 Hospitality Tourism Law 3 0 3
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites:
This course covers the rights and responsibilities that the law grants or imposes upon the hospitality industry. Topics include federal and state regulations, historical and current practices, safety and security, risk management, loss prevention, torts, and contracts. Upon completion, students should be able to demonstrate an understanding of the legal system to prevent or minimize organizational liability.

HRM 210 Meetings and Conventions 3 0 3
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites:
This course introduces organization, arrangement, and operation of conventions, trade shows, professional meetings, and food functions. Emphasis is placed on the methods of marketing, selling, and servicing conventions and trade shows and the division of administrative responsibilities in their operation. Upon completion, students should be able to describe and apply the principles of management to multi-function, multi-day conferences and events.

HRM 220 Food and Beverage Controls 3 0 3
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites:
This course introduces controls and accounting procedures used in the hospitality industry. Topics include analysis of financial statements, reports, and costs. Upon completion, students should be able to understand and apply food, beverage, and labor cost control systems.

HRM 225 Beverage Management 2 0 2
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites:
This course introduces the management of beverage operations in a hospitality operation. Topics include history, service, procurement, storage, and control of wines, fermented and distilled beverages, sparkling waters, coffees, and teas. Upon completion, students should be able to demonstrate knowledge of the beverages consumed in a hospitality operation.

HRM 235 Hospitality Quality Management 3 0 3
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites:
This course introduces the various schools of thought in achievement and implementation of quality standards for the hospitality industry. Emphasis is placed on developing and maintaining quality in the delivery of the tangible and intangible aspects of the service product. Upon completion, students should be able to demonstrate an understanding of quality service principles and apply them within a hospitality/service environment.

HRM 240 Hospitality Marketing 3 0 3
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites:
This course covers planning, organizing, directing, and analyzing the results of marketing programs in the hospitality industry. Emphasis is placed on market segmentation and analysis, product and image development, sales planning, advertising, public relations, and collateral materials. Upon completion, students should be able to prepare a marketing plan applicable to the hospitality industry.

HRM 280 Hospitality Management Problems 3 0 3
Prerequisites: CPT Sentence Skills 86-120; CPT Reading Score 80-120; MAT 060
Corequisites: HRM 220
This course addresses current global, national, and local concerns and issues in the hospitality industry. Emphasis is placed on problem-solving skills using currently available resources. Upon completion, students should be able to apply hospitality management principles to real challenges facing industry managers.

HSE - Human Services Technology

HSE 110 Introduction to Human Services 2 2 0 3
Prerequisites:
Corequisites: None
This course introduces the human services field, including the history, agencies, roles, and careers. Topics include personal/professional characteristics, diverse populations, community resources, disciplines in the field, systems, ethical standards, and major theoretical and treatment approaches. Upon completion, students should be able to identify the knowledge, skills, and roles of the human services worker.

HSE 112 Group Process I 1 2 0 2
Prerequisites:
Corequisites: None
This course introduces interpersonal concepts and group dynamics. Emphasis is placed on self-awareness facilitated by experiential learning in small groups with analysis of personal experiences and the behavior of others. Upon completion, students should be able to show competence in identifying and explaining how people are influenced by their interactions in group settings.

HSE 120 Interpersonal Relations 3 0 0 3
Prerequisites:
Corequisites: None
This course introduces the interpersonal and communication skills used in helping relationships and professions. Topics include self-understanding; growth techniques; assertive, passive, and aggressive behaviors; and effective communications in the helping role. Upon completion, students should be able to demonstrate skills for effective communications in helping relationships which promote understanding of self, other people, and personal growth.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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<tr>
<td>HSE 123</td>
<td>Interviewing Techniques</td>
<td>2</td>
<td>2</td>
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<td></td>
<td>Prerequisites:</td>
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<td>Corequisites: None</td>
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<td>This course covers the purpose, structure, focus, and techniques employed in effective interviewing. Emphasis is placed on observing, attending, listening, responding, recording, and summarizing of personal histories with instructor supervision. Upon completion, students should be able to perform the basic interviewing skills needed to function in the helping relationship.</td>
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<tr>
<td>HSE 125</td>
<td>Counseling</td>
<td>2</td>
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<td>Prerequisites: PSY 150</td>
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<td>Corequisites: None</td>
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<td>This course covers the major approaches to psychotherapy and counseling, including theory, characteristics, and techniques. Emphasis is placed on facilitation of self-exploration, problem solving, decision making, and personal growth. Upon completion, students should be able to understand various theories of counseling and demonstrate counseling techniques.</td>
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<tr>
<td>HSE 127</td>
<td>Conflict Resolution</td>
<td>2</td>
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<td></td>
<td>Prerequisites:</td>
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<td>Corequisites: None</td>
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<td>This course introduces conflict resolution and mediation theory and practice. Emphasis is placed on achieving compromise and a win/win perception. Upon completion, students should be able to demonstrate competence in identifying seemingly dissimilar positions and facilitating agreement.</td>
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<td>HSE 210</td>
<td>Human Services Issues</td>
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<td>Prerequisites: Successful completion of 12 SHC in the HSE program</td>
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<td>Corequisites: None</td>
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<td>This course covers current issues and trends in the field of human services. Emphasis is placed on contemporary topics with relevance to special issues in a multi-faceted field. Upon completion, students should be able to integrate the knowledge, skills, and experiences gained in classroom and clinical experiences with emerging trends in the field.</td>
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<tr>
<td>HSE 212</td>
<td>Group Process II</td>
<td>1</td>
<td>2</td>
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<td></td>
<td>Prerequisites: HSE 112</td>
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<td>Corequisites: None</td>
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<td>This course is a continuation of the study of interpersonal concepts and group dynamics. Emphasis is placed on self-awareness facilitated by experiential learning in small groups with analysis of personal experiences and the behavior of others. Upon completion, students should be able to demonstrate their ability to communicate with others and facilitate communications between others.</td>
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<td>HSE 220</td>
<td>Case Management</td>
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<td>Prerequisites: HSE 110</td>
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<td>Corequisites: None</td>
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<td>This course covers the variety of tasks associated with professional case management. Topics include treatment planning, needs assessment, referral procedures, and follow-up and integration of services. Upon completion, students should be able to effectively manage the care of the whole person from initial contact through termination of services.</td>
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<tr>
<td>HSE 225</td>
<td>Crisis Intervention</td>
<td>3</td>
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<td></td>
<td>Prerequisites:</td>
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<td>Corequisites: None</td>
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<td>This course introduces the basic theories and principles of crisis intervention. Emphasis is placed on identifying and demonstrating appropriate and differential techniques for intervening in various crisis situations. Upon completion, students should be able to assess crisis situations and respond appropriately.</td>
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<tr>
<td>HSE 227</td>
<td>Children and Adolescence in Crisis</td>
<td>3</td>
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<td></td>
<td>Prerequisites:</td>
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<td>Corequisites: None</td>
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<td>This course covers the crises affecting children and adolescents in contemporary society. Emphasis is placed on abuse and neglect, suicide and murder, dysfunctional family living, poverty, and violence. Upon completion, students should be able to identify and discuss intervention strategies and available services for the major contemporary crises affecting children and adolescents.</td>
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**HUM - Humanities**

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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<tbody>
<tr>
<td>HUM 115</td>
<td>Critical Thinking</td>
<td>3</td>
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<tr>
<td></td>
<td>Prerequisites: ENG 101 or a grade of C or higher in ENG 111</td>
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<td>Corequisites: None</td>
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<td>This course introduces the use of critical thinking skills in the context of human conflict. Emphasis is placed on information, problem solving, approaching cross-cultural perspectives, and resolving controversies and dilemmas. Upon completion, students should be able to demonstrate orally and in writing the use of critical thinking skills in the analysis of appropriate texts. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.</td>
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<td>HUM 130</td>
<td>Myth in Human Culture</td>
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<td>Prerequisites:</td>
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<td></td>
<td>Corequisites: None</td>
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<td>This course provides an in-depth study of myths and legends. Topics include the varied sources of myths and their influence on the individual and society within diverse cultural contexts. Upon completion, students should be able to demonstrate a general familiarity with myths and a broad-based understanding of the influence of myths and legends on modern culture. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<tr>
<td>HUM 160</td>
<td>Introduction to Film</td>
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<td>Prerequisites: ENG 111 with a grade of C or higher, or consent of division director</td>
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<td>Corequisites: None</td>
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</tbody>
</table>
|             | This course introduces the fundamental elements of film artistry and production. Topics include film styles, history, and production techniques, as well as the social values reflected in film art. Upon completion, students should be able to critically analyze the elements covered in relation to selected films. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in...
This course introduces the humanities as a record in literature, music, art, history, religion, and philosophy of humankind’s answers to the fundamental questions of existence. Emphasis is placed on the interconnectedness of various aspects of cultures from ancient through early modern times. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

HUM 212 Humanities II
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.
Corequisites: None
This course introduces the humanities as a record in literature, music, art, history, religion, and philosophy of humankind’s answers to the fundamental questions of existence. Emphasis is placed on the interconnectedness of various aspects of cultures from early modern times to the present. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

HUM 220 Human Values and Meaning
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.
Corequisites: None
This course presents some major dimensions of human experience as reflected in art, music, literature, philosophy, and history. Topics include the search for identity, the quest for knowledge, the need for love, the individual and society, and the meaning of life. Upon completion, students should be able to recognize interdisciplinary connections and distinguish between open and closed questions and between narrative and scientific models of understanding. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

HUM 230 Leadership Development
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.
Corequisites: None
This course explores the theories and techniques of leadership and group process. Emphasis is placed on leadership styles, theories of group dynamics, and the moral and ethical responsibilities of leadership. Upon completion, students should be able to identify and analyze a personal philosophy and style of leadership and integrate these concepts in various practical situations.

HYD 110 Hydraulics/Pneumatics I
Prerequisites: None
This course introduces the basic components and functions of hydraulic and pneumatic systems. Topics include standard symbols, pumps, control valves, control assemblies, actuators, FRL, maintenance procedures, and switching and control devices. Upon completion, student should be able to understand the operation of a fluid power system, including design, application, and troubleshooting.

HYD 112 Hydraulics/Medium/Heavy Duty
Prerequisites: None
This course introduces hydraulic theory and applications as applied to mobile equipment. Topics include component studies such as pumps, motors, valves, cylinders, filters, reservoirs, lines, and fittings. Upon completion, students should be able to identify, diagnose, test, and repair hydraulic systems using schematics and technical manuals.

HYD 121 Hydraulics/Pneumatics II
Prerequisites: None
This course is a continuation of HYD 110 and provides further investigation into fluid power systems. Topics include advanced system components, troubleshooting, and other related topics. Upon completion, students should be able to demonstrate an understanding of the installation, operation, and maintenance of fluid power components and systems.

HYD 210 Advanced Hydraulics
Prerequisites: HYD 110 or HYD 111
This course covers advanced hydraulic systems. Emphasis is placed on advanced hydraulic systems and components, troubleshooting, and other related topics. Upon completion, students should be able to demonstrate an understanding of the installation, operation, and maintenance of hydraulic components and systems.

ISC 110 Workplace Safety
Prerequisites: None
This course introduces the basic concepts of workplace safety. Topics include fire, ladders, lifting, lock-out/tag-out, personal protective devices, and other workplace safety issues related to OSHA compliance. Upon completion, students should be able to demonstrate an understanding of the components of a safe workplace.

ISC 112 Industrial Safety
Prerequisites: None
This course introduces the principles of industrial safety.
Emphasis is placed on industrial safety and OSHA and environmental regulations. Upon completion, students should be able to demonstrate knowledge of a safe working environment.

**ISC 115  Construction Safety**  
Prerequisites: None  
Corequisites: None  
This course introduces the basic concepts of construction site safety. Topics include ladders, lifting, lock-out/tag-out, personal protective devices, scaffolds, and above/below ground work based on OSHA regulations. Upon completion, students should be able to demonstrate knowledge of applicable safety regulations and safely participate in construction projects.

**ISC 131  Quality Management**  
Prerequisites: None  
Corequisites: None  
This course provides a study and analysis of the aspects and implications of quality management that lead to customer satisfaction through continuous quality improvement. Topics include Total Quality Management, ISO 9000, organizing for quality, supplier/vendor relationships, and the role of leadership in quality management. Upon completion, students should be able to demonstrate an understanding of quality management concepts and techniques.

**ISC 132  Manufacturing Quality Control**  
Prerequisites: None  
Corequisites: None  
This course introduces quality concepts and techniques used in industry. Topics include elementary statistics and probability, process control, process capability, and quality improvement tools. Upon completion, students should be able to demonstrate an understanding of the concepts and principles of quality and apply them to the work environment.

**ISC 211  Production Planning**  
Prerequisites: MEC 111 and MEC 161  
Corequisites: None  
This course introduces concepts and techniques of production planning and control. Topics include forecasting, purchasing and inventory control, and production capacity/planning/control, including routing and scheduling. Upon completion, students should be able to apply these concepts and techniques to industrial problems dealing with production planning.

**ISC 212  Metrology**  
Prerequisites: None  
Corequisites: None  
This course covers the principles and techniques of modern practical metrology and inspection methods. Topics include precision, accuracy, standards, and calibration. Upon completion, students should be able to perform various roles within a metrology system.

**Interior Design**  
(See DES Interior Design)

**INT -International Business**  
(See also CIS/CSC/NET Computer Information Systems)

**INT 110  International Business**  
Prerequisites: None  
Corequisites: None  
This course provides an overview of the environment, concepts, and basic differences involved in international business. Topics include forms of foreign involvement, international trade theory, governmental influences on trade and strategies, international organizations, multinational corporations, personnel management, and international marketing. Upon completion, students should be able to describe the foundation of international business.

**INT 180  Travel Study Abroad**  
Prerequisites: Completion of 25 major hours in International Business concentration  
Corequisites: None  
This course is designed to apply language and theoretical skills in an appropriate international business setting in a foreign country. Emphasis is placed on strengthening foreign language skills, performing with greater competence and confidence in the international workplace, and completing objectives outlined in training plan. Upon completion, students should be able to understand and utilize cultural patterns and business practices in the region of study.

**INT 210  International Trade**  
Prerequisites: INT 110  
Corequisites: None  
This course covers international business trade practices and foreign market research. Emphasis is placed on current trends of US trade practices in foreign countries and how to engage in international trade and acquire foreign marketing information. Upon completion, students should be able to formulate an overall product policy for the international marketplace.

**INT 220  International Economics**  
Prerequisites: INT 110 and ECO 151 or ECO 251 or ECO 252  
Corequisites: None  
This course introduces the forces and criteria for the development of a new international economic order. Emphasis is placed on balance of payments, foreign exchange rates and their determination, International Monetary System, and arguments for and against free trade and protectionism. Upon completion, students should be able to describe economic principles and concepts of international trade. This course is a unique concentration requirement of the International Business concentration in the Business Administration program.

**INT 230  International Law**  
Prerequisites: INT 110 and BUS 115  
Corequisites: None  
This course introduces the different theories on international law and their effect on international trade. Emphasis is placed on concepts of contracts, international transactions, major organizations in international trade, establishment of treaties, economic areas, and US laws affecting international trade. Upon completion, students should be able to apply theories and concepts to international trade and transactions. This course is a unique concentration requirement of the International Business concentration in the Business Administration program.

**ITN — Internet Technologies**  
(See also CIS/CSC/NET Computer Information Systems)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tr>
<td>CIS 163</td>
<td>Programming Interfaces Internet</td>
<td>2 2 3</td>
<td>CIS 119 or CIS 111</td>
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<td>CIS 226</td>
<td>Trends in Technology</td>
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<td>CSC 160</td>
<td>Intro to Internet Programming</td>
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<td>CIS 172</td>
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<td>CSC 175</td>
<td>PHP Programming</td>
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<td>CSC 185</td>
<td>Perl Programming</td>
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<td>CSC 260</td>
<td>Programming in Another Language</td>
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<td>CSC 120 or instructor permission</td>
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<td>CSC 284</td>
<td>Emerging Comp Prog Tech</td>
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<td>CIS 286</td>
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<td>ITN 110</td>
<td>Intro to Web Graphics</td>
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<tr>
<td>ITN 120</td>
<td>Intro to Internet Multimedia</td>
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<td>ITN 130</td>
<td>Web Site Management</td>
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<tr>
<td>ITN 140</td>
<td>Web Development Tools</td>
<td>2 2 3</td>
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This course is designed to introduce students to XML, and related internet technologies including Simple API for XML (SAX). Topics include extendible style language (XSL), document object model (DOM), extendible style sheet language transformation (XSLT) and simple object access protocol (SOAP). Upon completion, students should be able to create a complex XML document.

Upon completion, students should be able to create an interactive multimedia application or applet for the Internet. Course uses CIW site designed curriculum.

This course creates interactive multimedia applications and applets for the Internet using web-specific languages. Emphasis is placed on audio, video, graphic, and network resources and various file formats. Upon completion, students should be able to create an interactive multimedia application or applet for the Internet. Course uses CIW site designed curriculum.

This course introduces emerging information systems technologies. Emphasis is placed on evolving technologies and trends in business and industry. Upon completion, students should be able to articulate an understanding of the current trends and issues in emerging technologies for information systems. Reading and discussion intensive course.

This course introduces client-side Internet programming using HTML and Javascript. Topics include use of frames and tables, use of meta tags, Javascript techniques for site navigation. Upon completion, students should be able to write HTML documents that incorporate programming to provide web page organization and navigation functions.

This course introduces students to the server-side, HTML-embedded scripting language PHP. Emphasis is placed on programming techniques required to create dynamic web pages using PHP scripting language features. Upon completion, students should be able to design, code, test, debug, and create a dynamic web site.

This course introduces students to the Perl programming language. Topics include programming techniques using CGI script, input/output operations, sequence, iteration, selection, arithmetic operations, subroutines, modules, integrating database, pattern matching and other related topics. Upon completion, students should be able to design, code, test, and debug Perl language programs.

This course provides in-depth coverage, with applications, of a programming language which was not covered in CSC 120, 130, 220, or 230. Emphasis is placed on using the covered language to develop well-structured programs to solve appropriate problems. Upon completion, students should be able to understand the uses, syntax, and limitations of the language while comparing similarities and differences with other languages.

Prerequisites: CIS 286
Corequisites: None
This course provides students with the latest technologies and strategies in the field of computer programming. Emphasis is placed on the evaluation of developing computer programming technologies and presenting those findings to the class. Upon completion, students should be able to critically analyze emerging computer programming technologies and establish informed opinions.

Prerequisites: CIS 115
Corequisites: None
This course is the first of two courses covering the creation of web graphics, addressing problems peculiar to WWW display using appropriate software. Topics include web graphics file types, type conversion, RGB color, the browser-safe palette, elementary special effects, image maps, and other related topics. Upon completion, students should be able to create graphics such as banners, buttons, backgrounds, and other graphics for Web pages.

Prerequisites: None
Corequisites: None
This is the first of two courses covering the creation of Internet Multimedia. Topics include Internet multimedia file types, file type conversion, acquisition of digital audio/video, streaming audio/video and graphics animation plug-in programs and other related topics. Upon completion, students should be able to create Internet multimedia presentations using a variety of methods and applications.

Prerequisites: None
Corequisites: None
This course covers the issues involved in web site architecture. Topics include operating system directory structures, web site structural design, web site navigation, web site maintenance, backup and security. Upon completion, students should be able to design a web site directory plan optimized for navigation and ease of maintenance.

Prerequisites:None
Corequisites:None
This course provides an introduction to web development software suites. Topics include the creation of web sites and applets using web development software. Upon completion, students should be able to create entire web sites and supporting applets. This course focuses on web design using Macromedia’s
### ITN 150 Internet Protocols
Prerequisites: None
Corequisites: None
This course introduces the protocol suite used on the Internet. Topics include HTTP, Secure HTTP, TCP/IP, and related applications such as FTP, TELNET, and PING. Upon completion, students should be able to use the protocols as they pertain to the Internet, as well as, setup and maintain these protocols. This course will use the CIW Foundation’s curriculum.

### ITN 160 Principles of Web Design
Prerequisites: None
Corequisites: None
This course introduces intermediate to advanced web page design techniques. Topics include effective use of graphics, fonts, colors, navigation tools, advanced markup language elements, as well as a study of bad design techniques. Upon completion, the student should be able to employ advanced design techniques to create high impact and highly functional web pages. This course focuses on web design using the Adobe products suite in the CISCO Academy.

### ITN 170 Intro to Internet Databases
Prerequisites: None
Corequisites: None
This is the first of two courses introducing the use of databases to store, retrieve and query data through HTML forms. Topics include database design for Internet database, use of ODBC-compliant databases. Upon completion, students should be able to create and maintain a database that will collect, query and report on data via an HTML form. This course uses the CIW Database Specialist curriculum.

### ITN 180 Active Server Programming.net
Prerequisites: None
Corequisites: None
This course introduces Active Server Programming. Topics include JavaScript, VBScript, HTML forms processing, and the Active Server Object Model. Upon completion, students should be able to create and maintain Active Server applications. This course uses asp.net and c#.net.

### ITN 210 Advanced Web Graphics
Prerequisites: ITN 110
Corequisites: None
This course is the second of two courses covering web graphics. Topics include graphics acquisition using scanners and digital cameras, graphics optimization, use of masks, advanced special effects, GIF animation, and other related topics. Upon completion, students should be able to create graphics that are optimized for size and graphic file type, properly converted from digitized sources and create useful animated graphics.

### ITN 220 Advanced Internet Multimedia
Prerequisites: ITN 120
Corequisites: None
This is the second of two courses covering Internet multimedia. Topics include use of advanced Internet multimedia applications. Upon completion, students should be able to create interactive Internet multimedia presentations.

### ITN 230 Intranets
Prerequisites: ITN 130
Corequisites: None
This course covers the setting up of intranets. Topics include selection of server hardware and software, selection of client applications, security, conversion of existing data to Web-based formats, intranet applications and administration. Upon completion, students should be able to set up a corporate or institutional intranet.

### ITN 240 Internet Security
Prerequisites: None
Corequisites: None
This course covers security issues related to Internet services. Topics include the operating system and Internet service security mechanisms. Upon completion, students should be able to implement security procedures for operating system level and server level alerts. This course uses the CIW Security Professional curriculum.

### ITN 250 Implementing Internet Services
Prerequisites: None
Corequisites: None
This course covers the setup and configuration of news, mail, ftp, and WWW services. Topics include selection and installation of software to support common Internet services and related topics. Upon completion, students should be able to install and configure the most commonly used Internet service software. This course uses the CIW Application Developer curriculum.

### ITN 260 Intro to E-Commerce
Prerequisites: None
Corequisites: None
This course introduces the concepts and tools to implement electronic commerce via the Internet. Topics include application and server software selection, securing transactions, use and verification of credit cards, publishing of catalogs, and site administration. Upon completion, students should be able to setup a working e-commerce Internet web site.

### ITN 270 Adv Internet Databases
Prerequisites: ITN 170 or instructor permission
Corequisites: None
This is the second of two courses on internet databases. Topics include database distribution and replication, data warehousing, integration of desktop and Internet database structures. Upon completion, students should be able to design and implement an Internet database. This course uses SQL server as a Microsoft Academy course.

### ITN 280 Unix Internet Prog
Prerequisites: None
Corequisites: None
This course presents advanced concepts and features of the UNIX operating system as they pertain to Internet programming. Topics include process control, shell-programming and scripts, advanced search techniques, power user utilities and programming for Internet service maintenance. Upon completion, students should be able to successfully perform various Internet-related UNIX programming tasks.

### ITN 285 Emerging Technologies
Prerequisites: None
Corequisites: None
This course will expose students to emerging technologies in the field of Internet technologies. Emphasis is placed on the new technologies in the Internet related field. Upon completion, students should be aware of the emerging technologies of Internet technologies. This course requires heavy reading and active participation.
IPP 111 Introduction to Interpretation
Prerequisites: None
Corequisites: None
This course provides an introduction to the field of interpreting, focusing on interpretation models, cognitive processes associated with interpretation, professional ethical standards, employment opportunities, and working conditions. Topics include specialized jargon, code of ethics, interpreter assessments/qualifications, and protocol associated with various settings. Upon completion, students should be able to explain the rationale for placement of interpreters and apply ethical standards to a variety of working situations.

IPP 112 Comparative Cultures
Prerequisites: ASL 112
Corequisites: None
This course introduces observable attributes of deaf and non-deaf individuals and the social, political, educational, vocational, and historical issues faced by each. Topics include value systems of deaf and non-deaf individuals, enculturation stages, sociolinguistic continuum of language use within the deaf community, and cross-cultural management. Upon completion, students should be able to compare deaf and non-deaf cultures and discuss how prejudices are reflected in and impact on communication interactions.

IPP 130 Analytical Skills for Interpreters
Prerequisites: ASL 112
Corequisites: None
This course is designed to improve cognitive processes associated with interpreting, focusing on memory, semantic equivalence, visual/auditory processing, thought organization, and logic. Emphasis is placed on developing skills necessary to generate equivalent messages between ASL and English. Upon completion, students should be able to consecutively interpret non-technical, interactive messages between ASL and English.

IPP 150 Linguistics of American Sign Language (ASL)
Prerequisites: ASL 112
Corequisites: None
This course expands skills in generating appropriate ASL, focusing on applying grammatical and syntactical features of ASL to a variety of technical and non-technical topics. Upon completion, students should be able to comprehend and respond with increasing fluency in ASL.

IPP 151 American Sign Language (ASL) / Numbers & Fingerspell
Prerequisites: ASL 112
Corequisites: None
This course provides an in-depth study of number systems and fingerspelling techniques in ASL. Emphasis is placed on generating and receiving numbers and fingerspelling in context. Upon completion, students should be able to accurately express and receive numbers and fingerspelling.

IPP 152 American Sign Language (ASL) / English Translation
Prerequisites: ASL 112
Corequisites: None
This course provides a study of the component parts of a cultural scheme and the manner in which ASL and English differ. Emphasis is placed on analyzing, discussing, and translating basic ASL and English texts. Upon completion, students should be able to discuss and apply techniques of cross-cultural communication and translation between deaf and non-deaf communities.

IPP 153 Introduction to Discourse Analysis
Prerequisites: ASL 112
Corequisites: None
This course introduces discourse types and functions and specialized vocabulary and examines the specific nature of ASL discourse. Emphasis is placed on applying and practicing a model of analysis utilizing specialized vocabulary. Upon completion, students should be able to utilize specialized vocabulary and demonstrate ASL discourse features.

IPP 161 Consecutive Interpreting
Prerequisites: IPP 152
Corequisites: None
This course introduces the process of ASL/English consecutive interpreting in a variety of interview, meeting, and small conference settings. Emphasis is placed on generating equivalent messages between ASL and English. Upon completion, students should be able to discuss and apply the principles of the protocol of consecutive interpreting.

IPP 221 Simultaneous Interpreting I
Prerequisites: IPP 161
Corequisites: None
This course introduces simultaneous ASL/English interpreting through a variety of expository texts originating in group, meeting, and conference settings. Emphasis is placed on analyzing expository texts, identifying registers, and applying principles of the protocol of interpreting. Upon completion, students should be able to apply the appropriate linguistic and/or cultural adjustments required to generate equivalent messages.

IPP 222 Simultaneous Interpreting II
Prerequisites: IPP 221
Corequisites: None
This course provides additional experience in interpreting a variety of situations which occur during basic expository presentations. Emphasis is placed on interpreting texts which serve an informational, hortatory, and/or procedural function. Upon completion, students should be able to apply the appropriate linguistic and cultural adjustments necessary to achieve an equivalent register in the interpretation.
IPP 240 Ethical Standards & Practices 3 0 3  
Prerequisites:  
Corequisites: IPP 221  
This course develops intellectual and ethical decision-making abilities and considers common ethical dilemmas that arise within the interpreting process. Topics include a model of ethical/intellectual development and the application of the model to interpreting practices. Upon completion, students should be able to discuss ethical resolution to various case studies and apply recognized principles of professional behavior to the interpreting process.

JOU - Journalism  

JOU 110 Introduction to Journalism 3 0 3  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director  
Corequisites: None  
This course presents a study of journalistic news, feature, and sports writing. Emphasis is placed on basic news writing techniques and on related legal and ethical issues. Upon completion, students should be able to gather, write, and edit news, feature, and sports articles. Note: This course is a Writing Intensive Elective for UNCC.

LEX - Legal Education  

LEX 110 Introduction to Paralegal Study 2 0 2  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course introduces the paralegal profession and the legal system. Topics include regulations and concepts, ethics, case analysis, legal reasoning, career opportunities, certification, professional organizations, and other related topics. Upon completion, students should be able to explain the role of the paralegal and identify the skills, knowledge, and ethics required of legal assistants.

LEX 120 Legal Research/Writing I 2 2 3  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course introduces the techniques of legal research and writing. Emphasis is placed on locating, analyzing, applying, and updating sources of law; effective legal writing, including proper citation; and the use of electronic research methods. Upon completion, students should be able to perform legal research and writing assignments using techniques covered in the course.

LEX 121 Legal Research/Writing II 2 2 3  
Prerequisites: LEX 120; A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course covers advanced topics in legal research and writing. Topics include more complex legal issues and assignments involving preparation of legal memos, briefs, and other documents and the advanced use of electronic research methods. Upon completion, students should be able to perform legal research and writing assignments using techniques covered in the course.

LEX 130 Civil Injuries 3 0 3  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course covers traditional tort concepts and the evolving body of individual rights created by statute. Topics include intentional and non-intentional torts with emphasis on negligence, strict liability, civil rights, workplace and environmental liability, remedies, and damages. Upon completion, students should be able to recognize, explain, and evaluate elements of civil injuries and related defenses.

LEX 140 Civil Litigation I 3 0 3  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course introduces the structure of the legal system and the rules governing civil litigation. Emphasis is placed on jurisdiction and the state and federal rules of civil procedure and rules of evidence. Upon completion, students should be able to assist an attorney in the preparation of a civil case.

LEX 141 Civil Litigation II 2 2 3  
Prerequisites: LEX 120 and LEX 140; A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course covers the paralegal’s role in the civil litigation process. Topics include investigation, interviewing, pleadings, motions, discovery, and trial and appellate procedures. Upon completion, students should be able to assist an attorney in preparing, directing, and organizing documents for civil litigation.

LEX 150 Commercial Law 2 2 3  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None  
This course covers legally enforceable agreements, forms of organization, and selected portions of the Uniform Commercial Code. Topics include drafting and enforcement of contracts, leases, and related documents and selection and implementation of business organization forms, sales, and commercial papers. Upon completion, students should be able to apply the elements
of a contract, prepare various business documents, and understand the role of commercial paper.

LEX 160  Criminal Law & Procedure  2 2 3
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course introduces substantive criminal law and procedural rights of the accused. Topics include elements of state/federal crimes, defenses, constitutional issues, pre-trial process, and other related topics. Upon completion, students should be able to explain elements of specific crimes and assist an attorney in preparing a criminal case.

LEX 170  Administrative Law  1 2 2
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course covers the scope, authority, and regulatory operations of various federal, state, and local administrative agencies. Topics include social security, workers’ compensation, unemployment, zoning, and other related topics. Upon completion, students should be able to research sources of administrative law, investigate, and assist in representation of clients before administrative agencies.

LEX 180  Case Analysis & Reasoning  1 2 2
Prerequisites: Enrollment in the program; A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: LEX 120
This course covers the techniques of reading and applying legal opinions and the skills of case analysis. Emphasis is placed on the components of opinions and on types of legal writing. Upon completion, students should be able to read, analyze, and prepare legal memoranda, briefs, and other legal documents.

LEX 192  Selected Topics in Paralegal I  2 0 2
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

LEX 193  Selected Topics in Paralegal II  3 0 3
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

LEX 210  Real Property I  3 0 3
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course introduces the study of real property law. Topics include the distinction between real and personal property, various estates, mechanics of conveyance and encumbrance, recording, special proceedings, and other related topics. Upon completion, students should be able to identify estates, forms of deeds, requirements for recording, and procedures to enforce rights to real property.

LEX 211  Real Property II  1 4 3
Prerequisites: LEX 210; A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course continues the study of real property law relating to title examination and preparation of closing documents. Topics include use of courthouse and other public records in title examination and preparation of documents required in real estate transactions and closings. Upon completion, students should be able to plot/draft a description, perform complete title examination, draft closing documents including title insurance forms, and prepare disbursement reconciliation.

LEX 220  Corporate Law  2 0 2
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course covers laws governing domestic relations. Topics include marriage, separation, divorce, child custody, support, property division, adoption, domestic violence, and other related topics. Upon completion, students should be able to draft basic partnership and corporate documents and file these documents as required.

LEX 240  Family Law  3 0 3
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course covers the legal aspects of forming, operating, and maintaining a business. Emphasis is placed on the business corporation with additional coverage of sole proprietorships and partnerships. Upon completion, students should be able to draft basic partnership and corporate documents and file these documents as required.

LEX 250  Wills, Estates, & Trusts  2 2 3
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.
Corequisites: None
This course covers various types of wills, trusts, probate, estate administration, and intestacy. Topics include types of wills and execution requirements, caveats and dissents, intestate succession, inventories and accountings, distribution and settlement, and other related topics. Upon completion, students
should be able to draft simple wills, prepare estate forms, understand administration of estates including taxation, and explain terms regarding trusts.

**LEX 260 Bankruptcy & Collections**  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None

This course provides an overview of the laws of bankruptcy and the rights of creditors and debtors. Topics include bankruptcy procedures and estate management, attachment, claim and delivery, repossession, foreclosure, collection, garnishment, and post-judgment collection procedure. Upon completion, students should be able to prepare and file bankruptcy forms, collection letters, statutory liens, and collection of judgments.

**LEX 280 Ethics & Professionalism**  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None

This course reinforces legal ethics and the role of the paralegal in a professional work environment. Topics include a review of ethics, employment opportunities, and search techniques; paralegal certification; and other related topics. Upon completion, students should be able to understand the role of a professional paralegal and identify authority that can properly be delegated by an attorney.

**LEX 285 Workers’ Comp Law**  
Prerequisites: A minimum placement test score in reading is a prerequisite to all LEX courses. This prerequisite will be waived for students holding a bachelor’s degree.  
Corequisites: None

This course covers the process of initiating and handling workers’ compensation claims. Emphasis is placed on reviewing and drafting relevant Industrial Commission forms. Upon completion, students should be able to interview clients; gather information, and draft documents related to workers’ compensation claims.

**MAC -Machining**

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<thead>
<tr>
<th>MAC 111 Machining Technology I</th>
<th>Lecture</th>
<th>Lab</th>
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<td>Prerequisites:</td>
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<td>Corequisites:</td>
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<tr>
<td>This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, drilling machines, saws, milling machines, bench grinders, and layout instruments. Upon completion, students should be able to safely perform the basic operations of measuring, layout, drilling, sawing, turning, and milling.</td>
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<tr>
<th>MAC 111X Machining Technology I</th>
<th>Lecture</th>
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<td>Prerequisites:</td>
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<td>Corequisites:</td>
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<tr>
<th>MAC 112 Machining Technology II</th>
<th>Lecture</th>
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<td>Prerequisites:</td>
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<td>Corequisites:</td>
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<tr>
<td>This course provides additional instruction and practice in the use of precision measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection and use of work holding devices, speeds, feeds, cutting tools, and coolants. Upon completion, students should be able to perform basic procedures on precision grinders and advanced operations of measuring, layout, drilling, sawing, turning, and milling.</td>
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<tr>
<th>MAC 112X Machining Technology II</th>
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<td>Prerequisites:</td>
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<tr>
<th>MAC 113 Machining Technology III</th>
<th>Lecture</th>
<th>Lab</th>
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<td>Prerequisites:</td>
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<td>Corequisites:</td>
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<tr>
<td>This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications.</td>
<td>2</td>
<td>12</td>
<td>6</td>
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This is the first part of a course sequence and emphasizes engine lathe set-up and operation.

This is the second part of a course sequence and emphasizes milling machine set-up and operation.

This is the first part of a course sequence and emphasizes milling machine set-up and operation.

This is the second part of a course sequence and emphasizes layout and hand tool procedures.
MAC 113X  Machining Technology III  1  6  3
Prerequisites: MAC 111X, MAC 111Y, MAC 112Y
Corequisites: None
This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications. This course emphasizes project building.

MAC 113Y  Machining Technology III  1  6  3
Prerequisites: MAC 111X, MAC 111Y, MAC 112Y
Corequisites: None
This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications. This course emphasizes project building.

MAC 114  Introduction to Metrology  2  0  2
Prerequisites: Corequisites: MAC111X or MAC 111Y
This course introduces the care and use of precision measuring instruments. Emphasis is placed on the inspection of machine parts and use of a wide variety of measuring instruments. Upon completion, students should be able to demonstrate the correct use of measuring instruments.

MAC 121  Introduction to Computer Numerical Control  2  0  2
Prerequisites: Corequisites: None
This course introduces the concepts and capabilities of computer numerical control machine tools. Topics include setup, operation, and basic applications. Upon completion, students should be able to explain operator safety, machine protection, data input, program preparation, and program storage.

MAC 122  Computer Numerical Control Turning  1  3  2
Prerequisites: Corequisites: None
This course introduces the programming, setup, and operation of CNC turning centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC turning centers.

MAC 124  Computer Numerical Control Milling  1  3  2
Prerequisites: Corequisites: None
This course introduces the manual programming, setup, and operation of CNC machining centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC machining centers.

MAC 131  Blueprint Reading / Machine I  1  2  2
Prerequisites: Corequisites: None
This course covers the basic principles of blueprint reading and sketching. Topics include multi-view drawings; interpretation of conventional lines; and dimensions, notes, and thread notations. Upon completion, students should be able to interpret basic drawings, visualize parts, and make pictorial sketches.

MAC 132  Blueprint Reading / Machine II  1  2  2
Prerequisites: MAC 131
Corequisites: None
This course introduces more complex industrial blueprints. Emphasis is placed on auxiliary views, section views, violations of true project, special views, applications of GD & T, and interpretation of complex parts. Upon completion, students should be able to read and interpret complex industrial blueprints.

MAC 151  Machining Calculations  1  2  2
Prerequisites: Corequisites: None
This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations.

MAC 152  Advanced Machining Calculations  1  2  2
Prerequisites: MAC 151
Corequisites: None
This course combines mathematical functions with practical machine shop applications and problems. Emphasis is placed on gear ratios, lead screws, indexing problems, and their applications in the machine shop. Upon completion, students should be able to calculate solutions to machining problems.

MAC 222  Advanced Computer Numerical Control Turning  1  3  2
Prerequisites: MAC 121
Corequisites: None
This course covers advanced methods in setup and operation of CNC turning centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC turning centers.

MAC 224  Advanced Computer Numerical Control Milling  1  3  2
Prerequisites: MAC 121
Corequisites: None
This course covers advanced methods in setup and operation of CNC machining centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC machining centers.

MAC 231  Computer Numerical Control Graphics Programming: Turning  1  4  3
Prerequisites: MAC 222
Corequisites: None
This course introduces Computer Numerical Control graphics programming and concepts for turning center applications. Emphasis is placed on the interaction of menus to develop a shape file in a graphics CAM system and to develop tool path geometry and part geometry. Upon completion, students should be able to develop a job plan using CAM software, include machine selection, tool selection, operational sequence, speed, feed, and cutting depth. Transfer machine code from CAM Graphics to the CNC turning center.

MAC 232  Computer Numerical Control Graphics Programming: Milling  1  4  3
Prerequisites: MAC 224
Corequisites: None
This course introduces Computer Numerical Control graph-
ics programming and concepts for machining center applications. Emphasis is placed on developing a shape file in a graphics CAM system and transferring coded information from CAM graphics to the CNC milling center. Upon completion, students should be able to develop a complete job plan using CAM software to create a multi-axis CNC program.

**MNT - Maintenance**

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<thead>
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<th>Course Code</th>
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<th>Lecture</th>
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<tbody>
<tr>
<td>MNT 110</td>
<td>Intro to Maintenance Procedures</td>
<td>1</td>
<td>3</td>
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<td>Corequisites: None</td>
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This course covers basic maintenance fundamentals for power transmission equipment. Topics include equipment inspection, lubrication, alignment, and other scheduled maintenance procedures. Upon completion, students should be able to demonstrate knowledge of accepted maintenance procedures and practices according to current industry standards.

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<tbody>
<tr>
<td>MNT 111</td>
<td>Maintenance Practices</td>
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<td>3</td>
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<tr>
<td>Corequisites: MNT 110</td>
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This course provides in-depth theory and practical applications relating to predictive and preventive maintenance programs. Emphasis is placed on equipment failure, maintenance management software, and techniques such as vibration and infrared analysis. Upon completion, students should be able to demonstrate an understanding of modern analytical and documentation methods.

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<tbody>
<tr>
<td>MNT 150</td>
<td>Basic Building Maintenance</td>
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<td>3</td>
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<td>Corequisites: None</td>
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This course introduces the basic skills of building maintenance. Topics include basic carpentry and masonry skills including forming, framing, laying block to a line, repairing, and other related topics. Upon completion, students should be able to perform basic carpentry and masonry skills in a maintenance setting.

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</thead>
<tbody>
<tr>
<td>MNT 220</td>
<td>Rigging &amp; Moving</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Corequisites: None</td>
<td></td>
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</tbody>
</table>

This course covers the principles of safe rigging practices for handling, placing, and moving heavy machinery and equipment. Topics include safety estimation, positioning of equipment slings, rollers, jacks, levers, dollies, ropes, chains, padding, and other related topics. Upon completion, students should be able to relocate and set up equipment safely using accepted rigging practices.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNT 230</td>
<td>Pumps &amp; Pumping Systems</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Corequisites: None</td>
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</tbody>
</table>

This course covers pump installation and maintenance and related valves and piping systems. Topics include various types of pump systems and their associated valves, piping requirements, and other related topics. Upon completion, students should be able to select and install pump and piping systems and demonstrate proper maintenance and troubleshooting procedures.

**MNT 240 Industrial Equipment Troubleshoot**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corequisites: ELC 112 or ELS 131</td>
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</tbody>
</table>

This course covers the various service procedures, tools, instruments, and equipment necessary to analyze and repair typical industrial equipment. Emphasis is placed on electromechanical and fluid power equipment troubleshooting and repair, including common techniques and procedures. Upon completion, students should be able to troubleshoot and repair industrial equipment.

**MKT - Marketing and Retailing**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 120</td>
<td>Principles of Marketing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Corequisites: None</td>
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</tbody>
</table>

This course introduces principles and problems of marketing goods and services. Topics include promotion, placement, and pricing strategies for products. Upon completion, students should be able to apply marketing principles in organizational decision making.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 121</td>
<td>Retailing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Corequisites: None</td>
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</tbody>
</table>

This course examines the role of retailing in the economy. Topics include the development of present retail structure, functions performed, effective operations, and managerial problems resulting from current economic and social trends. Upon completion, students should be able to demonstrate an understanding of the basic principles of retailing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MKT 122</td>
<td>Visual Merchandising</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Corequisites: None</td>
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</table>

This course introduces basic layout design and commercial display in retail and service organizations. Topics include an analysis of display as a visual merchandising medium and an examination of the principles and applications of display and design. Upon completion, students should be able to plan, build, and evaluate designs and displays. This course is a unique concentration requirement of the Marketing and Retailing concentration in the Business Administration program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 123</td>
<td>Fundamentals of Selling</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Corequisites: None</td>
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</table>

This course is designed to emphasize the necessity of selling skills in a modern business environment. Emphasis is placed on sales techniques involved in various types of selling situations. Upon completion, students should be able to demonstrate an understanding of the techniques covered.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 220</td>
<td>Advertising and Sales Promotion</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Corequisites: None</td>
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</tbody>
</table>

This course covers the elements of advertising and sales promotion in the business environment. Topics include advertising and sales promotion appeals, selection of media, use of advertising and sales promotion as a marketing tool, and means of testing effectiveness. Upon completion, students should be able to demonstrate an understanding of the concepts covered through application.
MKT 221 Consumer Behavior 3 0 3
Prerequisites: None
Corequisites: None
This course is designed to describe consumer behavior as applied to the exchange processes involved in acquiring, consuming, and disposing of goods and services. Topics include an analysis of basic and environmental determinants of consumer behavior with emphasis on the decision-making process. Upon completion, students should be able to analyze concepts related to the study of the individual consumer.

MKT 223 Customer Service 3 0 3
Prerequisites: None
Corequisites: None
This course stresses the importance of customer relations in the business world. Emphasis is placed on learning how to respond to complex customer requirements and to efficiently handle stressful situations. Upon completion, students should be able to demonstrate the ability to handle customer relations.

MKT 224 International Marketing 3 0 3
Prerequisites: None
Corequisites: None
This course covers the basic concepts of international marketing activity and theory. Topics include product promotion, placement, and pricing strategies in the international marketing environment. Upon completion, students should be able to demonstrate a basic understanding of the concepts covered.

MKT 225 Marketing Research 3 0 3
Prerequisites: MKT 120
Corequisites: None
This course provides information for decision making by providing guidance in developing, analyzing, and using data. Emphasis is placed on marketing research as a tool in decision making. Upon completion, students should be able to design and conduct a marketing research project and interpret the results. This course is a unique concentration requirement of the Marketing and Retailing concentration in the Business Administration program.

MKT 227 Marketing Applications 3 0 3
Prerequisites: MKT 120
Corequisites: None
This course extends the study of diverse marketing strategies. Emphasis is placed on case studies and small-group projects involving research or planning. Upon completion, students should be able to effectively participate in the formulation of a marketing strategy. This course is a unique concentration requirement of the Marketing and Retailing concentration in the Business Administration program.

MKT 228 Service Marketing 3 0 3
Prerequisites: None
Corequisites: None
This course is designed to define service marketing, demonstrate its importance, and note its special characteristics. Topics include basic building blocks of service marketing, distinctive aspects of services, and applications of service marketing mix. Upon completion, students should be able to demonstrate a basic understanding of the marketing mix as it applies to the service industry.

MKT 229 Special Events Production 2 0 2
Prerequisites: None
Corequisites: None
This course introduces the different objectives of various special events and the procedures and elements necessary for successful promotional activity. Emphasis is placed on planning, budgeting, promoting, and coordinating activities. Upon completion, students should be able to utilize the elements studied in the production of special events.

MKT 230 Public Relations 3 0 3
Prerequisites: None
Corequisites: None
This course introduces public relations as it affects communications, strategic planning, and management of the organization. Topics include basic principles and functions of management that guide public relations activities as applied to businesses, services, institutions, and associations. Upon completion, students should be able to perform the communications, evaluation, planning, and research activities of the public relations professional.

MAT - Mathematics
Initial student placement in Mathematics courses is based on the college’s placement testing policies and procedures.

MAT 115 Mathematical Models 2 2 3
Prerequisites: MAT 070, or placement test score, or permission of the division director.
Corequisites: None
This course develops the ability to utilize mathematical skills and technology to solve problems at a level found in non-mathematics-intensive programs. Topics include applications to percent, ratio and proportion, formulas, statistics, functional notation, linear functions and their graphs, probability, sampling techniques, scatter plots, and modeling. Upon completion, students should be able to solve practical problems, reason and communicate with mathematics, and work confidently, collaboratively, and independently. This course is intended for AAS degree programs.

MAT 121 Algebra/Trigonometry I 2 2 3
Prerequisites: MAT 080 with a grade of C or better, or placement test score, or permission of the division director
Corequisites: None
This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include simplification, evaluation, and solving of algebraic, radical, exponential, and logarithmic functions; descriptive statistics; right triangle trigonometry; and the use of technology. Upon completion, students should be able to solve problems and analyze and communicate results. This course is intended for AAS degree programs.

MAT 122 Algebra/Trigonometry II 2 2 3
Prerequisites: MAT 121 with a grade of C or better, or permission of the division director
Corequisites: None
This course extends the concepts covered in MAT 121 to include additional topics in algebra, function analysis, trigonometry, and systems of equations. Topics include translation and scaling of functions, sine law, cosine law, complex numbers, vectors, statistics, and systems of equations. Upon completion, students should be able to demonstrate an understanding of the
use of technology to solve problems and to analyze and communicate results. This course is intended for AAS degree programs.

MAT 140 Survey of Mathematics 3 0 3
Prerequisites: MAT 070 with a grade of C or better, or placement test score, or permission of the division director
Corequisites: None
This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for AA, AFA, and AGE degree programs.

MAT 155 Statistical Analysis 3 0 3
Prerequisites: MAT 080 with a grade of C or better, or placement score.
Corequisites: MAT 155A
This course is an introduction to descriptive and inferential statistics. Topics include sampling, distributions, plotting data, central tendency, dispersion, Central Limits Theorem, confidence intervals, hypothesis testing, correlations, regressions, and multinomial experiments. Upon completion, students should be able to describe data and test inferences about populations using sample data. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for all associate degree programs.

MAT 155A Statistical Analysis Lab 0 2 1
Corequisites: MAT 155
This course is a laboratory for MAT 155. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

MAT 161 College Algebra 3 0 3
Prerequisites: MAT 080 with a grade of C or better, or placement test score, or permission of the division director
Corequisites: None
This course provides an integrated technological approach to algebraic topics used in problem solving. Emphasis is placed on equations and inequalities; polynomials, rational, exponential and logarithmic functions; and graphing and data analysis/modeling. Upon completion, students should be able to choose an appropriate model to fit a data set and use the model for analysis and prediction. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for AA, AFA, and AGE degree programs.

MAT 167 Discrete Mathematics 3 0 3
Prerequisites: A grade of C or better in MAT 161 or MAT 171 or MAT 175, or permission of the division director
Corequisites: None
This course is a study of discrete mathematics with emphasis on applications. Topics include number systems, combina-
### MAT 263 Brief Calculus

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MAT 263 Brief Calculus</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Prerequisites:** MAT 161 with a grade of C or better, or permission of the division director

**Corequisites:** MAT 263A

This course introduces concepts of differentiation and integration and their applications to solving problems; the course is designed for students needing one semester of calculus. Topics include functions, graphing, differentiation, and integration with emphasis on applications drawn from business, economics, and biological and behavioral sciences. Upon completion, students should be able to demonstrate an understanding of the use of basic calculus and technology to solve problems and to analyze and communicate results. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for AA, AFA, and AGE degree programs.

### MAT 263A Brief Calculus Lab

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 263A Brief Calculus Lab</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Corequisites:** MAT 263

This course is a laboratory for MAT 263. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### MAT 271 Calculus I

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MAT 271 Calculus I</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Prerequisites:** MAT 171 and MAT 172, or MAT 175 with a grade of C or better, or permission of the division director, or placement test score

**Corequisites:** None

This course covers in depth the differential calculus portion of a three-course calculus sequence. Topics include limits, continuity, derivatives, and integrals of algebraic and transcendental functions of one variable, with applications. Upon completion, students should be able to apply differentiation and integration techniques to algebraic and transcendental functions. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for AS degree programs.

### MAT 272 Calculus II

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<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MAT 272 Calculus II</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Prerequisites:** MAT 271 with a grade of C or better, or permission of the division director

**Corequisites:** None

This course provides a rigorous treatment of integration and is the second calculus course in a three-course sequence. Topics include applications of definite integrals, techniques of integration, indeterminate forms, improper integrals, infinite series, conic sections, parametric equations, polar coordinates, and differential equations. Upon completion, students should be able to use integration and approximation techniques to solve application problems. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for AS degree programs.

### MAT 273 Calculus III

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MAT 273 Calculus III</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Prerequisites:** MAT 272 with a grade of C or better, or permission of the division director

**Corequisites:** None

This course covers the calculus of several variables and is the third calculus course in a three-course sequence. Topics include functions of several variables, partial derivatives, multiple integrals, solid analytical geometry, vector-valued functions, and line and surface integrals. Upon completion, students should be able to solve problems involving vectors and functions of several variables. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is intended for AS degree programs.

### MAT 285 Differential Equations

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MAT 285 Differential Equations</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Prerequisites:** MAT 272 or MAT 273 with a grade of C or better, or permission of the division director

**Corequisites:** None

This course provides an introduction to ordinary differential equations with an emphasis on applications. Topics include first-order, linear, higher-order, and systems of differential equations; numerical methods; series solutions; eigenvalues and eigenvectors; Laplace transforms; and Fourier series. Upon completion, students should be able to use differential equations to model physical phenomena, solve the equations, and use the solutions to analyze the phenomena. This course is intended for AS degree programs.

### MAT - Developmental Studies (MAT 050-080)

See Pre-College section of this catalog.

### MEC - Mechanical Engineering Technology

See also ATR-Automation, DDF-Design Drafting, DFT-Drafting, ISC-Industrial Science, and PLA-Plastics for other courses.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEC 111X Machine Processes 1 (Conventional)</td>
<td>1</td>
<td>2</td>
<td>1.7</td>
</tr>
</tbody>
</table>

**Prerequisites:**

**Corequisites:** None

This course introduces safety, hand tools, machine processes, measuring instruments, and the operation of machine shop equipment. Topics include safety, measuring tools, and the basic setup and operation of lathes, milling machines, drill presses, and saws. Upon completion, students should be able to manufacture a simple part to a specified tolerance. This is the first part of a course sequence and emphasizes conventional machine tools.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MEC 111Y Machine Processes 1 (CNC)</td>
<td>1</td>
<td>2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

**Prerequisites:** MEC 111X

**Corequisites:** None

This course introduces safety, hand tools, machine processes, measuring instruments, and the operation of machine shop equipment. Topics include safety, measuring tools, and the basic setup and operation of lathes, milling machines, drill presses, and saws. Upon completion, students should be able to manufacture a simple part to a specified tolerance. This is the second part of a course sequence and emphasizes CNC programming and production.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MEC 112 Mechanical Processes II</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Prerequisites:** MEC 111

**Corequisites:** None

This course covers advanced use of milling machines and lathes. Emphasis is placed on safety and compound setup of
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Clinic</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MEC 128</td>
<td>CNC Machining Processes</td>
<td>2</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Prerequisites: MAC 121</td>
<td></td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers programming, setup, and operations of CNC turning, milling, and other CNC machines. Topics include programming formats, control functions, program editing, and part production and inspection. Upon completion, students should be able to manufacture simple parts using CNC turning and milling centers.</td>
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<tr>
<td>MEC 161</td>
<td>Manufacturing Processes I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Prerequisites: None</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course provides the fundamental principles of processing materials into usable forms for the customer. Emphasis is placed on material forming, removal, and value-added processing provided to the customer by the manufacturers. Upon completion, students should be able to apply principles of traditional and non-traditional processing for metals and non-metals.</td>
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<tr>
<td>MEC 172</td>
<td>Introduction to Metallurgy</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Prerequisites: None</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the production, properties, testing, classification, microstructure, and heat treating effects of ferrous and non-ferrous metals. Topics include the iron-carbon phase diagram, ITT diagram, ANSI code, quenching, senescing, and other processes concerning metallurgical transformations. Upon completion, students should be able to understand the iron-carbon phase diagram, ITT diagram, microstructure images, and other phenomena concerning the behavior of metals.</td>
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<tr>
<td>MEC 180</td>
<td>Engineering Materials</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Prerequisites: ENG 114</td>
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<td></td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the physical and mechanical properties of materials. Topics include testing, heat treating, ferrous and non-ferrous metals, plastics, composites, and material selection. Upon completion, students should be able to specify basic tests and properties and select appropriate materials on the basis of specific properties.</td>
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<tr>
<td>MEC 251</td>
<td>Statics</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisites: PHY 131 or PHY 151</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the concepts and principles of statics. Topics include systems of forces and moments on structures in two- and three-dimensions in equilibrium. Upon completion, students should be able to analyze forces and moments on structures.</td>
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<tr>
<td>MEC 252</td>
<td>Strength of Materials</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: MEC 251</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the principles and concepts of stess analysis. Topics includes centroids, moments of inertia, shear/moment diagrams, and stress and strain. Upon completion, students should be able to perform a stress and strain analysis on structural components.</td>
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<tr>
<td>MEC 265</td>
<td>Fluid Mechanics</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisites: PHY 131, PHY 151, or PHY 110</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the physical behavior of fluids and fluid systems. Topics include fluid statics and dynamics, laminar and turbulent flow, Bernoulli’s Equation, components, applications, and other related topics. Upon completion, students should be able to apply fluid power principles to practical applications.</td>
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<tr>
<td>MEC 267</td>
<td>Thermal Systems</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: PHY 131 or PHY 151</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course introduces the fundamental laws of thermodynamics. Topics include work and energy, open and closed systems, and heat engines. Upon completion, students should be able to demonstrate a knowledge of the laws and principles that apply to thermal power.</td>
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<tr>
<td>MEC 270</td>
<td>Machine Design</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: DFT 151, MEC 180, and MEC 252</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers the basic principles underlying design and selection of machine elements. Topics include stress analysis, selection of components, power transmission, and other design considerations. Upon completion, students should be able to identify and solve mechanical design problems by applying basic engineering principles.</td>
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<tr>
<td>MEC 275</td>
<td>Engineering Mechanisms</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Prerequisites: DFT 151 and PHY 131 or PHY 151</td>
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<td>Corequisites: None</td>
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<tr>
<td>This course covers plane motion and devices used to generate plane motion. Topics include analysis of displacement, velocity, acceleration, gears, cams and other mechanical systems. Upon completion, students should be able to graphically and mathematically analyze a plane motion system.</td>
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<tr>
<td>MEC 292</td>
<td>Selected Topics in Mechanical Engineering Tech</td>
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<td>2</td>
<td>2</td>
<td></td>
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<tr>
<td>Prerequisites: None</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course covers provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding on the specific area of study.</td>
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<tr>
<td>MEC 293</td>
<td>Selected Topics in Mechanical Engineering Tech</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>Prerequisites: None</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.</td>
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<tr>
<td>MED 110</td>
<td>Orientation to Medical Assisting</td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Prerequisites: None</td>
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<td>Corequisites: None</td>
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</table>
| This course covers the history of medicine and the role of the
medical assistant in the health care setting. Emphasis is placed on professionalism, communication, attitude, behaviors, and duties in the medical environment. Upon completion, students should be able to project a positive attitude and promote the profession of medical assisting.

**MED 112 Orientation to Clinic Setting I**  
0 0 3 1  
Prerequisites: Enrollment in the Medical Assisting program  
Corequisites: None  
This course provides an early opportunity to observe the medical setting. Emphasis is placed on medical assisting procedures including appointment scheduling, filing, greeting patients, telephone techniques, billing, collections, medical records, and related medical procedures. Upon completion, students should be able to identify administrative and clinical procedures in the medical environment.

**MED 114 Professional Interaction in Health Care**  
1 0 0 1  
Prerequisites: Division Approval  
Corequisites: None  
This course is designed to identify various patient behaviors encountered in the medical setting. Emphasis is placed on stressors related to illness, cultural influences, death and dying, and needs specific to patients. Upon completion, students should be able to utilize appropriate methods of verbal and nonverbal communication with empathy and impartiality.

**MED 116 Introduction to A & P**  
3 2 0 4  
Prerequisites: Division Approval  
Corequisites: None  
This course introduces basic anatomy and physiology. Emphasis is placed on the relationship between body structure and function and the procedures common to health care. Upon completion, students should be able to identify body system components and functions relating this knowledge to the delivery of health care.

**MED 118 Medical Law and Ethics**  
2 0 0 2  
Prerequisites: Division Approval  
Corequisites: None  
This course covers legal relationships of physicians and patients, contractual agreements, professional liability, malpractice, medical practice acts, informed consent, and bioethical issues. Emphasis is placed on legal terms, professional attitudes, and the principles and basic concepts of ethics and laws involved in providing medical services. Upon completion, students should be able to meet the legal and ethical responsibilities of a multi-skilled health professional.

**MED 120 Survey of Medical Terminology**  
2 0 0 2  
Prerequisites: None  
Corequisites: None  
This course introduces the vocabulary abbreviations and symbols used in the language of medicine. Emphasis is placed on building medical terms using prefixes, suffixes, and word roots. Upon completion, students should be able to pronounce, spell and define accepted medical terms.

**MED 121 Medical Terminology I**  
3 0 0 3  
Prerequisites: None  
Corequisites: None  
This course introduces prefixes, suffixes, and word roots used in the language of medicine. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.

**MED 122 Medical Terminology II**  
3 0 0 3  
Prerequisites: MED 121  
Corequisites: None  
This course is the second in a series of medical terminology courses. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.

**MED 130 Administrative Office Procedures I**  
1 2 0 2  
Prerequisites: Enrollment in the Medical Assisting program, keyboarding/computer skills  
Corequisites: None  
This course introduces medical office administrative procedures. Topics include appointment processing, written and oral communications, medical records, patient orientation, and safety. Upon completion, students should be able to perform basic administrative skills within the medical environment.

**MED 131 Administrative Office Procedures II**  
1 2 0 2  
Prerequisites: keyboarding/computer skills  
Corequisites: MAT 115, MED 121  
This course provides medical office procedures in both economic and management skills. Topics include physical plant maintenance, equipment and supplies, liability coverage, medical economics, and introductory insurance procedures. Upon completion, students should be able to manage the economics of the medical office and supervise personnel.

**MED 134 Medical Transcription**  
2 2 0 3  
Prerequisites: MED 116, MED 121, or BIO 163 or BIO 168/169, keyboarding/computer skills  
Corequisites: None  
This course provides the basic knowledge, understanding, and skills required to complete medical reports and transcribe medical dictation. Emphasis is placed on correct punctuation, capitalization, and spelling. Upon completion, students should be able to demonstrate competence in medical transcription.

**MED 138 Infection/Hazard Control**  
2 0 0 2  
Prerequisites: None  
Corequisites: None  
This course introduces the student to infection and hazard control procedures necessary for the healthcare worker. Topics include introduction to microbiology, practical infection control, sterilization and monitoring, chemical disinfectants, aseptic technique, infectious diseases, OSHA standards, and applicable
North Carolina laws. Upon completion, students should be able to understand infectious diseases, disease transmission, infection control procedures, biohazard management, OSHA standards, and applicable North Carolina laws. *(State ID Course Approval Number: Medical 96-M-94-1010)*

**MED 140 Exam Room Procedures I**

Prerequisites: Completion of first semester courses in the Medical Assisting program
Corequisites: MED 150
This course provides instruction in clinical examining room procedures. Topics include asepsis, infection control, assisting with exams and treatment, patient education, preparation and administration of medications, EKG, vital signs, and medical emergencies. Upon completion, students should be able to demonstrate competence in exam room procedures.

**MED 150 Laboratory Procedures I**

Prerequisites: Completion of first semester courses in the Medical Assisting program
Corequisites: MED 140
This course provides instruction in basic lab techniques used by the medical assistant. Topics include lab safety, quality control, collecting and processing specimens, performing selective tests, phlebotomy, screening and follow-up of test results, and OSHA/CLIA regulations. Upon completion, students should be able to perform basic lab tests/skills based on course topics.

**MED 232 Medical Insurance Coding**

Prerequisites: None
Corequisites: None
This course is designed to build upon the coding skills introduced in MED 131. Emphasis is placed on advanced diagnostic and procedural coding in the outpatient facility. Upon completion, students should be able to demonstrate proficiency in coding for reimbursement.

**MED 260 Medical Clinical Externship**

Prerequisites: Completion of first and second semester courses in the Medical Assisting program
Corequisites: MED 262 and MED 276
This course provides the opportunity to apply clinical, laboratory, and administrative skills in a medical facility. Emphasis is placed on enhancing competence in clinical and administrative skills necessary for comprehensive patient care and strengthening professional communications and interactions. Upon completion, students should be able to function as an entry-level health care professional.

**MED 262 Clinical Perspectives**

Prerequisites: Completion of first and second semester courses in the Medical Assisting program
Corequisites: MED 260 and MED 276
This course is designed to explore personal and occupational responsibilities of the practicing medical assistant. Emphasis is placed on problems encountered during externships and development of problem-solving skills. Upon completion, students should be able to demonstrate courteous and diplomatic behavior when solving problems in the medical facility.

**MED 270 Symptomatology**

Prerequisites: Completion of the Medical Assisting Diploma program or Division Approval
Corequisites: None
This course covers the study of disease symptoms and the appropriate actions taken by medical assistants in a medical facility in relation to these symptoms. Emphasis is placed on interviewing skills and appropriate triage, preparing patients for procedures, and screening test results. Upon completion, students should be able to recognize how certain symptoms relate to specific diseases, recognize emergency situations, and take appropriate actions.

**MED 272 Drug Therapy**

Prerequisites: Completion of the Medical Assisting Diploma program or Division approval
Corequisites: None
This course focuses on major drug groups, including their side effects, interactions, methods of administration, and proper documentation. Emphasis is placed on the theory of drug administration. Upon completion, students should be able to identify, spell, recognize side effects of, and document the most commonly used medications in a physician’s office.

**MED 274 Diet Therapy / Nutrition**

Prerequisites: Completion of second semester courses in the Medical Assisting program
Corequisites: None
This course introduces the basic principles of nutrition as they relate to health and disease. Topics include basic nutrients, physiology, dietary deficiencies, weight management, and therapeutic nutrition in wellness and disease. Upon completion, students should be able to interpret clinical and dietary data and provide patient counseling and education.

**MED 276 Patient Education**

Prerequisites: Completion of first and second semester courses in the Medical Assisting program
Corequisites: MED 260 and MED 262
This course is designed to provide communication skills, basic education principles, and knowledge of available community resources and to apply this knowledge to the clinical setting. Emphasis is placed on identifying appropriate community resources, developing patient education materials, and perfecting written and oral communication skills. Upon completion, students should be able to instruct, communicate effectively, and act as a liaison between the patient and community agencies.

**MLT - Medical Laboratory Technology**

**MLT 110 Introduction to Medical Laboratory Technology**

Prerequisites: None
Corequisites: None
This course introduces all aspects of the medical laboratory profession. Topics include health care/laboratory organization, professional ethics, basic laboratory techniques, safety, quality assurance, and specimen collection. Upon completion, students should be able to demonstrate a basic understanding of laboratory operations and be able to perform basic laboratory skills.
### Course Descriptions

**MLT 111 Urinalysis and Body Fluids**  
1 3 0 2  
Prerequisites: MLT 120  
Corequisites: None  
This course introduces the laboratory analysis of urine and body fluids. Topics include physical, chemical, and microscopic examination of the urine and body fluids. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting urinalysis and body fluid tests.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
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</thead>
<tbody>
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<td>MLT 111</td>
<td>Urinalysis and Body Fluids</td>
<td>1</td>
<td>MLT 120</td>
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<tr>
<td>MLT 120</td>
<td>Hematology / Hemostasis I</td>
<td>3 3 0 4</td>
<td>None</td>
<td>None</td>
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<tr>
<td>MLT 126</td>
<td>Immunology and Serology</td>
<td>1 2 0 2</td>
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<td>None</td>
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<tr>
<td>MLT 127</td>
<td>Transfusion Medicine</td>
<td>2 3 0 3</td>
<td>MLT 126</td>
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<tr>
<td>MLT 130</td>
<td>Clinical Chemistry I</td>
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<td>CHM 130, CHM 130A</td>
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<tr>
<td>MLT 140</td>
<td>Introduction to Microbiology</td>
<td>2 3 0 3</td>
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- aseptic technique, staining techniques, and usage of common media. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting basic clinical microbiology procedures.

**MLT 216 Professional Issues**  
0 2 0 1  
Prerequisites: Permission  
Corequisites: None  
This course surveys professional issues in preparation for career entry. Emphasis is placed on work readiness and theoretical concepts in microbiology, immunohematology, hematology, and clinical chemistry. Upon completion, students should be able to demonstrate competence in career entry-level areas and be prepared for the national certification examination.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>MLT 220</td>
<td>Hematology / Hemostasis II</td>
<td>2 3 0 3</td>
<td>MLT 120</td>
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<tr>
<td>MLT 230</td>
<td>Clinical Chemistry II</td>
<td>2 3 0 3</td>
<td>MLT 130</td>
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<tr>
<td>MLT 240</td>
<td>Special Clinical Microbiology</td>
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<td>MLT 140</td>
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<tr>
<td>MLT 251</td>
<td>Medical Laboratory Technology</td>
<td>0 0 3 1</td>
<td>MLT 110 and Permission</td>
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<td>Practicum I</td>
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<tr>
<td>MLT 267</td>
<td>Medical Laboratory Technology</td>
<td>0 0 24 8</td>
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<td>Practicum II</td>
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- Emphasis is placed on clinical microbiology. Upon completion, students should be able to demonstrate theoretical comprehension in performing and interpreting specialized clinical microbiology procedures.

- Emphasis is placed on work readiness and theoretical concepts in microbiology, immunohematology, hematology, and clinical chemistry. Upon completion, students should be able to demonstrate competence in career entry-level areas and be prepared for the national certification examination.
**Medical Laboratory Technology Practicum III**

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<th>Course Code</th>
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<th>Lecture</th>
<th>Lab</th>
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</thead>
<tbody>
<tr>
<td>MLT 277</td>
<td>Medical Laboratory Technology</td>
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<td>0</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Practicum III</td>
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<td>8</td>
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</tbody>
</table>

**Prerequisites:** Permission
**Corequisites:** None
This course provides entry-level clinical laboratory experience. Emphasis is placed on technique, accuracy, and precision. Upon completion, students should be able to demonstrate entry-level competence on final clinical evaluations.

**Microcomputer Specialist**

*(See CIS/CSC Computer Information Systems)*

**MUS - Music**

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<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
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<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MUS 110</td>
<td>Music Appreciation</td>
<td>3</td>
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</tbody>
</table>

**Prerequisites:** None
This course is a basic survey of the music of the Western world. Emphasis is placed on the elements of music, terminology, composers, form, and style within a historical perspective. Upon completion, students should be able to demonstrate skills in basic listening and understanding of the art of music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

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<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
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<tbody>
<tr>
<td>MUS 111</td>
<td>Fundamentals of Music</td>
<td>3</td>
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</tbody>
</table>

**Prerequisites:** None
This course is an introductory course for students with little or no music background. Emphasis is placed on music notation, rhythmic patterns, scales, key signatures, intervals, and chords. Upon completion, students should be able to demonstrate an understanding of the rudiments of music.

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<tbody>
<tr>
<td>MUS 112</td>
<td>Introduction to Jazz</td>
<td>3</td>
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</table>

**Prerequisites:** None
This course introduces the origins and musical components of jazz and the contributions of its major artists. Emphasis is placed on the development of discriminating listening habits, as well as the investigation of the styles and structural forms of the jazz idiom. Upon completion, students should be able to demonstrate skills in listening and understanding this form of American music. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.*

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<tbody>
<tr>
<td>MUS 121</td>
<td>Music Theory I</td>
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</table>

**Prerequisites:** MUS 111 or permission
**Corequisites:** None
This course provides an in-depth introduction to melody, rhythm, and harmony. Emphasis is placed on fundamental melodic, rhythmic, and harmonic analysis, introduction to part writing, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.

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<tbody>
<tr>
<td>MUS 122</td>
<td>Music Theory II</td>
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</table>

**Prerequisites:** MUS 121
**Corequisites:** None
This course is a continuation of studies begun in MUS 121. Emphasis is placed on advanced melodic, rhythmic, and harmonic analysis and continued studies in part-writing, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.

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<tbody>
<tr>
<td>MUS 123</td>
<td>Music Composition</td>
<td>0</td>
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</table>

**Prerequisites:** MUS 111 or MUS 121
**Corequisites:** None
This course provides a study of elementary forms and traditional approaches to the organization of melody, harmony, rhythm, etc. in musical composition. Emphasis is placed on using musical notation to create new musical works. Upon completion, students should be able to create short musical works using appropriate musical notation.

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<tbody>
<tr>
<td>MUS 131</td>
<td>Chorus I</td>
<td>0</td>
<td>2</td>
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**Prerequisites:** None
This course provides an opportunity to gain experience singing in a chorus. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

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<th>Course Code</th>
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<tbody>
<tr>
<td>MUS 132</td>
<td>Chorus II</td>
<td>0</td>
<td>2</td>
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</table>

**Prerequisites:** MUS 131
**Corequisites:** None
This course provides a continuation of studies begun in MUS 131. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

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<tbody>
<tr>
<td>MUS 133</td>
<td>Band I</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Prerequisites:** None
This course provides an opportunity for those who play a band instrument to gain experience playing in an ensemble. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 134</td>
<td>Band II</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Prerequisites:** MUS 133
**Corequisites:** None
This course is a continuation of MUS 133. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 135</td>
<td>Jazz Ensemble I</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Prerequisites:** None
This course provides an opportunity for those who play an appropriate instrument to gain experience playing in a jazz ensemble. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. This course provides the opportunity for development of jazz improvisational skills using chords related to 12-bar blues and simple songs using II-V-I progressions.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 136</td>
<td>Jazz Ensemble II</td>
<td>0 2 1</td>
<td>MUS 135</td>
<td>None</td>
<td>This course is a continuation of MUS 135. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles and periods of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. This course provides opportunities for learning to improvise over chord changes inherent in each jazz style studied.</td>
</tr>
<tr>
<td>MUS 137</td>
<td>Orchestra I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity for those who play an orchestral instrument to gain experience playing in an ensemble. Emphasis is placed on orchestral techniques and the study and performance of a variety of styles and periods of orchestral and string ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 138</td>
<td>Orchestra II</td>
<td>0 2 1</td>
<td>MUS 137</td>
<td>None</td>
<td>This course is a continuation of MUS 137. Emphasis is placed on orchestral techniques and the study and performance of a variety of styles and periods of orchestral and string ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141A</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td>MUS 141</td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141B</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td>MUS 141</td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141C</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td>MUS 141</td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141D</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td>MUS 141</td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141E</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td>MUS 141</td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141F</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141G</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141H</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141I</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141J</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141K</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141L</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 141M</td>
<td>Ensemble I</td>
<td>0 2 1</td>
<td></td>
<td>None</td>
<td>This course provides an opportunity to perform in any combination of instrumental, vocal, or keyboard groups of two or more. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
</tbody>
</table>
MUS 142D  Ensemble II
Prerequisites: MUS 141D
Corequisites: None
This course is a continuation of MUS 141D. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142D is Appalachian Dulcimer Ensemble II.

MUS 142E  Ensemble II
Prerequisites: MUS 141E
Corequisites: None
This course is a continuation of MUS 141E. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142E is Early Music Consort II.

MUS 142F  Ensemble II
Prerequisites: MUS 141F
Corequisites: None
This course is a continuation of MUS 141F. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142F is Folk Music “Jam” II.

MUS 142G  Ensemble II
Prerequisites: MUS 141G
Corequisites: None
This course is a continuation of MUS 141G. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142G is Guitar Ensemble II.

MUS 142H  Ensemble II
Prerequisites: MUS 141H
Corequisites: None
This course is a continuation of MUS 141H. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142H is Folk Harp Ensemble II.

MUS 142I  Ensemble II
Prerequisites: MUS 141I
Corequisites: None
This course is a continuation of MUS 141I. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142I is Recorder Ensemble II.

MUS 142J  Ensemble II
Prerequisites: MUS 141J
Corequisites: None
This course is a continuation of MUS 141J. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 142J is Piano Ensemble II.

MUS 151B  Class Music I
Prerequisites: None
Corequisites: None
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151B is Banjo.

MUS 151C  Class Music I
Prerequisites: None
Corequisites: None
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151C is Beginning Guitar in which focus is on reading guitar music in first position, playing chords in first position, and transposition to selected keys.

MUS 151D  Class Music I
Prerequisites: None
Corequisites: None
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151D is Appalachian Dulcimer.

MUS 151E  Class Music I
Prerequisites: None
Corequisites: None
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151E is Fiddle-Blue Grass and Old-Time.

MUS 151F  Class Music I
Prerequisites: None
Corequisites: None
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151F is Beginning Guitar in which focus is on reading guitar music in first position, playing chords in first position, and transposition to selected keys.

MUS 151G  Class Music I
Prerequisites: None
Corequisites: None
This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151G is Beginning Guitar in which focus is on reading guitar music in first position, playing chords in first position, and transposition to selected keys.
and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151J is Jazz Vocal which will include singing solos as well as scat singing and modern 4-part harmony.

**MUS 151P Class Music I**

Prerequisites:
Corequisites: None

This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151P is Beginning Piano in which students learn music reading skills required for simple two-hand piano compositions in the keys of C and G major.

**MUS 151R Class Music I**

Prerequisites:
Corequisites: None

This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151R is Beginning Recorder in which students will learn basic fingerings on the soprano or alto recorder.

**MUS 151S Class Music I**

Prerequisites:
Corequisites: None

This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151S is Sight singing which is designed to acquaint beginning students with the principles of solfege and pitch organization, rhythmic patterns, and basic harmonic progression.

**MUS 151V Class Music I**

Prerequisites:
Corequisites: None

This course provides group instruction in skills and techniques of the particular instrument or voice for those with little or no previous experience. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 151V is Class Voice I for beginning singers and will focus on correct posture, breathing, support for the resonance of vowels, and proper diction.

**MUS 152D Class Music II**

Prerequisites: MUS 151D or Division Consent
Corequisites: None

This course is a continuation of MUS 151D. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 152D is level II of Appalachian Dulcimer.

**MUS 152G Class Music II**

Prerequisites: MUS 151G
Corequisites: None

This course is a continuation of MUS 151G. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 152G is level II of Folk Harp.

**MUS 152J Class Music II**

Prerequisites: MUS 151G
Corequisites: None

This course is a continuation of MUS 151J. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 152J is Class Guitar II which includes harmonization of tunes using standard jazz chords and explores chord/scale relationships through use of chord shapes.

**MUS 152P Class Music II**

Prerequisites: MUS 151P or Division Consent
Corequisites: None

This course is a continuation of MUS 151P. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 152P is level II of Beginning Piano in which piano compositions, scales, and chords studied will include the keys of C, G, and F major, and A and D minor.

**MUS 152S Class Music II**

Prerequisites: MUS 151S or Division Consent
Corequisites: None

This course is a continuation of MUS 151S. Sight singing which is designed to complement MUS 152P as well as upper levels of piano.

**MUS 152V Class Music II**

Prerequisites: MUS 151V
Corequisites: None

This course is a continuation of MUS 151V. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. MUS 152V is Class Voice II in which study of the International Phonetic alphabet will facilitate the performance of repertoire which will include art songs, arias,
MUS 161B-W Applied Music I  1  2  2
Prerequisites: Audition
Corequisites: None

MUS 162B-W Applied Music II  1  2  2
Prerequisites: MUS 161B-W
Corequisites: None

MUS 261B-W Applied Music III  1  2  2
Prerequisites: MUS 162B-W
Corequisites: None

MUS 262B-W Applied Music IV  1  2  2
Prerequisites: MUS 261B-W
Corequisites: None

These courses provide individual instruction in the skills and techniques of the particular instrument or voice. Emphasis is placed on techniques and styles and the exploration and study of appropriate literature. Upon completion, students should be able to demonstrate proficiency in the studied skills and repertoire through performance. The specific instrument is designated by a letter as given below:

B Clarinet  M Timpani
C Flute  N Saxophone
D Viola  O String Bass
E French horn  P Piano
F Harp  Q Trombone
G Guitar  R Trumpet
H Harpsichord  S Tuba
J Cello  V Voice
K Organ  W Violin
L Percussion

MUS 170 Business of Music  3  0  3
Prerequisites: None
Corequisites: None
This course introduces the basic elements of the music business. Topics include copyright law, musical arrangements and abridgments, recording and songwriting contracts, agents and managers, performing rights organizations, and the musician's union. Upon completion, students should be able to demonstrate an understanding of the basic elements of the music business.

MUS 175 Recording Techniques I  2  0  2
Prerequisites: None
Corequisites: None
This course introduces the recording studio from an artistic and operational point of view. Emphasis is placed on audio consoles, microphones, multi-track recorders, and echo chambers. Upon completion, students should be able to demonstrate understanding of operation and function of recording equipment and its relationship to musician, sound engineer, and producer.

MUS 176 Recording Techniques II  0  4  2
Prerequisites: MUS 175
Corequisites: None
This course continues the study and application of recording techniques begun in MUS 175. Emphasis is placed on multi-track recording and mix-down, microphone placement, and patch bay function. Upon completion, students should be able to create projects demonstrating proficiency in the skills and use of the equipment studied.

MUS 177 Selected Topics in Music  0-1  0-3  1
Prerequisites:
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

MUS 178 Seminar in Music  0-1  0-3  1
Prerequisites:
Corequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

MUS 179 Seminar in Music  1-3  0-6  3
Prerequisites:
Corequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

MUS 180 Seminar in Music  0-2  0-6  2
Prerequisites:
Corequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

MUS 181 Seminar in Music  1-3  0-6  3
Prerequisites:
Corequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.
MUS 213 Opera and Musical Theatre 3 0 3
Prerequisites:
Corequisites: None
This course covers the origins and development of opera and musical theatre from the works of Claudio Monteverdi to the present. Emphasis is placed on how the structure and components of opera and musicals effect dramaturgy through listening examples and analysis. Upon completion, students should be able to demonstrate analytical and listening skills in understanding both opera and the musical. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

MUS 214 Electronic Music I 1 2 2
Prerequisites: MUS 111
Corequisites: None
This course provides an opportunity to study and explore various electronic instruments and devices. Emphasis is placed on fundamental MIDI applications and implementation, features and application of sequences, sound modules, and digital keyboards. Upon completion, students should be able to demonstrate proficiency by creating appropriate musical projects using the equipment and techniques covered.

MUS 215 Electronic Music II 1 2 2
Prerequisites: MUS 214
Corequisites: None
This course is a continuation of MUS 214. Emphasis is placed on advanced MIDI applications and implementation and continued work with sequencers, sound modules, and digital keyboards. Upon completion, students should be able to demonstrate proficiency by creation of appropriate musical projects using the equipment and techniques covered.

MUS 217 Elementary Conducting 1 2 2
Prerequisites: MUS 111
Corequisites: None
This course introduces the basic patterns and skills for conducting instrumental and vocal groups. Emphasis is placed on conducting beat patterns, expressive gestures, fermatas, accents, tempos, and rehearsal techniques. Upon completion, students should be able to demonstrate the above skills by conducting vocal and/or instrumental groups.

MUS 221 Music Theory III 3 2 4
Prerequisites: MUS 122
Corequisites: None
This course is a continuation of MUS 122. Emphasis is placed on altered and chromatic harmony, common practice era compositional techniques and forms, and continued studies in part-writing, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.

MUS 222 Music Theory IV 3 2 4
Prerequisites: MUS 221
Corequisites: None
This course is a continuation of studies begun in MUS 221. Emphasis is placed on continued study of common practice era compositional techniques and forms, 20th century practices, ear-training, and sight-singing. Upon completion, students should be able to demonstrate proficiency in the recognition and application of the above.

MUS 231 Chorus III 0 2 1
Prerequisites: MUS 132
Corequisites: None
This course is a continuation of MUS 132. Emphasis is placed on vocal techniques and the study and performance of a variety of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

MUS 232 Chorus IV 0 2 1
Prerequisites: MUS 231
Corequisites: None
This course is a continuation of MUS 231. Emphasis is placed on vocal techniques and the study of styles and periods of choral literature. Upon completion, students should be able to demonstrate skills needed to participate in choral singing leading to performance.

MUS 233 Band III 0 2 1
Prerequisites: MUS 134
Corequisites: None
This course is a continuation of MUS 134. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.

MUS 234 Band IV 0 2 1
Prerequisites: MUS 233
Corequisites: None
This course is a continuation of MUS 233. Emphasis is placed on band techniques and the study and performance of a variety of styles and periods of band literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.

MUS 235 Jazz Ensemble III 0 2 1
Prerequisites: MUS 136
Corequisites: None
This course is a continuation of MUS 136. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles and periods of jazz literature. Upon completion, students should be able to demonstrate skills needed in ensemble playing leading to performance.

MUS 236 Jazz Ensemble IV 0 2 1
Prerequisites: MUS 235
Corequisites: None
This course is a continuation of MUS 235. Emphasis is placed on jazz ensemble techniques and the study and performance of a variety of styles and periods of jazz literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.

MUS 237 Orchestra III 0 2 1
Prerequisites: MUS 138
Corequisites: None
This course is a continuation of MUS 138. Emphasis is placed on orchestral techniques and the study and performance of a variety of styles and periods of orchestral and string ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Corequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 238</td>
<td>Orchestra IV</td>
<td>0 2 1</td>
<td>MUS 237</td>
<td>None</td>
<td>This course is a continuation of MUS 237. Emphasis is placed on orchestral techniques and the study and performance of a variety of styles and periods of orchestral and string ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142</td>
<td>None</td>
<td>This course is a continuation of MUS 142. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241D</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142D</td>
<td>None</td>
<td>This course is a continuation of MUS 142D. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241E</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142E</td>
<td>None</td>
<td>This course is a continuation of MUS 142E. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241F</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142F</td>
<td>None</td>
<td>This course is a continuation of MUS 142F. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241G</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142G</td>
<td>None</td>
<td>This course is a continuation of MUS 142G. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241H</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142H</td>
<td>None</td>
<td>This course is a continuation of MUS 142H. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241P</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142P</td>
<td>None</td>
<td>This course is a continuation of MUS 142P. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 241R</td>
<td>Ensemble III</td>
<td>0 2 1</td>
<td>MUS 142R</td>
<td>None</td>
<td>This course is a continuation of MUS 142R. Emphasis is placed on the development of performance skills and the study of a variety of styles and periods of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 242</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
<td>MUS 241</td>
<td>None</td>
<td>This course is a continuation of MUS 241. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 242D</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
<td>MUS 241D</td>
<td>None</td>
<td>This course is a continuation of MUS 241D. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 242E</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
<td>MUS 241E</td>
<td>None</td>
<td>This course is a continuation of MUS 241E. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 242F</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
<td>MUS 241F</td>
<td>None</td>
<td>This course is a continuation of MUS 241F. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
<tr>
<td>MUS 242G</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
<td>MUS 241G</td>
<td>None</td>
<td>This course is a continuation of MUS 241G. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance.</td>
</tr>
</tbody>
</table>
of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 242G is Guitar Ensemble IV.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 242H</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
</tr>
<tr>
<td>MUS 242P</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
</tr>
<tr>
<td>MUS 242R</td>
<td>Ensemble IV</td>
<td>0 2 1</td>
</tr>
<tr>
<td>MUS 251C</td>
<td>Class Music III</td>
<td>0 2 1</td>
</tr>
<tr>
<td>MUS 251P</td>
<td>Class Music III</td>
<td>0 2 1</td>
</tr>
<tr>
<td>MUS 252J</td>
<td>Class Music IV</td>
<td>0 2 1</td>
</tr>
</tbody>
</table>

This course is a continuation of MUS 251P. Emphasis is placed on the development of performance skills and the study of styles of ensemble literature. Upon completion, students should be able to demonstrate skills needed to participate in ensemble playing leading to performance. MUS 252P is the fourth semester of Class Piano in an electronic piano laboratory setting.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 253</td>
<td>Big Band</td>
<td>0 2 1</td>
</tr>
<tr>
<td>MUS 265</td>
<td>Piano Pedagogy</td>
<td>0 2 1</td>
</tr>
</tbody>
</table>

This course is the second of a two-semester, in-depth study of music history. Emphasis is placed on the history and literature of music from Antiquity through the Baroque Period. Upon completion, students should be able to trace important musical developments and demonstrate an understanding of the composers' styles.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 270</td>
<td>Music for the Elementary Classroom</td>
<td>3 0 3</td>
</tr>
</tbody>
</table>

This course covers the skills necessary for teaching music in the elementary school. Emphasis is placed on integrating music activities which are suitable for all ages of elementary students, including theory, performance, and conducting, into classroom activities. Upon completion, students should be able to utilize a variety of music activities in the elementary school classroom.
### MUS 291 Selected Topics in Music
Prerequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

### MUS 292 Selected Topics in Music
Prerequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

### MUS 293 Selected Topics in Music
Prerequisites: None
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

### MUS 296 Seminar in Music
Prerequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

### MUS 297 Seminar in Music
Prerequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

### MUS 298 Seminar in Music
Prerequisites: None
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

### NUR - Nursing

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Lab</th>
<th>Clinic</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Prerequisites: Admission to the Associate Degree Nursing program
Corequisites: BIO 168
This course introduces concepts basic to beginning nursing practice. Emphasis is placed on the application of the nursing process to provide and manage care as a member of the discipline of nursing. Upon completion, students should be able to demonstrate beginning competence in caring for individuals with common alterations of health.

### NUR 125 Maternal-Child Nursing
Prerequisites: NUR 135
Corequisites: ENG 113, BIO 275, Humanities/Fine Arts course (3 credits) from approved list
This course introduces nursing concepts related to the delivery of nursing care for the expanding family. Emphasis is placed on utilizing the nursing process as a framework for managing/providing nursing care to individuals and families along the wellness-illness continuum. Upon completion, students should be able to utilize the nursing process to deliver nursing care to mothers, infants, children, and families.

### NUR 135 Adult Nursing I
Prerequisites: NUR 185
Corequisites: COM 231 or COM 233, BIO 275
This course introduces concepts related to the nursing care of individuals experiencing acute and chronic alterations of health. Emphasis is placed on utilizing the nursing process as a framework for providing and managing nursing care to individuals along the wellness-illness continuum. Upon completion, students should be able to apply the nursing process to individuals experiencing acute and chronic alterations of health.

### NUR 155 Fundamentals of Nursing
Prerequisites: NUR 115
Corequisites: PSY 150, BIO 168
This course includes concepts related to the nursing care of individuals experiencing alterations in social and psychological functioning. Emphasis is placed on utilizing the nursing process to provide and manage nursing care for individuals with common psychiatric disorders or mental health needs. Upon completion, students should be able to apply psychosocial theories in the nursing care of individuals with psychiatric/mental health needs.

### NUR 235 Professional Issues
Prerequisites: NUR 125
Corequisites: NUR 255, COM 231 or COM 233, CIS 111
This course explores basic concepts of practice in the management of patient care in a complex health care system. Emphasis is placed on professional, legal, ethical, and political issues and management concepts. Upon completion, students should be able to articulate professional and management concepts.
OST 131 Keyboarding

This course covers basic keyboarding skills. Emphasis is placed on the touch system, correct techniques, and development of speed and accuracy. Upon completion, students should be able to key at an acceptable speed and accuracy level using the touch system. This course includes the introduction to word processing.

OST 131X Keyboarding

This course covers basic keyboarding skills. Emphasis is placed on the touch system, correct techniques, and development of speed and accuracy. Upon completion, students should be able to key at an acceptable speed and accuracy level using the touch system. This is the first part of a course sequence and emphasizes the touch system and correct techniques.

OST 131Y Keyboarding

This course covers basic keyboarding skills. Emphasis is placed on the touch system, correct techniques, and development of speed and accuracy. Upon completion, students should be able to key at an acceptable speed and accuracy level using the touch system. This is the second part of a course sequence and continues to emphasize the development of speed and accuracy.

OST 132 Keyboard Skill Building

This course provides accuracy- and speed-building drills. Emphasis is placed on diagnostic tests to identify accuracy and speed deficiencies followed by corrective drills. Upon completion, students should be able to keyboard rhythmically with greater accuracy and speed. This course is specifically for the Data Entry Certificate.

OST 133 Advanced Keyboard Skill Building

This course is designed to increase speed and improve accuracy to meet employment tests and job requirements. Emphasis is placed on individualized diagnostic and prescriptive drills. Upon completion, students should be able to keyboard with greater speed and accuracy as measured by five-minute timed writings and skill-development paragraphs. This course is specifically for the Data Entry Certificate.

OST 134 Text Entry and Formatting

This course is designed to provide the skills needed to increase speed, improve accuracy, and format documents. Topics include letters, memos, tables, and business reports. Upon completion, students should be able to produce mailable documents.

OST 135 Advanced Text Entry and Format

This course is designed to incorporate computer application skills in the generation of office documents. Emphasis is placed on the production of letters, manuscripts, business forms, tabulation, legal documents, and newsletters. Upon completion, students should be able to make independent decisions regarding planning, style, and method of presentation.

OST 136 Word Processing

This course introduces word processing concepts and applications. Topics include preparation of a variety of documents and mastery of specialized software functions. Upon completion, students should be able to work effectively in a computerized word processing environment.

OST 137 Office Software Applications

This course introduces the concepts and functions of software that meets the changing needs of the community. Emphasis is placed on the terminology and use of software through a hands-on approach. Upon completion, students should be able to use software in a business environment.

OST 138 Medical Coding Billing and Insurance

This course introduces CPT and ICD coding as they apply to medical insurance and billing. Emphasis is placed on accuracy in coding, forms preparation, and posting. Upon completion, students should be able to describe the steps of the total billing cycle and explain the importance of accuracy.

OST 139 Medical Legal Issues

This course introduces the complex legal, moral, and ethical issues involved in providing health-care services. Emphasis is placed on the legal requirements of medical practices; the relationship of physician, patient, and office personnel; professional liabilities; and medical practice liability. Upon completion, students should be able to demonstrate a working knowledge of current medical law and accepted ethical behavior.

OST 140 Legal Terminology

This course covers the terminology appropriate to the legal profession. Topics include legal research, court systems, litigation, civil and criminal law, probate, real and personal property, contracts and leases, domestic relations, equity, and corporations. Upon completion, students should be able to spell, pronounce, define, and demonstrate an understanding of the use of these legal terms.

OST 141 Legal Office Procedures

This course covers legal office functions involved in the operation of a law office. Emphasis is placed on procedures in
the law office involving the court system, legal research, litigation, probate, and real estate, personal injury, criminal, and civil law. Upon completion, students should be able to demonstrate a high level of competence in performing legal office duties.

**OST 164 Text Editing Applications**  
3 0 3  
Prerequisites:  
Corequisites: None  
This course provides a comprehensive study of editing skills needed in the workplace. Emphasis is placed on grammar, punctuation, sentence structure, proofreading, and editing. Upon completion, students should be able to use reference materials to compose and edit text.

**OST 184 Records Management**  
1 2 2  
Prerequisites:  
Corequisites: None  
This course includes the creation, maintenance, protection, security, and disposition of records stored in a variety of media forms. Topics include alphabetic, geographic, subject, and numeric filing methods. Upon completion, students should be able to set up and maintain a records management system. A database software package is used to illustrate and practice database management operations.

**OST 191 Selected Topics in Office Systems Technology**  
0-1 0-3 1  
Prerequisites: Enrollment in the program  
Corequisites: None  
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study. PowerPoint software is taught in this course.

**OST 193 Selected Topics in Office Systems Technology**  
1-3 0-6 3  
Prerequisites: Enrollment in the program  
Corequisites: None  
This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

**OST 196 Seminar in Office Systems Technology**  
0-1 0-3 1  
Prerequisites: Enrollment in the program  
Corequisites: None  
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions. ADD

**OST 198 Seminar in Office Systems Technology**  
1-3 0-6 3  
Prerequisites: Enrollment in the program  
Corequisites: None  
This course provides an opportunity to explore topics of current interest. Emphasis is placed on the development of critical listening skills and the presentation of seminar issues. Upon completion, students should be able to critically analyze issues and establish informed opinions.

**OST 220 Notetaking**  
3 0 3  
Prerequisites:  
Corequisites: None  
This course is designed to develop efficient notetaking skills through the use of the alphabet, abbreviations, and other shortcuts. Emphasis is placed on taking accurate notes and building vocabulary. Upon completion, students should be able to take notes and transcribe from office dictation, class lectures, and meetings and record accurate telephone messages.

**OST 223 Machine Transcription I**  
1 2 2  
Prerequisites: OST 134, OST 136, and OST 164  
Corequisites: None  
This course covers the use of transcribing machines to produce mailable documents. Emphasis is placed on appropriate formatting, advanced text editing skills, and transcription techniques. Upon completion, students should be able to transcribe documents into mailable copy.

**OST 233 Office Publications Design**  
2 2 3  
Prerequisites: OST 136  
Corequisites: None  
This course provides entry-level skills in using software with desktop publishing capabilities. Topics include principles of page layout, desktop publishing terminology and applications, and legal and ethical considerations of software use. Upon completion, students should be able to design and produce professional business documents and publications. Hands-on experience using a software package is provided to illustrate concepts and provide practice in developing documents and publications.

**OST 236 Advanced Word/Information Processing**  
2 2 3  
Prerequisites: OST 136  
Corequisites: None  
This course develops proficiency in the utilization of advanced word/information processing functions. Topics include tables, graphics, macros, sorting, document assembly, merging, and newspaper and brochure columns. Upon completion, students should be able to produce a variety of complex business documents.

**OST 241 Medical Office Transcription I**  
1 2 2  
Prerequisites: MED 121 or OST 131  
Corequisites: None  
This course introduces machine transcription techniques as applied to medical documents. Emphasis is placed on accurate transcription, proofreading, and use of reference materials as well as vocabulary building. Upon completion, students should be able to prepare accurate and usable transcripts of voice recordings in the covered specialties.

**OST 243 Medical Office Simulation**  
2 2 3  
Prerequisites: OST 131 or OST 131X and OST 131Y and OST 148  
Corequisites: None  
This course introduces medical systems used to process information in the automated office. Topics include traditional and electronic information resources, storing and retrieving information, and the billing cycle. Upon completion, students should be able to use the computer accurately to schedule, bill, update, and make corrections.
OST 251  Legal Document Formatting  2  2  3  
Prerequisites: OST 134, OST 155, and OST 136  
Corequisites: None  
This course is designed to provide experience in the preparation of various types of legal forms and documents. Emphasis is placed on formatting and keying legal forms, documents, and correspondence. Upon completion, students should be able to produce these documents with accuracy and speed.

OST 252  Legal Transcription I  2  2  3  
Prerequisites: OST 155  
Corequisites: OST 251  
This course provides experience in using the transcriber to produce legal correspondence, forms, and documents with mailable accuracy from recorded tapes. Emphasis is placed on operating the transcriber, developing listening skills to translate the audio into hard copy, and producing mailable documents. Upon completion, students should be able to transcribe legal forms and documents with reasonable accuracy.

OST 286  Professional Development  3  0  3  
Prerequisites:  
Corequisites:  
This course covers the personal competencies and qualities needed to project a professional image in the office. Topics include interpersonal skills, healthy lifestyles, appearance, attitude, personal and professional growth, multicultural awareness, and professional etiquette. Upon completion, students should be able to demonstrate these attributes in the classroom, office, and society.

OST 289  Office Systems Management  2  2  3  
Prerequisites: OST 134, OST 136, and OST 164  
Corequisites: None  
This course provides a capstone course for the office professional. Topics include administrative office procedures, imaging, communication techniques, ergonomics, and equipment utilization. Upon completion, students should be able to function proficiently in a changing office environment.

Paralegal - See LEX Course Descriptions

PHI - Philosophy

PHI 220  Western Philosophy I  3  0  3  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.  
Corequisites: None  
This course covers Western intellectual and philosophic thought from early Greeks through the medievalists. Emphasis is placed on such figures as the pre-Socratics, Plato, Aristotle, Epicurus, Epictetus, Augustine, Suarez, Anselm, and Aquinas. Upon completion, students should be able to trace the development of leading ideas regarding reality, knowledge, reason, and faith. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

PHI 221  Western Philosophy II  3  0  3  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.  
Corequisites: None  
This course covers Western intellectual and philosophic thought from post-medievalists through recent thinkers. Emphasis is placed on such figures as Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant, Hegel, Marx, Mill, and representatives of pragmatism, logical positivism, and existentialism. Upon completion, students should be able to trace the development of leading ideas concerning knowledge, reality, science, society, and the limits of reason. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

PHI 230  Introduction to Logic  3  0  3  
Prerequisites: ENG 111 with a grade of C or higher, or consent of division director.  
Corequisites: None  
This course introduces basic concepts and techniques for distinguishing between good and bad reasoning. Emphasis is placed on deduction, induction, validity, soundness, syllogisms, truth functions, predicate logic, analogical inference, common fallacies, and scientific methods. Upon completion, students should be able to analyze arguments, distinguish between deductive and inductive arguments, test validity, and appraise inductive reasoning.

PED - Physical Education

PED 110  Fit and Well for Life  1  2  2  
Prerequisites:  
Corequisites: None  
This course is designed to investigate and apply the basic concepts and principles of lifetime physical fitness and other health-related factors. Emphasis is placed on wellness through the study of nutrition, weight control, stress management, and consumer facts on exercise and fitness. Upon completion, students should be able to plan a personal, lifelong fitness program based on individual needs, abilities, and interests. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

PED 111  Physical Fitness I  0  3  1  
Prerequisites:  
Corequisites: None  
This course provides an individualized approach to physical fitness utilizing the five major components. Emphasis is placed on the scientific basis for setting up and engaging in personalized physical fitness programs. Upon completion, students should be able to set up and implement an individualized physical fitness program. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

PED 113  Aerobics I  0  3  1  
Prerequisites:  
Corequisites: None  
This course introduces a program of cardiovascular fitness involving continuous, rhythmic exercise. Emphasis is placed on developing cardiovascular efficiency, strength, and flexibility and on safety precautions. Upon completion, students should be able to select and implement a rhythmic aerobic exercise program. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.
### PED 114 Aerobics II

Prerequisites: PED 113 or Equivalent  
Corequisites: None  
This course provides a continuation of a program of cardiovascular fitness involving rhythmic exercise. Emphasis is placed on a wide variety of aerobic activities which include cardiovascular efficiency, strength, and flexibility. Upon completion, students should be able to participate in and design a rhythmic aerobic exercise routine. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 115 Step Aerobics I

Prerequisites:  
Corequisites: None  
This course introduces the fundamentals of step aerobics. Emphasis is placed on basic stepping up and down on an adjustable platform; cardiovascular fitness; and upper body, floor, and abdominal exercises. Upon completion students should be able to participate in basic step aerobics. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 117 Weight Training I

Prerequisites:  
Corequisites: None  
This course introduces the basics of weight training. Emphasis is placed on developing muscular strength, muscular endurance, and muscle tone. Upon completion, students should be able to establish and implement a personal weight training program. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 122 Yoga I

Prerequisites:  
Corequisites: None  
This course introduces the basic discipline of yoga. Topics include proper breathing, relaxation techniques, and correct body positions. Upon completion, students should be able to demonstrate the procedures of yoga. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 123 Yoga II

Prerequisites: PED 122 or Equivalent  
Corequisites: None  
This course introduces more detailed aspects of the discipline of yoga. Topics include breathing and physical postures, relaxation, and mental concentration. Upon completion, students should be able to demonstrate advanced procedures of yoga. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 128 Golf-Beginning

Prerequisites:  
Corequisites: None  
This course emphasizes the fundamentals of golf. Topics include the proper grips, stance, alignment, swings for the short and long game, putting, and the rules and etiquette of golf. Upon completion, students should be able to perform the basic golf shots and demonstrate a knowledge of the rules and etiquette of golf. Extra fees are charged for this course and students must provide their own clubs. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 163 Kayaking-Basic

Prerequisites: PED 152 or Demonstrated Swimming Ability  
Corequisites: None  
This course is designed to teach the basic skills of kayaking. Topics include forward and reverse strokes, sweeps, Eskimo roll, and self-rescue skills. Upon completion, students should be able to maneuver and demonstrate safe kayaking practices. Although intended for students who have an interest in moving water, this course is valuable for those who want to paddle on lakes; extra fees are charged for equipment. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 167 Weight Training II

This course introduces the basics of weight training. Emphasis is placed on developing muscular strength, muscular endurance, and muscle tone. Upon completion, students should be able to establish and implement a personal weight training program. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 169 Orienteering

This course introduces the various types of orienteering and proper orienteering techniques. Emphasis is placed on defining various types of orienteering and recognizing and drawing topographic map symbols. Upon completion, students should be able to draw topographic map symbols and negotiate a 3-5 km cross-country orienteering course in a specified time period. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PED 173 Rock Climbing

This course teaches the fundamental skills and safety of rock climbing. Topics include rock climbing, bouldering, rappelling, the correct method of belaying for climbing and rappelling, and knowledge of equipment. Upon completion, students should be able to demonstrate strong and skillful techniques in climbing and rappelling. This course has been approved to satisfy the Comprehensive Articulation Agreement pre-major and/or elective course requirement.

### PHS - Physical Science, Basic

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>PHS 110</td>
<td>Basic Physical Science</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>PHS 140</td>
<td>Weather and Climate</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisites:  
Corequisites: None  
This course introduces the physical environment with emphasis on the laws and physical concepts that impact the world and universe. Topics include astronomy, geology, meteorology, general chemistry, and general physics. Upon completion, students should be able to describe the forces and composition of the earth and universe.
### PTA - Physical Therapist Assistant

#### PTA 110  Intro to Physical Therapy
- **Lecture**: 2
- **Clinic**: 3
- **Credit**: 3

**Prerequisites:** BIO 168  
**Corequisites:** PTA 145A  
This course introduces the field of physical therapy including the history and standards of practice for the physical therapist assistant and basic treatment techniques. Emphasis is placed on ethical and legal considerations, universal precautions, vital signs, documentation, basic patient preparation and treatment skills, and architectural barrier screening. Upon completion, students should be able to explain the role of the physical therapist assistant and demonstrate competence in basic techniques of patient care.

#### PTA 125  Gross and Functional Anatomy
- **Lecture**: 3
- **Lab**: 6
- **Clinic**: 0
- **Credit**: 5

**Prerequisites:** BIO 168, BIO 169, PTA 110 and PTA 145A  
**Corequisites:** PTA 135, PTA 145B and PTA 215  
This course provides an in-depth, clinically oriented survey of gross and functional anatomy. Emphasis is placed on musculoskeletal and nervous systems and clinical biomechanics, including goniometry, basic manual muscle testing, and components of normal gait. Upon completion, students should be able to identify specific anatomical structures and describe, observe, and measure musculoskeletal posture and function.

#### PTA 135  Pathology
- **Lecture**: 4
- **Lab**: 0
- **Clinic**: 0
- **Credit**: 4

**Prerequisites:** BIO 168, BIO 169, PTA 110 and PTA 145A  
**Corequisites:** PTA 125, PTA 145B and PTA 215  
This course introduces principles of pathology, processes of and normal responses to injury and disease, and changes related to aging. Emphasis is placed upon conditions most commonly treated in physical therapy. Upon completion, students should be able to discuss basic pathological processes and identify etiology, signs, symptoms, complications, treatment options, and prognoses of specific orthopedic conditions.

#### PTA 145A  Therapeutic Procedures
- **Lecture**: 1
- **Clinic**: 3
- **Credit**: 0
- **Lab**: 2

**Prerequisites:** BIO 168  
**Corequisites:** PTA 110  
This course provides a detailed study of specific treatment procedures and the physiological principles and techniques involved. Emphasis is placed on the correct application of superficial heat and cold, massage and soft tissue mobilization, ultrasound, diathermy, traction, and electrical stimulation. Upon completion, students should be able to demonstrate competence in the application of these modalities and explain the indications, contraindications, effects, and precautions for each. This is the second part of a course sequence and focuses on the use of ultrasound, diathermy, traction, and electrical stimulation.

#### PTA 145B  Therapeutic Procedures
- **Lecture**: 1
- **Clinic**: 3
- **Credit**: 0
- **Lab**: 2

**Prerequisites:** BIO 168, BIO 169, PTA 110 and PTA 145A  
**Corequisites:** PTA 125 and PTA 135  
This course provides a detailed study of specific treatment procedures and the physiological principles and techniques involved. Emphasis is placed on the correct application of superficial heat and cold, massage and soft tissue mobilization, ultrasound, diathermy, traction, and electrical stimulation. Upon completion, students should be able to demonstrate competence in the application of these modalities and explain the indications, contraindications, effects, and precautions for each. This is the second part of a course sequence and focuses on the use of ultrasound, diathermy, traction, and electrical stimulation.
### PTA 225 Intro to Rehabilitation

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Lab</th>
<th>Coreqs:</th>
<th>Prereqs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTA 225</td>
<td>Intro to Rehabilitation</td>
<td>3 3 0 4</td>
<td></td>
<td>PTA 125, PTA 135, PTA 145B, and PTA 215</td>
<td>PTA 235A, PTA 165, and PTA 185</td>
</tr>
</tbody>
</table>

This course covers cardiovascular, pulmonary, and integumentary conditions, as well as causes and treatment of amputations. Emphasis is placed upon pathological processes as well as comprehensive treatment of the various conditions studied. Upon completion, students should be able to discuss etiology, signs, symptoms, complications, and prognoses of various conditions and implement components of a comprehensive treatment program.

### PTA 235A Neurological Rehab

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Lab</th>
<th>Coreqs:</th>
<th>Prereqs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTA 235A</td>
<td>Neurological Rehab</td>
<td>1 3 0 2</td>
<td></td>
<td>PTA 215, PTA 125, PTA 135, and PTA 145B</td>
<td>PTA 225, PTA 165 and PTA 185</td>
</tr>
</tbody>
</table>

This course covers neurological and neuromuscular conditions experienced throughout the life span. Topics include the pathology of selected conditions and the methods and rationales of various treatment approaches. Upon completion, students should be able to discuss etiology, signs, symptoms, complications, and prognoses of various conditions and implement components of a comprehensive treatment program. This is the first part of a course sequence and emphasizes normal growth and development and conditions experienced in childhood.

### PTA 235B Neurological Rehab

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Lab</th>
<th>Coreqs:</th>
<th>Prereqs:</th>
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</thead>
<tbody>
<tr>
<td>PTA 235B</td>
<td>Neurological Rehab</td>
<td>2 3 0 3</td>
<td></td>
<td>PTA 225, PTA 235A, PTA 165, and PTA 185</td>
<td>PTA 212, PTA 222, PTA 245, PTA 255</td>
</tr>
</tbody>
</table>

This course covers neurological and neuromuscular conditions experienced throughout the life span. Topics include the pathology of selected conditions and the methods and rationales of various treatment approaches. Upon completion, students should be able to discuss etiology, signs, symptoms, complications, and prognoses of various conditions and implement components of a comprehensive treatment program. This is the second part of a course sequence, continuing our in-depth study of the neurological system and focusing on conditions which could affect it in adulthood.

### PTA 245 PTA Clinical III

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Lab</th>
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<th>Prereqs:</th>
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</thead>
<tbody>
<tr>
<td>PTA 245</td>
<td>PTA Clinical III</td>
<td>0 0 12 4</td>
<td></td>
<td>PTA 225, PTA 235A, PTA 165, and PTA 185</td>
<td>PTA 212, PTA 222, PTA 235B, and PTA 255</td>
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</tbody>
</table>

This course provides the opportunity to gain clinical experience and apply academic skills and knowledge to patient care. Emphasis is placed on performing patient care skills, observation and measurement, and professional and patient interaction. Upon completion, students should be able to demonstrate safe and effective clinical practice as measured by a standardized performance evaluation.

### PTA 255 PTA Clinical IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<th>Prereqs:</th>
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</thead>
<tbody>
<tr>
<td>PTA 255</td>
<td>PTA Clinical IV</td>
<td>0 0 12 4</td>
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<td>PTA 225, PTA 235A, PTA 165, and PTA 185</td>
<td>PTA 212, PTA 222, PTA 235B, and PTA 245</td>
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</tbody>
</table>

This course provides the opportunity to gain clinical experience and apply academic skills and knowledge to patient care. Emphasis is placed on performing patient care skills, observation and measurement, and professional and patient interaction. Upon completion, students should be able to demonstrate safe and effective clinical practice as measured by a standardized performance evaluation.

### PHY - Physics

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<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>PHY 110</td>
<td>Conceptual Physics</td>
<td></td>
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<td>3 0 3</td>
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</table>

Prerequisites:
Corequisites: PHY 110A

This course provides a conceptually-based exposure to the fundamental principles and processes of the physical world. Topics include basic concepts of motion, forces, energy, heat, electricity, magnetism, and the structure of matter and the universe. You must register for both PHY 110 and PHY 110A unless you have received prior credit for one of these classes. Upon completion, students should be able to describe examples and applications of the principles studied. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>PHY 110A</td>
<td>Conceptual Physics Lab</td>
<td>0 2 1</td>
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</tbody>
</table>

Prerequisites: PHY 110
Corequisites: PHY 110

This course is a laboratory for PHY 110. Emphasis is placed on laboratory experiences that enhance materials presented in PHY 110. You must register for both PHY 110 and PHY 110A unless you have received prior credit for one of these classes. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in PHY 110. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

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<tr>
<th>Course Code</th>
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<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>PHY 131</td>
<td>Physics-Mechanics</td>
<td>3 2 4</td>
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</tbody>
</table>

Prerequisites: MAT 121 or MAT 161
Corequisites: None

This algebra/trigonometry-based course introduces fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, vectors, motion, forces, Newton’s laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields. Credit by exam for PHY 151 can be obtained by request upon completion.

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<th>Course Code</th>
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<th>Lecture</th>
<th>Lab</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>PHY 132</td>
<td>Physics-Electricity and Magnetism</td>
<td>3 2 4</td>
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</tbody>
</table>

Prerequisites: PHY 131 or equivalent
Corequisites: None

This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, waves, electricity, magnetism, circuits, transformers, motors, and generators. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields. Credit by exam for PHY 152 can be obtained by request upon completion.

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<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>PHY 133</td>
<td>Physics-Sound and Light</td>
<td>3 2 4</td>
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</tbody>
</table>

Prerequisites: PHY 131 or equivalent
Corequisites: None

This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem-solving methods, graphical analysis, wave motion, sound, light, and modern...
PHY 151 College Physics I 3 2 4
Prerequisites: MAT 161, MAT 172, MAT 175, MAT 1504, or MAT 3507 (one of these)
Corequisites: None
This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vectors, linear kinematics and dynamics, energy, power, momentum, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

PHY 152 College Physics II 3 2 4
Prerequisites: PHY 151 or equivalent or permission
Corequisites: None
This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

PHY 153 Modern Topics in Physics 3 2 4
Prerequisites: PHY 151 or equivalent
Corequisites: None
This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include atomic structure, nuclear processes, natural and artificial radioactivity, basic quantum theory, and special relativity. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PHY 251 General Physics I 3 3 4
Prerequisites: MAT 271 or MAT 1524 or equivalent
Corequisites: MAT 272
This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vector operations, linear kinematics and dynamics, energy, power, momentum, rotational mechanics, periodic motion, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

PHY 252 General Physics II 3 3 4
Prerequisites: MAT 272 and PHY 251 or equivalent
Corequisites: None
This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

PHY 253 Modern Physics 3 3 4
Prerequisites: PHY 251 and MAT 272 or equivalent
Corequisites: None
This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include atomic structure, nuclear processes, natural and artificial radioactivity, quantum theory, and special relativity. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered. This course is recommended for students majoring in physics, chemistry, or as an elective for engineering.

PLA -Plastics
See also ATR-Automation, DDF-Design Drafting, DFT-Drafting, ISC-Industrial Science, and MEC-Mechanical Engineering Technology for other courses.

PLA 110 Introduction to Plastics 2 0 2
Prerequisites: None
Corequisites: None
This course introduces the plastics processing industry, including thermoplastics and thermosets. Emphasis is placed on the description, classification, and properties of common plastics and processes and current trends in the industry. Upon completion, students should be able to describe the differences between thermoplastics and thermosets and recognize the basics of the different plastic processes.

PLU -Plumbing

PLU 110 Modern Plumbing 4 15 9
Prerequisites: None
Corequisites: None
This course introduces the plumbing industry, including installation, maintenance, and safety. Emphasis is placed on the description, classification, and properties of common plumbing systems and current trends in the industry. Upon completion, students should be able to safely assemble various pipes and fittings in accordance with state code requirements.

PLU 111 Intro to Basic Plumbing 1 3 2
Prerequisites: None
Corequisites: None
This course introduces basic plumbing tools, materials, and fixtures. Topics include basic tools, materials, and fixtures used in basic plumbing systems and other related topics. Upon completion, students should be able to demonstrate an understanding of a basic plumbing system.
PLU 130 Plumbing Systems  3 9 6
Prerequisites:
Corequisites: None
This course covers the maintenance and repair of plumbing lines and fixtures. Emphasis is placed on identifying and diagnosing problems related to water, drain and vent lines, water heaters, and plumbing fixtures. Upon completion, students should be able to identify and diagnose needed repairs to the plumbing system.

POL - Political Science

POL 120 American Government  3 0 3
Prerequisites:
Corequisites: None
This course is a study of the origins, development, structure, and functions of American national government. Topics include the constitutional framework, federalism, the three branches of government including the bureaucracy, civil rights and liberties, political participation and behavior, and policy formation. Upon completion, students should be able to demonstrate an understanding of the basic concepts and participatory processes of the American political system. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

POL 210 Comparative Government  3 0 3
Prerequisites:
Corequisites: None
This course provides a cross-national perspective on the government and politics of contemporary nations such as Great Britain, France, Germany, and Russia. Topics include each country’s historical uniqueness, key institutions, attitudes and ideologies, patterns of interaction, and current political problems. Upon completion, students should be able to identify and compare various nations’ governmental structures, processes, ideologies, and capacity to resolve major problems. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

POL 220 International Relations  3 0 3
Prerequisites:
Corequisites: None
This course provides a study of the effects of ideologies, trade, armaments, and alliances on relations among nations. Emphasis is placed on regional and global cooperation and conflict, economic development, trade, non-governmental organizations, and international institutions such as the World Court and UN. Upon completion, students should be able to identify and discuss major international relationships, institutions, and problems. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

PRN - Printing

PRN 131 Flexography I  2 4 4
Prerequisites:
Corequisites: None
This course provides basic hands-on instruction in flexographic image preparation, platemaking, mounting, and printing. Emphasis is placed on taking press measurements, making and mounting plates, and obtaining quality in press operation on a narrow-web press. Upon completion, students should be able to describe and perform flexographic production procedures in pre-press, press setup, press operation, and die-cutting.

PRN 132 Flexography II  2 4 4
Prerequisites: PRN 131
Corequisites: None
This course is a continuation of PRN 131 and introduces wide-web presses. Emphasis is placed on troubleshooting press problems, color matching, parts identification, make-ready, and setup of narrow-web, wide-web, or corrugated presses. Upon completion, students should be able to produce advanced projects involving all flexographic production phases. This course is a unique concentration requirement in the Flexography concentration in the Graphic Arts and Imaging Technology program.

PRN 155 Screen Printing I  1 3 2
Prerequisites:
Corequisites: None
This course covers screen printing techniques and materials. Topics include methods, materials, design, and image stencil preparation techniques. Upon completion, students should be able to produce single- or multi-color projects.

PRN 156 Screen Printing II  1 3 2
Prerequisites: PRN 155
Corequisites: None
This course is a continuation of PRN 155. Emphasis is placed on advanced techniques and current industry practices. Upon completion, students should be able to produce multi-color projects utilizing various photographic stencil methods and substrates.

PRN 221 Offset Press Operations  1 4 3
Prerequisites:
Corequisites: None
This course covers advanced lithographic theory and provides extensive hands-on operating experience. Emphasis is placed on make-ready, press operation, maintenance, and troubleshooting of multi-color jobs on sheet-fed offset presses and duplicators. Upon completion, students should be able to set up, run, maintain, and produce commercial-quality multi-color work.

PRN 231 Flexography III  2 4 4
Prerequisites: PRN 132
Corequisites: None
This course is a continuation of PRN 132. Emphasis is placed on the products made and processes used in the industry. Upon completion, students should be able to demonstrate an understanding of advanced production techniques of flexo-
graphic products. This course is a unique concentration requirement in the Flexography concentration in the Graphic Arts and Imaging Technology program.

PRN 232  Flexography IV  
2 4 4
Prerequisites: PRN 231
Corequisites: None
This course provides opportunities for advanced and specialized study in flexography. Emphasis is placed on specialized product design and production. Upon completion, students should be able to demonstrate an understanding of the comprehensive scope of the flexographic industry, products, and processes. This course is a unique concentration requirement in the Flexography concentration in the Graphic Arts and Imaging Technology program.

PRN 240  Print Estimating / Planning  
3 0 3
Prerequisites: GRA 121
Corequisites: None
This course covers printing economics, development of cost centers, job flow throughout departments, and material and labor costs. Topics include budgeted, hourly, cost-rate derivation; production standards and data; and analysis of other estimating procedures including computer-assisted estimating. Upon completion, students should be able to demonstrate an understanding of economic factors of the printing industry and determine all production costs of printed jobs.

PRN 241  Flexography Applications I  
2 4 4
Prerequisites: GRA 152 and PRN 131
Corequisites: None
This course provides an opportunity to specialize in certain applications in flexographic printing. Emphasis is placed on understanding color and production concerns in order to produce projects. Upon completion, students should be able to troubleshoot color problems during printing and relate them to the production procedures. This course is a unique concentration requirement in the Flexography concentration in the Graphic Arts and Imaging Technology program.

PRN 242  Flexography Applications II  
2 4 4
Prerequisites: PRN 241, GRA 153, and GRA 255
Corequisites: None
This course provides an opportunity to produce comprehensive projects, including color work on special substrates using specialty inks. Emphasis is placed on compensation for press limitations to produce high-quality color products. Upon completion, students should be able to produce color images on a variety of substrates and troubleshoot and solve production problems. This course is a unique concentration requirement in the Flexography concentration in the Graphic Arts and Imaging Technology program.

PSY -Psychology

PSY 150  General Psychology  
3 0 3
Prerequisites: None
This course provides an overview of the scientific study of human behavior. Topics include history, methodology, biopsychology, sensation, perception, learning, motivation, cognition, abnormal behavior, personality theory, social psychology, and other relevant topics. Upon completion, students should be able to demonstrate a basic knowledge of the science of psychology. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

PSY 241  Developmental Psychology  
3 0 3
Prerequisites: PSY 150
Corequisites: None
This course is a study of human growth and development. Emphasis is placed on major theories and perspectives as they relate to the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

PSY 281  Abnormal Psychology  
3 0 3
Prerequisites: PSY 150
Corequisites: None
This course provides an examination of the various psychological disorders, as well as theoretical, clinical, and experimental perspectives of the study of psychopathology. Emphasis is placed on terminology, classification, etiology, assessment, and treatment of the major disorders. Upon completion, students should be able to distinguish between normal and abnormal behavior patterns as well as demonstrate knowledge of etiology, symptoms, and therapeutic techniques. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

RED -Reading

See additional developmental reading courses in the Pre-College Programs section of this catalog.

RED 111  Critical Reading for College  
3 0 3
Prerequisites: RED 090 with a grade of C or higher, or Appropriate Placement Test Score(s)
Corequisites: None
This course is designed to enhance critical reading skills. Topics include vocabulary enrichment, reading flexibility, metacognitive strategies, and advanced comprehension skills, including analysis and evaluation. Upon completion, students should be able to demonstrate comprehension and analysis and respond effectively to material across disciplines. In addition, this course is designed to improve reading speed.
### REL - Religion

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Clinic</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 110</td>
<td>World Religions</td>
<td>3</td>
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<td>0</td>
<td>3</td>
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<tr>
<td>Corequisites: None</td>
<td></td>
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<tr>
<td>Start Term:</td>
<td>1997*02</td>
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<tr>
<td>This course introduces the world’s major religious traditions. Topics include Primal religions, Hinduism, Buddhism, Islam, Judaism, and Christianity. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<th>Lab</th>
<th>Clinic</th>
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<tbody>
<tr>
<td>REL 211</td>
<td>Introduction to Old Testament</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Corequisites: None</td>
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<td></td>
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<tr>
<td>Start Term:</td>
<td>1997*02</td>
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<tr>
<td>This course is a survey of the literature of the Hebrews with readings from the law, prophets, and other writings. Emphasis is placed on the use of literary, historical, archeological, and cultural analysis. Upon completion, students should be able to use the tools of critical analysis to read and understand Old Testament literature. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>REL 212</td>
<td>Introduction to New Testament</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Corequisites: None</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Start Term:</td>
<td>1997*02</td>
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<tr>
<td>This course is a survey of the literature of first-century Christianity with readings from the gospels, Acts, and the Pauline and pastoral letters. Topics include the literary structure, audience, and religious perspective of the writings, as well as the historical and cultural context of the early Christian community. Upon completion, students should be able to use the tools of critical analysis to read and understand New Testament literature. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<th>Lab</th>
<th>Clinic</th>
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<tbody>
<tr>
<td>REL 221</td>
<td>Religion in America</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Corequisites: None</td>
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<tr>
<td>This course is an examination of religious beliefs and practice in the United States. Emphasis is placed on mainstream religious traditions and non-traditional religious movements from the Colonial period to the present. Upon completion, students should be able to recognize and appreciate the diversity of religious traditions in America. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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### RCP - Respiratory Therapy

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<tr>
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<th>Lecture</th>
<th>Lab</th>
<th>Clinic</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCP 110</td>
<td>Introduction to Respiratory Care</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>4</td>
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<tr>
<td>Corequisites: None</td>
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<td>Prerequisites: None</td>
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<td>This course introduces the respiratory care profession. Topics include the role of the respiratory care practitioner, medical gas administration, basic patient assessment, infection control, and medical terminology. Upon completion, students should be able to demonstrate competence in concepts and procedures through written and laboratory evaluations.</td>
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<tr>
<td>RCP 111</td>
<td>Therapeutics/ Diagnostics</td>
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<td>Prerequisites: None</td>
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<tr>
<td>This course is a continuation of RCP 110. Emphasis is placed on entry-level therapeutic and diagnostic procedures used in respiratory care. Upon completion, students should be able to demonstrate competence in concepts and procedures through written and laboratory evaluations.</td>
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<tr>
<td>RCP 113</td>
<td>Respiratory Care Pharmacology</td>
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<td>Corequisites: None</td>
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<td>Prerequisites: None</td>
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<tr>
<td>This course covers the drugs used in the treatment of cardiopulmonary diseases. Emphasis is placed on the uses, actions, indications, administration, and hazards of pharmacological agents. Upon completion, students should be able to demonstrate competence through written evaluations.</td>
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<tr>
<td>RCP 114</td>
<td>Cardiopulmonary Anatomy and Physiology</td>
<td>3</td>
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<td>Corequisites: RCP 144</td>
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<td>Prerequisites: BIO 163, or BIO 165 and BIO 166, or BIO 168 and BIO 169</td>
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<td>This course provides a concentrated study of cardiopulmonary anatomy and physiology essential to the practice of respiratory care. Emphasis is placed on cardiovascular and pulmonary physiology, acid/base balance, and blood gas interpretation. Upon completion, students should be able to demonstrate competence in these concepts through written evaluation.</td>
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<td>RCP 115</td>
<td>Cardiopulmonary Pathophysiology</td>
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<tr>
<td>Prerequisites: BIO 163 or BIO 168 and BIO 169 or BIO 165 and BIO 166</td>
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<tr>
<td>This course introduces the etiology, pathogenesis, and physiology of cardiopulmonary disease and disorders. Emphasis is placed on clinical signs and symptoms along with diagnoses, complications, prognoses, and management. Upon completion, students should be able to demonstrate competence in these concepts through written evaluations.</td>
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<td>RCP 122</td>
<td>Special Practice Lab</td>
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<td>This course provides additional laboratory learning opportunities in respiratory care. Emphasis is placed on therapeutic pro-</td>
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procedures and equipment management. Upon completion, students should be able to demonstrate competence in concepts and procedures through laboratory evaluations.

RCP 123 Special Practice Lab 0 3 0 1
Prerequisites: None
Corequisites: RCP 111
This course provides additional laboratory learning opportunities in respiratory care. Emphasis is placed on therapeutic procedures and equipment management. Upon completion, students should be able to demonstrate competence in concepts and procedures through laboratory evaluations.

RCP 132 Respiratory Care Clinical Practice I 0 0 6 2
Prerequisites: None
Corequisites: RCP 110
This course provides entry-level clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

RCP 144 Respiratory Care Clinical Practice II 0 0 12 4
Prerequisites: RCP 110
Corequisites: RCP 111
This course provides entry-level clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

RCP 210 Critical Care Concepts 3 3 0 4
Prerequisites: RCP 111
Corequisites: RCP 222
This course provides further refinement of acute patient care and underlying pathophysiology. Topics include a continuation in the study of mechanical ventilation, underlying pathophysiology, and introduction of critical care monitoring. Upon completion, students should be able to demonstrate competence in concepts and procedures through written and laboratory evaluations.

RCP 211 Advanced Monitoring/Procedures 3 3 0 4
Prerequisites: RCP 210
Corequisites: None
This course includes advanced information gathering and decision making for the respiratory care professional. Topics include advanced cardiac monitoring and special procedures. Upon completion, students should be able to evaluate, design, and recommend appropriate care plans through written and laboratory evaluations.

RCP 214 Neonatal/Pediatric Respiratory Care 1 3 0 2
Prerequisites: RCP 111
Corequisites: None
This course provides in-depth coverage of the concepts of neonatal and pediatric respiratory care. Emphasis is placed on neonatal and pediatric pathophysiology and on the special therapeutic needs of neonates and children. Upon completion, students should be able to demonstrate competence in these concepts through written and laboratory evaluations.

RCP 222 Special Practice Lab 0 2 0 1
Prerequisites: None
Corequisites: RCP 210
This course provides additional laboratory learning opportunities in respiratory care. Emphasis is placed on therapeutic procedures and equipment management. Upon completion, students should be able to demonstrate competence in concepts and procedures through laboratory evaluations.

RCP 223 Special Practice Lab 0 3 0 1
Prerequisites: RCP 111
Corequisites: None
This course provides additional laboratory learning opportunities in respiratory care. Emphasis is placed on therapeutic procedures and equipment management. Upon completion, students should be able to demonstrate competence in concepts and procedures through laboratory evaluations.

RCP 235 RCP Clinical Practice IV 0 0 15 5
Prerequisites: RCP 111
Corequisites: RCP 210
This course provides advanced practitioner clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

RCP 248 RCP Clinical Practice V 0 0 24 8
Prerequisites: RCP 210
Corequisites: RCP 211
This course provides advanced practitioner clinical experience. Emphasis is placed on therapeutic and diagnostic patient care. Upon completion, students should be able to demonstrate clinical competence in required performance evaluations.

Secretarial
(See OST Office Systems Technology)

Sign Language
(See ALS American Sign Language)

Small Engine Repair
(See Corporate and Continuing Education section of this catalog. Call 704-330-6220 for course information.)

SOC - Sociology

SOC 210 Introduction to Sociology 3 0 3
Prerequisites:
Corequisites: None
This course introduces the scientific study of human society, culture, and social interactions. Topics include socialization, research methods, diversity and inequality, cooperation and conflict, social change, social institutions, and organizations. Upon completion, students should be able to demonstrate knowledge of sociological concepts as they apply to the interplay among individuals, groups, and societies. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.
### SOC 213 Sociology of the Family

- **Prerequisites:** None
- **Corequisites:** None
- **Description:** This course covers the institution of the family and other intimate relationships. Emphasis is placed on mate selection, gender roles, sexuality, communication, power and conflict, parenthood, diverse lifestyles, divorce and remarriage, and economic issues. Upon completion, students should be able to analyze the family as a social institution and the social forces which influence its development and change. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

### SOC 225 Social Diversity

- **Prerequisites:** None
- **Corequisites:** None
- **Description:** This course provides a comparison of diverse roles, interests, opportunities, contributions, and experiences in social life. Topics include race, ethnicity, gender, sexual orientation, class, and religion. Upon completion, students should be able to analyze how cultural and ethnic differences evolve and how they affect personality development, values, and tolerance. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in social/behavioral sciences.

### SPA - Spanish

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SPA 111</td>
<td>Elementary Spanish I</td>
<td>3</td>
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<td>SPA 112</td>
<td>Elementary Spanish II</td>
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<tr>
<td>SPA 151</td>
<td>Hispanic Literature</td>
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<td>SPA 161</td>
<td>Cultural Immersion</td>
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<td>SPA 181</td>
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<td>SPA 182</td>
<td>Spanish Lab 2</td>
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- **SPA 111 Elementary Spanish I:**
  - **Prerequisites:** None
  - **Corequisites:** SPA 181
  - **Description:** This course introduces the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness. When registering for this class, students will also need to register for SPA 181, Spanish Lab 1. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

- **SPA 112 Elementary Spanish II:**
  - **Prerequisites:** SPA 111 or consent of division director.
  - **Corequisites:** SPA 182
  - **Description:** This course is a continuation of SPA 111 focusing on the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate further cultural awareness. When registering for this class, students will also need to register for SPA 182, Spanish Lab 2. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.

- **SPA 151 Hispanic Literature:**
  - **Prerequisites:** ENG 111
  - **Corequisites:** None
  - **Description:** This course includes selected readings by Hispanic writers. Topics include fictional and non-fictional works by representative authors from a variety of genres and literary periods. Upon completion, students should be able to analyze and discuss selected texts within relevant cultural and historical contexts. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

- **SPA 161 Cultural Immersion:**
  - **Prerequisites:** SPA 111
  - **Corequisites:** None
  - **Description:** This course explores Hispanic culture through intensive study on campus and field experience in a host country or area. Topics include an overview of linguistic, historical, geographical, sociopolitical, economic, and/or artistic concerns of the area visited. Upon completion, students should be able to exhibit first-hand knowledge of issues pertinent to the host area and demonstrate understanding of cultural differences. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

- **SPA 181 Spanish Lab 1:**
  - **Prerequisites:** None
  - **Corequisites:** SPA111
  - **Description:** This course provides an opportunity to enhance acquisition of the fundamental elements of the Spanish language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.

- **SPA 182 Spanish Lab 2:**
  - **Prerequisites:** SPA 181 or consent of division director.
  - **Corequisites:** SPA112
  - **Description:** This course provides an opportunity to enhance acquisition of the fundamental elements of the Spanish language. Emphasis is placed on the progressive development of basic listening, speaking, reading, and writing skills through the use of various supplementary learning media and materials. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate cultural awareness. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.
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<td>SPA 211</td>
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<td>Corequisites: SPA 281</td>
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<td>This course provides a review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. When registering for this class, students will also need to register for SPA 281, Spanish Lab 3. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts.</td>
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<td>SPA 212</td>
<td>Intermediate Spanish II</td>
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<td>Prerequisites: SPA 211 or consent of division director.</td>
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<td>Corequisites: SPA 282</td>
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<td>This course provides a continuation of spa 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. When registering for this course, student’s will also need to register for spa282, spanish lab 4. This course has been approved to satisfy the comprehensive articulation agreement general education core requirement in humanities/fine.</td>
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<td>This course provides an opportunity for intensive communication in spoken Spanish. Emphasis is placed on vocabulary acquisition and interactive communication through the discussion of media materials and authentic texts. Upon completion, students should be able to discuss selected topics, express ideas and opinions clearly, and engage in formal and informal conversations. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.</td>
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<td>This course provides an opportunity to enhance the review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts through the use of various supplementary learning media and materials. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.</td>
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<tr>
<td>SAB 110</td>
<td>Substance Abuse Overview</td>
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<td>Prerequisites:</td>
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<td>Corequisites: None</td>
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<td>This course provides an overview of the core concepts in substance abuse and dependence. Topics include the history of drug use/abuse, effects on societal members, treatment of addiction, and preventive measures. Upon completion, students should be able to demonstrate knowledge of the etiology of drug abuse, addiction, prevention, and treatment.</td>
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<td>SAB 120</td>
<td>Intake and Assessment</td>
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<td>Prerequisites:</td>
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<td>Corequisites: None</td>
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<td>This course develops processes for establishment of client rapport, elicitation of client information on which therapeutic activities are based, and stimulation of client introspection. Topics include diagnostic criteria, functions of counseling, nonverbal behavior, collaterals and significant others, dual diagnosis, client strengths and weaknesses, uncooperative clients, and crisis interventions. Upon completion, students should be able to establish communication with clients, recognize disorders, obtain information for counseling, and terminate the counseling process. This course is a unique concentration requirement of the Substance Abuse concentration in the Human Services Technology program.</td>
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<td>SAB 125</td>
<td>Substance Abuse Case Management</td>
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<tr>
<td>SAB 135</td>
<td>Addictive Process</td>
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<td>Prerequisites: SPA 281</td>
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<td>Corequisites: None</td>
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|             | This course explores the physical, emotional, psychological, and cultural aspects of the addictive process. Emphasis is placed on addictions to food, sex, alcohol, drugs, work, gambling, and relationships. Upon completion, students should be able to identify the effects, prevention strategies, and treatment methods
associated with addictive disorders.

**SAB 210  Sub Abuse Counseling** 2 2 0 3
Prerequisites:  
Corequisites: None
This course provides theory and skills acquisition by utilizing intervention strategies designed to obtain therapeutic information, support recovery, and prevent relapse. Topics include counseling individuals and dysfunctional families, screening instruments, counseling techniques and approaches, recovery and relapse, and special populations. Upon completion, students should be able to discuss issues critical to recovery, identify intervention models, and initiate a procedure culminating in cognitive/behavioral change.

**SAB 220  Group Techniques/Therapy** 2 2 0 3
Prerequisites: HSE 112  
Corequisites: None
This course provides a practical guide to diverse methods of group therapy models used in the specific treatment of substance abuse and addiction. Emphasis is placed on the theory and practice of group therapy models specifically designed to treat the cognitive distortions of addiction and substance abuse. Upon completion, students should be able to skillfully practice the group dynamics and techniques formulated for substance abuse and addiction.

**SAB 230  Family Therapy** 2 2 0 3
Prerequisites: Successful completion of 12 SHC in the SAB concentration  
Corequisites: None
This course covers the theories and models of family systems therapy as designed for families affected by substance abuse and addiction. Emphasis is placed on structures and procedures necessary for successful family therapy, including the needs, types of resistance, and individual family dynamics. Upon completion, students should be able to understand and identify dynamics and patterns unique to families affected by substance abuse and the appropriate model of treatment.

**SAB 240  SAB Issues in Client Service** 3 0 0 3
Prerequisites: Successful completion of 12 SHC in the SAB concentration  
Corequisites: None
This course introduces systems of professional standards, values, and issues in substance abuse counseling. Topics include confidentiality, assessment of personal values, professional responsibilities, competencies, and ethics relative to multicultural counseling and research. Upon completion, students should be able to understand and discuss multiple ethical issues applicable to counseling and apply various decision-making models to current issues. This course is a unique concentration requirement of the Substance Abuse concentration in the Human Services Technology program.

**SRV - Surveying**
*See also CIV Civil Engineering Technology for other course descriptions.*

**SRV 110  Surveying I** 2 6 4
Prerequisites: EGR 115 and MAT 121 or MAT 171  
Corequisites: None
This course introduces the theory and practice of plane surveying. Topics include measuring distances and angles, differential and profile leveling, compass applications, topography, and mapping. Upon completion, students should be able to use/care for surveying instruments, demonstrate field note techniques, and apply the theory and practice of plane surveying.

**SRV 210  Surveying III** 2 6 4
Prerequisites: SRV 110  
Corequisites: CIV 125
This course introduces route surveying and roadway planning and layout. Topics include simple, compound, reverse, spiral, and vertical curves; geometric design and layout; planning of cross-section and grade line; drainage; earthwork calculations; and mass diagrams. Upon completion, students should be able to calculate and lay out highway curves; prepare roadway plans, profiles, and sections; and perform slope staking.

**SRV 220  Surveying Law** 2 2 3
Prerequisites: SRV 210  
Corequisites: None
This course introduces the law as related to the practice of surveying. Topics include surveyors’ responsibilities, deed descriptions, title searches, eminent domain, easements, weight of evidence, riparian rights, and other related topics. Upon completion, students should be able to identify and apply the basic legal aspects associated with the practice of land surveying.

**SRV 230  Subdivision Planning** 1 6 3
Prerequisites: SRV 111, SRV 210, and CIV 211  
Corequisites: None
This course covers the planning aspects of residential subdivisions from analysis of owner and municipal requirements to plat layout and design. Topics include municipal codes, lot sizing, roads, incidental drainage, esthetic considerations, and other related topics. Upon completion, students should be able to prepare a set of subdivision plans.

**SRV 240  Topographic / Site Surveying** 2 6 4
Prerequisites: SRV 210  
Corequisites: None
This course covers topographic, site, and construction surveying. Topics include topographic mapping, earthwork, site planning, construction staking, and other related topics. Upon completion, students should be able to prepare topographic maps and site plans and locate and stake out construction projects.

**SRV 250  Advanced Surveying** 2 6 4
Prerequisites: SRV 210  
Corequisites: None
This course covers advanced topics in surveying. Topics include photogrammetry, astronomical observations, coordinate systems, error theory, GPS, GIS, Public Land System, and other related topics. Upon completion, students should be able to apply advanced techniques to the solution of complex surveying problems.
SRV 260  Field and Office Practices  1  3  2  
Prerequisites: Completion of three semesters of the Surveying Technology program  
Corequisites: None  
This course covers surveying project management, estimating, and responsibilities of surveying personnel. Topics include record-keeping, starting and operating a surveying business, contracts, regulations, taxes, personnel management, and professional ethics. Upon completion, students should be able to understand the requirements of operating a professional land surveying business.

Theatre  
(See DRA Drama/Theatre)

TAT - Travel and Tourism  

TAT 110  Introduction to Travel and Tourism  
Lecture Lab Credit  
3  0  3  
Prerequisites:  
Corequisites: None  
This course provides an overview of the travel and tourism industry. Topics include the history, career opportunities, economic impact, and terminology associated with the travel industry and the roles of travel agencies and suppliers. Upon completion, students should be able to demonstrate a basic understanding of the travel and tourism industry.

TAT 112  Domestic Reservations and Ticketing  
3  2  4  
Prerequisites:  
Corequisites: None  
This course introduces the basic procedures for manual and computer-generated domestic travel documents. Topics include domestic airline scheduling and fares, industry codes, document preparation, and creation of automated reservations. Upon completion, students should be able to prepare manual documents and construct a basic passenger name record using an airline computer reservation system. Apollo/Galileo USA Certification texts/training materials will be the focus of the instruction process including the introduction of the internet as a research tool.

TAT 114  International Reservations and Ticketing  
3  2  4  
Prerequisites: TAT 112  
Corequisites: None  
This course introduces the basics of international travel documentation and procedures. Topics include creating international airline reservations, entry/exit requirements, currencies, industry codes, customs regulations, and related international issues. Upon completion, students should be able to construct an international passenger name record using an airline computer reservation system and understand the intricacies of international travel. Apollo/Galileo USA Certification texts/training materials will be the focus of the instruction process including the introduction of the internet as a research tool.

TAT 116  World Destinations I  
3  0  3  
Prerequisites:  
Corequisites: None  
This course covers travel and tourism in the western hemisphere. Emphasis is placed on location and cultural and physical geography as it relates to destination planning. Upon completion, students should be able to counsel clients regarding western hemisphere destinations to meet identified expectations.

TAT 118  World Destinations II  
3  0  3  
Prerequisites:  
Corequisites: None  
This course covers travel and tourism in Europe. Emphasis is placed on location and cultural and physical geography as it relates to destination planning. Upon completion, students should be able to counsel clients regarding European destinations to meet identified expectations.

TAT 120  World Destinations III  
3  0  3  
Prerequisites:  
Corequisites: None  
This course covers travel and tourism in the Pacific, Asia, and Africa. Emphasis is placed on location and cultural and physical geography as it relates to destination planning. Upon completion, students should be able to counsel clients regarding Pacific, Asian, and African destinations to meet identified expectations.

TAT 122  Cars, Rails and Rooms  
3  2  4  
Prerequisites: TAT 112  
Corequisites: None  
This course covers land-based travel arrangements for domestic and international corporate and leisure travelers. Emphasis is placed on making non-airline travel arrangements that include accommodations, rental cars, and rail transportation. Upon completion, students should be able to generate manual and automated reservations. Apollo/Galileo USA Certification texts/training materials will be the focus of the instruction process including the introduction of the internet as a research tool.

TAT 209  Travel Sales and Marketing  
4  0  4  
Prerequisites:  
Corequisites: None  
This course introduces various marketing strategies as they relate to entities within the travel and tourism industry. Topics include basic marketing tools such as market research, market planning, advertising, customer service, image building, and sales techniques. Upon completion, students should be able to conduct primary research, develop a marketing plan, understand the role of service as a marketing tool, and demonstrate proficient sales techniques.

TAT 212  Cruise Marketing and Sales  
3  0  3  
Prerequisites:  
Corequisites: None  
This course is designed to develop a thorough knowledge of the cruise product. Emphasis is placed on worldwide destination markets, the “cruise experience,” differences within the cruise products, and how to use cruise brochures as a sales tool. Upon completion, students should be able to maximize agency profit potential by matching cruise products with identified client needs.

TAT 214  Tour Planning and Escorting  
3  0  3  
Prerequisites:  
Corequisites: None  
This course is designed to develop a thorough knowledge of the tour industry, including career opportunities. Topics include pre-packaged and custom-designed tours, comparison of tour products, itinerary planning, cost and pricing, and the role of a tour escort. Upon completion, students should be able to identify
types of tours, analyze tour features and benefits, negotiate with suppliers, and understand the function of tour escorting.

TAT 220  Travel Agency Management  3  0  3
Prerequisites: None
Corequisites: None
This course covers the primary areas of travel agency operation. Emphasis is placed on budgeting, personnel, leases, customer service, accounting, supplier relationships, pricing strategies, policy and procedures, and requirements for agency approval. Upon completion, students should be able to understand the fundamental areas within travel agency operations, industry trends, and ethical business practices.

TRF - Turfgrass Management
Also see HOR – Horticulture Technology and COE Cooperative Education for additional course descriptions.

TRF 110  Introduction Turfgrass Culture and Identification  3  2  4
Prerequisites: None
Corequisites: None
This course provides an in-depth study of turfgrass. Topics include principles of reproduction, growth development, species characteristics, establishment and maintenance of golf courses and sports fields, and lawn applications. Upon completion, students should be able to identify turfgrass species through characteristics and reproductive stages and develop an establishment and maintenance plan for high quality turf areas.

TRF 120  Turfgrass Irrigation & Design  2  4  4
Prerequisites: None
Corequisites: None
This course covers the basic techniques involved in the design, layout, installation, and use of turfgrass irrigation systems, components of the systems, materials available for use, and economic considerations. Upon completion, students should be able to complete a functional design for a turfgrass irrigation system.

TRF 152  Landscape Maintenance  2  2  3
Prerequisites: None
Corequisites: None
This course introduces the tasks of landscape maintenance. Emphasis is placed on lawns, shrubs, trees, flowers, and ground covers. Upon completion, students should be able to maintain a landscape area on a year-round schedule.

TRF 210  Turfgrass Equipment Management  1  4  3
Prerequisites: None
Corequisites: None
This course covers the operation and maintenance of specialized turfgrass management equipment. Topics include small engine use and repair; operation, maintenance, and repair of turfgrass management equipment; organization of shop areas; and safety considerations. Upon completion, students should be able to operate and maintain turfgrass management equipment.

TRF 220  Turfgrass Calculations  2  0  2
Prerequisites: None
Corequisites: None
This course introduces the specific math concepts and calculations necessary in the turfgrass industry. Emphasis is placed on calibration of equipment used in the application of fertilizers and pesticides and calculation of solid materials used in construction. Upon completion, students should be able to correctly perform basic calculations and calibrations and estimate materials needed in specific professional turfgrass management situations.

TRF 230  Turfgrass Management Applications  1  2  2
Prerequisites: None
Corequisites: None
This course introduces specific sports field design, installation, and maintenance. Topics include natural grass croquet courts and baseball, soccer, and football fields. Upon completion, students should be able to perform specific tasks in layout, field marking, and preparing for tournament play.

TRF 250  Golf/Sport Field Construction  2  4  4
Prerequisites: TRF* 110
Corequisites: None
This course provides information for layout, materials, and construction of special recreation applications. Emphasis is placed on site selection, equipment, safety regulations, drainage, turfgrass species, and irrigation needs. Upon completion, students should be able to locate construction reference sites and develop drainage and irrigation plans from their own blueprints and topo map designs.

TRF 260  Advanced Turfgrass Management  3  2  4
Prerequisites: TRF* 110
Corequisites: None
This course covers the principles and practices involved in turfgrass management. Topics include choosing the best management practice in mowing, pest control, fertilization, irrigation, traffic control, air control, budgeting, and materials procurement. Upon completion, students should be able to demonstrate knowledge of the principles covered and select and apply the best practices in turfgrass management.

WLD - Welding

WLD 110  Cutting Processes  1  3  2
Prerequisites: None
Corequisites: None
This course introduces oxy-fuel and plasma-arc cutting systems. Topics include safety, proper equipment setup, and operation of oxy-fuel and plasma-arc cutting equipment with emphasis on straight line, curve and bevel cutting. Upon completion, students should be able to oxy-fuel and plasma-arc cut metals of varying thickness.

WLD 111  Oxy-Fuel Welding  1  3  2
Prerequisites: None
Corequisites: None
This course introduces the oxy-fuel welding process. Topics include safety, proper equipment setup, and operation of oxy-fuel welding equipment with emphasis on bead application, profile, and discontinuities. Upon completion, students should be able to oxy-fuel weld fillets and grooves on plate and pipe in various positions.

WLD 112  Basic Welding Processes  1  3  2
Prerequisites: None
Corequisites: None
This course introduces basic welding and cutting. Emphasis is placed on beads applied with gases, mild steel fillers, and
electrodes and the capillary action of solder. Upon completion, students should be able to set up welding and oxy-fuel equipment and perform welding, brazing, and soldering processes.

**WLD 115 Shielded Metal Arc Welding (SMAW) (Stick) Plate**  
Prerequisites:  
Corequisites: None  
This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in various positions with shielded metal arc welding electrodes. Upon completion, students should be able to perform shielded metal arc welding fillet and groove welds on carbon plate with prescribed electrodes.

**WLD 116 Shielded Metal Arc Welding (SMAW) (Stick) Plate/Pipe**  
Prerequisites: WLD 110, WLD 115  
Corequisites: None  
This course is designed to enhance skills with the shielded metal arc (stick) welding process. Emphasis is placed on advancing manipulative skills with shielded metal arc welding electrodes on varying joint geometry. Upon completion, students should be able to perform groove welds on carbon steel with prescribed electrodes in the flat, horizontal, vertical, and overhead positions.

**WLD 121 Gas Metal Arc Welding (GMAW) (MIG) FCAW/Plate**  
Prerequisites:  
Corequisites: None  
This course introduces metal arc welding and flux core arc welding processes. Topics include equipment setup and fillet and groove welds with emphasis on application of GMAW and FCAW on carbon steel plate. Upon completion, students should be able to perform fillet welds on carbon steel with prescribed electrodes in the flat, horizontal, and overhead positions.

**WLD 122 Gas Tungsten Arc Welding (GTAW) (TIG) Plate/Pipe**  
Prerequisites: WLD 110, WLD 121  
Corequisites: None  
This course is designed to enhance skills with the gas metal arc (MIG) welding process. Emphasis is placed on advancing skills with the GMAW process making groove welds on carbon steel plate and pipe in various positions. Upon completion, students should be able to perform groove welds with prescribed electrodes on various joint geometry.

**WLD 131 Gas Tungsten Arc Welding (GTAW) (TIG) Plate**  
Prerequisites:  
Corequisites: None  
This course introduces the gas tungsten arc (TIG) welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques. Upon completion, students should be able to perform GTAW fillet and groove welds with various electrodes and filler materials.

**WLD 132 Gas Tungsten Arc Welding (GTAW) (TIG) Plate/Pipe**  
Prerequisites: WLD 110, WLD 131  
Corequisites: None  
This course is designed to enhance skills with the gas tungsten arc (TIG) welding process. Topics include setup, joint preparation, and electrode selection with emphasis on manipulative skills in all welding positions on plate and pipe. Upon completion, students should be able to perform GTAW welds with prescribed electrodes and filler materials on various joint geometry.

**WLD 141 Symbols & Specifications**  
Prerequisites:  
Corequisites: None  
This course introduces the basic symbols and specifications used in welding. Emphasis is placed on interpretation of lines, notes, welding symbols, and specifications. Upon completion, students should be able to read and interpret symbols and specifications commonly used in welding.

**WLD 143 Welding Metallurgy**  
Prerequisites:  
Corequisites: None  
This course introduces the concepts of welding metallurgy. Emphasis is placed on basic metallurgy, effects of welding on various metals, and metal classification and identification. Upon completion, students should be able to understand basic metallurgy, materials designation, and classification systems used in welding.

**WLD 151 Fabrication I**  
Prerequisites: WLD 110, WLD 115, WLD 116, WLD 131, and WLD 141  
Corequisites: None  
This course covers the basic principles of fabrication. Emphasis is placed on safety, measurement, layout techniques, and the use of fabrication tools and equipment. Upon completion, students should be able to perform layout activities and operate various fabrication and material handling equipment.

**WLD 215 SMAW (Stick) Pipe**  
Prerequisites: WLD 110, WLD 115, or WLD 116  
Corequisites: None  
This course covers the knowledge and skills that apply to welding pipe. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead application, profile, and discontinuities. Upon completion, students should be able to perform SMAW welds to applicable codes on carbon steel pipe with prescribed electrodes in various positions. Upon successful completion of all welding courses in the Welding diploma program and the Welding Technology program, the student in the last semester will be allowed to take an A.W.S. D1.1 Structural Welding Code Test on Mild Steel Pipe in the 6-G position, for a nominal fee, within this course.

**WLD 221 Gas GMAW (MIG) Pipe**  
Prerequisites: WLD 110, WLD 122  
Corequisites: None  
This course covers the knowledge and skills that apply to welding pipe. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead application, profile, and discontinuities. Upon completion, students should be able to perform GMAW welds to applicable codes on pipe with prescribed electrodes in various positions.

**WLD 231 Gas Tungsten Arc Welding (GTAW) (TIG) Pipe**  
Prerequisites: WLD 110, WLD 132  
Corequisites: None  
This course covers gas tungsten arc welding on pipe. Topics include joint preparation and fit up with emphasis placed on safety, GTAW welding technique, bead application, and joint geometry.
geometry. Upon completion, students should be able to perform GTAW welds to applicable codes on pipe with prescribed electrodes and filler materials in various pipe positions.

**WLD 251 Fabrication II**
Prerequisites: WLD 151
Corequisites: None
This course covers advanced fabrication skills. Topics include advanced layout and assembly methods with emphasis on the safe and correct use of fabrication tools and equipment. Upon completion, students should be able to fabricate projects from working drawings.

**WLD 261 Certification Practices**
Prerequisites: WLD 110, WLD 115, WLD 121, WLD 131, and WLD 141
Corequisites: WLD 116
This course covers certification requirements for industrial welding processes. Topics include techniques and certification requirements for prequalified joint geometry. Upon completion, students should be able to perform welds on carbon steel plate and/or pipe according to applicable codes. Successful completion of prerequisite courses allows students in the Welding Technology Program to take weld tests in accordance with AWS QC 10, and/or AWS D1.1, and/or AWS B2.1.

**WLD 262 Inspection and Testing**
Prerequisites: WLD 110, WLD 115, WLD 121, WLD 131, WLD 141
Corequisites: WLD 116
This course introduces destructive and non-destructive testing methods. Emphasis is placed on safety, types and methods of testing, and the use of testing equipment and materials. Upon completion, students should be able to understand and/or perform a variety of destructive and non-destructive testing processes.

**WLD 265 Automated Welding/Cutting**
Prerequisites: CIS 110, WLD 110 and WLD 121
Corequisites: None
This course introduces automated welding equipment and processes. Topics include setup, programming, and operation of automated welding and cutting equipment. Upon completion, students should be able to set up, program, and operate automated welding and cutting equipment.