Course Descriptions

Course descriptions list the number of lecture hours for which the class meets each week, e.g. “three lecture” and the number of lab hours of weekly class meeting time, e.g. “three lab.” Some classes are divided between lecture time and “lab” time. Thus, a class that is “three lecture, three lab” meets for six hours each week — three hours in a lecture format and three hours in a lab (“hands-on”) format. NPC courses that transfer directly to other Arizona public community colleges and three state universities have an additional notation: the Shared Unique Number (SUN). The $\text{SUN}^{\#}$ symbol appears with those course descriptions. For an explanation of the SUN advantages, see page 63 in this catalog.

Administration of Justice Studies (AJS) .............. 115
Anthropology (ANT) ...................................... 115
Art (ART) .................................................. 115
Automotive Technology (ATO) ...................... 117
Biology (BIO) ............................................. 118
Business (BUS) .......................................... 118
Chemistry (CHM) .......................................... 121
College and Career Preparation (CCP) ........... 122
Computer Information Systems (CIS) .......... 123
Construction Technology (CON) .................. 125
Cosmetology (COS) ..................................... 127
Drafting (DRF) ........................................... 129
Early Childhood Development (ECD) ........... 130
Economics (ECN) ........................................ 134
Education (EDU) ......................................... 134
Emergency Medical Technology (EMT) ........ 137
English (ENL) ............................................. 138
Film and Digital Video (FDV) ....................... 140
Fire Science (FRS) ....................................... 140
French (FRE) ............................................. 141
Geography (GEO) ....................................... 141
Geology (GLG) .......................................... 142
German (GER) ............................................ 142
Health and Physical Education (HPE) .......... 142
Health Sciences (HES) .................................. 144
Heavy Equipment Operations (HBO) ........... 145
History (HIS) ............................................. 146
Home Crafts and Technology (HCT) .......... 147
Honors Colloquia (HON) ................................ 147
Human Development (HDE) ......................... 147
Human Services (HUS) .................................. 147
Humanities (HUM) ...................................... 148
Industrial Arts (INA) ...................................... 148
Industrial Maintenance (IMO) ....................... 149
Information and Communication Technology (ICT)  152
Languages (LAN) ....................................... 152
Mathematics (MAT) ..................................... 153
Mechatronics (MET) ..................................... 154
Medical Assistant (MDA) ................................. 155
Music (MUS) ............................................. 155
Nursing (NUR) ............................................ 157
Nursing Assistant Training (NAT) .............. 158
Pharmacy Technician (PHT) ......................... 158
Philosophy (PHL) ....................................... 158
Photography (PHO) ..................................... 158
Physics (PHY) ............................................ 159
Political Science (POS) ................................. 159
Psychology (PSY) ....................................... 159
Sociology (SOC) ......................................... 160
Spanish (SPA) ............................................. 160
Speech, Theatre & Film (SPT) ...................... 161
Welding (WLD) .......................................... 162
Workshops & Special Project Classes ............. 165R

Also available online at www.npc.edu/college-catalog
Administration of Justice Studies (AJS)

AJS 102 • Intensive Police Academy
36 credits
Intensive Police Certification meets the Arizona Peace Officers Standards and Training (AzPOST) curriculum: criminal and traffic investigations, community relations, administration of justice, patrol procedures, report writing, physical conditioning, defensive tactics, weapons proficiency/safety, and first aid. **Prerequisite:** Sponsorship by Arizona law enforcement agency. 32 lecture; 12 lab.

Anthropology (ANT)

ANT 102 • Cultural Anthropology
3 credits
Survey of the elements of human cultures with an emphasis on the differing adaptations that humans have made throughout time to differing ecological conditions. Students also study the theories by which anthropologists attempt to explain the formation of cultures and the work of anthropologists, both in the past and in the present. **Prerequisite:** Satisfactory placement. Three lecture.

ANT 104 • Biological Anthropology and Human Origins
4 credits
Study of human evolution and variation, including fossil hominids and their tools, primate anatomy and behavior, human genetics and the environment. **Prerequisite:** Satisfactory placement. Three lecture; three lab.

ANT 120 • Buried Cities and Lost Tribes
3 credits
Examines human history through archaeology. Emphasizes how archaeological inquiry informs our understanding of the change among human societies including the emergence of modern humans, transitions from hunting and gathering lifeways to agriculture and urban life, the development of stratified states and the significance of archaeology in the contemporary world system. **Prerequisite:** Satisfactory placement. Three lecture.

ANT 205 • Southwest Native American Cultures
3 credits
Survey of the cultural traditions and modern conditions of Native Americans of the Southwestern United States. The course focuses on social organization, economic systems, religions, language and art function as parts of integrated systems adapted in unique ways to ecological conditions. **Prerequisite:** Satisfactory placement. Three lecture.

ANT 210 • Southwest Archaeology
3 credits
Introduction to the archaeology of the American Southwest. Concepts used in this course include chronology of Southwestern inhabitants, subsistence patterns, settlement patterns and cultural groups. **Prerequisite:** Satisfactory placement. Three lecture.

Art (ART)

ART 101 • Understanding Art
3 credits
Understanding, enjoyment and relationship of the visual arts to everyday life through the study of styles, techniques and meaning in painting, sculpture and architecture. Broad historical overview of art from prehistoric through contemporary. **Prerequisite:** Satisfactory placement. Three lecture.

ART 103 • Basic Design
3 credits
Basic art elements (line, shape, form, value, color and texture) and compositional principles as applied to two- and three-dimensional projects. Introduction to basic tools and materials used in the visual process. Recommended as prerequisite for all art courses. Two lecture; two lab.

ART 105 • Beginning Drawing I
3 credits
Introduction to the fundamentals of drawing, including perspective and basics of composition using a variety of techniques and media (pencil, charcoal, pen and ink.) Subject matter includes still life, landscape and the human figure. Recommended as a prerequisite for all art courses. Two lecture; two lab.

ART 110 • Figure Drawing I
3 credits
Development of skill and expressiveness in drawing the human figure from the model. Anatomy will be introduced. **Prerequisite:** ART 105 is recommended. Two lecture; two lab.

ART 115 • Art History I
3 credits
Historical survey of painting, sculpture and architecture of the world from Prehistoric through Middle Ages art. **Prerequisite:** Satisfactory placement. Three lecture.

ART 116 • Art History II
3 credits
Historical survey of painting, sculpture and architecture of the world from the Renaissance through modern times. **Prerequisite:** Satisfactory placement. Three lecture.

ART 140 • Lettering
3 credits
Letter forms as produced using various tools and materials (lettering pens, felt-tip markers, brush, etc.) with emphasis on spacing, composition and technical skills. Two lecture; two lab.

ART 150 • Advertising Design
3 credit
Introductory study of principles, tools and techniques applied to forms of visual communication in advertising art, commercial design, graphics and photography. **Prerequisite:** ART 103 is recommended. Two lecture; two lab.

ART 155 • Printmaking
3 credits
Methods of reproducing multiple editions of images. Types of prints covered are monoprints, paper and cardboard prints, linoleum or woodcut prints, silk screen prints, experimental prints, etched or engraved prints, and lithographs. Emphasis on individual creative expression. **Prerequisite:** ART 105 is recommended. Two lecture; two lab.

ART 170 • Sculpture I
3 credits
Introduction to materials and techniques utilized in producing three-dimensional forms. Various materials will be introduced (wood, clay, metal, plaster) and creative exploration is encouraged. **Prerequisite:** ART 103 or ART 105 is recommended. Two lecture; two lab.
ART 175 • Painting I
3 credits
Fundamentals of color theory and color mixing, composition and materials, and techniques of painting. Also covered are painting supports and frame building. Prerequisite: ART 105 is recommended. Two lecture; two lab.

ART 180 • Watercolor I
3 credits
Introduction to watercolor techniques and materials, color theory and color mixing, and composition. Prerequisite: ART 105 is recommended. Two lecture; two lab.

ART 185 • Hand building Pottery
3 credits
Exploration of the nature and techniques of clay using the four basic methods: forming from the solid, using small building units, large building units and paddling. Emphasis will be not only on learning technique but encouraging students to develop their own techniques and style. Two lecture; two lab.

ART 186 • Clay Sculpture
3 credits
Introduces students to the techniques, materials and creative aspects of clay sculpture. Two lecture; two lab.

ART 187 • Raku Pottery
3 credits
Introduction to Raku pottery, including the history of Raku, contemporary trends, techniques of kiln building, glazing, firing and production of clay art objects. Raku pottery techniques emphasize spontaneity and controlled “accidents” in the process. Two lecture; two lab.

ART 190 • Ceramics I
3 credits
Hand building techniques of clay (pinch, coil, slab), properties of clay, throwing on the wheel, decorating, glaze application and creative exploration are covered. Prerequisite: ART 103 or ART 105 is recommended. Two lecture; two lab.

ART 205 • Drawing II
3 credits
Continued study in drawing with emphasis on composition, experimentation with new techniques, materials and personal creative expression. Prerequisite: ART 105. Two lecture; two lab.

ART 206 • Figure Drawing II
3 credits
Continued study in drawing the human form with emphasis on management of materials and creativity. Prerequisite: ART 110. Two lecture; two lab.

ART 215 • Native American Art
3 credits
Intended to provide students with an introduction and selective overview of art of the native peoples of North America. Focus is on significant two- and three-dimensional art as well as installation art before and after establishment of formal art institutions. Prerequisite: Satisfactory placement. Three lecture.

ART 220 • Painting II
3 credits
Continued study of painting materials and methods with an emphasis on composition, creativity and exploration. Prerequisite: ART 175. Two lecture; two lab.

ART 225 • Watercolor II
3 credits
Continued study in watercolor with emphasis on composition, experimentation with media and methods, creativity and personal expression. Prerequisite: ART 180. Two lecture; two lab.

ART 231 • Art in the Elementary School
3 credits
Study of the relationship of art and learning in the elementary school, with emphasis on basic art curriculum, interdisciplinary studies, cultural and artistic experiences, child development in art, and influences of national and state standards on school art programs. Three lecture.

ART 245 • Ceramics II
3 credits
Emphasizes increasing skill in forming methods. Types of clay, glaze composition and experimentation, and kilns and kiln firing are investigated. Prerequisite: ART 190. Two lecture; two lab.

ART 246 • Ceramics III
3 credits
Advanced problem solving and investigation with emphasis on individual creative development and personal expression in ceramics. Prerequisite: ART 245. Two lecture; two lab.

ART 247 • Ceramics IV
3 credits
Explores and studies ceramic glazes, glaze materials, types of glazes, calculating glaze formulas, sources of color in glazes, mixing and application. Prerequisite: ART 190, ART 245 and ART 246. Two lecture; two lab.

ART 280 • Art Studio – Two-Dimensional
3 credits
Continuation of investigation, advanced problem-solving and personal creative development in area of two-dimensional specialization. Course may be repeated. Prerequisite: Minimum of six hours in a specific two-dimensional medium. Two lecture; two lab.

ART 281 • Art Studio – Three-Dimensional
3 credits
Continuation of investigation, advanced problem-solving and personal creative development in area of three-dimensional specialization. Course may be repeated. Prerequisite: Minimum of six hours in a specific three-dimensional medium. Two lecture; two lab.

ART 289 • Figurative Ceramics
3 credits
Exploration of the human form in clay. Solid sculpting and hollowing techniques will be used in combination with ceramic surface options. Human anatomy and proportions will be examined through portraiture and with the use of a live model. Two lecture; two lab.
## Automotive Technology (ATO)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATO 103</td>
<td>Safety and Hazardous Materials</td>
<td>2</td>
<td>Course includes five areas of safety instruction: dressing for safety, vehicle safety, hoist operation and safety, hand and pneumatic tool safety and hazardous chemicals. Prerequisite: Satisfactory placement. Two lecture.</td>
</tr>
<tr>
<td>ATO 107</td>
<td>Engine Repair I</td>
<td>3</td>
<td>Using a variety of tests, students diagnose base engine components to determine engine condition, cooling system and lubrication system. Students remove the engine for repair and/or replacement. Prerequisite: ATO 107. One lecture; two lab.</td>
</tr>
<tr>
<td>ATO 108</td>
<td>Engine Repair II</td>
<td>2</td>
<td>Focus on the diagnosis, repair and/or replacement of the engine valve train, cylinder head and lower end components such as: engine pistons, cylinders, crankshaft, and friction bearings. Prerequisite: ATO 107. One lecture; two lab.</td>
</tr>
<tr>
<td>ATO 109</td>
<td>Engine Performance I</td>
<td>3</td>
<td>Covers automotive systems related to engine performance and drivability. Areas of instruction include work order information, engine leak inspection, engine noise and vibration diagnosis, base engine diagnosis and testing and cooling system diagnosis and repair. Prerequisite: Satisfactory placement. One lecture; four lab.</td>
</tr>
<tr>
<td>ATO 110</td>
<td>Engine Performance II</td>
<td>3</td>
<td>Covers automotive systems related to engine performance and drivability. Areas of instruction include ignition system primary and secondary circuits, fuel delivery systems, diagnosis of drivability problems caused from ignition and fuel delivery systems, exhaust emission testing and analyzing. Prerequisite: ATO 109. One lecture; four lab.</td>
</tr>
<tr>
<td>ATO 111</td>
<td>Engine Performance III</td>
<td>3</td>
<td>Covers automotive systems related to engine performance and drivability. Areas of instruction include work order information, engine leak inspection, engine noise and vibration diagnosis, base engine diagnosis and testing, and cooling system diagnosis and repair. Prerequisite: ATO 110. One lecture; four lab.</td>
</tr>
<tr>
<td>ATO 112</td>
<td>Automatic Transmission Systems I</td>
<td>3</td>
<td>Covers general automatic transmission and transaxle diagnosis in vehicle repair and maintenance. Prerequisite: Satisfactory placement. One lecture; four lab.</td>
</tr>
<tr>
<td>ATO 113</td>
<td>Automatic Transmission Systems II</td>
<td>3</td>
<td>Covers off-vehicle automatic transmission and transaxle repair. Students remove the transmission from the vehicle, disassemble, inspect and replace needed parts/components, reassemble, install, and test the transmission. Prerequisite: ATO 112. One lecture; four lab.</td>
</tr>
</tbody>
</table>

### Prerequisites
- ATO 114: Brake Systems I
  - 3 credits
  - Covers operation, inspection, repair and maintenance of the brake hydraulic systems, power brake systems and wheel bearings. Prerequisite: Satisfactory placement. One lecture; three lab.
- ATO 115: Brake Systems II
  - 2 credits
  - Covers operation, inspection, diagnosis and repair of automotive disc and drum brake systems, including anti-lock braking, traction and stability control systems. Prerequisite: ATO 114. One lecture; two lab.
- ATO 134: Fundamentals of Plastic Welding
  - 3 credits
  - Fundamentals of plastic welding introduces theories pertaining to: thermoplastics welding techniques, plastic identification processes, fusion welding, chemical welding processes, and thermostet plastics. Prerequisite: WLD 100 or CON 100 or CON 107 or ATO 103 or instructor permission. Three lecture
- ATO 205: Suspension and Steering Systems
  - 4 credits
  - Covers the operation, diagnosis, service and repair of steering and suspension systems. Areas of instruction include front and rear suspension, wheels, tires, steering and four-wheel alignment. Prerequisite: Satisfactory placement. Two lecture; four lab.
- ATO 207: Electrical and Electronics Systems I
  - 3 credits
  - Covers basic automotive electronics and electrical systems including work order information, identifying and interpreting electrical/electronic system problems, diagnosing electrical/electronic integrity of series-parallel circuits using principles of electricity (Ohms law). Students demonstrate proper use of a digital multimeter during diagnosis of electrical problems, including source voltage, voltage drop, current flow, and resistance. Prerequisite: Satisfactory placement. One lecture; four lab.
- ATO 208: Electrical and Electronics Systems II
  - 3 credits
  - Covers automotive starting and charging systems. Students perform diagnosis, repair and replacement of the components and subsystems of the vehicles starting and charging system. Prerequisite: ATO 207. Two lecture; three lab.
- ATO 209: Electrical and Electronics Systems III
  - 3 credits
  - Covers diagnosis and repair of lighting systems, gauges and warning devices, driver information systems and accessories equipment such as power windows, locks, seats, cruise control, sound systems, anti-theft systems and CAN/BUS systems. Prerequisite: ATO 208. Two lecture; three lab.
- ATO 210: Heating and Air Conditioning Systems
  - 4 credits
  - Covers operation, diagnosis, service and repair of automotive heating and air conditioning systems. Prerequisite: Satisfactory placement. Two lecture; four lab.
- ATO 212: Manual Drive Train and Axles
  - 4 credits
  - Covers the operation, service and repair of manual drive train and axle systems including clutch systems, manual transmissions/transaxles, front-wheel drive axle shafts, and constant velocity (CV) joints. Prerequisite: Satisfactory placement. Two lecture; four lab.
Biology (BIO)

BIO 100 • Biology Concepts
4 credits
A one-semester introductory course covering basic principles and concepts of biology for non-majors. Designed for students who wish to study biology to fulfill general education credit requirements. Does not satisfy prerequisite requirements for enrollment in advanced biology courses. Prerequisite: Satisfactory placement. Three lecture; three lab.

BIO 105 • Environmental Biology
4 credits
A one-semester introductory course covering basic principles and concepts of Environmental Biology. Explore methods of scientific inquiry and behavior of matter, energy, organisms and the environment. Designed for students desiring a biology class to help fulfill degree general education requirements. BIO 105 does not satisfy prerequisite requirements for enrollment in advanced BIO courses. Three lecture; three lab.

BIO 160 • Introduction to Human Anatomy and Physiology
4 credits
One-semester introductory course examining structure and function of the major systems of the human body. Basic principles and concepts of these systems are examined. Does not meet Nursing Program prerequisites. Prerequisite: Satisfactory placement. Three lecture; three lab.

BIO 181 • General Biology I
4 credits
Principles of biological science underlying the structure and function of living things: basic chemistry, cells and organelles, enzymes, respiration, photosynthesis, reproduction, genetics, genomics and evolution. Entry-level course for biology majors and students entering health care professions. Requirement for all advanced biology courses. Prerequisite: Satisfactory placement. Three lecture; three lab.

BIO 182 • General Biology II
4 credits
This is the second part of a technical entry-level course for biology majors or medical/health care students needing a full-year course completion before undertaking advanced biology courses. Prerequisite: BIO 181. Three lecture; three lab.

BIO 201 • Human Anatomy and Physiology I
4 credits
First semester of a two-semester sequence in which human anatomy and physiology are studied using a body systems approach. Emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Topics include basic anatomical and directional terminology, fundamental concepts and principles of histology, integumentary, skeletal, muscular and nervous systems; and special senses. Prerequisite: BIO 181; Corequisite: CHM 130 or CHM 152. Three lecture; three lab.

BIO 202 • Human Anatomy and Physiology II
4 credits
Second semester of a two-semester sequence in which human anatomy and physiology are studied using a body systems approach. Emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Topics include endocrine and cardiovascular systems, lymphatic system and immunity; respiratory and digestive systems; metabolism; urinary system; fluid/electrolyte and acid/base balance; and reproductive systems. Prerequisite: BIO 201. Three lecture; three lab.

BIO 205 • Microbiology
4 credits
Bacterial, viral, fungal and protozoan biology, including microbial cytology, nutrition and metabolism, growth and reproduction, cultivation applications and bio-industrial/biomedical technologies. Prerequisites: BIO 181 and either CHM 130 or CHM 152. Three lecture; three lab.

BIO 241 • Human Genetics
3 credits
An introduction to the basic concepts and principles of human heredity with an emphasis on the medical and health aspects of human genetics. Topics include Mendelian genetics, cytogenetics, molecular/biochemical genetics, polygenes and population genetics. Prerequisite: BIO 181 or equivalent or instructor permission. Three lecture.

Business (BUS)

BUS 100 • Introduction to Business
3 credits
Introduction to business operations. Includes marketing, management, human resources, finance, stakeholder relations, and the economic environment of capitalism. Three lecture.

BUS 101 • Business Grammar
1 credit
A review of grammar, punctuation, spelling, forms of address and up-to-date formatting techniques as they apply to business writing, and correct usage of business reference materials. One lecture.

BUS 102 • Proofreading Mastery
1 credit
Develop the ability to recognize common errors in mechanics, form and content often overlooked in documents and apply this skill in practical operations. Prerequisites: BUS 101 and keyboarding skills of 20 words per minute. One lecture.

BUS 103 • Success on Your Job
2 credits
How to successfully get and keep a job. Emphasizes human relations, time management, business dress, business etiquette, positive attitude development and résumé/portfolio development. Two lecture.

BUS 104 • Developing Your Professionalism
1 credit
This course will provide the student with a knowledge and awareness of professionalism in the workplace. The student is also provided with methods and approaches to improving and developing his or her professional presence. One lecture.
BUS 105 • Techniques of Supervision
3 credits
The basic principles of supervision with attention given to the development of skills needed to become a successful manager. Three lecture.

BUS 106 • Techniques of Personal Finance
3 credits
Personal money management with emphasis on budgeting, use of credit, insurance, investments and other financial planning topics. Three lecture.

BUS 107 • Basic Keyboarding
1 credit
Students learn correct technique to build good keyboarding skills for the entire keyboard including letters, numbers and symbols. One-half lecture; one lab.

BUS 108 • Basic Keyboarding and Document Processing
3 credits
Students learn to type by touch with acceptable or better technique, increase speed and accuracy and format documents (emails, letters, memos, reports and tables) using word processing software. Two lecture; two lab. Requires Windows-based operating system.

BUS 109 • Advanced Keyboarding and Document Processing
3 credits
Advanced course to increase keyboarding speed and accuracy while maintaining proper technique. Format documents (emails, letters, memos, reports, legal and medical documents and tables) using word processing software from arranged and unarranged copy. Prerequisite: BUS 108 or instructor permission Two lecture; two lab. Requires Windows-based operating system.

BUS 110 • Small Business Management
3 credits
Emphasizes launching and growing new entrepreneurial ventures. Topics covered are small business principles, management, marketing, accounting, finance and budgeting techniques. Three lecture.

BUS 111 • Ten-Key Skill Mastery
1 credit
Teaches numeric keypad by touch (without looking at keys) to develop speed and accuracy necessary to apply this knowledge in a variety of data entry situations. One-half lecture; one lab.

BUS 112 • Fundamentals of Bookkeeping
3 credits
Introduction to accounting principles that includes: Accounting for a proprietorship, analyzing transactions, cash control systems, journals, general ledgers, payroll records, financial statements and adjusting entries. Two lecture; two lab.

BUS 117 • Principles of Financial Accounting I
3 credits
Introduction to principles of accounting. Topics include journalizing entries, preparation of financial statements, accounting for cash and receivables, assets and liabilities. Three lecture.

BUS 118 • Computerized Medical Billing
3 credits
Introduction to terminology and practices associated with computerized medical billing and provides experience with the program. Designed for students with basic keyboarding skills. Three lecture. Requires Windows-based operating system.

BUS 119 • Medical Office Administrative Procedures
3 credits
Trains student for administrative duties in a medical office. Students learn exercises in judgment, independent action and coping with interruptions. Covers proper techniques for communications, making appointments, transcribing patient histories, recording charges and payments, completing insurance forms and maintaining financial records. Prerequisite: BUS 108 or instructor permission. Three lecture.

BUS 120 • Principles of Financial Accounting II
3 credits
Formal accounting concepts, procedures and practices. Accounting techniques for corporate entities, financing, inventory cost control systems, accounting for stocks and bonds. Prerequisite: BUS 117 or instructor permission. Three lecture.

BUS 121 • Principles of Accounting – Managerial
3 credits
Covers accounting equity issues, statements of change in financial position, analysis of financial statements and cost accounting. Prerequisite: BUS 120 or instructor permission. Three lecture.

BUS 122 • Computerized Accounting with Quickbooks
3 credits
Computer accounting concepts on Quickbooks software, preparing balance sheets, income statements, statement of cash flows, setting up a business accounting system, adjusting entries, budgeting and reports. Two lecture; two lab.

BUS 123 • Income Tax Procedures
3 credits
Overview of individual, partnership and corporation income tax system. Includes tax calculation, who must file, filing status, exemptions, itemized deductions and standard deductions. Overview to capital gains and losses along with tax information available through the IRS also included. Three lecture.

BUS 125 • Payroll Accounting
3 credits

BUS 126 • Vocabulary for the Medical Office
3 credits
Introduction to medical word roots, combining forms, prefixes and suffixes needed to become familiar with medical terms used in the front medical office. Three lecture.

BUS 128 • Microsoft Excel Applications for Business
3 credits
Explores spreadsheet software to design electronic spreadsheets for business, financial analysis and forecasting. Two lecture; two lab.

BUS 131 • Medical Transcription Fundamentals
3 credits
Development of medical transcription skills, including punctuation and spelling of medical terms. Listening skills, including techniques for understanding foreign speakers of English, are developed. Development of accuracy in medical transcription is emphasized. Prerequisites: BUS 108 and BUS 126. Two lecture; two lab.
BUS 132 • Introduction to Public Administration
3 credits
A study of the roles and functions of public bureaucracies within the larger governmental and social systems, the critical importance of technology, intergovernmental communication and information exchanges among all levels of government. Three lecture.

BUS 133 • Business Mathematics
3 credits
An introduction to the practice in mathematics of fundamental business operations and applications including payroll, finance, interest, loans and investments. Prerequisite: CCP 088 or satisfactory placement. Three lecture.

BUS 144 • Professional Office Skills
3 credits
Survey of the evolving modern office and the procedures related to modern technology. Basic skills covered include human relations, oral/written communications, records management, basic mathematics and business grammar review, reprographics, time management, supervision/management and telecommunications. Prerequisite: Keyboarding skills of 20 words per minute, and BUS memo and letter writing skills, reports and other business documents. Effective communication in organizational setting. Topics include BUS 170 • Written Business Communication

Prerequisite: for student with basic keyboarding skills.

Keyboarding creating macros, and inserting graphics into documents. Designed preparing reports, letters, memos and other business documents, merge cells, perform calculations and custom format. Prerequisite:

BUS 155 • Microsoft Word Level I
3 credits
Level I coverage of Microsoft Word. Software applications include preparing reports, letters, memos and other business documents, creating macros, and inserting graphics into documents. Designed for student with basic keyboarding skills. Prerequisite: Keyboarding skills of 20 words per minute. Two lecture; two lab.

BUS 170 • Written Business Communication
3 credits
Effective communication in organizational setting. Topics include memo and letter writing skills, reports and other business documents. Prerequisites: Keyboarding skills of 20 words per minute, and BUS 101 and BUS 102 or instructor permission. Three lecture.

BUS 180 • Organizational Behavior
3 credits
Introduction to theories of organization including communication and teamwork, motivation, group behavior, organizational culture and organizational design. Examination of real-world examples. Prerequisite: BUS 100 or instructor permission. Three lecture.

BUS 181 • Medical Records Management
1 credit
Various filing methods used in the processing of medical records as well as issues related to confidentiality and release of medical records. One lecture.

BUS 182 • Records Management
3 credits
Covers types of records management systems and approaches to filing including developments in digital data storage. Three lecture.

BUS 183 • Electronic Medical Records
3 credits
Introduces all facets of electronic health record (EHR) applications in medical practice. Includes coverage of administrative topics such as billing systems and scheduling appointments as well as clinical tasks, including charting progress notes and working with diagnostic orders. Prerequisite: BUS 126 or instructor permission. Three lecture.

BUS 184 • Medical Scribe
3 credits
Prepares students to work as Medical Scribes. Students will practice real-time clinical documentation and workflow efficiencies by collecting information gathered at a simulated point-of-care encounter with a patient and a provider. Students will input data to create and maintain comprehensive and accurate electronic health records. Prerequisite: Keyboarding skill of at least 25 wpm; BUS 183 or instructor permission. Three lecture.

BUS 185 • Ethics in Management
3 credits
Introduction to theories of ethics for organizational managers. Perspectives on ethics are covered with applications to stakeholders and consideration of government regulation. Analysis of real-world examples. Three lecture.

BUS 201 • Quantitative Methods
3 credits
Basic business statistics including the collection, tabulation, and analysis of business and economic data. Topics will include methods of statistical description, probability theory and statistical inference in business and economics. Prerequisite: MAT 152. Three lecture.

BUS 202 • Professional Customer Service
1 credit
Provides student with knowledge of customer service and the fundamental abilities and strategies leading to successful customer service in any type of organization. One lecture.

BUS 203 • Introduction to Business Communication
3 credits
Facilitates critical analysis of communication in a variety of social and cultural contexts. Examines communication products/processes and the various ways we negotiate their importance. Includes theory and practice of communication skills in public, small group, and interpersonal settings, and the study of the speech communication process. Three lecture.
BUS 206 • Legal, Ethical, Global & Regulatory Environment of Business  
3 credits  
Basic coverage of the environment of business, including legal and ethical issues and the regulatory and global environment of business that affect business policies and decisions. Three lecture.

BUS 210 • Principles of Management  
3 credits  
Principles of management with general applicability to all types of enterprises, management philosophy, and decision making; principles involved in planning, directing, and controlling as well as concepts in management. Three lecture.

BUS 214 • Executive Office Administration  
3 credits  
Provides knowledge of office management including coverage of managerial concepts needed by an office manager: budgets, quality control, systems analysis and methods to improve office productivity. Prerequisites: BUS 100 or BUS 144 or BUS 119. Three lecture.

BUS 215 • Principles of Retail Management  
3 credits  
Provides a strategic, decision-making approach that illustrates how retailers plan for and adapt to today’s changing and complex retail environment. Topics include target markets, retailing strategies, competitive analysis, and merchandising. Three lecture.

BUS 220 • Principles of Marketing  
3 credits  
Marketing concepts in the areas of retailing and wholesaling. Special emphasis is given to consumer needs and the relationship of the consumer with the marketing system as a whole. Distribution methods, costs, pricing, buying habits and motivation are covered. Three lecture.

BUS 225 • Human Resources Management  
3 credits  
Covers concepts in motivation, leadership, organizational development, workplace diversity, safety, job design and career planning. Three lecture.

BUS 227 • Medical Coding  
4 credits  
Medical coding is the transformation of narrative descriptions of diseases, injuries and health care procedures into numeric or alphanumeric designations (code numbers). Students learn to assign and identify the information by using the accurate ICD, HCPCS and CPT code books. Medical terminology and anatomy briefly covered. Prerequisite: BUS 126 or instructor permission. Four lecture.

BUS 230 • Organizational Leadership  
3 credits  
Traditional leadership theory with current leadership topics including culture, ethics, diversity, strategic leadership and change management. Provides models for effectively handling leadership functions. Three lecture.

BUS 231 • Microsoft Office Level I  
3 credits  
Level I Microsoft Office Applications. Includes coverage of Windows, Microsoft Word, Excel, Access and PowerPoint. Students apply problem-solving techniques to complete a variety of projects including integrating Office applications. Combined with BUS 234 this course helps prepare the student for the core Microsoft Office Specialist (MOS) Certification examination. Prerequisite: Keyboarding skills of 20 words per minute. Two lecture; two lab.

BUS 234 • Microsoft Office Level II  
3 credits  
Advanced course covers applications in Microsoft Office Suite including Word, Excel, Access, and PowerPoint. Students apply advanced problem-solving techniques to complete professional-looking documents and projects. Combined with BUS 231 this course helps prepare the student for the core Microsoft Office Specialist (MOS) Certification examination. Prerequisite: BUS 231. Two lecture; two lab.

BUS 238 • Financial Management and Budgeting  
3 credits  
This course provides non-accounting business students with an overview of managerial finance topics, to include financial statement analysis, budget and pro-forma financial statement development, capital budgeting techniques, and management of short-term assets and short-term liabilities. Additionally, students will learn concepts related to financial planning and control. Three lecture.

BUS 240 • Entrepreneurship  
3 credits  
Combines practical, step-by-step approach with a theoretical foundation to form basic understanding of the theory, process and practice of entrepreneurship. Provides the opportunity to apply ideas and develop useful entrepreneurial skills. Prerequisite: BUS 110. Three lecture.

BUS 255 • Microsoft Word Level II  
3 credits  
Level two coverage of Microsoft Word. Software applications include advanced software applications such as tables and charts, inserting and modifying pictures and illustrations, linking and embedding objects and creating and modifying newsletters. Prerequisite: BUS 155 or instructor permission. Two lecture; two lab.

Chemistry (CHM)  

CHM 130 • Fundamental Chemistry  
4 credits  
A fundamental introductory course presenting chemistry for nursing/allied health, general education and non-chemistry major students. Prerequisite: MAT 109 or satisfactory placement. Three lecture; three lab.

CHM 151 • General Chemistry I  
4 credits  
Chemistry for the science and engineering student. The first part of a standard college and university sequence. Emphasis on inorganic chemistry concepts and principles. Prerequisites: High school chemistry and MAT 109/112 or MAT 121, or satisfactory placement. Three lecture; three lab.
CHM 152 • General Chemistry II  
4 credits  
SUNY CHM 1152  
Second half of a standard college and university general chemistry sequence. Emphasis on thermodynamics, kinetics and equilibrium. **Prerequisite:** CHM 151. Three lecture; three lab.

College and Career Preparation (CCP)

CCP 010 • Literacy I  
2 credits  
Introduction to beginning reading and writing to build a foundation based in everyday activities and career readiness utilizing the Laubach method. **Prerequisite:** Satisfactory placement. One lecture; two lab.

CCP 020 • Literacy II  
2 credits  
Introduction to second level of reading and writing skills utilizing Laubach method with emphasis on sight and written vocabulary. Continued use of technology as it applies to career readiness. **Prerequisite:** Diagnostic testing and/or CCP 010 mastery. One lecture; two lab.

CCP 030 • Literacy III  
2 credits  
Level three literacy skills including reading and writing words with long and short vowel patterns; diagramming parts of speech; increased reading and writing vocabulary; applying the writing process to a variety of writing products will enhance keyboard skills. **Prerequisite:** Diagnostic testing and/or CCP 020 mastery. One lecture; two lab.

CCP 052 • Reading/Writing Applications I  
3 credits  
Reading and writing study and practice with integrated math application activities through a career focus. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 55X • Opportunities Through Education  
0 credits  
Orientation to assess a student’s readiness for the High School Equivalency test. Placement testing will determine areas of remediation while introducing students to the various services and academic degrees offered by NPC. One-half lecture.

CCP 062 • Reading and Writing Applications II  
3 credits  
Students are taught to comprehend complex functional, informational, and literary texts. Students are taught to apply the writing process to create a variety of analytical writing products that reflect the understanding of materials read. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 068 • Mathematical Applications II  
3 credits  
Instruction and practice of foundational math skills with real-world applications for work, home, and continuing education. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 072 • Reading and Writing Applications III Science  
3 credits  
Strengthens the skills of reading and writing in the areas of Life Science, Physical Science, and Earth and Space Science in preparation for college and career success. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 074 • Reading and Writing Applications III  
3 credits  
Strengthens skills and concepts in the areas of US history, civics, political systems, economics, and geography with integration of reading and writing skills in preparation for college and career success. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 077 • High School Equivalency Prep I  
3 credits  
Introduction to Arizona’s high school equivalency content, study and test skill strategies. Instruction designed to improve student’s basic skills while building confidence. **Prerequisite:** Satisfactory placement - ABEIII. Three lecture.

CCP 078 • Math Applications III  
3 credits  
A comprehensive approach to mathematical concepts for application in the workforce with math instruction and practice using real-world careers with each concept. This is a preparation course for college and career readiness. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 082 • Reading/Writing Applications IV  
3 credits  
Reading and writing skills are integrated with science and social studies to create proficiency in independently disseminating complex information in a variety of content areas. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 084 • High School Equivalency Prep: Civics  
1 credit  
Introduction to Arizona’s high school equivalency civics content. Instruction is designed to increase student’s content knowledge and improve basic skills while building confidence in the test-taking process. **Prerequisite:** Satisfactory placement. One lecture.

CCP 087 • High School Equivalency Exam Prep II  
3 credits  
Content review, study preparation, and confidence building to complete one or more sub-tests of the Arizona high school equivalency exam. **Prerequisite:** Satisfactory placement. Three lecture.

CCP 088 • Beginning Algebra with Applications  
3 credits  
Beginning algebra through mathematical exploration and modeling of real problems. Topics include signed numbers, measurement, one and two variable data, linear equations, graphing, and polynomials. **Prerequisite:** Satisfactory placement. Two lecture; two lab.

CCP 098 • High School Equivalency Ready  
0.5 credit  
Provides students with test taking strategies, computer skill assessments, and high school equivalency practice tests to determine readiness to pass the Arizona high school equivalency test. **Prerequisite:** Satisfactory placement. One-half lecture.

CCP 103 • Workforce Skills  
2 credits  
CIS 111 • Introduction to Programming
3 credits
Introduces students to concepts of problem-solving using structured and object-oriented programming, algorithmic design, computer systems concepts, and social and ethical responsibilities. Prerequisites: CIS 105, placement equivalent to completion of MAT 112, or instructor permission. Two lecture; two lab.

CIS 113 • Multimedia
3 credits
Multimedia application of basic to advanced video and audio editing skills using Adobe and/or other comparable software. Two lecture; two lab.

CIS 115 • Introduction to Graphic Communication Technology
3 credits
Introduction to the conceptualization, visualization and production of visual communication using the computer as a designer, illustrator and photographer’s tool for printing and digital applications. Two lecture; two lab.

CIS 117 • Two-Dimensional Computer Design
3 credits
Introduction to two-dimensional digital vector images through visual problem solving. Basic foundation in the use of Adobe Illustrator software as an illustrator and designer’s tool in the printing industry and the Internet. Two lecture; two lab.

CIS 118 • Graphics, Interactive and Animated
3 credits
The course will take students from simple to complex application of the Flash authoring tool. Throughout the course students will progress from basic graphics, to animation, interactivity, audio and video and action script. Students will create optimized Flash movies that can be published as Flash, or mobile application files. Two lecture; two lab.

CIS 119 • Page Layout and Design
3 credits
Students learn page layout and design concepts hands-on using industry standard layout and design software. Students learn to produce professional documents that can be output to various devices and formats, including printers, Portable Document Files (PDF) and exported to XHTML and XML. Prerequisite: CIS 115 or instructor permission. Two lecture; two lab.

CIS 125 • Effective Communication with Digital Media
3 credits
Designed for new web developers, online educators and businesses to learn digital media. Students apply learned skills to create effective online text, audio, graphics, animation and full-motion video. Prerequisite: CIS 115 or instructor permission. Two lecture; two lab.

CIS 127 • Network+ Certification Preparation
3 credits
Prepares students to pass the CompTIA Network+ certification exam. Upon completion of the course, students will understand concepts relating to Windows Operating Systems, other Operating Systems and network troubleshooting. Course includes about 50 percent of the competencies required for A+ certification. Prerequisite: CIS 114 or instructor permission. Two lecture; two lab.

CIS 135 • IT Assessment, Audit, and Controls
3 credits
Students develop a thorough understanding of how to identify and mitigate risk related to information systems and learn how to develop plans and processes for a holistic approach to information security for an organization. Prerequisite: CIS 130 or instructor permission. Three lecture.

CIS 141 • Managing and Maintaining Your PC I (A+)
3 credits
Comprehensive practical instruction on theory and skills relating to PC hardware, networking, mobile devices, and hardware and network troubleshooting. Course includes about 50 percent of the competencies required for A+ certification. Prerequisite: CIS 105 or instructor permission. Two lecture; two lab.

CIS 142 • Managing and Maintaining Your PC II (A+)
3 credits
Comprehensive practical instruction on theory and skills relating to Windows Operating Systems, other Operating Systems and technology, Security, Software Troubleshooting, and Operational Procedures. Course includes about 50 percent of the competencies required for A+ certification. Prerequisite: CIS 141 or instructor permission. Two lecture; two lab.

CIS 145 • Network+ Certification Preparation
3 credits
Overview of networking concepts, protocols, terminology and history. Students will learn and apply skills through traditional methods as well as hands-on labs. This course will prepare students for the CompTIA Network+ examination. Prerequisite: CIS141 or instructor permission. Two lecture; two lab.
CIS 146 • Security+ Certification Preparation
3 credits
This course will prepare students for the CompTIA Security+ Certification examination. Topics include network security, compliance and operational security, threats and vulnerabilities, access control, cryptography, access control and identity management. Prerequisite: CIS 145 or instructor permission. Three lecture.

CIS 147 • PC Help Desk/Soft Skills
3 credits
Introduces students to the Help Desk environment, as well as other essential IT soft skills, teamwork, collaboration, time and project management skills. Prerequisite: CIS 105 or instructor permission. Two lecture; two lab.

CIS 148 • Applied Networking
3 credits
Hands-on application configuring switches, routers, VLANs, VPNs, ACLs, as well as troubleshooting. Through application students will develop a more thorough understanding of LANs, TCP/IP, IPv6, security, device hardening, as well as VoIP and network administration. Prerequisite: CIS 145 or instructor permission. Two lecture, two lab.

CIS 149 • Wireless Networking
3 credits
Student will be exposed to an overview of wireless networking. Concepts covered include fundamentals of RF behavior, the features and functions of WLAN components, installation, configuring, and troubleshooting WLAN hardware peripherals and protocols. This course will prepare students for the CWNA exam. Prerequisite: CIS 145 or instructor permission. Three lecture.

CIS 150 • Digital Culture
3 credits
Trans-disciplinary inquiry into the history, nature and implications of digital spaces and cultures. Students develop critical thinking capabilities and a humanistic perspective on the nature of cyberspace. Three lecture.

CIS 161 • Microsoft Operating Systems
3 credits
Covers in-depth use of current Microsoft Operating Systems and takes a critical-thinking approach to teaching concepts and skills such as configuring hardware, software, interfaces, security, and practical skills. Two lecture; two lab.

CIS 171 • GNU Linux Operating Systems
3 credits
Introduction to the GNU/Linux Operating System. Students will learn to install, configure, maintain and troubleshoot Linux systems. Introduces the command line and graphical user interfaces for workstation user and systems administration purposes. Prerequisite: CIS 105 or instructor permission. Two lecture; two lab.

CIS 187 • Introduction to Web Development
3 credits
Introduction to the theory, art and practice of web design and development. Students learn to write and manage valid and accessible pages and sites that maintain high standards of usability regardless of client computing platform, connection speed or browser choice. Two lecture; two lab.

CIS 190 • Introduction to JavaScript
3 credits
Students learn the fundamentals of JavaScript as a web programming language. Includes basic programming concepts as they apply to using JavaScript with a focus on creating interactivity, with text and graphics. Prerequisite: CIS 187 or instructor permission. Two lecture; two lab.

CIS 217 • JAVA Programming, Introductory
3 credits
An introduction to the JAVA Programming Language. Students write programs in JAVA compiled with NetBeans IDE with an emphasis on problem analysis, structure and design. Prerequisite: CIS 111 or instructor permission. Two lecture; two lab.

CIS 225 • Programming in C Language
3 credits
An introduction to computer programming using C language. Students write programs in C with an emphasis on problem analysis, structure and design. Prerequisite: CIS 111 and CIS 171, or instructor permission. Two lecture; two lab.

CIS 226 • Programming in C++
3 credits
An introduction to computer programming using C++ language. Students write programs in C++ with an emphasis on problem analysis, structure and design. Prerequisite: CIS 111 or instructor permission. Two lecture; two lab.

CIS 230 • Operating System Security
3 credits
Students learn to install, configure, and administer common desktop and server operating systems and their associated applications and services with a focus on securing these systems against risks, vulnerabilities, and threats. Prerequisite: CIS 130, and CIS 161, and CIS 171 or instructor permission. Two lecture; two lab.

CIS 231 • Digital Forensics and Investigations
3 credits
Students will learn about the legal and technical aspects of Digital Forensics, including general forensic processes, imaging, hashing, file recovery, file system basics, identifying mismatched file types, reporting, and laws regarding computer evidence. Prerequisite: CIS 230 or instructor permission. Two lecture; two lab.

CIS 232 • Network Security
3 credits
Students learn how to design, implement, and administer secure computer networks while exploring security incidents and intrusions, identifying and categorizing incidents, responding to incidents, log analysis, network traffic analysis, and utilizing various network security tools. Prerequisite: CIS 130 and CIS 145 or instructor permission. Two lecture; two lab.

CIS 233 • Ethical Hacking
3 credits
Students will learn about the ethical hacking methodology with a hands-on application of security tools to test and better secure information systems. Introduces common countermeasures that effectively reduce and/or mitigate attacks. Prerequisite: CIS 230 or instructor permission; Co-requisite: CIS 232 or instructor permission. Two lecture; two lab.
CIS 243 • Database-Driven Websites
3 credits
An introductory course to web development using PHP and MySQL. Students learn to build professional quality, database-driven websites. Also introduces students to the paradigm of object-oriented programming and regular expressions, processing XML and secure coding practices. Prerequisite: CIS 187 or instructor permission. Two lecture; two lab.

CIS 245 • Database Management and Concepts
3 credits
Modeling and design of DBMS systems using advanced database management system software. Emphasizes hands-on projects and activities while investigating the applied use of databases in personal and professional settings. Prerequisite: CIS 105 or instructor permission. Two lecture; two lab.

CIS 250 • Electronic Commerce
3 credits
Introduces students to electronic commerce on the Internet. Emphasizes techniques to plan and develop a platform-independent e-commerce website. Focus on web business strategies, marketing, advertising, legal and security considerations, current issues in e-commerce, payment processing and the hardware and software tools necessary to support electronic storefronts. Prerequisite: CIS 243 or instructor permission. Two lecture; two lab.

CIS 260 • Web Design Technologies
3 credits
Overview of current technologies used by web professionals to create visually engaging and interactive pages, sites, and applications at an intermediate to advanced level. Prerequisite: CIS 187 or instructor permission. Two lecture; two lab.

CIS 265 • Web Programming
3 credits
Advanced web development and programming techniques using a variety of scripting and programming languages and supporting technologies. Students enhance their skills in client-side and server-side programming. Intended for students with a solid background and understanding in web development and programming. Prerequisite: CIS 243 or instructor permission. Two lecture; two lab.

CIS 275 • Web Server Administration
3 credits
Managing a web server environment using Linux/Unix. Covers the basics of systems administration and user management with a focus on web services. Focuses on networking, troubleshooting, administering web and database services, support for scripting languages, process/resource monitoring and security techniques. Covers current topics in the web hosting industry. Prerequisite: CIS 171 or instructor permission. Two lecture; two lab.

CIS 280 • Systems Analysis and Design
3 credits
Introduction to the methodologies of systems analysis and design. Emphasizes developing interviewing skills, identifying organizational problems and objectives, analyzing and documenting systems, physical modeling and design. Students gain experience in the creation of UML diagrams, a project repository, data normalization and data flow modeling. Prerequisite: CIS 111 or instructor permission. Two lecture; two lab.

CIS 286 • Educational Technology
3 credits
A technology literacy course for current and future educators in K-12 and postsecondary education. The course emphasizes skill development and familiarity in e-learning tools, online educational resources, instructional design, distance learning and educational technology standards. Knowledge and skills will be assessed through discussions, hands-on projects and digital portfolios. Three lecture.

CIS 295 • Applied Project for CIS
3 credits
Capstone course intended for students nearing completion of their CIS degree program. Builds on the skills and knowledge acquired in previous courses, emphasizing "real world" situations, and provides an opportunity for students to demonstrate their various competencies and communication skills. Prerequisites: Must complete at least 15 credits toward an area of specialization in CIS and instructor permission. Two lecture; two lab.

Construction Technology (CON)

CON 100 • Construction Math and Safety
3 credits
Introduces principles and procedures for working safely in construction. Also focuses on basic math skills needed to calculate slope, volume, area and unit conversion. Explores OSHA 10-Hour construction safety topics. Three lecture.

CON 101 • Jobsite Layout
3 credits
Lecture of contextualized applied math topics for accurately measuring and laying out different types of construction projects, shapes, and structures. Focusing on applications of geometry and trigonometry as it applies to building layout, quality control, and site surveying. Three lecture.

CON 102 • Introduction to Construction Methods
3 credits
Introduction to principles and procedures to work safely in construction industry; construction terminology, hand tools, and power tools applications. OSHA 10 Hour construction safety topics are explored. Three lecture.

CON 105 • Engineering Principles and Construction Methods
3 credits
Examines basic engineering calculations, architectural design principles, materials used in construction, technical specifications, documents, contracts, methods and systems. Research project included. Three lecture.

CON 107 • Safety and Job Hazard Recognition
1 credit
Explores Federal Occupational Health and Safety Administration (OSHA) regulations as they pertain to the construction industry with focus on hazards in the workplace and methods to reduce work-related injuries. One lecture.

CON 110 • Plan Reading, Site Layout, Communication and Employment
3 credits
Introduction to basic skills of reading plans and specifications, communication fundamentals, site layout, and employability skills. Three lecture.
CON 111 • Plan Reading and Employment
3 credits
Introduction to basic skills of reading plans, specifications, contractual documents, communication fundamentals, and employability skills as they pertain to the construction industry. Three lecture.

CON 120 Concrete and Masonry Systems
3 credits
The theory and practice of construction work performed with mortar, brick, block (concrete masonry units), reinforced brick, reinforced concrete masonry, forming of structural concrete, and concrete placement. Additionally, explores the chemical characteristics of Portland cement based products, common tools used, terminology, and methodologies used to work with aforementioned materials. Prerequisites: CON 100 or CON 107 or CON 102. Two lecture, two lab.

CON 121 • Cabinetmaking I
3 credits
Design and fabrication of wood and composition cabinets. Includes shop safety, cabinet style and design by function, materials, work plans, bill of materials and cutting lists, identification/use/care of hand tools, portable power tools and woodworking machinery, face frame and casework construction, basic joints, gluing techniques, finishing and installation methods. Prerequisite: CON 100. Two lecture; two lab.

CON 124 • Masonry Systems
3 credits
Theory and practice of construction with mortar, brick, block (concrete masonry units), reinforced brick and reinforced concrete masonry. Prerequisites: CON 100, CON 110. Two lecture; two lab.

CON 125 • Concrete Systems
3 credits
Explores theory and practice of methods and materials used for forming structural concrete and concrete placement in residential and commercial construction. Prerequisites: CON 100, CON 110. Two and one-half lecture; one lab.

CON 126 • Framing Systems
4 credits
Hands-on identification of different types of framing systems commonly used in the construction industry. Topics include: the components of walls, floor systems, stair layout and ceiling layout. Lecture on appropriate building codes and interpretation of construction documents as they pertain to carpentry. Prerequisite: CON 102 or CON 107 or CON 100. Two lecture; four lab.

CON 134 • Fundamentals of Plastic Welding
3 credits
Fundamentals of plastic welding introduces theories pertaining to: thermoplastics welding techniques, plastic identification processes, fusion welding, chemical welding processes, and thermoset plasctics. Prerequisite: WLD 100 or CON 100 or CON 107 or ATO 103 or instructor permission. Three lecture

CON 140 • Computer Applications in Construction
3 credits
Computing theory and practice in computer applications for the design and construction industry. Introduction to Microsoft Excel, Word, Project, PowerPoint and/or estimating software. Explores some basics of CAD software for development of work plans. Includes basics of creating spreadsheets for estimating. Three lecture.

CON 145 • Roofing, Thermal and Moisture Protection Systems
3 credits
Hands-on roofing materials from low-slope to steep-slope roofing systems will be explored. Varying types of exterior finishes, weatherization and waterproofing systems will be constructed. Lecture of thermal properties of materials, thermal resistance and heat transfer. Prerequisites: CON 102, CON 107, CON 100 or instructor permission. Two lecture; two lab.

CON 150 • Interior Finish Systems and Weatherization
3 credits
Explores interior finish systems: drywall, insulation, soundproofing, firestopping, textures, trims, and painting in a hands-on environment. Prerequisites: CON 100 or CON 107 or CON 102 or instructor permission. Two lecture; two lab.

CON 180 • Construction Service Learning
3 credits
Places students in construction settings to perform and learn construction related duties in accordance with their goals and objectives in a service-based project that benefits the community. Six lab.

CON 181 • Building Maintenance
3 credits
Maintenance of residential, commercial, industrial and public buildings. Discusses safety and first aid, structural parts of buildings, exteriors, doors and windows, interiors, finish carpentry, concrete/masonry, landscape maintenance, electrical and mechanical system maintenance. Two lecture; two lab.

CON 200 • Integrated Construction Management/Design Laboratory
3 credits
Construction of mock structures including building and assemblage of components, progress reporting, safety documentation, quality control, coordination of teams among design, management and trades. Prerequisites: CON 110 and CON 140 or department consent; Co-requisites: CON 145 or DRF 230. Two lecture; two lab.

CON 221 • Cabinetmaking II
3 credits
Advanced standard techniques of cabinetmaking. Includes shop safety for special setups, standard and customized cabinet dimensioning, detailed working drawings, specialized cabinet joinery, molding and trim applications, bending and laminating veneers and plastic laminates, design and fabrication of multi-component cabinet systems. Prerequisite: CON 121. Two lecture; two lab.

CON 222 • Cabinetmaking III
3 credits
Specialized techniques in cabinet production. Includes identification/use/care of specialized hand tools/portable power tools/machinery for mass production of cabinets, jigs and fixtures, designing and estimating materials for production cabinetry, production projects. Prerequisite: CON 221. Two lecture; two lab.

CON 223 • Heavy Highway Construction
3 credits
Introduces students to the basics of earthwork. Discussion of highway/heavy construction trade and pertinent safety; explores construction documents used for highway/heavy civil construction projects. Students required to perform hands-on calculations to determine site layouts, earthwork grades and material requirements. Prerequisite: CON 105. Two lecture; two lab.
CON 227 • Electrical, Mechanical and Plumbing Systems
3 credits
Lecture-based approach to mechanical systems and basic electrical theories as they relate to building trades. Hands-on approach taken for plumbing and electrical systems. Prerequisite: CON 110. Two lecture; two lab.

CON 228 • Electrical Systems
3 credits
Introduction to electrical systems, wiring, the National Electrical Codes, and basic electrical theories as they relate to building trades. Corequisites: CON 100 or CON 102 or CON 107 or instructor permission. Two lecture; two lab.

CON 229 • Plumbing and Mechanical Systems
3 credits
A hands-on approach is taken for plumbing systems used in residential construction. Lecture-based approach to mechanical systems; their applications and basic theories as they relate to buildings in which they are used. Prerequisite: CON 100 or CON 102 or CON 107 or instructor permission. Two lecture; two lab.

CON 230 • Sustainable Construction
3 credits
Lecture of roles of constructors in the green environment. Impacts of land development, materials, and manufacturing processes will be explored. LEED Green Building Council Criteria, green building technology, and structure orientation. Corequisites: CON 105 or instructor permission. Three lecture.

CON 241 • Electrical Level I
3 credits
Orientation to the trade of electrical work, electrical safety, introduction to electrical circuits, introduction to the National Electric Code (NEC), device boxes, hand bending and electrical installation. Prerequisite: CON 227 or department chair approval. Two lecture; two lab.

CON 242 • Electrical Level II
3 credits
Lectures on sine wave generation. alternating current, lighting systems and transformers. Hands-on installation of light fixtures, conduit bending, cable pulling and switches. Prerequisite: CON 241 or department chair approval. Two lecture; two lab.

CON 263 • Cost Estimating, Scheduling and Planning
3 credits
Students calculate quantities of materials used in construction projects using spreadsheets and computers. Once quantities are determined, cost and duration to time of completion are applied to each task. Prerequisite: CON 140 or instructor approval. Two lecture; two lab.

CON 265 • Construction Capstone Portfolio
2 credits
Integration of construction processes including: operations, trades (masonry, concrete, carpentry, finishes, and electrical), and management processes. Prerequisites: CON 101, 102, 111, 120, 126, 145, 228, 229 or instructor permission. One and a half lecture; one lab.

Cosmetology (COS)

COS 113 • Introduction to Cosmetology
10 credits
The class allows the student to observe all of the demonstrations of competencies necessary to perform cosmetology services. Successful performance of these competencies and obtaining 300 clocked hours will allow progression to the next course. Prerequisites: Minimum 16 years of age with an official high school transcript with two English courses, one mathematics, one science and a minimum of 10 credits. A COMPASS Reading Score of 65 or an ASSET Reading Score of 36. Also AZ State identification -OR- Minimum age of 16 with a GED or high school diploma with COMPASS Reading Score of 65 or an ASSET Reading Score of 36. Also an AZ State identification. 20 lab.

COS 114 • Theory of Cosmetology II
3 credits
Orientation and all aspects of business skills relating to cosmetology. Prerequisite: COS 113 or instructor permission. Three lecture.

COS 115 • Theory of Cosmetology III - General Sciences
3 credits
Infection control, anatomy and physiology, hair, skin, nails, electricity and chemistry. Prerequisite: COS 114 or instructor permission. Three lecture.

COS 116 • Theory of Cosmetology IV - Hair Care
2 credits
All aspects of hair care, chemical texturizing and coloring. Prerequisite: COS 115 or instructor permission. Two lecture.

COS 117 • Theory of Cosmetology V - Skin and Nail Care
2 credits
Topics include facial/makeup, hair removal and nail care. Prerequisite: COS 116 or instructor permission. Two lecture.

COS 130 • Nail Technology Theory I
3 credits

COS 131 • Nail Technology Theory II
3 credits
Theory of Nail Technology: Scientific concepts. Prerequisite: COS 130. Three lecture.

COS 132 • Nail Technology Basic Practicum Practice I
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Four and a half lab.

COS 133 • Nail Technology Basic Practicum Practice II
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Prerequisite: COS 132 Four and a half lab.
COS 134 • Nail Technology Advanced Practicum Practice III
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Prerequisite: COS 133 Four and a half lab.

COS 135 • Nail Technology Advanced Practicum Practice IV
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Prerequisite: COS 134 Four and a half lab.

COS 136 • Nail Technology Advanced Practicum Practice V
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Prerequisite: COS 135 Four and a half lab.

COS 137 • Nail Technology Advanced Practicum Practice VI
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Prerequisite: COS 136 Four and a half lab.

COS 138 • Nail Technology Advanced Practicum Practice VII
2 credits
This course is one of the series of practicum courses for students to perform proper procedures for a wide variety of nail technology-related skills. This includes providing satisfactory client services, proper communication skills, and demonstrating nail technology skills on mannequins. Prerequisite: COS 137 Four and a half lab.

COS 209 • Science for Cosmetology Instructors
1 credit
Instructional techniques for teaching, demonstrations of the safe use of chemicals, safety precautions in use of electricity and electrical equipment, and cosmetic chemistry. Theory and practical procedures are explained and demonstrated for each topic. Prerequisites: Cosmetology license and instructor permission. One lecture.

COS 210 • Management for Cosmetology Instructors
3 credits
Instructional techniques for teaching and mastering an introduction to personal improvement, Arizona laws and rules governing cosmetology business ethics, telephone techniques, receptionist techniques, and shop management. Prerequisites: Cosmetology license and instructor permission. Three lecture.

COS 211 • Instructing in Cosmetology I
3 credits
Student instructor will learn correct instructional procedures pertaining to manicuring, shampooing, fingerwaving, haircutting and curl construction, enabling her or him to stress all safety precautions, and to demonstrate manipulative skills to students clearly and confidently. Prerequisites: Cosmetology license and instructor permission. Three lecture.

COS 212 • Instructing in Cosmetology II
3 credits
Basic instructional methods and techniques for the effective observation and assistance to experienced instructors in the performance of their duties, and to perform skill demonstrations in chemical applications. Prerequisites: Cosmetology license, COS 211 and instructor permission. Three lecture.

COS 213 • Instructing in Cosmetology III
3 credits
Basic instructional methods and techniques for the effective instructing of students in the skills of haircutting with razor and scissors, observing and performing guidelines, roller placement, and the clear and enthusiastic demonstration of all skills needed. Prerequisites: Cosmetology license, COS 212 and instructor permission. Three lecture.

COS 214 • Instructing in Cosmetology IV
3 credits
Designing lesson plans, demonstration schedules, theory schedules, quizzes and examinations, and observing and absorbing human relations in dealing with students and patrons. Prerequisites: Cosmetology license, COS 213 and instructor permission. Three lecture.

COS 215 • Basic Practicum Practice I
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins. Prerequisite: COS 113; Four and a half lab.

COS 216 • Basic Practicum Practice II
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins. Prerequisite: COS 215; Four and a half lab.

COS 217 • Basic Practicum Practice III
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins. Prerequisite: COS 216; Four and a half lab.
COS 218 • Basic Practicum Practice IV
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 217; Four and a half lab.

COS 219 • Basic Practicum Practice V
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 218; Four and a half lab.

COS 220 • Basic Practicum Practice VI
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 219; Four and a half lab.

COS 221 • Basic Practicum Practice VII
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 220; Four and a half lab.

COS 222 • Basic Practicum Practice VIII
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 221; Four and a half lab.

COS 223 • Advanced Practicum Practice IX
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 222; Four and a half lab.

COS 224 • Advanced Practicum Practice X
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 223; Four and a half lab.

COS 225 • Advanced Practicum Practice XI
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 224; Four and a half lab.

COS 226 • Advanced Practicum Practice XII
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 225; Four and a half lab.

COS 227 • Advanced Practicum Practice XIII
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 226; Four and a half lab.

COS 228 • Advanced Practicum Practice XIV
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 227; Four and a half lab.

COS 229 • Advanced Practicum Practice XV
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 228; Four and a half lab.

COS 230 • Advanced Practicum Practice XVI
2 credits
One of a series of practicum courses for students who have successfully completed COS 113. Students perform proper procedures for a wide variety of cosmetology-related skills. Includes providing satisfactory client services, proper communication skills and demonstrating cosmetology skills on mannequins.
Prerequisite: COS 229; Four and a half lab.

Drafting (DRF)

DRF 120 • Technical Drafting I
3 credits
Basic skills for technical drafting using AutoCAD. Topics include language of industry, drafting skills, drafting office practices, theory of shape description, applied geometry, basic dimensioning, working drawings, sections and conventions, and printmaking machines. Two lecture; two lab.
DRF 130 • Architectural Drafting I
3 credits
Basic techniques and fundamentals of architectural drafting with emphasis on line work, lettering and basic technical drawing. Basic drafting skills are developed through projects devoted to acquiring knowledge of basic residential construction methods and their graphical representation. Emphasis on industry standards. Prerequisite: DRF 120 or instructor permission. Two lecture; two lab.

DRF 140 • Civil Drafting
3 credits
Focus on the application of civil drafting and practice of fundamental graphical concepts and related material as they apply to site planning. Prerequisite: DRF 120 or instructor permission. Two lecture; two lab.

DRF 145 • AutoSketch
3 credits
An introductory course in Computer-Aided Drafting/Design using AutoSketch. Recommended for those students who want to pursue study of AutoCAD but have no computer or drafting experience. Two lecture; two lab.

DRF 150 • AutoCAD I
3 credits
Specializing in two-dimensional drawings and the application of Computer Aided Drafting Design. Topics include system startup, setting up drawings, drawing fundamentals, getting around with display controls, graphic entities, introduction to editing, grouping entities into blocks, drawing enhancements, dimensioning and plotting drawings. Two lecture; two lab.

DRF 200 • Applied Drafting and Design
2 credits
The application of advanced drafting and design skills in a challenging format. Topics include defining areas of interest, advanced sketching skills, advanced manual drafting skills, advanced AutoCAD skills, project work plans, activities and evaluation. Repeatable with different student/instructor/division director created specific learning object. Prerequisite: 15 credit hours of drafting core courses. Four lab.

DRF 220 • Technical Drafting II
3 credits
An advanced course in technical drafting. Topics include drawing threaded fasteners, drawing miscellaneous types of fasteners, forming processes, welding drawings, manufacturing materials, auxiliary views, pictorial drawings, functional drafting and drawing for numerical control. Prerequisite: DRF 120. Two lecture; two lab.

DRF 230 • Architectural Drafting II
3 credits
An advanced course in architectural drafting. Topics include site/plot plans, foundation plans, floor plans, elevations, sections, framing plans, internal elevations, electrical plans, plumbing plans, sketching, perspective drawing, shading and coloring and building codes. Prerequisite: DRF 130. Two lecture; two lab.

DRF 250 • AutoCAD II
3 credits
Covering two-dimensional specialized techniques and continued development of AutoCAD skills. Emphasis is on advanced student project(s). Topics include advanced editing, attributes and data extraction, customizing macros and menus, tailoring menu systems, using AutoLISP for drawing automation, grouping entities into blocks, drawing enhancements, dimensioning and plotting drawings. Prerequisite: DRF 150 or instructor permission. Two lecture; two lab.

DRF 251 • AutoCAD 3-D
3 credits
Theory and application of three-dimensional (3-D) drafting capabilities. Topics include 3-D conversion, sectioning for 2-D plotting and dimensioning. Prerequisite: DRF 150 or instructor permission. Two lecture; two lab.

DRF 252 • AutoCAD Productivity
3 credits
The use of the AutoCAD program to create personalized applications of AutoCAD customized menus and templates. Topics include making a first menu, fine-tuning a system, DOS - a closer look, creating and editing macros, improving screen menus, designing and creating tablet menus, AutoCAD’s advanced user interface, automating drawings, productivity tips and tricks, and AutoCAD productivity library. Prerequisite: DRF 250 or instructor permission. Two lecture; two lab.

Early Childhood Development (ECD)

ECD 100 • Providing a Healthy Environment
1 credit
Overview of general health guidelines and practices in early childhood to promote children’s physical and nutritional needs. Includes program development, working with families, and supporting children’s physical activity and nutrition for the promotion of a healthy lifestyle beginning at the earliest age. One-half lecture; one clinical.

ECD 101 • The Child’s Total Learning Environment
1 credit
Planning and organizing the physical environment into functional learning areas, stressing the importance of a planned arrangement for classroom furniture, equipment and materials. One-half lecture; one lab.

ECD 102 • Ensuring a Safe Environment
1 credit
Overview of strategies for implementing safe practices and ensuring the safety of children in a variety of early childhood settings such as preschools, playgrounds, and homes. Includes ways to engage families in understanding practices for keeping children safe at home. One-half lecture; one clinical.

ECD 103 • Planned Arrangements and Schedules
1 credit
Methods of lesson planning and classroom scheduling to meet the needs of young children. One-half lecture; one lab.
ECD 105 • Understanding Behavior and Encouraging Self-Discipline  
1 credit  
Strategies and methods for understanding children’s behavior. Explores instructional techniques to promote self-regulation and support children’s positive social-emotional development. **Corequisite:** Concurrent enrollment in ECD 120. One-half lecture; one clinical.

ECD 107 • Collecting, Organizing and Using Teaching Aids  
1 credit  
Acquiring, maintaining and using effective teaching tools. One-half lecture; one lab.

ECD 108 • Observation and Assessment in Early Childhood  
1 credit  
Foundations in observing and assessing learning for the purpose of understanding development and guiding instruction for young children, birth through age eight. Covers a variety of techniques and strategies for effectively documenting learning and interpreting results. **Corequisites:** ECD 250 or ECD 147, ECD 148 and ECD 149. One-half lecture; one clinical.

ECD 110 • Building Relationships with Families  
1 credit  
Overview of the importance of the family and early childhood professional relationship. Strategies for engaging with families and building strong relationships as a means to support children’s positive growth and development. One-half lecture; one clinical.

ECD 111 • Supporting the Growth and Education of Parents  
1 credit  
Awareness of parents’ values for their children by helping parents gain more understanding about their children’s needs. One-half lecture; one lab.

ECD 112 • Enhancing Family Involvement  
1 credit  
Emphasis on involving parents and community members in the early childhood program. One-half lecture; one lab.

ECD 113 • Fostering Communication and Language Skills  
1 credit  
Assessing, understanding and fostering the development of communication skills of young children. Techniques for helping children develop communication skills in their primary language. One-half lecture; one lab.

ECD 114 • Beginning Mathematical Concepts  
1 credit  
Mathematics concepts and activities to help children develop an understanding of relationships. One-half lecture; one lab.

ECD 115 • Nutrition in Early Childhood  
1 credit  
Introduction to nutrition, methods of using nutrition experiences in the classroom, and structuring and implementing the education of nutrition into the early childhood program. One-half lecture; one lab.

ECD 116 • Science and Discovery  
1 credit  
Methods and materials for supporting children’s scientific thinking and inquiry skills. One-half lecture; one clinical.

ECD 119 • Field Trips  
1 credit  
Planning and methods of evaluating field trips. Techniques for enhancing the field trip experience. One-half lecture; one lab.

ECD 120 • Guidance and Development of Social-Emotional Development  
1 credit  
Overview of children’s social-emotional development. Explores instructional strategies and techniques to build young children’s social-emotional awareness and promote positive self-concepts. **Corequisite:** Concurrent enrollment in ECD 105. One-half lecture; one clinical.

ECD 122 • Encouraging Open Expression  
1 credit  
Encouraging children to express their feelings openly as an effective way to foster positive personality development. One-half lecture; one lab.

ECD 123 • Music and Creative Movement  
1 credit  
Use of music and creative movement in the early childhood curriculum and methods for providing a variety of musical experiences. One-half lecture; one lab.

ECD 124 • Dramatic Play in the Early Childhood Setting  
1 credit  
Techniques to encourage child participation in role-playing activities. Methods for using dramatic play and the construction and storage of materials are stressed. One-half lecture; one lab.

ECD 125 • Creative Media  
1 credit  
Values and skills needed to implement a creative media program and selecting materials for creative experiences. One-half lecture; one lab.

ECD 126 • Large Muscle Development  
1 credit  
Physical maturation process of young children, the value of gross motor activities, and techniques for providing a variety of spontaneous and teaching directed activities. One-half lecture; one lab.

ECD 127 • Small Muscle Development  
1 credit  
Physical maturation process, the value of small muscle activities, development of eye-hand coordination and techniques for providing a variety of fine motor activities. One-half lecture; one lab.

ECD 128 • Culture, Language and Community  
1 credit  
Explores how culture, language and community impact child development and learning. Reviews methods and materials that promote culturally and linguistically responsive environments and instruction in a variety of early childhood settings. One-half lecture; one clinical.
ECD 129 • Planning and Implementing a Bilingual Program
1 credit
Providing young children with communication skills in their primary language with exposure to a basic vocabulary of a second language. (This course will be made language specific for the group of children with which the student is involved). One-half lecture; one lab.

ECD 130 • Woodworking
1 credit
Woodworking experiences and techniques for providing young children with a variety of woodworking activities. One-half lecture; one lab.

ECD 136 • Understanding How Children Learn
1 credit
Overview of brain development and learning theories and principles in early childhood. Strategies for applying theory to practice and using knowledge of learning to support children’s comprehensive growth and development. One-half lecture; one clinical.

ECD 142 Designing Developmentally Effective Learning Environments
2 credits
Exploration of the foundations of constructivist, whole child learning approaches with particular focus on developmentally appropriate and effective practices in early childhood. Includes overview of specific curricula used in a variety of early childhood settings. Co-requisites: ECD 250 or ECD 147, ECD 148 and ECD 149. One lecture; two clinical.

ECD 143 Inclusion of Children with Special Needs
2 credits
An overview of the concepts of quality inclusion of children with special needs, including information on laws which govern services to children with disabilities, knowledge of individualized plans, a review of typical and atypical child development, developmentally appropriate activities for children, working collaboratively with families, service providers and multidisciplinary teams. One lecture; two lab.

ECD 147 • Prenatal and Infant Development
1 credit
Development of an infant from conception through infancy. Includes theories of development and the birth process. Student must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

ECD 148 • Toddler Development
1 credit
Development of toddlers from 12 months to 36 months of age. Must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

ECD 149 • Development of the Preschool Child
1 credit
Development of children from 3 to 5 years of age. Must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

ECD 150 • Middle Childhood Years
1 credit
Theories, trends and research in the development of the middle childhood years including the principles of physical, social, emotional and intellectual growth. Must complete ECD 147, 148, 149 and 150 in numerical order. One-half lecture; one lab.

ECD 151 • Math for School-Agers
1 credit
Theories, research and concrete experiences related to mathematical reasoning and skills of the school age child. One-half lecture; one lab.

ECD 152 • Learning Environment for School-Agers
1 credit
The school-age environment for the care and education of children and youth includes both indoor and outdoor spaces, as well as the materials available and the management of activities in the program. One-half lecture; one lab.

ECD 153 • Guidance Principles for School-Agers
1 credit
A study of positive guidance and discipline techniques that can be used to encourage children and youth to develop self-discipline and take responsibility for their actions. One-half lecture; one lab.

ECD 154 • Environments for Infants and Toddlers
1 credit
A composite of practical theories and principles for the arrangement of a safe, healthy environment for infants and toddlers with emphasis on indoor/outdoor environments, material selection and usage based on observation and participation in an infant/toddler care setting. One-half lecture; one lab.

ECD 155 • Curriculum and Learning Materials for Infants
1 credit
Practical theories and principles for the infant curriculum with emphasis on responsive relationships, developmental stages, applied observation. Course provides developmentally appropriate learning materials that are safe and interesting for infant exploration. One-half lecture; one lab.

ECD 156 • Curriculum and Learning Materials for Toddlers
1 credit
Practical theories and principles for the toddler curriculum with emphasis on responsive relationships, developmental stages, applied observation, and providing developmentally appropriate learning materials that are safe and interesting for toddler exploration. One-half lecture; one lab.

ECD 158 • Developing and Utilizing Observations Skills in Infant and Toddler Programs
1 credit
Techniques and skills to effectively observe and record characteristics and developmental stages of infants and toddlers, record keeping procedures, overview of a variety of care giving settings, and observation and participation in an infant/toddler program. One-half lecture; one lab.
ECD 159 • Recordkeeping Skills for Infant/Toddler Care
1 credit
Assists with the setting up and maintaining of records needed by caregivers to ensure the smooth and effective operation of the infant/toddler program, and to provide accountability to regulating agencies, funding agencies and consumers. One-half lecture; one lab.

ECD 163 • Cognitive Development of Infants and Toddlers
1 credit
Theories, trends and principles of cognitive growth and development of infants and toddlers, and examination of development stages and norms through observation and participation in an infant/toddler care program. One-half lecture; one lab.

ECD 164 • Practical Applications of Cognitive Development in Infants and Toddlers
1 credit
Explores cognitive development in infants and toddlers with an emphasis on the application of knowledge in developing supports and services that promote cognitive development in very young learners. Co-requisite: ECD 163. One-half lecture; one clinical.

ECD 165 • Language Development of Infants and Toddlers
1 credit
A study of the normal language skills development in infants and toddlers, including activities to foster language development and help identifying language delays. One-half lecture; one lab.

ECD 166 • Encouraging Autonomy and Positive Self-Concept
1 credit
Defines trust and autonomy and identifies the type of care which fosters the development of autonomy and positive self-concept in infants and toddlers. One-half lecture; one lab.

ECD 167 • Guidance and Discipline of Infants and Toddlers
1 credit
Appropriate guidance techniques for various developmental levels without impeding infants and toddlers’ needs to explore and experiment. One-half lecture; one lab.

ECD 168 • Enhancing Social Competence of Infants and Toddlers
1 credit
Skills and techniques to enhance the social competence of infants and toddlers by providing an appropriate environment, by providing for positive interaction between caregiver and child, and by providing opportunities for interactions with peers. One-half lecture; one lab.

ECD 169 • Sensorimotor Learning in Infancy and Toddlerhood
1 credit
Sensorimotor period of development of young children in their first two years of life. One-half lecture; one lab.

ECD 172 • Physical Development in Infancy and Toddlerhood
1 credit
The normal sequence of physical development in infants and toddlers, utilizing observations and participation in infant and toddler care activities to individualize the program. One-half lecture; one lab.

ECD 175 • Professionalism
1 credit
Overview of professional ethics and behavior within the field of early childhood including, professional development, understanding of the core knowledge and competencies of the field, and the importance of ongoing professional growth. One-half lecture; one clinical.

ECD 181 • Recordkeeping for the Family Day Care Provider
1 credit
Fundamentals of a record keeping system in a family day care setting, including recording income and expenses, tax consideration and maintaining program records. One-half lecture; one lab.

ECD 182 • Family Day Care as a Small Business
1 credit
The multifaceted aspects of the business of providing family child care such as zoning, certification, insurance; hours of care, fees, advertising, program and parent/provider agreements. One-half lecture; one lab.

ECD 183 • Balancing Work and Family in a Family Day Care Setting
1 credit
Principles of achieving balance in work and family life while operating a family day care business. Includes components of being self-employed and home-based, communication techniques, time management skills, conflict resolution and components of self-care. One-half lecture; one lab.

ECD 185 • Early Childhood Provider Basics
3 credits
Ten topic areas of basic early childhood training: child development, health, safety, nutrition, learning environments including behavior management, early literacy, early mathematics, special needs, community resources and professionalism. Two and one-half lecture; one lab.

ECD 186 Effective Interactions for Learning
1 credit
Students will gain an understanding of the important role of adult-child interactions in the development of young children. Course will explore the topics of attachment, building warm relationships, and effective scaffolding using questioning and language strategies to promote self-regulation and learning in children ages birth – five years. One-half lecture; one clinical.

ECD 187 Supporting STEM in Early Childhood
1 credit
Overview of integrated learning approaches to teaching young children science, technology, engineering and math (STEM) concepts. Reviews strategies and techniques for planning, developing, and implementing developmentally appropriate and effective STEM curriculum for young children birth to age five. Co-requisites: ECD 142 or ECD 136. One-half lecture; one clinical.
ECD 200 • Introduction to Early Childhood Education
3 credits
Teaching the young child. Course covers the total early childhood field—types, objectives, philosophy, curriculum and the history of such programs. Prerequisite: Satisfactory placement. Three lecture.

ECD 201 • Exploring Early Childhood Program Philosophies
1 credit
Variety and complexity of early childhood programs leading to the development of a personal program philosophy. One-half lecture; one lab.

ECD 211 • Providing Food and Nutrition Services
1 credit
Planning, developing, implementing and evaluating nutrition and food services for early childhood programs. One-half lecture; one lab.

ECD 217 • Early Childhood Language and Literacy
1 credit
Methods and materials to support young children's emerging language and literacy skills using whole child, integrated approaches to learning. Includes topics in communication, early reading and early writing. Corequisite: ECD 142. One-half lecture; one clinical.

ECD 220 • Preschool Behavior Problems
3 credits

ECD 221 • Stress Management for Educators
2 credits
Strategies for managing time, space and people in the early childhood setting. Prerequisite: Satisfactory placement. Two lecture.

ECD 222 • Introduction to Early Childhood Special Education
3 credits
Overview of legislation, policies, issues, and trends in early childhood special education. Three lecture.

ECD 231 • Planning and Managing an Early Childhood Program
2 credits
Designing, planning, implementing and managing an early childhood program based upon needs assessment and program philosophy. One lecture; two lab.

ECD 232 • Designing Indoor and Outdoor Environments
2 credits
Focus on the arrangement of the indoor and outdoor play and work spaces in early childhood environments in accordance with the program's philosophy, goals, objectives, and needs of children, staff and families. One lecture; two lab.

ECD 233 • Policies and Procedures in Early Childhood Programs
2 credits
Overview of early childhood systems, policies and procedures. Discussions of childcare licensure, quality early childhood programs, and other early childhood regulatory entities. One lecture; two clinical.

ECD 234 • Staffing an Early Childhood Program
2 credits
An overview of the skills essential for personnel management in an early childhood program, including staffing selection and patterns, record keeping, employee compensation, assessing, evaluating and training of staff. One lecture; two lab.

ECD 235 • Budgeting and Financial Management
2 credits
Planning, developing and implementing an accounting and financial system for use in an early childhood program setting. One lecture; two lab.

ECD 236 • Marketing the Early Childhood Program
2 credits
Developing skills to market the early childhood program to parents and community, including recruitment and enrollment. One lecture; two lab.

ECD 237 • Evaluating an Early Childhood Program
1 credit
Development and implementation of an evaluation system for an early childhood program, including children's program, staff and overall program. One-half lecture; one lab.

ECD 250 • Child Development I
3 credits
The child from conception through the preschool years. Prerequisite: Satisfactory placement. Three lecture.

ECD 251 • Child Development II
2 credits
The child from the middle childhood years through adolescence. Prerequisite: ECD 250. Two lecture.

Economics (ECN)

ECN 211 • Principles of Macroeconomics
3 credits
Study of the economic system as a whole, including the level of employment and diversity in income, fiscal and monetary policies, and the role of government in the economy. Also covered are economics of resource issues related to market failure and sustainability. Prerequisite: CCP 088 or satisfactory placement. Three lecture.

ECN 212 • Principles of Microeconomics
3 credits
Elements of supply and demand analysis. Examination of market structures, market allocation and externalities, labor markets and income distribution, and decision making by the individual firm. Prerequisite: CCP 088 or satisfactory placement. Three lecture.

Education (EDU)

EDU 101 • Effective Tutoring
1 credit
For those who work with students as tutors, scribes or note takers. The course identifies new methods and approaches to tutoring, including qualities, goals, strategies and implementation guidelines for the development of an effective tutoring relationship. One lecture.
EDU 102 • Laubach Literacy Tutor Training
1 credit
The philosophy, methods, techniques and materials employed in teaching of basic reading to the nonreader using the Laubach system of reading. One lecture.

EDU 103 • Laubach ESOL Tutor Training
1 credit
Prepares literacy tutors to teach English to speakers of other languages. Trainees learn how to use the Laubach literacy materials designed to teach adults basic English literacy skills. Prerequisite: EDU 102. One lecture.

EDU 136 • Introduction of Reading Programs
1 credit
An overview of reading and literacy development including the reading and language process. Course covers the components of effective reading programs as well as strategies and practices to support critical thinking development, learning styles and methods to support literacy success for all students. One-half lecture; one lab.

EDU 137 • Principles of Child Guidance
1 credit
Methods of promoting children’s social and emotional growth and intelligence. Techniques include positive guidance and discipline methods and strategies which promote sound relationships and the development of positive self concept and self esteem. One-half lecture; one lab.

EDU 138 • Managing Children’s Behavior
1 credit
Methods and strategies for understanding and working with specific behavioral challenges which are not improving through general guidance. Covers why children behave in challenging ways and how to best support positive change. One-half lecture; one lab.

EDU 139 • Assisting in Teaching Elementary School Physical Education
1 credit
Methods and activities for assisting in the instruction of physical education in the elementary school. One-half lecture; one lab.

EDU 140 • Assisting in Teaching Elementary School Writing
1 credit
Methods and materials used in teaching the fundamental principles of writing. Topics include the writing process, reading, speaking, thinking, paragraphs, poetry, usage, punctuation, spelling and capitalization. One-half lecture; one lab.

EDU 143 • Assisting in Teaching Elementary School Math
1 credit
Materials and methods used in teaching elementary school mathematics, including easy-to-make materials and remedial math tutorial techniques to be used individually or in small groups. One-half lecture; one lab.

EDU 144 • Assisting in Teaching Elementary School Science
1 credit
Methods and materials used for assisting in teaching elementary school science. One-half lecture; one lab.

EDU 145 • Assisting in Teaching Elementary School Social Studies
1 credit
Methods and materials used for assisting in teaching elementary school social studies. One-half lecture; one lab.

EDU 146 • Assisting in Teaching Elementary School Music
1 credit
Methods and materials used in elementary school music programs. Includes songs, dances and rhythm activities. One-half lecture; one lab.

EDU 147 • Assisting in Teaching Elementary School Reading
1 credit
Course defines the reading process, reviews learning to read from the readiness stage through fluent reading. Includes bilingual problems, and major approaches. Emphasis on developing language and reading in the bilingual setting and methods to enhance learning. One-half lecture; one lab.

EDU 148 • Assisting in Teaching Elementary School Art
1 credit
Methods and materials used in teaching elementary school art. One-half lecture; one lab.

EDU 149 • Use of Bulletin Boards and Classroom Decorations
1 credit
Development of ideas for bulletin boards and classroom decorations for holidays, special occasions and specific academic subjects. One-half lecture; one lab.

EDU 150 • Substitute Teaching in the Schools
3 credits
An overview of responsibilities and methods for substitute teaching in K-12 classrooms. Three lecture.

EDU 151 • Occupational/Physical Therapy Educational Assistant
3 credits
An orientation to working as a technical assistant to an occupational/physical therapist in the school setting. Three lecture.

EDU 152 • Speech Therapy Educational Assistant
3 credits
An orientation to working as a technical assistant to a speech therapist in the school setting. Three lecture.

EDU 153 • The Effective Teacher
3 credits
Designed for teachers focusing on the well-managed classroom, including developmentally appropriate practices for toddlers through school age children, effective lesson planning, classroom procedures, positive guidance practices, and supporting the learning and involvement of special needs children with strategies for building relationships with families. Three lecture.
EDU 205 • Community College in America
3 credits
An introduction to the community college, an institution unique to the United States. Study includes the history, philosophy and future of community colleges. Prerequisite: Satisfactory placement. Three lecture.

EDU 210 • Literacy Tutor Practicum I
3 credits
Students receive instruction in the philosophy, methods, techniques and materials employed to teach basic literacy. Students then practice and develop their teaching skills by tutoring in a community literacy program or educational institution. Prerequisite: Instructor permission. One lecture; four lab.

EDU 211 • Literacy Tutor Practicum II
3 credits
Students enhance their tutoring skills through a continuation of Practicum I. Prerequisite: EDU 210. One lecture; four lab.

EDU 214 • Mentoring Practicum I
3 credits
Combines the knowledge acquired in mentor training with the concepts and practices of being a mentor. The student will work 60 hours during the term one-to-one with a young person aged 4 to 18. Prerequisite: Pre-screening by the instructor. Two lecture; four lab.

EDU 215 • Mentoring Practicum II
3 credits
A continuation of Mentoring Practicum I. The student may work with a new individual or the same one as in EDU 214. Prerequisite: EDU 214. Two lecture; four lab.

EDU 220 • Diversity in Education
3 credits
An introduction to multicultural education and the various forms of human diversity found in classrooms, schools and communities. Emphasis on the role of stereotyping and prejudice as they affect teachers and learners. Prerequisite: Satisfactory placement. Three lecture.

EDU 222 • Introduction to Special Education
3 credits
The history, practices, advances, problems and challenges of the special education field from birth to adulthood. Prerequisite: Satisfactory placement. Three lecture.

EDU 223 • Classroom Observation Skills
1 credit
Presentation of classroom observation skills to identify effective teaching practices. Eight areas related to positive learning outcomes include learning climate, classroom management, lesson clarity, instructional variety, task orientation, student engagement, student success and higher thought processes. Prepares pre-service teachers for classroom observation assignments in conjunction with the core EDU courses. Prerequisite: Concurrent enrollment in EDU 200. One lecture.

EDU 250 • Critical and Evaluative Reading for Educators
3 credits
Emphasizes application of critical inquiry skills to varied and challenging reading materials. Includes analysis, synthesis, and evaluation through written discourse. Prerequisite: ENL 101. Three lecture.

EDU 260 • Technology Integration in the Classroom – SmartBoard I
1 credit
A continuation of EDU 210. Students develop instruction strategies and techniques. Participants are encouraged to address different learning domains - psychomotor, cognitive and affective. Two lecture.

EDU 271 • Phonics Based Reading and Decoding
3 credits
Overview of research, curricular content and instructional practices associated with Research Based Systematic Phonics Instruction (RBSP) and other methods for teaching reading. Emphasis on methods mandated by Arizona legislation. Three lecture.

EDU 272 • Educational Psychology
3 credits
Focus on the study and application of psychological principles, theories and methodologies related to teaching and learning. Current trends and Arizona State Board of Education professional teaching standards covered; includes 10 hours field experience. Prerequisite: PSY 101 or instructor permission. Three lecture.

EDU 275 • Instructional Skills
2 credits
Review of basic ideas about teaching, current practices and new instructional strategies and techniques. Participants are encouraged to address different learning domains - psychomotor, cognitive and affective. Two lecture.

EDU 276 • Managing the Learning Environment
3 credits
Classroom management techniques, discipline models, student behavior and misbehavior, group dynamics, student self-motivation, and learning styles. Arizona State Board of Education professional teaching standards emphasized; includes 20 hours field experience. Prerequisite: Satisfactory placement. Three lecture.

EDU 280 • Introduction to Structured English Immersion (SEI) Augmented
3 credits
Emphasis on understanding English Language Learners (ELL) in the K-12 classroom. Covers the history, culture, theory, methods and an introduction to both the English Language Proficiency (ELP) standards and the Arizona English Language Learner Assessment (AZELLA). Three lecture.

EDU 281 • Introduction to Structured English Immersion (SEI)
1 credit
Emphasis on understanding English Language Learners (ELL) in the mainstream classroom. Brief history, culture, theory, methods and introduction to both the English Language Proficiency (ELP) standards and the Arizona Structured English Language Proficiency (SELP) test. Includes review of alternative methods of assessment. One lecture.
EDU 282 • Structured English Immersion (SEI) and English as a Second Language (ESL)
Teaching Methods
3 credits
Methods of developing and analyzing lesson plans in all content areas using English Language Learners (ELL) standards. Emphasis on components of curriculum content, teaching strategies, development/evaluation/adaptation of teaching materials and the role of culture in learning. Examines the alignment of ELL proficiency standards to the Arizona Language Arts Academic Standards. Three lecture.

EDU 286 • Educational Technology
3 credits
A technology literacy course for current and future educators in K-12 and postsecondary education. This course emphasizes skill development and familiarity in e-learning tools, online educational resources, instructional design, distance learning and educational technology standards. Knowledge and skills will be assessed through discussions, hands-on projects and digital portfolios. Three lecture.

EDU 291 • Children’s Literature
3 credits
Review of children’s literature from a variety of world cultures, including application of literary criteria to folk and modern literature for children. Elementary curriculum supported and developed through literature. Prerequisite: ENL 101 or instructor permission. Three lecture.

Emergency Medical Technology (EMT)

EMT 104 • CPR and First Aid
0.5 credits
Designed to certify the student in CPR (Health Care Provider level) and First Aid (American Heart Association or ASHI). (Eight contact hours.) One-half lecture.

EMT 120 • Emergency Medical Responder
3 credits
EMR scope of practice includes simple skills focused on life-saving interventions for critical patients. Render on-scene emergency care while awaiting additional EMS response and serving as part of transporting crew, but not as primary caregiver. Prerequisites: Must be 18 years of age, American Heart Association Heartsaver CPR with AED or ASHI with AED. Three lecture

EMT 121 • Emergency Medical Responder Refresher
1 credit
Sixteen-hour refresher course for the Emergency Medical Responder. Designed to meet recertification requirements of the National Registry of Emergency Medical Technicians for Emergency Medical Responders. One lecture.

EMT 130 • Emergency Medical Technician Preparatory Course
3 credits
Course is required for anyone entering EMT 132 EMT-Basic. Introduction to medical terminology with basic anatomy and physiology of the human body as cornerstones for providing care to patients in the pre-hospital environment. Healthcare Provider CPR, a prerequisite for the EMT 132 course, is included. Prerequisite: Satisfactory placement. Three lecture.

EMT 132 • Emergency Medical Technician – Basic
9 credits
Students learn skills to recognize and properly treat illness and injury in the pre-hospital setting. Successful completion of the course leads to certification by the National Registry of EMTs and the Arizona Department of Health Services. Prerequisites: Must be 18 years of age; current healthcare provider CPR (to include adult, child, infant and AED); satisfactory placement is required; successful completion of EMT 130 or permission from EMT program coordinator. Eight lecture; one lab.

EMT 133 • EMT – Basic Refresher
2 credits
A 32-hour continuing education class that fulfills the National Registry of Emergency Medical Technicians and Arizona Department of Health Services requirements for recertification as a basic EMT in the state. Prerequisites: Current certification as an EMT-B with NREMT or State of Arizona. Two lecture.

EMT 134 • EMT IVC
1.5 credits
Course designed for the EMT Basic to develop intravenous skills to provide advanced care to patients to enhance their outcome. Prerequisites: Current certification as an EMT-B in the State of Arizona; written approval from the EMT-B’s EMS provider agency and from an administrative medical director who agrees to provide medical direction for the EMT-B. One lecture; one-half lab.

EMT 236 • Advanced Cardiac Life Support (ACLS)
2 credits
Didactic and psychomotor skills training and validation in techniques of Advanced Cardio Life Support according to the most recent standards and guidelines of the American Heart Association. Prerequisites: Current American Red Cross or American Heart Association Basic Life Support/Health Care Provider validation. Physician, registered nurse, certified paramedic, current enrollment in a paramedic (or advanced) program or permission from the EMS program coordinator/instructor. One lecture; two lab.

EMT 237 • Pediatric Advanced Life Support (PALS)
1 credit
Didactic and psychomotor skill education and training in techniques of Pediatric Life Support, according to the most recent standards and guidelines of the American Heart Association and PEPP. Includes advanced airway management, defibrillation, arrhythmia recognition, pharmacology, intraosseous infusion and management of trauma, shock and respiratory medical emergencies. Prerequisite: Physician, registered nurse, licensed practical nurse, respiratory therapist, certified paramedic, certified intermediate, current enrollment in a paramedic (or advanced) program, or permission from the EMS program coordinator/instructor. One lecture.
EMT 238 • Advanced Cardiac Life Support (ACLS) Renewal Course
0.5 credits
Renewal didactic and psychomotor skill education and training in techniques of Advanced Cardiac Life Support according to the most recent standards and guidelines of the American Heart Association. Includes advanced airway management, defibrillation, cardioversion, arrhythmia recognition, pharmacology, and management of heart attack and stroke patients. Prerequisites: Physician, registered nurse, licensed practical nurse, respiratory therapist, certified paramedic, certified intermediate, current enrollment in a paramedic (or advanced) program or permission from the EMS program coordinator/instructor. Current ACLS Provider Card or permission of the Regional faculty for the course. One-half lecture.

EMT 239 • Pediatric Advanced Life Support (PALS) Renewal Course
0.5 credits
Renewal didactic and psychomotor skill education and training in techniques of Pediatric Life Support according to the most recent standards and guidelines of the American Heart Association and PEPP. Includes advanced airway management, defibrillation, arrhythmia recognition, pharmacology, intraosseous infusion and management of trauma, shock and respiratory medical emergencies. Prerequisite: Physician, registered nurse, licensed practical nurse, respiratory therapist, certified paramedic, certified intermediate, current enrollment in a paramedic (or advanced) program or permission from the EMS program coordinator/instructor. One-half lecture.

EMT 240 • Basic Electrocardiogram (ECG) and Pharmacology
3 credits
This is a prerequisite for EMT 244 and for any healthcare provider who wishes to learn or refresh on the Basic ECG rhythms and their pharmacologic management. The content includes cardiac electrophysiology, all the basic heart rhythms, introduction of pharmacologic management and medication calculations. Three lecture.

EMT 241 • Advanced Life Support (ALS) Refresher
3 credits
A 48-hour continuing education class that fulfills the National Registry of Emergency Medical Technicians and Arizona Department of Health Services requirements for recertification as a paramedic or intermediate EMT in the state of Arizona. Prerequisite: must be certified as an EMT-P or EMT-I in the state of Arizona. Three lecture.

EMT 244 • Paramedic Training I
23 credits
Develop advanced knowledge and skills for recognition of and appropriate management of illness and injury in the pre-hospital setting as described in course objectives. Successful completion of this semester course leads to admission to EMT 245. Prerequisites: EMT 240; current Arizona State Certified EMT for at least 1 year; satisfactory placement; current Health Care Provider CPR; negative TB skin test within last 6 months; proof of MMR and Hep B immunization or signed waiver; and successful completion of a minimum of 24 clock hours of hazardous materials training that meets the requirements of the National Fire Protection Association’s NFPA 472. 17 lecture; six lab.

EMT 245 • Paramedic Training II
26 credits
Develop advanced knowledge and skills for recognition of and appropriate management of illness and injury in the pre-hospital setting as described in course objectives. Successful completion of this second semester provides the opportunity to test for certification by the National Registry of EMTs and the Arizona Department of Health Services. Prerequisites: EMT 244; current Arizona State Certified EMT; current Health Care Provider CPR, negative TB skin test within last 6 months, proof of MMR and Hep B immunization or signed waiver. 16 lecture; 10 lab.

EMT 250 • Instructor Strategy Course
1.5 credits
Course designed to create new instructors by providing them with guidelines for creating lesson plans, implementing lectures and performing impromptu and planned lecture presentations. Is a precursor to specific instructor classes for any pre-hospital course or American Heart Association course that NPC-EMS division may provide. Combines classroom instruction, skill development, application exercises and student demonstrations. One and one-half lecture; 0.3 lab.

EMT 251 • Instructor Strategy Renewal Course
0.5 credits
Update and refresh instructors by providing them with new guidelines for creating lesson plans, implementing lectures, and performing impromptu and planned lecture presentations. Combines classroom instruction, skill development, and application exercises and student demonstrations. Prerequisites: current instructor for NPC (includes adjunct faculty), current AHA ACLS, PALS, CPR, NREMT instructor. One-half lecture.

English (ENL)

ENL 101 • College Composition I
3 credits
A course in the basic principles of college-level reading and writing. The course includes several academic essays and a short research paper. Prerequisite: Satisfactory placement, or CCP 082. Three lecture.

ENL 102 • College Composition II
3 credits
A course in the basic principles of college-level reading and writing, including literary analysis, documented critical essays and a longer research paper. Prerequisite: “C” or better in ENL 101. Three lecture.

ENL 109 • Technical Writing
3 credits
Surveying of the basic principles of preparing reports and other work-related documents. The course emphasizes the generation of documents used in engineering, science and business. Prerequisite: ENL 101. Three lecture.

ENL 110 • Scriptwriting
3 credits
Students study and write media scripts for television and radio commercials, documentaries, instruction videos, dramatizations, interviews and questionnaires/surveys. Three lecture.
ENL 201 • Literary Magazine Production
3 credits
Basic principles of magazine production. Students serve as staff for the Northern Flight Literary and Fine Arts Magazine and learn fundamentals of editorial selection, copy editing, proofreading, design and layout. Students use computer programs, such as Adobe Photoshop and Adobe Illustrator. Three lecture.

ENL 202 • Literary Magazine Editing
3 credits
Students serve as editors and oversee all aspects, except budget issues, of the production of the Northern Flight Literary and Fine Arts Magazine working with the NF staff. Editors schedule timelines for production; supervise editorial selection, editing, design layout, printing proofs, and collaborate with college personnel in general advertising and establishing exhibits. Prerequisite: ENL 201 Three lecture.

ENL 203 • Literary Magazine Editing II
3 credits
Direct the Northern Flight Literary and Fine Arts Magazine staff. Senior editors set the tone for the magazine and have responsibility for all aspects of the magazine’s production up to the design and layout phase: staff assignments, creating meeting agendas, conducting staff meetings, editorial selection, editing duties, publicity and organizing and maintaining files. Senior editors are selected by the instructor. Prerequisites: ENL 201, ENL 202. Three lecture.

ENL 204 • Literary Magazine Editing III
3 credits
Direct the Northern Flight Literary and Fine Arts Magazine staff. Senior editors set the tone for the magazine and have responsibility for all aspects of the magazine’s production: staff assignments, creating meeting agendas, conducting staff meetings, editorial selection, editing duties, publicity, organizing and maintaining files, overseeing all stages of the design and layout of the magazine and making final printing arrangements. Senior editors are selected by the instructor. Prerequisites: ENL 201, ENL 202, ENL 203. Three lecture.

ENL 210 • Screenplay Writing
3 credits
Students study the history, form, format and style of the screenplay genre, observe film clips; read screenplay models and movie reviews; write a movie review; and write a treatment and first act of an original screenplay script. As a final project, students read and/or direct their scripts. Three lecture.

ENL 220 • World Literature I
3 credits
A survey of influential and widely known literature of the Western world through the Renaissance. Prerequisite: Satisfactory placement. Three lecture.

ENL 221 • World Literature II
3 credits
A survey of literature of the Western world from the Renaissance to the 20th century. Prerequisite: Satisfactory placement. Three lecture.

ENL 224 • English Literature I
3 credits
A survey of significant writers, works and developments in English literature from the Middle Ages through the Restoration and 18th century. Meets the common program requirements for English or humanities majors. Prerequisite: Satisfactory placement. Three lecture.

ENL 225 • English Literature II
3 credits
A survey of the significant writers, works and developments in English literature from the Romantic Movement to the Modern/Post-Modern period. Meets the common program requirements for English or humanities majors. Prerequisite: Satisfactory placement. Three lecture.

ENL 230 • American Literature I
3 credits
A survey of selected readings in American literature from the colonial period to 1865. Prerequisite: ‘C’ or better in ENL 101 or instructor permission. Three lecture.

ENL 231 • American Literature II
3 credits
A survey of readings in American literature from 1865 to the present. Prerequisite: ‘C’ or better in ENL 101 or instructor permission. Three lecture.

ENL 233 • Literature of the Southwest
3 credits
A survey of writers of the American Southwest, emphasizing Anglo, Native American and Mexican-American writers. Prerequisite: Satisfactory placement. Three lecture.

ENL 234 • Native-American Literature
3 credits
Native-American literature, including traditional oral literature, as well as related problems and perspectives of understanding contemporary Native-American writing. Prerequisite: Satisfactory placement. Three lecture.

ENL 236 • Creative Writing I
3 credits
Elements of fiction, poetry, literary nonfiction and drama. Students are required to create and submit individually designed projects according to his/her specific writing interests. Prerequisite: ENL 101. Three lecture.

ENL 237 • Creative Writing II
3 credits
Extended practice in the art of writing fiction, poetry, literary nonfiction and drama. Emphasis on creative, individual expression and critical rewriting. Prerequisite: ENL 236. Three lecture.

ENL 291 • Children’s Literature
3 credits
Review of children’s literature from a variety of world cultures, including application of literary criteria to folk and modern literature for children. Elementary curriculum supported and developed through literature. Prerequisite: ENL 101 or instructor permission. Three lecture.
**Film and Digital Video (FDV)**

**FDV 130 • Video Production**  
3 credits  
Study and practice of basic principles and techniques of video production: audio, lighting, camera, video recording, graphics and sets, producing, directing and field production. Two lecture, two lab.

**FDV 140 • Video Editing**  
3 credits  
Introduction to the theories, history and practices of editing. Students will work with nonlinear video editing stations to gain experience editing and learning the concepts, procedures and challenges of this art form. Two lecture, two lab.

**FDV 150 • Introduction to Film**  
3 credits  
Introduction to the history, ideology and aesthetics of film, film theory and film criticism. **Prerequisite:** Satisfactory placement. Three lecture.

**FDV 160 • Digital Audio For Film/TV**  
3 credits  
Practical, hands-on experience in recording and editing audio for film and digital video productions. Develops skills using microphones, digital recorders and digital audio workstations. Overview of principles of audio for motion pictures. Emphasis on how to achieve professional results in creating a soundtrack for film and television productions. Two lecture, two lab.

**FDV 210 • Screenplay Writing**  
3 credits  
Students study the history, form, format and style of the screenplay genre, observe film clips; read screenplay models and movie reviews; write a movie review; and write a treatment and first act of an original screenplay script. As a final project, students read and/or direct their scripts. Three lecture.

**FDV 220 • Film Aesthetics**  
3 credits  
Provides in-depth study of common aesthetic techniques used in the making of films and digital videos. Focus on the filmmaker’s decision process and how it affects the critical reception of the final film. Prepares students to undertake their own film/video projects by introducing them to the audio-visual language of film. **Prerequisite:** Satisfactory placement for general education in reading and writing. Three lecture.

**FDV 222 • Digital Video Pre-Production Applications**  
2 credits  
Pre-production of student’s own short video project. Topics include casting and rehearsing for narrative productions, and researching and pre-interviewing for documentary productions. Skill development in budgeting, location scouting and basics of producing motion pictures. **Prerequisite:** FDV 130 or SPT 230 or instructor permission. One lecture, three lab.

**FDV 232 • Digital Video Production Applications**  
2 credits  
Production of student’s own short video project, initiated in FDV 222. Builds and expands upon production skills learned in FDV 130 and FDV 260. Skill development in camera, design, lighting, sound and the myriad skills involved in producing and directing one’s own work. **Co-requisite:** FDV 222 or instructor permission. One lecture, three lab.

**FDV 242 • Digital Video Post-Production Applications**  
2 credits  
Post-production of student’s own short video project, initiated in FDV 222 and FDV 232. Builds and expands upon post-production skills learned in FDV 240. Topics include advanced non-linear video editing, advanced digital audio editing and preparing finished work for screening and distribution. **Co-requisites:** FDV 222 and 232 or instructor permission. One lecture, three lab.

**Fire Science (FRS)**

**FRS 101 • Principles of Fire and Emergency Services Administration**  
3 credits  
Overview into the organization and management of fire and emergency services departments. Emphasis is placed on fire and emergency service, ethics and leadership from the perspective of the company officer. Three lecture.

**FRS 104 • Firefighter I and II**  
10 credits  
Covers basic firefighting skills for the new fire department recruit or individual seeking to enter the fire service workforce. Instruction follows NFPA Standard 1001 and the Arizona Center for Fire Service Excellence to become eligible for Firefighter I & II certification. An approved agency sponsorship is preferred but not required. **Co-requisites:** FRS 110, Seven lecture; three lab.

**FRS 110 • Hazardous Materials for First Responder**  
2 credits  
Basic information and skills needed for appropriate response to hazardous materials emergencies. Follows state and national standards for the response, identification, safety and containment of a hazardous materials incident. Two lecture.

**FRS 126 • Rope Rescue I**  
1 credit  
Foundational class in techniques and concepts in fire service rope rescue. One lecture.

**FRS 127 • Rope Rescue II**  
1 credit  
Hands-on class covering basic and advanced skills in technical litter evacuations in vertical environments. **Prerequisite:** FRS 126. One lecture.

**FRS 128 • Rope Rescue III**  
1 credit  
Hands-on class focusing on teamwork, rescue leadership and application of all rope rescue skills in real-life exercises. **Prerequisite:** FRS 127. One lecture.

**FRS 130 • The Incident Command System**  
1 credit  
Course designed to meet the needs of fire officers and managers with responsibility to use, deploy, implement and/or function within a department incident command system. One lecture.

**FRS 132 • Fire Investigation I**  
3 credits  
This course is intended to provide the student with the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the fire setter, and types of fire causes. **Prerequisites:** FRS 200, FRS 202, FRS 207 or instructor permission. Three lecture.
FRS 135 • Fire Protection Hydraulics and Water Supply
3 credits
This course provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems. Prerequisite: Demonstration of a competency in high school-level algebra or the equivalent is recommended. Two lecture; one lab.

FRS 137 • Strategies and Tactics
3 credits
Principles of fire ground control through utilization of personnel, equipment and extinguishing agents. Three lecture.

FRS 138 • Legal Aspects of Emergency Services
3 credits
An overview of federal, state and local laws that regulate emergency services, including a review of national standards, regulations and consensus standards. Three lecture.

FRS 139 • Confined Space Operations
3 credits
Overview of various types of confined space situations that a student may respond to during the course of their duties. Provides basic skills in recognizing and operating at a confined space emergency event. Two lecture; one lab.

FRS 141 • Fire Service Communication
3 credits
Application of written and oral communication in the fire service. Students write incident reports, daily logs and investigative and personnel documents along with oral presentations. Prerequisite: ENL 101. Three lecture.

FRS 150 • Wildland Firefighter
2 credits
Students acquire entry-level skills for wildland firefighter positions. Includes hands-on instruction to utilize tools and equipment for the wildland firefighter. Students also acquire knowledge of wildland fire behavior, safety procedures and tactics. Two lecture.

FRS 200 • Fire Behavior and Combustion
3 credits
An overview of the theories and fundamentals of how and why fires start, spread and are controlled. Three lecture.

FRS 201 • Fire Protection Systems
3 credits
Focuses on information relating to the features of design and operation of fire alarm systems. Three lecture.

FRS 202 • Principles of Emergency Services
3 credits
This course provides an overview to fire protection, career opportunities, culture and history of emergency services; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; introduction to fire strategy and tactics. Three lecture.

FRS 203 • Fire Prevention
3 credits
Summarizes the fundamental knowledge relating to the field of fire prevention. Students learn the history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education. Three lecture.

FRS 207 • Building Construction for Fire Prevention
3 credits
This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, pre-planning fire operations and operating at emergencies. Three lecture.

FRS 208 • Principles of Fire and Emergency Services Safety and Survival
3 credits
Summarizes the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavioral changes throughout the emergency services. Three lecture.

French (FRE)

FRE 100 • Beginning French Conversation
3 credits
Introduction to French through emphasis on phonology, basic structures and vocabulary manipulation. Three lecture.

FRE 101 • Elementary French I
4 credits
Focus on speaking and understanding French through an audioral approach comprised of dialogues, pattern drills, grammar and situation. Reading and writing skills are introduced. Prerequisite: Satisfactory placement. Four lecture.

FRE 102 • Elementary French II
4 credits
Continuation of FRE 101. Emphasis continues on the four basic skills of hearing, speaking, reading and writing. Augmented basic vocabulary, new grammatical structures and increased focus on culture. Prerequisite: FRE 101. Four lecture.

Geography (GEO)

GEO 110 • World Regional Geography
3 credits
Basic physical, cultural and economic elements and their integration in a world and regional basis. Prerequisite: Satisfactory placement. Three lecture.

GEO 111 • Physical Geography
4 credits
Study of the Earth’s formative processes, including atmospheric, hydrologic, volcanic and glacial. The effects of the Earth’s formative processes on the landscape, climate, vegetation and soils are examined as are the impact of human activity on these processes. Prerequisite: Satisfactory placement. Three lecture; three lab.

GEO 120 • Human Geography
3 credits
Systematic study of human use of the earth; including spatial organization of economic, social, political and perceptual environments. Prerequisite: Satisfactory placement or instructor permission. Three lecture.
**Geology (GLG)**

**GLG 101 • Introduction to Geology I Physical Geology**

4 credits  
Physical geologic concepts and principles pertaining to Earth’s structure, composition and changes. Prerequisite: Satisfactory placement. Three lecture; three lab.

**GLG 102 • Introduction to Geology II Historical Geology**

4 credits  
Historical geologic concepts and principles pertaining to Earth’s origin and development. Prerequisite: GLG 101. Three lecture; three lab.

**GLG 202 • Dinosaurs**

3 credits  
A review of dinosaur evolution, their taxonomy, ecology and physiology. Presents basic scientific techniques used to understand dinosaurs. Prerequisite: GLG 101. Three lecture; three lab.

**German (GER)**

**GER 100 • Beginning German Conversation**

3 credits  
Introduction concentrating on phonology, vocabulary, basic patterns and structure drills that prepare the way for rapid acquisition of conversational German and for German 101. Three lecture.

**GER 101 • Elementary German I**

4 credits  
Systematic approach to develop the skills of comprehension, speaking, reading and writing. Fundamentals of grammar, basic vocabulary and conversation. Prerequisite: Satisfactory placement. Four lecture.

**GER 102 • Elementary German II**

4 credits  
Emphasis continues on the four basic skills introduced in German 101: comprehension, speaking, reading and writing. Augmented basic vocabulary, new grammatical structures, more conversation and increased focus on culture. Prerequisite: GER 101. Four lecture.

**Health and Physical Education (HPE)**

**HPE 096A • Fitness Ball Workout**

1 credit  
Workout that engages core muscles; improves overall balance, control and strength; and targets legs, inner thighs, arms, abs and buttocks. Two lab.

**HPE 096B • Flexercise I**

0.5 credit  
Designed for students to gain or maintain flexibility through stretching and flexibility exercises. Exercises will teach students breathing technique, help reduce stress, release toxins in the body and regain energy. One lab.

**HPE 097A • Beginning Hula Dance**

0.5 credit  
Hand and body movements of traditional hula dance will be discussed and performed. One lab.

**HPE 097B • Intermediate Hula Dance**

0.5 credit  
Continue to learn hula dancing, including 10 to 15 dances and instruments (kalasu, puili, ili ili and coconuts). In addition, learn the basics of other Polynesian dances, including Tahitian, Samoan and Maori, including lyrics and interpretations of each. Prerequisite: HPE 097A or instructor permission. One lab.

**HPE 097C • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097D • Beginning Belly Dance**

1 credit  
Students increase stamina, fluid movement and learn to accompany themselves with finger cymbals while performing choreographed freestyle dance movements. Techniques will be taught by demonstration and video. Two lab.

**HPE 097E • Intermediate Belly Dance**

1 credit  
Students increase stamina, fluid movement and learn to accompany themselves with finger cymbals while performing more complex choreographed freestyle dance movements. Techniques taught by demonstration and video. Prerequisite: HPE 097E or instructor permission. Two lab.

**HPE 097F • Beginning Progressive Two-Step Swing**

0.5 credit  
Introduction to two-step swing. Includes overview of two-step techniques, beginning level patterns, moves and terms. Also covers dance floor etiquette and correct dance posture. One lab.

**HPE 097G • Intermediate Progressive Two-Step Swing**

0.5 credit  
Continuation of Beginning Progressive Two-Step Swing using faster music and more intricate patterns and moves. Also covers intermediate Two-step techniques, moves and terms. One lab.

**HPE 097H • Beginning Mexican Folkloric Dance**

1 credit  
Intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097I • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097J • Beginning Mexican Folkloric Dance**

1 credit  
Intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097K • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097L • Beginning Mexican Folkloric Dance**

1 credit  
Intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097M • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097N • Beginning Mexican Folkloric Dance**

1 credit  
Intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097O • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097P • Beginning Mexican Folkloric Dance**

1 credit  
Intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097Q • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097R • Beginning Mexican Folkloric Dance**

1 credit  
Intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.

**HPE 097S • Advanced Mexican Folkloric Dance**

1 credit  
Advanced course working on all the basics taught in beginning and intermediate classes. The zapateados will be more intricate and difficult, the rhythms more challenging. Particular dances presented will vary from semester to semester depending on the number of veteran dancers. Student is responsible for proper attitude, attendance at rehearsals and participation in performances. Prerequisite: instructor permission. Two lab.
HPE 101B • Beginning Yoga
1 credit
An introduction to basic yoga poses, breathing techniques, principles of relaxation and body awareness designed to increase flexibility, strength, to create better concentration and promote feelings of relaxation. Two lab.

HPE 101C • Intermediate Yoga
1 credit
Students will build upon skills learned in beginning yoga, refining postures, breathing and meditation. Pranayama techniques and intermediate level Asanas will be introduced. Discussion of yoga philosophy will be interwoven with physical practice. Prerequisite: HPE 101B or instructor permission. Two lab.

HPE 106 • Aerobics
1 credit
Aerobics is a series of progressive conditioning exercises performed to music. Exercises are based upon the four components of fitness: flexibility, muscular strength and endurance, body composition and cardiovascular endurance. Classes are designed to satisfy the conditioning requirements of men and women of all ages. Two lab.

HPE 110 • Beginning Weight Training
1 credit
Designed to supplement an aerobic cardiovascular training program. Includes basic anatomy and exercise physiology, muscle groups and the appropriate exercises for each. Also includes weight training principles, systems and safety. Two lab.

HPE 111 • Advanced Weight Training
1 credit
Designed to supplement an aerobic cardiovascular training program. Includes basic anatomy and exercise physiology, muscle groups and appropriate exercises for each. Also includes advanced use of the machines and free weights. Body building techniques are presented, if requested. Two lab.

HPE 115 • Golf
1 credit
Principles of the game: safety, approach shots, full strokes, putting, special shots, rules and strategy for beginning and intermediate golfers. For non-beginners, the course provides an opportunity to review fundamentals and practice those aspects of the game that are more difficult. (A special greens fee must be paid at the beginning of each class.) One lecture; one lab.

HPE 124 • Beginning Swimming
1 credit
Focus on swimming fundamentals. Emphasizes orientation to the aquatic environment and basic swimming skills. Personal safety and rescue skills are included to help participants meet safety goals. Provides instruction in developing physical fitness through swimming. Two lab.

HPE 126 • Fitness Swimming
1 credit
Progressive swim for fitness program with workouts gradually increasing from 100 yards to two miles; fundamental and advanced techniques, plus dives, in-water starts and turns. Personal safety and rescue skills are included. Must be able to swim 25 yards, front crawl. Two lab.

HPE 127 • Aqua Fit
1 credit
Recreational, nonclinical, warm water activity program approved by the Arthritis Foundation. Exercises designed to decrease pain and stiffness, improve joint flexibility, reduce muscle weakness and improve balance and coordination. Swimming ability not necessary to participate. Two lab.

HPE 128 • Aquatic Calisthenics
1 credit
A program of basic exercise utilizing a water environment for improvement of general muscle tone, strength and flexibility; also includes fundamentals of basic rescue and water safety. Two lab.

HPE 136 • Karate I
1 credit
Introduction to the basic skills of the martial art of Karate, its philosophy and history. Includes simple self-defense techniques and mental discipline. Prerequisite: Signed waiver of responsibility. Two lab.

HPE 137 • Karate II
1 credit
The basic skills of Tae Kwon-Do and/ or Shonto Kan and the history and philosophy of Karate. Includes physical and mental conditioning techniques and advanced Karate skills. Prerequisites: HPE 136 and signed waiver of responsibility. Two lab.

HPE 150 • Physical Fitness I
1 credit
A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student's cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

HPE 151 • Physical Fitness II
1 credit
A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student’s cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

HPE 152 • Physical Fitness III
1 credit
A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student’s cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

HPE 153 • Physical Fitness IV
1 credit
A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student’s cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

HPE 154 • Physical Fitness V
1 credit
A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student’s cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.
HPE 155 • Physical Fitness VI
1 credit
A practical introduction to the theory and skills of lifetime fitness with emphasis upon aerobic and physical endurance activities to maintain and/or improve the student’s cardio-respiratory system and overall fitness level. Student fitness profiles are developed and utilized to determine an individualized exercise program. Two lab.

HPE 161 • Land Navigation and Wilderness Survival
2 credits
Instruction in the basic skills necessary to survive in a wilderness environment. Wilderness travel and recreation experiences are provided. One lecture; two lab.

HPE 192 • Square Dance
1 credit
Instruction and participation in a variety of North American square and round dances. Two lab.

HPE 218 • Personal Health
3 credits
Emphasizes total wellness, preventive medicine and individual responsibility. Students learn to assess their current health practices, strengthen those that are positive and replace those that are negative. Three lecture.

HPE 232 • Water Safety I Instructor
3 credits
Course begins with a review and retest of all the advanced lifesaving skills. Students are taught (a) to recognize and avoid hazardous water conditions and practices, (b) to use self-rescue skills to get out of dangerous situations, and (c) to develop skills in rescuing or assisting persons in danger of drowning. Prerequisites: 17 or older; ARC Advanced Lifesaving Certificate and ARC Swimmer’s Certificate; or the ability to perform all the required Swimmer Skills. One lecture; four lab.

Health Sciences (HES)

HES 102 • Health Career Occupations
3 credits
Geared toward helping student interested in a health care career discover types of career opportunities available. Fosters the development of critical thinking skills using problem solving models. Topics include health care today and National Healthcare Skills Standards. Three lecture.

HES 103 • Direct Care Worker
4 credits
Prepares the direct care worker (DCW) to provide assistance in a home setting with the focus on skills development in performing personal care tasks and home management. Prerequisites: Satisfactory Reading placement score and current CPR card. Three lecture; two lab.

HES 106 • Introduction to Community Health Work
3 credits
Prepares community advisers to provide outreach health prevention, advocacy, education and referral services within prescribed neighborhood. Competencies taught include community health and human services, capacity building, cultural mediation, health education assessment and teaching. Prerequisite: Admission to Community Health Advisory Program. Three lecture.

HES 108 • Community Health Work Field Work
6 credits
Community health adviser skills are practiced and evaluated in community-based health and human service agencies/settings. Students complete 320 clock hours of direct service scheduled in an eight-week block at 40 hours per week or 16 weeks at 20 hours per week. Prerequisite: HES 106. One lecture, 20 lab.

HES 109 • Phlebotomy
4 credits
Theory and practice of phlebotomy and specimen processing with practicum. Requires separate community clinical site practicum be arranged. Prerequisites: HES 170; DPS Level 1 Fingerprint Clearance Card; current health care provider CPR card; satisfactory placement; current negative TB skin test or negative chest X-ray; hepatitis B series proof of immunity or waiver; MMR and varicella immunization proof of immunity or waiver; be 18 years of age with high school diploma or equivalent; or instructor permission. Two lecture; four lab.

HES 120 Law and Ethics of the Health Care Professional
3 credits
Overview of medical law and ethics relevant to the health care professional, including patient consents, invasion of privacy, malpractice, government regulations, confidentiality and the environment of health care institutions. Three lecture.

HES 145 • Nutrition
3 credits
Essential nutrients and their relationship to health and the body’s use of those nutrients. Includes studies of therapeutic diets and medical conditions for which they are prescribed. Discusses dietary guidelines and federal Recommended Dietary Allowance (RDA) in effective meal planning and nutritional evaluation. Three lecture.

HES 170 • Medical Terminology for Clinical Health Professionals
3 credits
Selected medical terminology directly related to health care practice, common medical procedures, body systems and anatomy and physiology. Emphasis is on practical application in the clinical setting through visually reinforced hands-on learning. Includes extensive memorization of common medical abbreviations and acronyms used in direct clinical care. Three lecture.

HES 180 • Basic Pharmacology
3 credits
Body systems approach focusing on drug classifications. Includes basic math review, dosage calculations and medication administration methods. Prerequisite: Any MAT course numbered 100 or higher. Three lecture.
Heavy Equipment Operations (HQO)

HQO 108 • NCCER Core Curriculum Review
4 credits
Review of basic safety, mathematics and power tools. Introduction to blueprints, basic rigging, communication and employability skills. Two lecture; four lab.

HQO 109 • Basic Operation Techniques/Tractors
3 credits
Basic instruction for safe operations and preventative maintenance on each type of equipment, including proper mounting, startup procedures and basic movements of the machine and its attachments. Also covers operation of utility tractors and heavy-duty articulated tractors. Two lecture; two lab.

HQO 111 • Orientation to Trade – Heavy Equipment
Safety, Identification of Equipment
3 credits
Introduces basic machine operations for construction, transport, materials, handling and other heavy equipment. Provides students with correct theory, safety and operations activities for proficiency with various types of equipment. Three lecture.

HQO 113 • Grades Part I
2 credits
Introduction to the concepts of elevations and grading; the use and interpretation of grade stakes and basic process of grading construction sites, distance measuring and finish grades. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture.

HQO 119 • Introduction to Earthmoving and Trucks
3 credits
Summarizes the earthmoving process, including the heavy equipment operator’s role in ensuring an efficient and profitable operation. Covers the use of dozers, scrapers, loaders, excavators and trucks in the earthmoving process and detailed operation of on- and off-road dump trucks. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; two lab.

HQO 121 • Rollers and Scrapers
3 credits
Covers operations of various machines used to compact soil, as well as soil classification and compaction. Also the duties and responsibilities of operators, safety rules and preventative maintenance of both the scraper and the roller. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; two lab.

HQO 122 • Loaders and Forklifts
3 credits
Covers the various uses of loaders and forklifts, as well as operator maintenance and safety. Operating procedures for loaders include loading, grading and excavation; lifting, transporting and placing various types of loads for forklifts. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; two lab.

HQO 123 • Excavation Mathematics and MSHA Training
3 credits
Covers formulas and methods used to compute cut and fill requirements on a job, illustrates techniques used to quickly estimate excavations and provides a brief overview of software used to compute excavation requirements. MSHA: New Miner Training taught by Arizona Mine and Safety; includes first-aid training and MSHA certification. Prerequisite: Satisfactory placement or instructor permission, or CCP 088. Three lecture.

HQO 210 • Grades Part II and Civil Blueprint Reading
4 credits
Uses previous course (Grades Part I) information to teach proper methods for setting grades, interpreting grade stakes and reading site plans to ensure earthmoving work meets specifications. Civil blueprint reading section explains how to read site plans to obtain cut and fill information. Also identifies safety and legal issues for heavy equipment operators such as underground utilities and property lines. Prerequisite: HQO 113; Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Four lecture.

HQO 211 • Backhoes and Dozers
4 credits
Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures and operating methods for dozers and backhoes. Dozer section covers clearing, backfilling, stockpiling and demolition. The backhoe section covers trenching, loading, demolition, backfilling, laying pipe and excavation of foundations. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; four lab.

HQO 212 • Introduction to Crew Leader and Excavators
4 credits
Covers basic project planning, scheduling techniques, coordination and communication of work assignments from heavy equipment to other trades and crafts, as well as project setup and material purchasing requirements. Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures and operating methods for excavators. Emphasizes safe operations of the equipment. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; four lab.

HQO 230 • Motor Graders
4 credits
Covers basic project planning, scheduling techniques, coordination and communication of work assignments from heavy equipment to other trades and crafts, as well as project setup and material purchasing requirements. Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures and operating methods for motor graders. Emphasizes safe operations of the equipment. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Two lecture; four lab.

HQO 231 • Advanced Operational Tech and MSHA
Annual Refresher
3 credits
Advanced topics for equipment operators, including safety, controlling and working around water, calculating operation costs and laying pipe. Safety meetings, reporting, inspections, investigations and hazardous material requirements, as well as the use, calibration and maintenance of laser instruments. MSHA: Annual Refresher Training taught by Arizona Mine and Safety; includes first-aid training and MSHA re-certification. Prerequisite: HQO 123 or instructor permission; Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Three lecture.

HQO 232 • Finishing and Grading and Soils
3 credits
Various types of heavy equipment to finish and trim grades and slopes of pads, ditches and other structures; specification and procedures for checking the final grade; how shrink and swell factors affect equipment selection and performance. Also, soils classification systems and techniques for working with various soil types. Prerequisites: HQO 113 and HQO 123; Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. Three lecture.
Section V

Courses

HQO 233 • Cranes and Rigging
2 credits
Daily inspections, safety, application, attachments, operating controls, maintenance requirements, transporting procedures and operating methods for cranes; emphasizing safe operations of the equipment. Also, diverse types of rigging and their uses. Co-requisites: HQO 108, HQO 109 and HQO 111 or instructor permission. One lecture; two lab.

HQO 240 • Advanced Loader Operation
2 credits
Focuses on performance and skill improvement using a loader. Prerequisite: instructor permission. One lecture; two lab.

HQO 241 • Advanced Dump Truck Operation
2 credits
Focuses on performance and skill improvement using a dump truck. Prerequisite: instructor permission. One lecture; two lab.

HQO 242 • Advanced Scraper Operation
2 credits
Focuses on performance and skill improvement using a scraper. Prerequisite: instructor permission. One lecture; two lab.

HQO 243 • Advanced Backhoe Operation
2 credits
Focuses on performance and skill improvement using a backhoe. Prerequisite: instructor permission. One lecture; two lab.

HQO 244 • Advanced Excavator Operation
2 credits
Focuses on performance and skill improvement using an excavator. Prerequisite: instructor permission. One lecture; two lab.

HQO 245 • Advanced Forklift Operation
2 credits
Focuses on performance and skill improvement using a forklift. Prerequisite: instructor permission. One lecture; two lab.

HQO 246 • Advanced Dozer Operation
2 credits
Focuses on performance and skill improvement using a dozer. Prerequisite: instructor permission. One lecture; two lab.

HQO 247 • Advanced Motor Grader Operation
2 credits
Focuses on performance and skill improvement using a motor grader. Prerequisite: instructor permission. One lecture; four lab.

HQO 248 • General Maintenance
2 credits
Focuses on basic maintenance of heavy equipment. Prerequisite: instructor permission. One lecture; two lab.

History (HIS)

HIS 101 • World History: Prehistory to 1450 CE
3 credits
Survey of the rise of complex societies, the formation of classical civilizations worldwide, cross-cultural exchange, technological and environmental change, oceanic exploration and the origins of the modern world. Prerequisite: Satisfactory placement. Three lecture.

HIS 102 • World History: 1450 CE to Present
3 credits
Survey of world history from 1450 CE to the present including such topics as: empires, globalization, colonization, nationalism, slavery, exploration, global economic changes, industry, revolution and world wars. Prerequisite: Satisfactory placement. Three lecture.

HIS 105 • U.S. History to 1877
3 credits
Survey of the history of the United States from its beginning through the Civil War and Reconstruction. Prerequisite: Satisfactory placement. Three lecture.

HIS 106 • U.S. History since 1877
3 credits
Survey of the history of the United States from the post-Civil War Reconstruction period to the present. Prerequisite: Satisfactory placement. Three lecture.

HIS 110 • Southwestern History
3 credits
History of the U.S. Southwest with an emphasis on the history of Arizona, moving from prehistory to Puebloan and other Native American cultures, the arrival of the Spanish, Americans and 20th century developments. Prerequisite: Satisfactory placement. Three lecture.

HIS 115 • Navajo History
3 credits
Examines Diné history beginning with anthropological theories about prehistoric migrations to and acculturation in the Southwest, later European contact and ending with current events. Includes an overview of legal, judicial, and governmental issues and interrelationships. Three lecture.

HIS 155 • Western Civilization to 1700
3 credits
Traces origin and development of Western Europeans and their institutions from prehistory to the Enlightenment. Prerequisite: Satisfactory placement. Three lecture.

HIS 156 • Western Civilization since 1700
3 credits
Traces the origin and development of Western Europeans and their institutions and ideas from the Enlightenment to the present. Prerequisite: Satisfactory placement. Three lecture.

HIS 201 • History of Women in America
3 credits
Thematic survey of women’s lives in North America with an emphasis on the impact of gender across lines of race, ethnicity, religion and nationality. Prerequisite: Satisfactory placement. Three lecture.
Home Crafts and Technology (HCT)

HCT 096A • Stained Glass
1.5 credits
Copper foil technique used to create colorful pieces of art. Advanced students are exposed to creative techniques with glass, pattern-making, working with lead came, or mosaic making, according to their interest. Three lab.

HCT 097A • Navajo Rug Weaving
1 credit
Introduction to materials and techniques of Navajo rug weaving; emphasis on the individuality of creating and designing a Navajo rug. Yarn will be substituted for wool. Two lab.

HCT 097B • Beginning Weaving
0.5 credit
Operating principles of a four-harness loom, the warping process and a variety of weave structures. Students weave a sampler, illustrating a few of the many possible weave structures. One lab.

HCT 098A • Beginning Strip Quilting
1.5 credits
Students learn the basics of strip piecing by completing eight projects designed to teach quick and easy piecing methods, including half-square triangles, right and left three-part squares, four-part squares, Flying Geese, simple appliqué and Y-seams and many other short cuts, formulas and techniques. Three lab.

HCT 098B • Intermediate Strip Quilting
1.5 credits
Students review basics of strip piecing and are introduced to curved piecing as well as learning to select a traditional pattern and develop an alternative design from the pattern to share with class. Students also learn foundation piecing, interfacing appliqué, and how to do machine binding with mitered corner. Three lab.

HCT 098C • Advanced Strip Quilting
1.5 credits
Students learn to draft and design their own patterns, make templates and complete intricate designs, including how to mathematically adjust pattern size. Students do a class presentation of a pattern they have designed. Three lab.

HCT 098D • Advanced Quilt Studio
1.5 credits
Students work on projects of their choice, receive ideas for projects, planning assistance and help with problems related to quilting. Students are encouraged to bring projects they are working on to class. Three lab.

Honors Colloquia (HON)

HON 101 • Honors Colloquium I
1 credit each
The NPC President’s Scholars Program is designed to provide advancement in scholarship by fostering in-depth reading, writing and discussion of ideas representative of various disciplines. The program also provides enrichment activities tailored to enhance the learning process. Additionally, the scholars program offers a series of specially designed courses for transfer and two-year students. (Enrollment restricted to NPC President’s Scholars.)

HON 102 • Honors Colloquium II
HON 201 • Honors Colloquium III
HON 202 • Honors Colloquium IV

Human Development (HDE)

HDE 100 • Career Awareness and Exploration
3 credits
Students are introduced to Northland Pioneer College academic requirements, develop career and educational plans and participate in a variety of individual activities, which will involve decision-making, value clarification and career information research. Standardized tests are administered to help students determine occupational interests, aptitudes and personalities. Resume development, interviewing and job seeking skills are emphasized. Three lecture.

HDE 103 • Workforce Skills
2 credits

HDE 104 • Workforce Skills II
2 credits
Advanced workforce skills in three key subject areas: Reading for Information, Applied Mathematics, and Locating Information plus skills in Customer Service, Problem Solving and Critical Thinking. Emphasis will be placed on developing a functional résumé and refining interview skills. Prerequisite: Satisfactory placement. One lecture, two lab.

HDE 105 • Success Strategies for College
3 credits
Structured, yet highly individualized class geared toward meeting the needs of each student. Students learn to access a multitude of resources; gain guidance and support from faculty members and peers to fully develop academic and life skills; and to promote the development of learning, understanding, perseverance and critical thinking skills that lead to college success. Three lecture.

Human Services (HUS)

HUS 110 • Introduction to Social Work
3 credits
Social work as a profession and social welfare as an institution. Emphasize historical development of the field, fundamental social work principles and philosophy. Provides students with a beginning understanding of social work practice methods for delivery of services to people with various problems in living. Introduces the client intake and interview process. Three lecture.

HUS 111 • Foundations of Chemical Dependency
3 credits
Introduction to the foundations of the alcohol and drug-abuse rehabilitation field. Emphasis on the roles and responsibilities of the addiction paraprofessional counselor, ethical issues, pharmacology, family dynamics, dual diagnosis, intervention techniques, self-help groups, levels of care, symptom identification and conducting alcohol/drug histories. Interactive work is stressed. Three lecture.
HUS 112 • Biosystems/Pharmacology of Chemical Dependency
3 credits

HUS 140 • Group Dynamics
3 credits
Examination of small group and group dynamics in theory and practice through group discussion, role-play and socio-drama. Three lecture.

HUS 160 • Drug Abuse in Our Society
3 credits
History, pharmacology and the psychological and social effects of the common chemical substances being abused in the United States. Three lecture.

HUS 180 • Cross Cultural Helping Skills
2 credits
Introduction to social values of cultures emphasizing cross-cultural communication. Includes understanding of and skills to work with persons from other cultures. Two lecture.

HUS 210 • Family Dynamics and Chemical Dependency
3 credits
Analysis of the impact of addictions on all members of a family. Interviewing assessment and therapeutic approaches particularly useful for these family members are presented. Three lecture.

HUS 251 • Developing a Culture of Care
2 credits
Introduction to the development of a residential child and youth care professional based upon characteristics of shared history, common language, general knowledge of the field and competency in the field. Two lecture.

HUS 252 • Building Relationships
2 credits
Study of relationships on two levels: assisting the residential assistant in establishing positive relationships with children and the role of the residential assistant as teacher to children. Two lecture.

HUS 253 • Teaching Discipline
2 credits
The exploration of the relationship between unmet needs of children’s behavior and the issues related to teaching discipline in residential care. Two lecture.

HUS 256 • Understanding Child Development
2 credits
An overview of children’s process of development in four aspects: physical, personality, social and cognitive. Includes problems of older children functioning at a developmental level below their age. Two lecture.

HUM 150 • Humanities in the Western World I
3 credits
A critical reading/writing/thinking-centered, integrated humanities course, emphasizing landmarks in the cultural heritage of Western civilization from classical Greece to the Renaissance. Prerequisite: Satisfactory placement. Three lecture.

HUM 151 • Humanities in the Western World II
3 credits
A critical reading/writing/thinking-centered, integrated humanities course, emphasizing landmarks in the cultural heritage of Western civilization from the Renaissance to the present. Prerequisite: Satisfactory placement. Three lecture.

Industrial Arts (INA)

INA 103 • Furniture Making I
3 credits
Advanced course in design, fabrication/production, preparation and finishing of custom wood furniture. Prerequisite: INA 103. Two lecture; two lab.

INA 104 • Furniture Making II
3 credits
Design, fabrication and finishing of basic types of wood furniture. Includes: shop safety, materials, tools, project design and planning. Furniture components, dimensioning, joinery, assembly and surface preparation demonstrated. Two lecture; two lab.

INA 105 • Woodworking I
3 credits
Basic materials, tools and techniques to produce wood projects. Topics include shop safety, tool certification, use and care of hand tools/portable power tools/woodworking machinery, designing and drawing wood projects, common wood identification and selection, surfacing/jointing/cross cutting/ripping lumber, dado and rabbit techniques, fasteners, clamping, gluing, joinery, assembly, surface preparation and finishing. Two lecture; two lab.

INA 106 • Woodworking II
3 credits
Intermediate course in materials, tools and techniques used to produce wood projects. Topics include shop safety for specialized tools, use and care of specialty woodworking hand tools/specialty portable power tools and specialty woodworking machinery, multi-view project designs and drawings, hardwood lumber grades and identification, intermediate complex joinery, special joining and shaping methods, setups, surface pre-finishing and finishing. Prerequisite: INA 105. Two lecture; two lab.

INA 150 • Wood Antique Restoration I
3 credits
The restoration of wood antiques. Topics include shop and personal safety, toxic/caustic substance precautions, project selection, wood and materials identification, hand tools, portable power tools, basic woodworking machinery, finish identification, finish removal, disassembly techniques, minor parts duplication, reassembly, finish matching and applying new finishes. Two lecture; two lab.
INA 180 • Introduction to Upholstery
3 credits
Basic levels of upholstery shop safety, preparation of work areas, project review, frame assembly, materials, pre-planning of projects and pro/cons of particular materials and methods. Two lecture; two lab.

INA 181 • Upholstery Tools and Safety
3 credits
Introduction to the machinery, hand tools, safety equipment and shop practices and procedures used in the upholstery trade. Two lecture; two lab.

INA 182 • Measurements and Calculations for Upholsterers
3 credits
Basic concepts of mathematics as they apply to the upholstery trade. Two lecture; two lab.

INA 183 • Upholstery Materials
3 credits
Introduction to the materials used in furniture construction, including the integral parts of the framework, types of springs, various padding materials, different fabric types, etc. Two lecture; two lab.

INA 184 • Upholstery Sewing
3 credits
Introduction to the basic sewing methods and equipment used in the upholstery trade. Two lecture; two lab.

INA 185 • Upholstery
3 credits
The fundamentals of upholstering. Topics include basic tools, safety, basic materials, fabric selection, removal of old coverings, repairs, installing springs and webbing; padding and sub-covering, cutting and sewing fitted fabric, fabric installation and slip covers. Two lecture; two lab.

INA 186 • Upholstery Projects
3 credits
Upholstery projects of varying degrees of difficulty so students gain experience in stripping and repairing frames, removing old wood finishes and applying new ones, installing new webbing, springs and padding, as well as creating coverings and cushions. Two lecture; two lab.

INA 205 • Woodworking III
3 credits
Forming and joining processes for wood projects. Topics include lathe safety, center to center turned pieces, faceplate turnings, advanced router applications, shaper safety, piecework production, custom moldings and trim production, parquetry and inlays, exotic wood identification and utilization and alternate methods of finishing. Prerequisite: INA 106. Two lecture; two lab.

INA 206 • Woodworking IV
3 credits
Production woodworking. Topics include project selection, production planning, replication methods for radial arm saw/table saw/band saw/lathe/shaper/portable power tools, jig design and manufacture, fixture design and manufacture, service of woodworking portable power tools and machinery, alignment techniques, shop layout for production and finish matching and control. Prerequisite: INA 205. Two lecture; two lab.

INA 250 • Wood Antique Restoration II
3 credits
The restoration of wood antiques. Topics include project selection, sequence of work, wood and materials identification and matching or alternatives, finish-removal by chemical and manual methods, antique hardware, traditional joinery, traditional and modern finish selection, disassembly techniques, minor and major parts duplication, reassembly/pre-finishing techniques and reassembly, refinishing. Prerequisite: INA 150. Two lecture; two lab.

INA 285 • Upholstery II
3 credits
Upholstery techniques. Topics include safety, specialty tool use and care, standard and unusual fabrication materials, fabric selection, removal of old coverings, structural disassembly, structural repairs, fabricating replacement components, structural reassembly, modifying upholstered items, spring installation, webbing replacement, installing padding, sub-coverings, trade tricks for cutting and sewing, fabric installation, slip covers and fine finishing details. Prerequisite: INA 185. Two lecture; two lab.

INA 286 • Auto and Marine Upholstery
3 credits
Specialized course in reupholstering automotive and marine fixtures. Topics include safety, specialty tools, weather resistant materials, mechanism maintenance/repair/modifications, disassembly, removal of coverings, parts replacement and repair, spring and webbing repair and installation, padding, sub-coverings, patterns, cutting/ sew/ installation of fabric and slip cover installation. Prerequisite: INA 185. Two lecture; two lab.

Industrial Maintenance & Operations (IMO)

IMO 130 • Water Supply and Treatment I
6 credits
To prepare for both Water Distribution and Water Treatment classes I and II of the state’s Operator Certification License Exam. Topics include certification and legal issues, water sciences, hydraulic and mathematics, safety, maintenance, management, processes and a specific list of other topics prioritized from recent examinations for these classes of certification. Six lecture.

IMO 131 • Water Supply and Treatment II
6 credits
To prepare for both Water Treatment and Water Distribution class III of the state’s Operator Certification License Exams. Topics of study are prioritized from recent state examinations. Six lecture.

IMO 132 • Water Supply and Treatment III
6 credits
To prepare for both Water Treatment and Water Distribution class IV of the state’s Operator Certification License Examinations. Topics of study are prioritized from recent state examinations. Six lecture.

IMO 140 • Wastewater Collection and Treatment I
6 credits
To prepare for both Wastewater Treatment and Water Collection Systems class I and II of the state’s Operator Certification License Examinations. Topics of study are prioritized from recent state examinations. Six lecture.
IMO 141 • Wastewater Collection and Treatment II
6 credits
To prepare for both Wastewater Treatment and Water Collection Systems class III of the state’s Operator Certification License Examinations. Topics are prioritized from recent state examinations. Six lecture.

IMO 142 • Wastewater Collection and Treatment III
6 credits
To prepare for both Wastewater Treatment and Water Collection Systems class IV of the state’s Operator Certification License Examinations. Topics are prioritized from recent state examinations. Six lecture.

IMO 151 • Electrical Level I
6 credits
First course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians (NCCER level one). Covers orientation of the electrical trade, electrical safety, circuits, electrical theory, introduction to the national electrical code, device boxes, hand bending, construction drawings and electrical test equipment. Prerequisite: IMO 201 or instructor permission. Six lecture; three lab.

IMO 152 • Electrical Level II
6 credits
Second course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians. Modules include the following: alternating current, motors, electric lighting, conduit bending, pull and junction boxes, conductor installations, cable tray, conductor terminations and splices, grounding and bonding, circuit breakers and fuses, control systems and fundamental concepts. Prerequisite: IMO 151. Six lecture; three lab.

IMO 153 • Electrical Level III
6 credits
Third course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians. Course covers load calculation, conductor selection and calculations, practical applications of lighting, hazardous locations, overcurrent protection, distribution equipment, transformers, commercial electrical service, motor calculations, voice, data, video and motor controls. Prerequisite: IMO 152 or instructor permission. Six lecture; three lab.

IMO 154 • Electrical Level IV
6 credits
Last course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Electricians. Course covers load calculations, health care facilities, standby and emergency systems, basic electronic theory, fire alarm systems, specialty transformers, advance controls, HVAC controls, heat tracing and freeze protection, motor operation and maintenance, medium-voltage terminations/splices, special locations and introductory skills for the crew leader. Prerequisite: IMO 153 or instructor permission. Five lecture; four lab.

IMO 155 • Instrumentation Level I
7 credits
First in a sequence of four courses developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers hand tools for instrumentation, electrical safety, power tools for instrumentation, electrical systems for instrumentation, metallurgy for instrumentation, fasteners, instrumentation drawings and documents, gaskets and packing, lubricants, sealants, and cleaners, flow, pressure, level, and temperature, tubing, piping 2a and under, hoses. Prerequisite: IMO 201 or instructor permission. Six lecture; three lab.

IMO 156 • Instrumentation Level II
7 credits
Second course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers craft related mathematics; instrumentation drawings, part two; principles of welding for instrumentation; process control theory; detectors; secondary elements; transducers and transmitters; controllers; recorders and indicators; control valves; actuators and positioners; relays and timers; switches and photoelectric devices; filters; regulators and dryers; analyzers and monitors; panel mounted instruments; installing field-mounted instruments and raceways for instrumentations. Prerequisite: IMO 155 or instructor permission. Seven lecture; four lab.

IMO 157 • Instrumentation Level III
7 credits
Third course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers instrument fitter’s math; layout and installation of tubing and piping systems; receiving, inspecting, handling, and storing instrumentations; instrumentation electrical circuitry; grounding and shielding of instrumentation wiring; terminating conductors and preventive measures for instrumentations. Prerequisite: IMO 156 or instructor permission. Seven lecture; three lab.

IMO 158 • Instrumentation Level IV
7 credits
Last course in a sequence of four developing a knowledge base of fundamental skills required of certified Industrial Instrumentation Technician. Covers digital logic circuits, instrument calibration and configuration, performing loop checks, troubleshooting and commissioning a loop, tuning loops, programmable logic controllers, distributed control systems and analyzers. Prerequisite: IMO 157 or instructor permission. Seven lecture; three lab.

IMO 160 • Robotics
3 credits
Introductory course in the basic programming and operation of industrial robots. Topics include robotics vocabulary, pick and place operations, positioning by written program, writing advanced multi-position programs, incorporating sensor relative positions, multi-positioning teaching procedures, repetitive cycle program operation and sorting programs. Two lecture; two lab.

IMO 161 • Introduction to Computer-Aided Manufacturing
3 credits
Introductory course in computer-aided manufacturing. Topics include Cartesian coordinate system, grid sheet drawings, CNC program authoring, Spectrum milling program, lathe grid sheet usage, G and M codes, lathe control programs, AutoSketch, Spectrum software, CNC lathe projects, CNC milling projects and CNC engraving projects. Two lecture; two lab.
IMO 200 • Systems Critical Thinking and Control 3 credits
Integrate technology control principles from all major industrial systems in the major areas of manufacturing, construction, communications, transportation and health care. Emphasis is on system critical thinking and programmable controllers. Three lecture.

IMO 201 • Introduction to Industrial Maintenance 4 credits
Preparatory course required for students wanting to take NCCER Industrial Maintenance Mechanic Levels 1-4. Students are exposed to basic building foundation skills in construction. 32 lecture hours; 64 lab hours.

IMO 208 • Introduction to Energy Generation and Distribution 6 credits
Introduction to various types of energy and their conversion to usable energy such as electrical power. Includes how generated electrical is transmitted and distributed to the point of use. Five lecture, three lab.

IMO 210 • Power Principles I 6 credits
First course in a series of four developing knowledge of the fundamental skills of a certified power plant operator. Topics include basic skills, industrial mathematics, plant safety, minor maintenance, reading diagrams and process sampling. Weekly labs emphasize course material. Six lecture; three lab.

IMO 211 • Power Principles II 6 credits
Second course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Topics include: valves, piping, and auxiliaries, pumps, compressors, coal handling and heat exchangers. Prerequisite: IMO 208 or IMO 210 or instructor permission. Five lecture; three lab.

IMO 212 • Power Principles III 6 credits
Third course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Topics include: statistical process control, chemistry, electrical systems, instrumentation and control measurement, automatic process, refrigeration, water treatment and wastewater treatment. Prerequisite: IMO 211 or instructor permission. Five lecture; three lab.

IMO 213 • Power Principles IV 6 credits
Fourth course in a series of four that prepares students for entry-level positions as operators of power generation, mining, water treatment, natural gas, refinery, semiconductor, petrochemical and pharmaceutical processes. Topics include: furnaces, plant boilers, power plant basics, steam cycle and turbines, power plant protection systems, air and water pollution control and troubleshooting. Prerequisite: IMO 212 or instructor permission. Five lecture; three lab.

IMO 214 • Advanced Power Plant Specific Training 5 credits
Orients student to power plant specific topics including clearance and confined space procedures, energy conversions, steam and pressure measurements, steam generators, plant layout, pumps, condensate and feedwater systems, fuel delivery and circulating water systems. Weekly labs emphasize course materials. Prerequisite: IMO 212 or instructor permission; Co-requisite: IMO 213 or instructor permission. Four lecture; two lab.

IMO 215 • Introduction to Steam Systems 3 credits
Introduction to steam systems, thermodynamics and boiler operation. Includes steam as an energy source, steam system operation and boilers. Also includes pressure and temperature control. Two lecture, two lab.

IMO 230 • Mechanical Maintenance I 6 credits
First course in a series of four developing a knowledge base of fundamental skills required of certified industrial maintenance mechanics. Modules include orientation of the trade, tools of the trade, fasteners and anchors, oxyfuel cutting, gaskets and packets, mathematics, construction drawing, pumps and valves, test instruments, rigging, mobile and support equipment and lubrication. Weekly labs emphasize and anchor the course material. Co-requisite: IMO 201 or instructor permission. 70 lecture hours; 52 lab hours.

IMO 231 • Mechanical Maintenance II 6 credits
Second course in a series of four developing a knowledge base of fundamental skills required of certified industrial maintenance mechanics. Modules include basic layouts, introduction to piping components, copper and plastic practices, introduction to ferrous and non-ferrous piping practices, how to identify/install and maintain valves, hydrostatic and pneumatic testing, introduction to bearings, low-pressure steam systems, high-pressure steam systems and auxiliaries, distillation towers and vessels, heat exchangers, heating towers, fans and introduction to tube work. Prerequisite: IMO 230 or NCCER certification in level one Industrial Maintenance Mechanic. 15 hours lecture; 150 hours lab.

IMO 232 • Mechanical Maintenance III 6 credits
Third course in a series of four developing a knowledge base of the fundamental skills required of industrial maintenance mechanics. Modules include advanced towers and vessels, trade mathematics, precision tools, installing bearings, installing couplings, conventional alignment, setting baseplates, installing mechanical seals and installing belts and chains. Prerequisite: IMO 231 or NCCER level two Industrial Maintenance Mechanic certification. 50 lecture hours; 105 lab hours.

IMO 233 • Mechanical Maintenance IV 6 credits
Fourth course in a series of four developing a knowledge base of the fundamental skills required of certified industrial mechanics. Modules will include preventitive and predictive maintenance, advanced blueprint reading, compressors and pneumatic systems, reverse alignment, laser alignment, introductory skills for the crew leader, troubleshooting and repairing pumps, troubleshooting and repairing gearboxes, troubleshooting and repairing conveyors and advance towers and vessels. Prerequisite: IMO 232 or certification in NCCER level three Industrial Maintenance Mechanic. 45 lecture hours; 95 lab hours.
IMO 274 • Control Systems III Networks and Variable Speed Drives
4 credits
Introduction to control networks, setting up and troubleshooting networks and fiber optic network systems. Also introduces variable speed drives, applications of variable speed drives, system integration of variable speed drives, programming variable speed drive controllers, troubleshooting variable speed drive controllers and troubleshooting variable speed drive systems. Prerequisite: IMO 273. 45 lecture hours; 30 lab.

Information and Communication Technology (ICT)

ICT 095 • Skills for Online Learning
0.5 credit
Examination and practice of basic skills necessary to successful online learning.

ICT 096 • Teaching Online Learning
1 credit
Prepares students to teach ICT 095; covers rudimentary skills necessary to successful online learning and teaching.

Languages (LAN)

LAN 120 • Conversational Navajo I
3 credits
Simple conversation in Navajo. Three lecture.

LAN 121 • Conversational Navajo II
3 credits
Review of grammar and phonetics. Development of speaking, reading and writing skills. Prerequisite: LAN 120. Three lecture.

LAN 125 • Conversational Apache I
3 credits
Introduction to Phonetic Alphabet. Learn the phonetic sounds of the Apache language, alphabet and vowels; and reproducing the sounds from the written language. Some basic vocabulary and expressions. Three lecture.

LAN 126 • Conversational Apache II
3 credits
Beginning language drills and skills continued. Includes sentence structure and unusual vowel usage. Prerequisite: LAN 125. Three lecture.

LAN 130 • Conversational Hopi I
3 credits
Simple conversation in Hopi. Three lecture.

LAN 131 • Conversational Hopi II
3 credits
Continues to emphasize conversational Hopi. Further development of Hopi phonetics, grammar and writing skills. Course is designed to meet the needs of students wishing to converse and write in Hopi. Prerequisite: LAN 130. Three lecture.

LAN 160 • Beginning American Sign Language
3 credits

LAN 161 • Intermediate American Sign Language
3 credits
Continuation of emphasis on the learning of the language of signs and cultural information about the people who use American Sign Language (ASL). Prerequisite: LAN 160. Three lecture.

LAN 171 • Navajo I
4 credits
Introduction to the Navajo language, with emphasis on developing the skills of listening, speaking, reading and writing. Stress on basic grammar, pronunciation, vocabulary and culture. Four lecture.
LAN 172 • Navajo II
4 credits
Continuation of Navajo I. Emphasis on the vocabulary, verbs and sentence structures commonly used in the Navajo language. **Prerequisite:** LAN 171. Four lecture.

LAN 260 • Advanced American Sign Language
3 credits
Advanced emphasis on learning the language of signs and cultural information about the people who use American Sign Language (ASL). **Prerequisite:** LAN 161. Three lecture.

LAN 261 • American Sign Language Grammar/Culture
3 credits
A comprehensive evaluation of syntax, grammar and culture related to American Sign Language. Includes an emphasis on linguistic, social, educational and political issues in deaf culture. Special emphasis on the cultural and philosophical attitudes shared with other minority groups. **Prerequisite:** LAN 161. Three lecture.

LAN 262 • Conversational American Sign Language
3 credits
Strengthens student’s ability to communicate using American Sign Language. Helps build vocabulary. All work is given without verbal instruction. **Prerequisite:** LAN 260. Three lecture.

Mathematics (MAT)

MAT 101 • Basic Technical Mathematics
3 credits
Practical mathematical skills needed in a wide variety of trade and technical areas. Course includes a review of fractions, decimals, percents, measurement, basic algebra and a brief overview of geometry and trigonometry. **Prerequisite:** CCP 088 or satisfactory placement. Three lecture.

MAT 103 • Business Mathematics
3 credits
An introduction to the practice in mathematics of fundamental business operations and applications including payroll, finance, interest, loans and investments. **Prerequisite:** CCP 088 or satisfactory placement. Three lecture.

MAT 109 • Algebra I: Introductory
3 credits
A review of the fundamental skills of arithmetic and algebra, using techniques for handling algebraic expressions and solving linear equations/inequalities, with an emphasis on developing problem-solving strategies when solving applications. **Prerequisite:** CCP 082 or satisfactory Reading placement score and CCP 088 or satisfactory Mathematics placement score. Three lecture.

MAT 112 • Algebra II: Intermediate
3 credits
Extends the understanding of basic algebraic concepts and skills with an emphasis on factoring, exponents, complex numbers, operations of rational and radical expressions, and solving techniques for applications on quadratic, rational, exponential and logarithmic equations. **Prerequisite:** MAT 109 or satisfactory placement. Three lecture.

MAT 125 • Introduction to Statistics
3 credits
Statistical methods used in collecting, tabulating, analyzing and presenting data; frequency distributions; measures of central tendency; elementary probability; statistical inference. **Prerequisite:** MAT 112 or satisfactory placement. Three lecture.

MAT 142 • College Mathematics with Contemporary Applications
3 credits
Primary topics covered are management science, statistics, social choice and size/shape with an emphasis on developing quantitative skills and reasoning ability. **Prerequisite:** MAT 112 or satisfactory placement. Three lecture.

MAT 152 • Advanced Algebra
3 credits
Algebraic concepts with an emphasis on solving real-life applications that includes a review of basic algebra, equations, inequalities, functions, polynomials, rational, radical, exponential and logarithmic functions as well as sequences, series and combinatorics. **Prerequisites:** MAT 112 or satisfactory placement. Three lecture.

MAT 161 • Algebra-based Mathematics for Elementary Teachers I
3 credits
Topics include teaching critical thinking skills, problem solving, mathematical algorithms, number theory and proportional reasoning. **Prerequisites:** MAT 142 or MAT 152. Three lecture.

MAT 162 • Algebra-based Mathematics for Elementary Teachers II
3 credits
Topics include teaching measurement, analyzing data, algebra, plane and coordinate geometry, probability and statistics. **Prerequisite:** MAT 161. Three lecture.

MAT 189 • Pre-Calculus Algebra/Trigonometry
3 credits
Algebraic and trigonometric concepts with an emphasis on solving real-life applications that includes trigonometric functions, analytic trigonometry, vectors, systems of equations and inequalities, matrices and analytic geometry. **Prerequisites:** MAT 152. Three lecture.

MAT 211 • Technical Calculus
4 credits
Foundations of differential and integral calculus that includes applications in business, management, economics, life science and social science. Topics include applications of functions, derivatives, exponential and logarithmic functions, integration and multivariate calculus. **Prerequisite:** MAT 152. Four lecture.

MAT 221 • Calculus I
4 credits
An introduction to limits, continuity, differential and integral calculus of single variable functions and related applications. **Prerequisite:** MAT 189. Four lecture.

MAT 231 • Calculus II
4 credits
Topics include integration of proper and improper integrals with applications in geometry, science, engineering, mathematical modeling with differential equations, infinite series and analytic geometry. **Prerequisite:** MAT 221. Four lecture.

MAT 241 • Calculus III
4 credits
Topics include three-dimensional space, vectors, vector-valued functions, partial derivatives, multiple integrals and topics in vector calculus. **Prerequisite:** MAT 231. Four lecture.
MET 100 • Introduction to Mechatronics  
4 credits  
Introduction to mechatronic production systems and basic manufacturing concepts. Covers basic skills and knowledge that any technical employee needs to be successful in a variety of manufacturing and other industrial settings. Also introduces robotics. Three lecture, three lab.

MET 110 • Manufacturing Fundamentals  
3 credits  
Overview of various types of manufacturing and jobs performed in the discrete, hybrid and continuous sectors within manufacturing and energy production. Provides basic skills and knowledge that any technical employee in manufacturing needs to be successful in the workplace. Prerequisite: Satisfactory placement. Two lecture; three lab.

MET 120 • Industrial Mechanics I  
5 credits  
Principles and applications of the most commonly found mechanical drive and fluid power components in industrial power plant and manufacturing environments. Prerequisites: Satisfactory placement scores in reading, writing and mathematics. Four lecture; three lab.

MET 130 • Industrial Electrical Systems  
4 credits  
Principles and applications of alternating (AC) and direct (DC) current electricity, industrial sequential control and electrical controls construction found in typical energy and manufacturing environments. Prerequisites: Satisfactory placement and MAT 112 or MAT 121 or any MAT course for which MAT 112 or MAT 121 is a prerequisite. Three lecture; three lab.

MET 140 • Introduction to Programmable Logic Controllers  
4 credits  
Principles and applications of programmable logic controllers (PLCs) found in typical energy and manufacturing environments. Prerequisite: MET 130. Three lecture; three lab.

MET 150 • Industrial Mechanics II  
6 credits  
Builds and expands upon Industrial Mechanics I covering principles and applications of additional mechanical drive and fluid power components, troubleshooting and looking at predictive and preventative maintenance techniques. Prerequisite: MET 120. Four lecture, six lab.

MET 160 • Rotating Electrical Machines  
4 credits  
Principles, applications, troubleshooting and maintenance of rotating electrical motors and electronic motor drives used in industry. Prerequisite: MET 130. Three lecture; three lab.

MET 200 • Robotics and Motion Control  
4 credits  
Provides background in programming and application of industrial robots and general purpose synchronized multi-axis motion control. Expands these concepts by combining multiple axes of motion to perform useful functions such as creating a flexible manufacturing system utilizing robots. Prerequisites: MET 140 and MET 160. Three lecture; three lab.

MET 210 • Process Control and Instrumentation  
3 credits  
Fundamentals of industrial processes and instrumentation controlling level, flow, temperature and pressure. Provides the maintenance technician with fundamentals for many applications in discrete and hybrid industries such as machining, assembly, food processing and packaging. Prerequisite: MET 130. Two lecture; three lab.

MET 220 • Advanced Programmable Logic Controllers  
4 credits  
Advanced principles and applications of programmable logic controllers (PLCs) in more advanced PLC families than covered in MET 140. Student has option to work with Rockwell/Allen-Bradley ControlLogix or Siemens S7 systems. Prerequisites: MET 140; Co-requisites: MET 200 and MET 210. Three lecture; three lab.

MET 230 • Integrated Manufacturing Systems  
3 credits  
This course guides the student through the processes of interfacing and integrating manufacturing components and unit operations into useful systems. Prerequisites: MET 200; Co-requisite: MET 220. Two lecture; three lab.

MET 238 • Mechatronics Capstone Project  
3 credits  
This course provides a capstone experience for the Mechatronics Area of Specialization by requiring that the student, together with a teammate(s), apply skills and knowledge from each of the program areas to an independent mechatronics project related to consumer goods packaging. Prerequisites: MET 150, MET 200, MET 210. Co-requisite: MET 220. Two lecture, three lab.

MET 240 • Mechatronics Application Project  
4 credits  
Capstone experience requiring the student, together with teammate(s), to apply skills and knowledge from each Mechatronics program area to an independent project related to consumer goods packaging. Prerequisites: MET 150, MET 200, MET 210 and MET 220. Two lecture, six lab.

MET 241 • Hydraulic Troubleshooting  
3 credits  
Teaches the physical principles of force, pressure, fluid flows and troubleshooting. Two lecture, two lab.

MET 242 • Industrial Maintenance Electrical and Instrumentation Technician Level I  
6 credits  
First course in a sequence of four developing a knowledge base of fundamental skills required of certified Electrical and Instrumentation Technician. Prerequisite: IMO 201 or instructor permission. Four and a half lecture; three lab.

MET 243 • Industrial Maintenance Electrical and Instrumentation Technician Level II  
6 credits  
Second course in a sequence of four developing a knowledge base of fundamental skills required of certified Electrical and Instrumentation Technician. Prerequisite: MET 242 or instructor permission. Four lecture; four lab.
**MET 244 • Industrial Maintenance Electrical and Instrumentation Technician Level III**

6 credits

Third course in a sequence of four developing a knowledge base of fundamental skills required of a certified Electrical and Instrumentation Technician. **Prerequisites:** MET 243 or instructor permission. Four lecture; four lab.

**MET 245 • Industrial Maintenance Electrical and Instrumentation Technician Level IV**

6 credits

Fourth course in a sequence of four developing a knowledge base of fundamental skills required of a certified Electrical and Instrumentation Technician. **Prerequisites:** MET 244 or instructor permission. Three lecture; six lab.

### Medical Assistant (MDA)

**MDA 124 • Clinical Procedures I**

5 credits

Theory and skill development of clinical procedures. Includes infection control, vital signs, patient history, physical exam, positioning and draping, patient education and assisting in various medical specialties. **Co-requisites:** HES 170 and either BIO 160 or BIO 201 AND 202. Three lecture; six lab.

**MDA 125 • Clinical Procedures II**

5 credits

Theory and skill development of clinical procedures. Dosage calculation, medication administration, medical asepsis, sterilization and disinfection, electrocardiograms, minor surgery, office lab testing and career skills and development. **Prerequisite:** MDA 124; any MAT class 100 or above; satisfactory placement; EMT 104 (or equivalent); current American Red Cross First Aid card or equivalent in-person class. **Co-requisites:** BUS 119, HES 180. Three lecture; six lab.

**MDA 126 • Medical Assistant Externship**

4 credits

160-hour paid or unpaid externship in an ambulatory health care setting performing administrative/clinical procedures. Includes comprehensive review for RMA certification exam. Minimum grade of 'C' to pass. Failing students may not repeat this course. Students withdrawing with instructor’s permission may retake only once with instructor’s permission. **Prerequisites:** MDA 124 and MDA 125, with grades of 'C' or better, no earlier than the previous academic year and instructor permission; proof of current year flu vaccine immunization; and DPS Level 1 Fingerprint Clearance Card. **Co-requisites:** HES 109. One lecture; nine clinical.

### Music (MUS)

**MUS 100 • Northland Master Chorale**

1 credit

Mixed-voice choral ensemble focused on the learning and performance of traditional choral repertoire. Requires diligence in learning music and in collaborating with fellow choir members. Course develops healthy vocal production and utilizes auditory and music reading skills. For first-year choral students. Instructor permission required. May be repeated for credit. **Prerequisite:** Instructor permission. Two lab.

**MUS 118 • Vocal Performance Techniques**

2 credits

Focus on the performance of vocal jazz repertoire in mixed ensembles. Emphasis on learning music, minor research of pieces and public performance. Enrollment requires small auditions and instruction permission. May be repeated for credit. **Prerequisite:** Instructor permission; concurrent enrollment with MUS 100. One lecture, two lab.

**MUS 121 • Soundcheck**

1 credit

Vocal jazz and a cappella ensemble focused on learning and performance of contemporary, jazz and pop music. Participation requires a flexible schedule, travel as part of performance tours, diligence in learning music and cooperative collaboration. May be repeated for credit. **Prerequisite:** Audition and instructor permission required. Two lab.

**MUS 123 • Musical Theatre Ensemble**

2 credits

Ensemble that performs smaller contemporary musical theatre productions, revues and song cycles. Features individual vocal coaching and increased solo opportunities. Requires diligence in learning music, developing vocal capabilities and working together with fellow ensemble members. May be repeated for credit. **Prerequisite:** Audition and instructor permission required. Two lab.

**MUS 129 • Vocal Ensembles**

1 credit

Opportunities for vocalists to form duets, trios, sextets, octets and other mixed vocal ensembles. Provides opportunities for performances and personal enjoyment. May be repeated for credit. **Prerequisite:** Instructor permission. Two lab.

**MUS 130 • Instrumental Ensembles**

1 credit

Opportunities for instrumentalists to form string, brass and woodwind combinations. May be repeated for credit. **Prerequisite:** Audition required. Two lab.

**MUS 135 • Music Theory I**

3 credits

Beginning intensive study of fundamentals of music and materials. Includes written exercises, original writing and the analysis of musical examples. Also covers beginning writing in four-part choral texture, structure of tonality, doubling and spacing of triads in root position and inversions and cadences. Three lecture.

**MUS 136 • Music Theory II**

3 credits

Continuation of MUS 135 including intermediate writing in four-part choral textures: non-harmonic tones, melodic harmonization, instrumental styles, seventh chords, borrowed chords and secondary dominants. **Prerequisite:** MUS 135. Must be taken concurrently with MUS 136. Three lecture.

**MUS 137 • Ear Training I**

1 credit

Includes sight-singing, dictation, keyboard exercises and related skills, all designed to develop the student’s musical ear to the highest degree possible. Coincides with Music Theory I. Two lab.
MUS 138 • Ear Training II
1 credit
Continuing sight-singing, dictation, keyboard exercises and related skills designed to develop the student’s musical ear to the highest possible degree. Course coincides with Music Theory II. Prerequisite: MUS 137. Two lab.

MUS 150 • Music Appreciation
3 credits
A nontechnical introduction to elements of music and music composers of the Medieval, Renaissance, Baroque and Classical eras. Prerequisite: Satisfactory placement. Three lecture.

MUS 155A • Music Applied – Voice
1 to 2 credits
One-on-one instruction to improve the vocalist’s fundamentals of singing, and apply them to vocal performance. Weekly master-class required. Prerequisite: Audition and instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

MUS 155B • Music Applied – Piano
1 to 2 credits
Private piano lessons, depending on the student’s playing ability. Prerequisite: Instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

MUS 155C • Music Applied – Guitar
1 to 2 credits
Private lessons on the guitar, depending on the student’s abilities. Prerequisite: Instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

MUS 155D • Music Applied – French Horn
1 to 2 credits
Focus on the fundamentals of French horn performance as applied to solo, chamber and large ensemble playing. Weekly master-class required. Prerequisite: Audition and instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

MUS 155E • Music Applied – Trumpet
1 to 2 credits
Focus on the fundamentals of trumpet performance as applied to solo, chamber and large ensemble playing. Weekly master-class required. Prerequisite: Audition and instructor permission. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit.

MUS 155F • Music Applied – Violin
1 to 2 credits
Focuses on the fundamentals of violin performance as applied to solo, chamber and large ensemble playing. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit. Prerequisite: Audition and instructor’s consent.

MUS 155G • Music Applied – Flute
1 to 2 credits
Focuses on the fundamentals of flute performance as applied to solo, chamber and large ensemble playing. One credit equals a 30-minute lesson; two credits equal a one-hour lesson. May be repeated for credit. Prerequisite: Audition and instructor’s consent.

MUS 160 • Introduction to Conducting
2 credits
A study of fundamental gesture technique, score-reading and interpretation. Prerequisite: MUS 135 or instructor permission. One lecture; two lab.

MUS 200 • Advanced Northland Master Chorale
1 credit
Requires Northland Master Chorale singers in their second year to exhibit further leadership skills, increased vocal production and increased music learning and performance capabilities. May be repeated for credit. Prerequisite: MUS 100 and instructor permission. Two lab.

MUS 221 • Soundcheck II
1 credit
Advanced vocal jazz and a cappella ensemble focused on learning and performance of contemporary, jazz and pop music. Emphasizes leadership skills, increased vocal production and increased music learning and performance capabilities. May be repeated for credit. Prerequisite: MUS 121, audition and instructor permission. Two lab.

MUS 235 • Music Theory III
3 credits
A continuation of Music Theory II. Includes introductory studies of formal organization, 18th-Century counterpoint and score analysis. Begins exploration of chromaticism. Prerequisite: MUS 136; must be taken concurrently with MUS 237. Three lecture.

MUS 236 • Music Theory IV
3 credits
A continuation of Music Theory III covering advanced harmonic materials such as chromaticism, modulation and 20th-Century techniques. Prerequisite: MUS 235; must be taken concurrently with MUS 238. Three lecture.

MUS 237 • Ear Training III
1 credit
Sight-singing, dictation, keyboard exercises and related skills designed to develop the student’s musical ear to the highest degree possible. Coincides with Music Theory III. Prerequisite: MUS 138. Two lab.

MUS 238 • Ear Training IV
1 credit
Sight-singing, dictation, keyboard exercises and related skills designed to develop the student’s musical ear to the highest degree possible. Coincides with Music Theory IV. Prerequisite: MUS 237. Two lab.

MUS 250 • World Music
3 credits
Introduces students to global wealth of vernacular musics; explores interaction between music and other aspects of cultural expression from areas around the world. Through studying historical and contemporary musical heritages, students come to know, relate to and understand a broad range of cultural and artistic perspectives. Prerequisite: Satisfactory placement. Three lecture.

MUS 261 • Advanced Choral Conducting
2 credits
A detailed study of rehearsal techniques, musical components and baton expressiveness as related to choral conducting. Topics include score reading, accompaniment and performance practice. Prerequisite: MUS 160. One lecture; two lab.
MUS 262 • Advanced Instrumental Conducting
2 credits
A detailed study of rehearsal techniques, musical components and baton expressiveness as related to instrumental conducting. Topics include score reading, accompaniment and performance practice. 
Prerequisites: MUS 160. One lecture; two lab.

MUS 275 • Music Composition I
3 credits
Focus on composition of various exercises and original music. Additional topics include study of 20th-Century compositions and performance of new works. Students wishing to take this course should contact instructor. Three lecture.

MUS 276 • Music Composition II
3 credits
Continuation of MUS 275. Students wishing to take this course should contact instructor. Prerequisite: MUS 275. Three lecture.

MUS 285 • Band
1 credit
Focus on performance of the concert band repertoire, requiring diligence in learning music and study of fundamentals, includes minor research of pieces and public performance. May be repeated for credit. Two lab. Prerequisite: Audition required.

MUS 287 • Jazz Band
1 credit
Study and performance of jazz band literature and appropriate jazz techniques. Requires diligence in learning music, minor research of pieces and public performance. May be repeated for credit. Two lab. 
Prerequisite: Audition required.

Nursing (NUR)

NUR 105 • Nursing Calculations
1 credit
This course is designed to present mathematics necessary to convert between the American and metric systems of measurement, intake and outtake calculations, drug dosage calculations and determining IV flow rates in multiple formats, pediatric dosages. 
Prerequisite: Admission to Nursing Program. One lecture.

NUR 116 • LPN to RN Transition
3 credits
Provides students licensed as practical nurses opportunity to learn the role of the professional nurse. Allows the student to start the RN program in the third semester. 
Prerequisite: Admission to the LPN-RN program. Three lecture.

NUR 117 • Pharmacology I
2 credits
Introduces student to use of pharmacological agents and provides theoretical development of competence in the safe and accurate administration of medications. 
Prerequisite: Enrollment in Nursing Program or instructor permission. Two lecture.

NUR 118 • Pharmacology II
2 credits
Extends student knowledge in the use of pharmacological agents. Theoretical development of competences in the safe and accurate administration of intravenous, pediatric, psychotropic and obstetric medications, as well as parenteral nutrition. 
Prerequisite: Enrollment in Nursing Program or instructor permission. Two lecture.

NUR 119 • Audition for Jazz Band
1 credit
Focus on the role of the professional nurse with an introduction to organizational development. Focus on the impact of acute health care conditions on individuals, families and groups. 
Prerequisite: NUR 117 and NUR 118. Four lecture, eight clinical, four lab.

NUR 121 • Nursing I
8 credits
Focus on practice in the nursing student role with emphasis on the client's admission to and movement within the health care system, the student's development as a caring, competent nurse within the legal/ethical framework of the profession, and development of critical thinking and communication skills. 
Prerequisite: Admission to nursing program. Four lecture, eight clinical, four lab.

NUR 122 • Nursing II
8 credits
Focus on nursing care for individuals and families with chronic health conditions in well-defined practice settings. Emphasis on basic management concepts and continued development of critical thinking, nursing judgment and skills. 
Prerequisites: NUR 117 and NUR 121. Four lecture, eight clinical, four lab.

NUR 123 • Paramedic to Nurse Bridge Course
11 credits
This intensive course introduces the experienced paramedic to nursing process, critical reasoning, concept mapping, basic CNA and advanced nursing skills, medication calculations and administration, nutrition, a review of acute disease processes, theoretical development of clinical and cultural competencies and safe and accurate nursing practice. 
Prerequisites: Current paramedic certification and minimum of one year of active paramedic experience; Nursing Program prerequisites; admission to the Nursing Program; 
Co-requisites: NUR 117 and NUR 118. Eight lecture; nine clinical lab.

NUR 125 • Practical Nurse Completion
2 credits
Within the framework of transitions, the focus is on preparing students to provide nursing care at the practical nurse level and to successfully complete the NCLEX-PN examination. Emphasis is on the student's development as a caring, competent nurse within the legal/ethical framework of practical nurse licensure in the state of Arizona. 
Prerequisite: Co-enrollment or completion of NUR 122. Two lecture.

NUR 219 • NCLEX Review Seminar
2 credits
Preparation for the NCLEX-RN examination through lecture, analysis of practice questions, development of a study plan and taking practice exams. 
Prerequisite: Co-enrollment or completion of NUR 222. Two lecture.

NUR 221 • Nursing III
8 credits
Focus on nursing care of individuals and families experiencing developmental milestones. Includes group theory and nursing therapeutics related to parenteral therapy, assisting the client through acute health care issues, concepts in critical thinking, organizational skills and psychosocial nursing. 
Prerequisites: Successful completion with a 'C' or better in NUR 122, BIO 205; and PSY 240. Four lecture, eight clinical, four lab.

NUR 222 • Nursing IV
8 credits
Focus on the impact of acute health care conditions on individuals, families and groups. Emphasis is on synthesis and application of nursing therapeutics as students continue to develop in the role of the professional nurse with an introduction to organizational transitions. 
Prerequisite: NUR 221. Four lecture, eight clinical, four lab.
NUR 290 • RN Refresher Course
8 credits
Designed for the RN whose license has lapsed. Reviews theory and updates clinical practice skills related to the nursing process, medical-surgical nursing, IV therapy and medication administration. Successful completion allows candidate to apply to the Arizona State Board of Nursing for RN licensing. Also, the student will be responsible for negotiating placement with a health care agency for 160 hours of approved clinical experience during the class. Students must obtain an Arizona Temporary Refresher License and DPS fingerprint clearance prior to start of course. Prerequisite: Eligible for Arizona State Board of Nursing RN License.

Nursing Assistant Training (NAT)

NAT 101 • Nursing Assistant Training
5 credits
Prepares students to assume the role and responsibilities of a nursing assistant within community health settings with a focus on long-term care. Complies with federal (OBRA) guidelines and preparation for the Arizona State Board of Nursing certification examination. Prerequisite: Satisfactory placement. Co-requisite: Healthcare Provider CPR and First Aid certification (EMT 104, or equivalent). Three lecture, three lab, three clinical. Additional costs and requirements will apply. See page 108.

Photography (PHO)

PHO 100 • Beginning Photography
Two lecture; two lab.
Prerequisite: Satisfactory placement. Three lecture.
Introduction to the historic concepts and philosophies of religion, including the nature and justification of religious belief; arguments for the existence and nature of God or gods; mysticism; religion and meaning; values and knowledge of religion; theistic and pantheistic conceptions of God and creation in the world from animism to the modern religions; traditions including Buddhism, Hinduism, Islam, Judaism, Christianity and others. Prerequisites: Satisfactory placement. Three lecture.

PHO 101 • Digital Photography
Two lecture; two lab.
Prerequisite: Satisfactory placement. Three lecture.
An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHO 115 • Pictorial Journalism
Two lecture; two lab.
Prerequisite: Satisfactory placement. Three lecture.
An introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.

PHO 200 • Intermediate Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHO 201 • Intermediate Digital Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

NUR 102 • Pharmacy Technician Training
8 credits
Prepares student for entry-level pharmacy technician positions. Includes medical and pharmaceutical terminology, basic anatomy and pharmaceutical calculations. Requires a 128-hour paid or unpaid externship. Provides instruction required to pass the national examination of the Pharmacy Technician Certification Board (PTCB). Prerequisite: Satisfactory placement; must be at least 18 years of age and have a high school diploma or equivalent; Co-requisite: EMT 104 or equivalent. Externship Requirements: Prior to starting the clinical externship, DPS Level 1 Fingerprint Clearance Card and Pharmacy Technician Trainee license from the Arizona State Board of Pharmacy must be obtained. Proof of legal US residency is required to obtain trainee license. Five lecture, two lab, 8 clinical.

NUR 150 • Comparative World Religions
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHO 102 • Intermediate Digital Photography
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Techniques and processes in creating fine photographic images. Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHO 105 • Introduction to Ethics
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.

PHO 200 • Intermediate Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHO 201 • Intermediate Digital Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHO 103 • Introduction to Logic and Critical Thinking
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHO 105 • Introduction to Ethics
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.

PHO 115 • Pictorial Journalism
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Application of basic photography techniques to mass media. Students learn to pictorially create a story using photographs, layouts and captions. Prerequisite: PHO 100 or instructor permission. Two lecture; two lab.

PHO 200 • Intermediate Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHO 201 • Intermediate Digital Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHL 101 • Introduction to Philosophy
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction, exploration and analysis of topics of selected basic philosophical issues and problems, including the origins of ideas which have shaped Western thought and thinking today — knowledge, belief and truth, causality, reality, the world and God, morality, the nature of persons, obligation, action and free will, the good life, the ideal community and the nature of the ultimate reality. Reading and critical discussion of both classical and contemporary texts. Prerequisite: Satisfactory placement. Three lecture.

PHL 103 • Introduction to Logic and Critical Thinking
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHL 105 • Introduction to Ethics
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.

PHL 1103 • Introduction to Philosophy
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHL 1105 • Introduction to Ethics
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.

PHL 115 • Pictorial Journalism
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Application of basic photography techniques to mass media. Students learn to pictorially create a story using photographs, layouts and captions. Prerequisite: PHO 100 or instructor permission. Two lecture; two lab.

PHL 200 • Intermediate Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHL 201 • Intermediate Digital Photography
Three lecture
Prerequisites: PHO 100 or instructor permission. Two lecture; two lab.

PHL 103 • Introduction to Logic and Critical Thinking
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHL 105 • Introduction to Ethics
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.

PHL 1103 • Introduction to Philosophy
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
An introduction to the basic concepts of deductive and inductive logic. Covers informal fallacies, validity and soundness. Students learn elementary symbolic logic, methods of inductive reasoning and basics of scientific method. Prerequisite: Satisfactory placement. Three lecture.

PHL 1105 • Introduction to Ethics
Three lecture
Prerequisite: Satisfactory placement. Three lecture.
Introduction to moral and political theory and problems of practical ethics; philosophical analysis of the idea of the ethical life (problems of ethics and social/political philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state). Reading and critical discussion from sources representative of moral and social philosophers of both the classical (historic) and contemporary periods. Prerequisite: Satisfactory placement. Three lecture.
PHO 212 • Color Photography I
3 credits
Beginning color photography. Designed for students with photography experience. The process and technique involved in creating the color photographic image using the negative color process. Prerequisite: PHO 100 or 200 or instructor permission. Two lecture; two lab.

PHO 213 • Color Photography II
3 credits
Designed for students with color negative printing experience. Topics include the process and techniques involved with printing from color transparencies. Also includes the relationship to commercial photography. Prerequisite: PHO 212 or instructor permission. Two lecture; two lab.

PHO 220 • Advanced Photography
3 credits
Continuation of black and white photography and introduction to the black and white photography book layout and construction. Prerequisite: PHO 200 or 220. Two lecture; two lab.

PHO 230 • View Camera Photography
3 credits
Practical use of the large format view camera. Prerequisite: PHO 200 or 220. Two lecture; two lab.

PHO 240 • Photography Portfolio
3 credits
Application of techniques in preparing the photographic portfolio, construction, archival processing, negative filing systems, identification of equipment and supplies necessary in portfolio construction. Prerequisite: PHO 200 or 220. Two lecture; two lab.

PHO 245 • Photography Desktop Publishing
3 credits
Designed for the student with previous photography experience as an add-on to design and presentation of his or her continuing portfolio. Students learn computer digital programs that will enhance their existing photography and help them in understanding the unique technical qualities found in the existing world of computer-aided photography. Prerequisite: PHO 200 or 220. Two lecture; two lab.

PHO 250 • Photography as an Art Medium
3 credits
Survey of significant trends, philosophies and experimentation in photography from 1839 to the present. Course is non-technical in nature and designed for the photography or non-photography student. Three lecture.

PHO 270 • Freelance and Stock Photography
3 credits
Application of techniques with regard to marketing and selling your photography. Course defines freelance photography/marketing and illustrates how to market a stock file of images from your own home. Approaches to stock agencies from initial inquiry to final sales, as well as pricing, are discussed. Prerequisites: PHO 220, PHO 240 and PHO 245 or instructor permission. Two lecture; two lab.

PHO 280 • Photography Practicum
2 credits
For students wishing to enhance their photographic skills. Course may be repeated. Prerequisite: PHO 220 or instructor permission. One lecture; two lab.

PHO 280 • Photography Practicum
3 credits
Survey of the science of psychology, including history and systems, psychology, development, sensation and perception, learning theory, abnormal psychology, personality and memory and cognition. Prerequisite: Satisfactory placement. Three lecture.

PHY 250 • Photography as an Art Medium
3 credits
Survey of significant trends, philosophies and experimentation in photography from 1839 to the present. Course is non-technical in nature and designed for the photography or non-photography student. Three lecture.

PHY 113 • General Physics I
4 credits
An algebra-based course that includes the fundamentals of Newtonian mechanics (Part I) and the elementary physics of fluids (Part II). Use of elements of trigonometry and technical calculus are employed to encourage students to explore and expand knowledge of the use of mathematics in the study of physics. Prerequisites: MAT 152. MAT 189 suggested. Three lecture; three lab.

PHY 114 • General Physics II
4 credits
A continuation of PHY 113 concentrating on thermodynamics, vibrations and wave motion, electricity and magnetism, light and optics and modern physics. Prerequisite: PHY 113. Three lecture; three lab.

Political Science (POS)

POS 110 • American Government
3 credits

POS 112 • Navajo Government
3 credits
Focuses on the development of the Navajo government, its evolution, legal and political bases, structure and functions, fiscal changes and administrative growth. Three lecture.

POS 221 • Arizona Constitution and Government
1 credit
Surveys the Arizona Constitution, with special attention to operation of state and local government. Requirement for teacher certification. One lecture.

POS 222 • U.S. Constitution
1 credit
Surveys the U.S. Constitution from its philosophical and historical roots to its modern day structure. Course is intended to satisfy Arizona’s requirement for teacher certification. One lecture.

Psychology (PSY)

PSY 101 • Introduction to Psychology
3 credits
Survey of the science of psychology, including history and systems, psychology, development, sensation and perception, learning theory, abnormal psychology, personality and memory and cognition. Prerequisite: Satisfactory placement. Three lecture.

PSY 200 • Psychology of Adjustment
3 credits
Examines selected topics on the principles of mental health, adjustment, conflict, stress and coping processes derived from clinical and experimental research on the personal and social adjustment of the normal person. Prerequisite: Satisfactory placement. Three lecture.
PSY 201 • Introduction to Research and Statistics
4 credits
Introduction to basic concepts of experimental design and statistical analysis in psychological research. Prerequisite: Satisfactory placement. Four lecture.

PSY 230 • Introduction to Psychological Statistics
3 credits
Basic concepts in descriptive and inferential statistics, emphasizing applications to psychology. Prerequisites: PSY 101 or PSY 240 and MAT 142 or MAT 152 or equivalent placement scores in mathematics. Three lecture.

PSY 231 • Principles of Learning
3 credits
Methods, principles, applications and theoretical issues of learning. Prerequisite: Satisfactory placement. Three lecture.

PSY 240 • Developmental Psychology
3 credits
A survey of the issues and concepts dealing with age-related behavior and developmental changes during each different period of our life span from conception through old age and death. Current research in human development includes the physical, cognitive and psychosocial development of each period of the life span. Prerequisite: Satisfactory placement. Three lecture.

PSY 250 • Social Psychology
3 credits
Introduction to major theories and research findings of social psychology. Including theoretical perspectives of social psychology, understanding self and others, social cognition, attitudes and persuasion, social influence, interpersonal relations, aggression, prejudice and group processes. Prerequisite: Satisfactory placement. Three lecture.

PSY 270 • Abnormal Psychology
3 credits
To acquaint the student with the different areas of mental illness, including causes, symptoms and treatments. PSY 101 recommended. Prerequisite: Satisfactory placement. Three lecture.

PSY 290 • Research Methods in Psychology
4 credits
Basic concepts in research methodology, emphasizing applications to psychology. Prerequisite: PSY 230. Four lecture.

Sociology (SOC)

SOC 101 • Introduction to Sociology
3 credits
Fundamentals of sociology, organization of human groups and society and processes of interaction and social change. Prerequisite: Satisfactory reading and writing placement. Three lecture.

SOC 121 • Social Problems in America
3 credits
Analysis of social problems in the United States with focus on their causes, structure, function and societal effects. Close attention is paid to the student’s relationship to these identified social problems as well as proposed solutions. Prerequisite: Satisfactory placement. Three lecture.

SOC 212 • Sex and Gender in Society
3 credits
Social processes that shape the construction of gender in society. The role of major social institutions in these processes, including distinguishing sex and gender, gender identity, sexual orientation and gender inequality. Prerequisite: Satisfactory reading and writing placement. Three lecture.

SOC 215 • Ethnicity and Race
3 credits
Examines the social construction of race and patterns of ethnic relations with an emphasis on the social histories and contemporary diversity of ethnic groups in the United States. Analyzes concepts of prejudice and discrimination, segregation and assimilation. Prerequisite: Satisfactory reading and writing placement. Three lecture.

SOC 225 • Sociology of the Family
3 credits
The U.S. family in many of its aspects, including the history of the family, marriage, sex, family problems, money matters, future of the family and others. Prerequisite: Satisfactory placement. Three lecture.

Spanish (SPA)

SPA 100 • Beginning Spanish Conversation
3 credits
Emphasizes basic sentence structure, pronunciation, vocabulary and practical usage. Designed to develop speaking and listening abilities. Little emphasis on grammar. Three lecture.

SPA 101 • Elementary Spanish I
4 credits
Introduction to the Spanish language, with emphasis on developing the skills of listening, speaking, reading and writing. Emphasizes basic grammar, pronunciation, vocabulary and culture. Prerequisite: Satisfactory placement. Four lecture.

SPA 102 • Elementary Spanish II
4 credits
Continuation of the study of fundamental patterns in SPA 101. Emphasis continues on the comprehension, speaking, reading and writing aspects. Prerequisite: SPA 101. Four lecture.

SPA 201 • Intermediate Spanish I
4 credits
Consolidate and augment dexterity in the four basic skills: comprehension, speaking, reading and writing. Further development of vocabulary and cultural awareness. Prerequisite: SPA 102. Four lecture.

SPA 202 • Intermediate Spanish II
4 credits
Systematic expansion to strengthen the communicative skills of listening, speaking, reading and writing. A continued emphasis on vocabulary and cultural enrichment. Prerequisite: SPA 201. Four lecture.

SPA 218 • Advanced Spanish Practicum
3 credits
Increase proficiency in Spanish for advanced students. The area of concentration — be it grammar, conversation, reading, composition or intense review — depends on the need of each individual student. Prerequisite: SPA 202. Three lecture.
Speech, Theatre and Film (SPT)

SPT 110 • Fundamentals of Oral Communications
3 credits
Theory and practice in the organization, preparation and delivery of communication. Special attention to elements of interpersonal communication, constructive criticism, conflict management and small group process. Three lecture.

SPT 115 • Interpreter’s Theatre
3 credits
Theory and performance in interpreter’s theatre. An effective vehicle for understanding literature, developing skills in oral interpretation and bringing enjoyment and enrichment to both the interpreters and the audience. Performance portion of the course is a touring group available to perform for area schools and organizations. Three lecture.

SPT 120 • Public Speaking
3 credits
Development of skill in speaking in a variety of formal public communication situations. Application of the principles of logic and critical thinking as well as the behavioral theories of audience psychology. Prerequisite: Satisfactory placement. Three lecture.

SPT 130 • Introduction to Theatre
3 credits
An introductory survey course of theatre from its earliest known beginnings to the present day. Students are exposed to drama from a variety of historical and ethnic backgrounds. The course focuses on the aesthetic and humanistic aspects of theatre within historical and contemporary contexts. Prerequisite: Satisfactory placement. Three lecture.

SPT 140 • Principles of Drama
3 credits
Focuses on the analysis of structural elements of major dramatic forms and styles and how they inform interpretive decisions related to theatrical production. Emphasis on studying representative plays, ranging from the classical to contemporary eras. Prerequisite: Satisfactory placement. Three lecture.

SPT 150 • Introduction to Film
3 credits
Introduction to the history, ideology and aesthetics of film, film theory and film criticism. Prerequisite: Satisfactory placement. Three lecture.

SPT 155 • History of Television
3 credits
Historic evolution of American television programming from the late 1940s to the present. Examines the economic, political, social and cultural influence of television in American society. Prerequisite: Satisfactory placement. Three lecture.

SPT 170 • Introduction to Acting
3 credits
Background in the theatre, and a variety of approaches to acting. Identification and preparation of a role. How to begin a characterization and how to act with other characters on stage. Basic work done with voice and movement. Two lecture; two lab.

SPT 171 • Intermediate Acting
3 credits
Continuation of acting training, utilizing performances in scenes and full-length plays. Stresses character development and acting styles. Prerequisite: SPT 170 or instructor permission. Two lecture; two lab.

SPT 175 • Theatre Dance
1 credit
Basic movement styles and dance terminology for students wishing to participate in musical theatre or dance productions. Includes anatomy study and some dance history. Two lab.

SPT 178 • Stage Makeup
3 credits
Focuses on the essentials of stage makeup, including straight, character and special types of makeup. The effects of stage lighting on makeup are also examined. Possible opportunities for production experience, where students apply the techniques learned in the course on actors cast in NPC drama or musical productions. Two lecture; two lab.

SPT 180 • Introduction to Stage Lighting
3 credits
Emphasizes play script analysis in association with lighting color and angle theory. Course includes basic design communication tools such as drafting. Lab is based on developing color, intensity, texture and beam angle in association with mood and place context of a play. Two lecture; two lab.

SPT 185 • Introduction to Scene Design
3 credits
Emphasizes analysis of a play script subject to the development of stage scenery, developing drafting and drawing skills necessary to effectively communicate as a designer and skills necessary to construct a working model for a play script. Two lecture; two lab.

SPT 190 Introduction to Costume Design
3 credits
Basic principles of costume design and construction and a survey of selected historical periods. Students develop drawing skills necessary to effectively communicate as a designer and complete a costume design project as part of a production experience. Two lecture; two lab.

SPT 200 • Play Production I
3 credits
Techniques and materials used in theatrical production. Directing, acting, lighting, stagecraft, makeup, costume and management. Emphasis placed on performance of a play for an audience. Six lab.

SPT 201 • Play Production II
3 credits
Continuation of Play Production I, students are assigned roles and/ or positions on technical committees. Additional focus placed on the function of directing, character analysis and technical theatre. Emphasis on performance of a play or musical for an audience. Prerequisite: SPT 200 or instructor permission. Six lab.

SPT 210 • Intermediate Public Speaking
3 credits
Emphasis on in-depth study of communication theory, introduction to argumentation and debate, and the organization, preparation and delivery of a variety of speech types. Prerequisite: SPT 120 or instructor permission. Three lecture.

Northland Pioneer College 2017 – 2018 Catalog
Also available online at www.npc.edu/college-catalog

Course Descriptions 161
SPT 220 • Technical Theatre
3 credits
The study and utilization of design and construction techniques for theatre. Includes the areas of lighting design and wiring, scenery design and construction, costume design and construction and stage management. Two lecture; two lab.

SPT 230 • Video Production
3 credits
Study and practice of basic principles and techniques of video production: audio, lighting, camera, video recording, graphics and sets, producing, directing and field production. Two lecture; two lab.

SPT 240 • Video Editing
3 credits
Introduction to the theories, history and practices of editing. Students will work with nonlinear video editing stations to gain experience editing and learning the concepts, procedures and challenges of this art form. Two lecture; two lab.

SPT 251 • Teaching Theatre for Youth
3 credits
Provides students educational theory on learning styles, insight into theatrical games and activities designed for children to help them practice basic theatre performance and technical activities, including acting, singing, dancing and technical theatre areas such as set building, makeup and costumes. Two lecture; two lab.

SPT 252 • Playwriting
3 credits
Introduction to playwriting. Emphasis placed on composition of action, plot development and character development. Students write a series of short scripts. Two lecture; two lab.

SPT 265 • Directing
3 credits
Basic principles and techniques of stage direction: play selection, play analysis, stage composition and design, casting, blocking and business, technical coordination, rehearsal and final production. Direction of scenes or one-act required. Prerequisite: SPT 200, SPT 220 or instructor permission. Two lecture; two lab.

Welding (WLD)

WLD 100 • Safety and Math
2 credits
Introduces trainees to principles and procedures needed to work safely in the construction environment and includes common safety equipment with procedures for inspection and use. Two lecture.

WLD 130 • Metal Art
3 credits
Introduction to various forms of metal artwork techniques including basic blacksmith forging, scrollwork, bending, forming of sheet metal into armour and other implements. Also features elements of armour and weapons history by touching on the styles found in different countries. One lecture; four lab.

WLD 131 • Metal Armour Fabrication
3 credits
Skills enhancement in various forms of metal artwork techniques, specifically chassing, engraving, etching and beginning inlay work (soldering style inlay and puzzle style inlay). Skills are applied to brass, copper, steel or iron. Objective is the practice of shaping and forming of steel armour. Student will build a set of armour and enhance its surface with inlaying techniques. Prerequisite: WLD 130. One lecture; four lab.

WLD 134 • Fundamentals of Plastic Welding
3 credits
Fundamentals of plastic welding introduces theories pertaining to: thermoplastics welding techniques, plastic identification processes, fusion welding, chemical welding processes and thermoset plastics. Prerequisite: WLD 100 or CON 100 or CON 107 or ATO 103 or instructor permission. Three lecture.

WLD 150 • Symbols, Drawings/Metal Preparation
2 credits
Teaches welding trainees how to read and interpret AWS standard welding symbols and welding detail drawings, as well as how to prepare base metal joints for welding. Co-requisite: WLD 150. Two lecture.

WLD 151 • Cutting Process and Welding Quality
3 credits
Introduces welding trainees to oxy-fuel cutting (OFC), plasma arc cutting (PAC) and carbon arc cutting (CAC). Teaches student to understand and apply weld quality principles. Co-requisite: WLD 100. One lecture; three lab.

WLD 152 • SMAW Plate I
3 credits
Students are introduced to shielded metal arc welding and its equipment setup; shielded metal arc welding electrodes and considerations for electrode selection; shielded metal arc welding beads and fillet welds using only shielded metal arc welding technology. Co-requisite: WLD 100. One lecture; three lab.

WLD 153 • SMAW Plate II
3 credits
Introduces welding trainees to shielded metal arc welding groove welds with backing and their manufacture using shielded metal arc welding equipment. Prerequisite: WLD 152; Co-requisite: WLD 100. One lecture; three lab.

WLD 154 • GMAW Plate
3 credits
Introduces welding trainees to: gas metal arc welding (GMAW) equipment and filler metals; gas metal arc plate and the fabrication of quality GMAW fillet welds in plate in all positions; flux core arc welding (FCAW) equipment and filler metals; and the manufacture of quality FCAW fillet and groove welds using flux core arc welding. Co-requisite: WLD 100. One lecture; three lab.

WLD 155 • GTAW Plate
3 credits
Introduces welding trainee to gas tungsten arc welding (GTAW) equipment and filler metals and the fabrication of quality groove welds in mild steel plates with the GTAW process. Co-requisite: WLD 100. One lecture; three lab.
WLD 156 • AWS Level I Certification Preparation
2 credits
Prepares student to meet the American Welding Society (AWS) Level I Entry Level Welder requirements that are more comprehensive than the NPC general welding curriculum. When linked with WLD 157, prepares student to sit for the nine-part AWS national certification exam. Prerequisites: All Level I courses, or instructor permission; Co-requisite: WLD 100. One-half lecture; three lab.

WLD 157 • AWS Level I Certification (Entry Level Welder)
4 credits
Prepares student to test for final certification requirements as an American Welding Society Entry Level Welder (Level I) by performing the same nine-part series of workmanship qualification examinations required by the AWS EG2.0. Prerequisites: All Level I courses including WLD 156, or instructor permission; Co-requisite: WLD 100. One lecture, six lab.

WLD 170 • Metal Preparation, Quality and Alignment
2 credits
The student will be exposed to welding quality control methods, metal preparation techniques and alignment. Additionally, fitting and welding base metal joints. Co-requisite: WLD 100 or instructor permission. Two lecture.

WLD 171 • Welding Cutting Processes
2 credits
Students are introduced to oxy-fuel cutting (OFC), plasma arc cutting (PAC), and carbon arc cutting (CAC). Co-requisite: WLD 100 or instructor permission. Two lecture.

WLD 172 • SMAW ARC
3 credits
The student is introduced to: shielded metal arc welding (SMAW) and its equipment setup; shielded metal arc welding beads and filler welds using only shielded metal arc welding technology. Co-requisite: WLD 100 or instructor permission. Half lecture; five lab.

WLD 173 • SMAW Open Root Plate
2 credits
Students are introduced to shielded metal arc welding, open V-Groove welds using appropriate equipment, advanced training in the fabrication of out of position welding (using shielded metal arc welding), and open V-Groove welds using appropriate equipment. Co-requisite: WLD 100 and WLD 172 or instructor permission. Half lecture; three lab.

WLD 174 • SMAW V-Groove with Backing
2 credits
Shielded metal arc welding groove welds with backing and their manufacture uses and the use of shielded metal arc welding equipment. Co-requisite: WLD 100 and WLD 172 or instructor permission. One lecture; two lab.

WLD 175 • GMAW Plate
3 credits
An introduction to: gas metal arc welding (GMAW) equipment and filler metals; gas metal arc plate and the fabrication of GMAW fillet welds on plate in all positions. Co-requisite: WLD 100 or instructor permission. Two lecture; two lab.

WLD 176 • FCAW Plate
3 credits
An introduction to: flux cored arc welding (FCAW) equipment and filler metals and the fabrication of FCAW fillet welds and groove welds using the flux cored arc welding process. Co-requisite: WLD 100 or instructor permission. Two lecture; two lab.

WLD 177 • GTAW (TIG) Plate
3 credits
A comprehensive study of gas tungsten arc welding (GTAW) equipment and filler metals and the fabrication of groove welds in mild steel plate with the GTAW process. Co-requisite: WLD 100. One lecture; four lab.

WLD 178 • Metallurgy, Drawing, and Symbols
2 credits
The student is introduced to physical characteristics and mechanical properties of metal. Additionally, pre-heating and post-heating weld heat treatment requirements as related to specific base metal types are explored. Students are introduced to weld detail drawing and welding symbols. Co-requisites: WLD 100 and WLD 170 or instructor permission. Two lecture.

WLD 179 • AWS Prep
2 credits
Prepares the student to meet the requirements of the AWS Level I Entry Level Welder, requirements more comprehensive than the NPC general welding curriculum. When linked with WLD 200, WLD 179 prepares the student to sit for the nine-part AWS national certification exam. Prerequisite: Level I & II Certificate of Proficiency or instructor permission. Half lecture; three lab.

WLD 200 • AWS Certification
4 credits
This is the final certification requirement as an American Welding Society Entry Level Welder (Level I). Successful completion of this course earns the student the AWS Entry Level Welder certification as required by AWS EG2.0. Prerequisite: All welding 100-level courses in the Level I and II Certificates of Proficiency or instructor permission. Three lecture; two lab.

WLD 240 • Introduction to Plastics
2 credits
Introduces student to types and characteristics of common thermoplastics. One lecture; two lab.

WLD 241 • Plastic Welding
2 credits
Covers construction and components of the hot air welder, techniques for plastic welding, use of welding tips and air compressor and heat settings. Co-requisite: WLD 240. One lecture; two lab.

WLD 242 • Fabrication of Plastics
2 credits
Instruction in how to construct products from sheet plastics; use of tools for cutting, shaping and finishing. Co-requisite: WLD 240, WLD 241. One lecture; two lab.

WLD 243 • Pipe Fitting for Plastic
2 credits
Focus on coping pipe and flange welding. How to level pipe on pipe stands, find center and attach flanges using two-hole pins, square, level and hot air welder. Also instruction in use of math formulas to make cope templates, cut-outs with jigsaw and weld pieces to form usable fittings. Co-requisites: WLD 240, WLD 241, WLD 242. One lecture; two lab.
WLD 260 • Weld Fit-Up/Inspection/Metallurgy
2 credits
Introduction to joint fit up and alignment using equipment associated with shielded metal arc welding; air carbon arc cutting and gouging; physical characteristics and mechanical properties of metal, especially as related to base metals and affect weld quality; and weld quality theory. Co-requisite: WLD 100. One lecture; one lab.

WLD 261 • SMAW Open V-Butts/Plate I
3 credits
Introduces welding trainees to shielded metal arc welding open V-butt welds using appropriate equipment. Prerequisite: WLD 152; Co-requisite: WLD 100. One lecture; three lab.

WLD 262 • SMAW Open V-Butts/Plate II
3 credits
Course offers welding trainees advanced training in the manufacture of acceptable open V-butt welds using shielded arc welding equipment. Prerequisites: WLD 152, WLD 153 and WLD 261; Co-requisite: WLD 100. One lecture; three lab.

WLD 263 • SMAW Open Root/Pipe I
3 credits
Introduces the welding trainee to gas tungsten arc welding open root pipe welds in the vertical and 45-degree inclined position using SMAW equipment. Prerequisites: WLD 152, WLD 153, WLD 261 and WLD 262; Co-requisite: WLD 100. One lecture; four lab.

WLD 264 • SMAW Open Root/Pipe II
3 credits
Advanced training for the welding trainee in the manufacture of open root pipe welds in the vertical and 45-degree inclined position using SMAW technology. Prerequisites: WLD 152, WLD 153, WLD 261, WLD 262 and WLD 263; Co-requisite: WLD 100. One lecture; four lab.

WLD 265 • GMAW Pipe
3 credits
Introduces the welding trainee to gas metal arc welding pipe and the installation of quality GMAW V-groove welds in pipe; GMAW equipment and filler metals; and flux cored arc welding of pipe and the manufacture of quality FCAW open root V-groove welds in pipe. Prerequisites: WLD 152; Co-requisite: WLD 100. One lecture; three lab.

WLD 266 • FCAW Pipe
3 credits
Introduces the welding trainee to GMAW equipment and filler metals and the manufacture of quality FCAW open root V-grooves. Prerequisite: WLD 154; Co-requisite: WLD 100. One lecture; three lab.

WLD 267 • GTAW Pipe I
3 credits
Introduces the welding trainee to the GTAW (gas tungsten arc welding) process of installing quality open root V-groove welds on stainless steel pipe; using GTAW equipment and filler metals; and manufacturing quality open root V-groove welds on low alloy steel pipe with the GTAW process. Prerequisite: WLD 155; Co-requisite: WLD 100. One lecture; three lab.

WLD 268 • GTAW Pipe II
3 credits
Advanced training in the use of GTAW technology and introduction of the process of installing quality open root V-groove welds in carbon steel pipe with the GTAW process. Prerequisites: WLD 155 and WLD 267; Co-requisite: WLD 100. One lecture; three lab.

WLD 280 • GMAW (MIG) Pipe
3 credits
Introduces the student to gas metal arc welding pipe along with GMAW equipment and filler metals appropriate for the fabrication of pipe welded joints. Co-requisites: WLD 100 and WLD 175 or instructor permission. Two lecture; two lab.

WLD 281 • FCAW Pipe
3 credits
Introduces the student to flux cored arc welding pipe along with FCAW equipment and filler metals appropriate for the fabrication of pipe welded joints. Co-requisites: WLD 100 and WLD 176 or instructor permission. Two lecture; two lab.

WLD 282 • GTAW CS Pipe
3 credits
Introduces the student to gas tungsten arc welding open root pipe along with GTAW equipment and filler metals appropriate for the fabrication of carbon steel pipe welded joints. Co-requisites: WLD 100 and WLD 177 or instructor permission. One lecture; four lab.

WLD 283 • GTAW LA and SS Pipe
3 credits
Introduces the student to gas tungsten arc welding open root pipe along with GTAW equipment and filler metals appropriate for the fabrication of stainless steel and low alloy pipe welded joints. Co-requisites: WLD 100 and WLD 177 or instructor permission. One lecture; four lab.

WLD 284 • SMAW CS Pipe
3 credits
The performance of open root pipe welds in the 1G, 2G, and 5G positions using shielding metal arc welding is explored. Specifically, fast freeze electrodes for the root pass and low hydrogen electrodes for the fill and cover passes will be covered. Co-requisites: WLD 100 and WLD 177 or instructor permission. One-half lecture; five lab.

WLD 288 • Advanced Topics in Welding: Aluminum
6 credits
Instruction in how to weld one of the most difficult alloys: Aluminum. Learning the set up of GMAW and GTAW equipment for welding aluminum plate and pipe. Trainees clean and prepare coupons for welding; avoiding problems often encountered in aluminum welding processes. Prerequisite: All courses in Welding Certificates of Proficiency Levels I, II, and III or instructor permission. Two lecture; eight lab.

WLD 290 • Welding Fabrication
3 credits
For advanced students to continue training in welding. Students complete a project from blueprint to final product. Prerequisite: Permission of instructor. One lecture; three lab.

WLD 291 • Internship for Welding
2 credits
Internship course designed to accompany any WLD course to learn the fundamentals of welding, fabrication and cutting through on-the-job-training as an intern with a local contractor. The course emphasizes techniques and use of basic tools in performing welding related work and includes physical demonstrations of safety requirement. Students must schedule job hours with a designated contractor for an average minimum of 10 hours per week. Prerequisite: WLD 100 and instructor permission.
Workshops and Special Project Courses

The following list of courses are available and applicable in every departmental area and may carry the departmental prefix. Such courses are not described in the preceding Course Description section since their descriptions (below) are the same for all similarly numbered courses.

198 • Internship
1 to 16 cr.
An on-the-job training program for students to earn college credit for learning achieved on the job. Learning is demonstrated through student completion of employer, student (employee) and NPC instructor-approved written learning objectives relating to the student’s job, career goals and academic major.

099/199 • Workshop
0.5 to 6 cr.
Courses designed to meet the common interests and problems of a group of students. Course topics vary according to the needs of students involved.

298 • Portfolio
1 to 3 cr.
Supervised special project in field of study designed for application to professional/technical and academic studies. Students participate in an in-depth, critical evaluation of their own work as it relates to competencies developed during their program. Development of a portfolio of individual performance consisting of assessment and examples demonstrating success in communication, problem solving, decision making and technical competencies.

299 • Special Topics
0.5 to 4 cr.
A course designed to meet the needs of an individual student who has an interest in a specific topic. This course is especially applicable to the occupational student who wants specialized training.