These course descriptions include those most commonly taught at Bluegrass Community and Technical College. This is not an exhaustive list. Should you require more information, or need a description for a course not listed here, please refer to the Kentucky Community and Technical College System catalog at www.kctcs.edu. Items in brackets [ ] denote BCTC explanations.

A&S 100 Special Introductory Course Title TBA
(1-6)
This course permits the offering at the introductory level of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Dean of the College of Arts and Sciences. A particular title may be offered at most twice under the A&S 100 number. Students may not repeat under the same title. May be repeated to a maximum of 12 credits. Prerequisite: Will be set by instructor.

AAS 260 African-American History to 1865 (3)
A study of the Black experience in America through the Civil War. An examination of the African heritage, slavery, and the growth of the Black institutions. (Same as HIS 260.)

AAS 261 African-American History 1865-Present
(3)
This course traces the Black experience from Reconstruction to the Civil Rights Movement of the 1960’s. The rise of segregation and the ghetto and aspects of race relations are examined. (Same as HIS 261.)

AAS 264 Major Black Writers (3)
A cross-cultural and historical approach to written and oral works by major Black authors of Africa, the Caribbean and the United States. The course includes writers such as Chinua Achebe (Africa), Wilson Harris (Caribbean), and Toni Morrison (USA). (Same as ENG 264.)

ABR 100 Introduction to Auto Body Repair (3)
This course introduces the student to safety, sanding, grinding, pulling, roughing and filling; the use of tools and equipment; and preparing and priming automotive panels through lectures and demonstrations.

ABR 130 Non-Structural Analysis and Damage Repair (9)
This course gives instruction and provides practical experience in replacing and alignment of bolts on automotive parts such as doors, hoods and fenders; as well as instruction on the repair and replacement of nonstructural weld-on automotive panels by aligning, welding, cutting and drilling through demonstrations and lectures. It will be taught by demonstration and hands-on practice. The skills required are most effectively taught and practiced on live work. The exact content will be influenced by the live work available.

ABR 131 Non-Structural Analysis and Damage Repair Lab (4)
This course is the lab associated with ABR 130 and provides practical experience in replacing and alignment of bolts on automotive parts such as doors, hood, and fenders; as well as instruction on the repair and replacement of non-structural weld-on automotive panels by aligning, welding, cutting and drilling through demonstrations and lectures. It will be taught by demonstration and hands-on practice. The skills required are most effectively taught and practiced on live work. The exact content will be influenced by the live work available. Prerequisites: ABR 130 or concurrent enrollment.

ABR 150 Painting and Refinishing (9)
This course provides instruction in the use of lacquer, acrylic enamel and base coat/clear coat refinishing products, masking procedures, preparations and paint problems. It will be taught by demonstration and lecture. The auto and/or autos being used for live work will determine the exact course content.

ABR 151 Painting and Refinishing Lab (4)
This course is the lab for ABR 150 and provides instruction in the use of lacquer, acrylic enamel, and base coat/clear coat refinishing products, masking procedures, preparations and paint problems. It will be taught by demonstration and lecture. The auto and/or autos being used for live work will determine exact content. Prerequisites: ABR 150 or concurrent enrollment.

ABR 198 Practicum (1-8)
The practicum provides supervised on-the-job work
experience related to the students’ educational objectives. Students participating in the practicum do not receive compensation. May be taken for 1-8 credits. Prerequisite: Permission of instructor.

**ABR 199 Cooperative Education (1)**
Co-op provides supervised on-the-job work experience related to the students’ educational objectives. Students participating in the Co-op Education program receive compensation for their work. May be taken for 1-8 credits. Prerequisite: Permission of the instructor.

**ABR 200 Plastics and Adhesives (3)**
This course provides instruction on how to repair plastic, fiberglass, SMC and flexible automobile parts. It will be taught by lecture and demonstration. Prerequisite: Permission of instructor.

**ABR 230 Structural Analysis and Damage Repair (9)**
This course presents instruction on the analysis, repair and replacement of structural panels on unibody automobiles and body and frame alignment on unibody and frame cars. It will be taught by demonstration and lecture.

**ABR 231 Structural Analysis and Damage Repair Lab (4)**
This course is the lab component and presents instruction on the analysis, repair and replacement of structural panels on unibody automobiles and body and frame alignment on unibody and frame cars. It will be taught through demonstration and hands-on experience. Prerequisites: ABR 230 or concurrent enrollment.

**ABR 250 Mechanical and Electrical Components (9)**
This course provides instruction in the diagnosis, repair and/or replacement of suspension, steering, electrical, brake, drive train, fuel, exhaust, and restraint systems. The theories and concepts of heating and air conditioning systems will also be discussed and demonstrated. It will be taught by demonstration and lecture and involve live work on automobiles. Prerequisite: Consent of instructor.

**ABR 251 Mechanical and Electrical Components Lab (2)**
This course is the lab for ABR 250 and provides instruction in the diagnosis, repair and replacement of suspension, steering, electrical, brake, drive train, fuel, exhaust and restraint systems. The theories and concepts of heating and air conditioning systems will also be discussed and demonstrated. It will be taught by demonstration and lecture and involve live work on automobiles. Prerequisites: ABR 250 or concurrent enrollment.

**ABR 291 Special Projects I (3)**
This course will be designed for students to satisfactorily complete collision repair tasks or to enhance their skills in the occupational area. Prerequisite: Permission of the instructor.

**ABR 293 Special Projects II (2)**
This course will be designed for students to satisfactorily complete collision repair tasks to enhance their skills in the occupational area. Prerequisite: Permission of the instructor.

**ABR 295 Special Projects III (3)**
This course will be designed for students to satisfactorily complete collision repair tasks to enhance their skills in the occupational area. Prerequisite: Permission of the instructor.

**ABB 298 Practicum (2)**
The practicum provides supervised on-the-job work experience related to the students’ educational objectives. Students participating in the practicum do not receive compensation. Prerequisite: Permission of the instructor.

**ABB 299 Cooperative Education (2)**
Co-op provides supervised on-the-job work experience related to the students’ educational objectives. Students participating in the Co-op Education program receive compensation for their work. Prerequisite: Permission of the instructor.

**ACC 201 Financial Accounting I (3)**
This course is designed to provide an introduction to financial accounting from the users’ perspectives. Its primary purposes are to promote understanding of financial accounting information for decision-making purposes and to focus on financial accounting’s role in communicating business results. Prerequisite: Sophomore standing.

**ACC 202 Managerial Uses of Accounting Information (3)**
An introduction to the use of accounting data within an organization to analyze and solve problems and to make planning and control decisions. This course is designed for non-accounting majors. Prerequisites: ACC 201 or BE 161 and BE 162.

**ACC 211 Financial Accounting Lab (1)**
A laboratory-based approach to introductory financial accounting applications, with the primary focus on
the accounting cycle. The primary objective is to promote an understanding of how accounting information is identified, recorded, and processed for financial reporting. Prerequisite: ACC 201. Enrollment priority will be given to accounting and finance majors.

ACH 100 Construction Documents I (3)
This is the first course of a four-semester studio sequence. Proper methods and fundamentals of architectural construction documents and residential construction will be introduced. Drafting conventions utilizing basic hand drafting tools and computer-aided drawing techniques will be studied.

ACH 110 Survey of the Architectural Profession (1)
In this course, the student will gain an understanding of the language of architecture and develop an appreciation for building design strategies through direct analysis. In addition, various career opportunities in architecture and related professions will be explored.

ACH 120 Theory and History of Architecture I (3)
The development of architecture as it is related to world culture with an emphasis on design, structure, materials, eco-social, and political factors are considered.

ACH 150 Construction Documents II (3)
This is the second course of a four-semester studio sequence. Students develop architectural construction documents for multi-level framed construction. Students will further develop an understanding of programming, schematics, design development, and construction document production using current computer-aided technology. Emphasis will be placed on building codes and related discipline coordination. Prerequisites: ACH 100 or consent of instructor.

ACH 160 Building Materials and Construction I (3)
The essentials of the theory of selected building materials (Construction Specifications Institute, Divisions 2-7) and their assembly in appropriate systems are presented with particular attention to component selection and behavior under various loads, climatic conditions and fire.

ACH 170 Theory and History of Architecture II (3)
A survey of the architectural periods from the neo-classic to the present is presented. This course is a continuation of ACH 120.

ACH 175 Introduction to Systems (3)
An overview of the various systems found in buildings and the influences that shape architectural design and construction is presented.

ACH 180 Selected Topics in Architectural Technology (Topic) (1-3)
The subject matter of this course may vary from semester to semester as new technology is developed and new issues evolve and/or to address local architectural issues. This course may be repeated with different topics to a maximum of six credit hours. Prerequisites: Consent of instructor.

ACH 195 Computer-Aided Drafting I (3)
Students learn how computer hardware and software are used in preparing architectural documents.

ACH 194 Visual Composition (3)
In this course, the student will study the aesthetic principles found in both two-dimensional and three-dimensional compositions. These principles will be applied in exercises involving drawing, model construction and creative writing.

ACH 200 Construction Documents III (3)
This is the third course of a four-semester studio sequence. Students study the methods by which commercial buildings are designed and constructed. Basic skills are developed relating to the implementation of determinants in this process such as program analysis, applicable codes, construction methods and materials as well as computer applications. Through the completion of a series of structured projects including the preparation of a set of architectural construction documents for a medium-sized building, students apply the knowledge necessary to achieve these goals. Prerequisites: ACH 150 and ACH 195, or consent of instructor.

ACH 225 Structures (3)
Students study structural materials and systems including the design of simple structural components. Prerequisites: ACH 175 and MAH 115, or consent of instructor.
ACH 250 Construction Documents IV (3)
This is the fourth course of a four-semester studio sequence. Students prepare a set of advanced construction documents using current computer-aided drafting techniques. Emphasis will be placed on design principles and site development for a commercial construction project. Prerequisites: ACH 200 or consent of instructor.

ACH 260 Office Practice (3)
This course is intended to serve as a capstone course in the Architectural Technology program. Emphasis is placed on preparing students for the workplace by focusing on the professional, legal, and business aspects of the architectural and construction industries. Case studies are reviewed and projects are prepared by students with the goal of introducing them to a broader set of circumstances that affect how decisions are made in the practice of architecture. Prerequisites: ACH 110 and ACH 200 or equivalent.

ACH 275 Mechanical and Electrical Systems (3)
Students engage in a qualitative and quantitative study of environmental control systems used in buildings. Prerequisites: ACH 175 and MAH 115, or consent of instructor.

ACH 295 Computer–Aided Drafting II (3)
Students learn how to modify selected computer aided drafting software to enhance construction document production. Integration of other software will also be discussed. Prerequisites: ACH 195 or consent of instructor.

ACH 290 Building Codes I (3)
Students will analyze the content and format of current building codes. The necessity for building codes, problems in interpretation and application as well as legal aspects will be discussed. The main objective is to familiarize students with the basic provisions and procedures associated with building code administration. Prerequisites: ACH 150 and ACH 160, or consent of instructor.

ACH 291 Construction Management (3)
Students examine the principles and current practices of construction management with emphasis on project organization, scheduling and cost control. Prerequisites: ACH 150, ACH 160 and ACH 161, or consent of instructor.

ACH 292 Building Codes II (3)
This course will be continuation of ACH 290, Building Codes I, with a more in-depth study of current building codes. Prerequisites: ACH 290 or consent of instructor.

ACH 293 Presentation Techniques (3)
Students will explore a variety of presentation and rendering techniques used in the architectural profession. Design skills and the understanding of spatial relationships will be further developed. Prerequisites: ACH 100 or consent of instructor.

ACH 294 Specification Writing (3)
This course provides an in-depth study of the importance of specifications in the design and construction process. Students will engage in research, evaluate the quality of building materials, study the methods of writing specifications, and gain exposure to industry standard software in preparing a variety of specifications. Prerequisites: ACH 150, ACH 160, ACH 161, or consent of instructor.

ACH 297 Estimating Techniques (3)
Students investigate the factors affecting the cost of construction, labor productivity, materials, overhead and profit, including area and volume computations. Current methods of cost estimating will be applied. Prerequisite: ACH 150 and MAH 115; or consent of instructor.

ACH 298 Computer 3D Modeling (3)
Students learn how computer hardware and software are used in preparing 3D architectural drawings and client-oriented presentations. Prerequisites: ACH 150 and ACH 195 or consent of instructor.

ACR 100 Refrigeration Fundamentals (3)
Introduces the fundamentals of refrigeration, refrigeration terms and the basic refrigeration cycle. Proper use of tools, test equipment, and materials is stressed. Environmental issues including refrigerant handling are discussed. Refrigerant piping and methods used to join them are taught. General and specific safety is emphasized. Co-requisite: ACR 101.

ACR 101 Refrigeration Fundamentals Lab (2)
Develops proper hands-on techniques in the servicing and troubleshooting of basic systems. Proper use and care of tools, equipment, and materials is stressed. Enhances the skills and working knowledge of tubing, fitting, brazing and soldering. Safety will be emphasized. Co-requisite: ACR 100.

ACR 102 HVAC Electricity (3)
This course introduces students to the basic physics of electricity. Students apply Ohm’s law; measure resistance, voltage, ohms, watts and amps; construct
various types of electrical circuits; select wire and fuse sizes; and learn to troubleshoot an electric motor and motor controls.

**ACR 103 HVAC Electricity Lab (1)**
Introduces students to the basic physics of electricity. Students apply Ohm’s law; measure resistance, voltage, ohms, watts and amps; construct various types of electrical circuits; select wire and fuse sizes; and learn to troubleshoot an electric motor and motor controls. Co-requisite: ACR 102.

**ACR 112 Sheet Metal Fabrication (3)**
The student will learn to make patterns and lay out and construct common sheet metal duct fittings. Co-requisite: ACR 113.

**ACR 113 Sheet Metal Fabrication Lab (2)**
The student will lay out, cut, construct and install common sheet metal duct fittings. Co-requisite: ACR 112.

**ACR 130 Electrical Components (3)**
Defines the electrical components of an air conditioning system. Different types of line voltages, wiring diagrams and solid state devices are included. Safety is emphasized. Prerequisites: ACR 102. Co-requisite: ACR 131.

**ACR 131 Electrical Components Lab (2)**
In the laboratory, students practice using the different types of line voltages, reading wiring diagrams and using solid state devices. Safety is emphasized. Prerequisite: ACR 102. Co-requisite: ACR 130.

**ACR 170 Heat Load/Duct Design (3)**
Introduces the fundamentals needed to calculate heat gain and heat loss, thereby determining air conditioner/furnace size. This information will be used to calculate the correct duct size. Procedures to lay out a duct system as outlined in ACCA MANUAL D are presented.

**ACR 198 Practicum (2)**
Practicum provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in Practicum do not receive compensation. Prerequisite: Permission of the instructor.

**ACR 199 Cooperative Education Program (2)**
Co-op provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Cooperative Education program receive compensation for their work. Prerequisite: Permission of the instructor.

**ACT 101 Fundamentals of Accounting I (3)**
Students are introduced to accounting terminology and general theoretical principles. The major focus of the course is on the accounting cycle and the communication of financial information to decision-makers.

**ACT 102 Fundamentals of Accounting II (3)**
Basic financial accounting concepts and methods are expanded to include accounting for partnerships and corporations.

**ACT 279 Computerized Accounting Systems (3)**
Accounting concepts and principles are applied using computerized accounting systems.

**ADFT 130 Introduction to Architecture (4)**
Provides a practical approach to architectural drafting. An introduction to board and computer aided drafting as it relates to residential and commercial architecture, specifications, and structural systems including wood, masonry, concrete, and steel. Prerequisites: DFT 122 with a grade of “C” or better or approval of program coordinator.

**ADFT 230 Construction Techniques (4)**
Covers the elements for constructing standard residential and commercial structures. Essentials of standard construction details, which illustrate the various construction methods involved in wood frame, solid masonry, masonry veneer, concrete, and steel construction, and develop a portfolio for those techniques. Prerequisites: ADFT 130 with a grade of “C” or better or approval of program coordinator.

**ADFT 240 Architectural Design (4)**
Combines the elements and fundamentals of architectural design with the theory and application of presentation techniques. Deals with site selection, use of materials in design, spatial relationships, and aesthetics. Traditional and contemporary design, designers, processes, and historical milestones are explored. Board and computer techniques are used in illustrating interiors and exteriors of student designs. Prerequisites: ADFT 130 with a grade of “C” or better or approval of program coordinator.

**ADFT 252 Commercial Detailing (4)**
Introduces the student to the theory applied to commercial drafting. Explores building codes, building structure, materials, and structural drawing and detailing. Emphasizes calculations to determine appropriate steel members. Prerequisites: DFT 230 with a grade of “C” or better or approval of program coordinator.
ADFT 262 Working Drawings (4)
Uses combination of the fundamentals of building construction with the technology to prepare a working drawing portfolio. Pre-requisites: ADFT 230 with a grade of “C” or better or approval of program coordinator.

ADX 120 Basic Automotive Electricity (3)
Introduces principles, theories, and concepts of the automotive electrical system that include the unique diagramming, coding and locating of wiring, and component devices.

ADX 121 Basic Automotive Electricity Lab (2)
Provides practical experiences and applications relating to concepts, principles, and theories covered in Basic Automotive Electricity, ADX 120. May provide a work-study experience alternating between periods of work off campus and work in a classroom laboratory setting.

ADX 150 Engine Repair (3)
Provides a series of lectures and demonstrations on the fundamentals of engine repair, troubleshooting, and engine operation and maintenance.

ADX 151 Engine Repair Lab (2)
Provides practical experiences and applications relating to engine repair, inspection, trouble shooting and maintenance. May provide a work-study experience alternating between periods of work off campus and work in a classroom laboratory setting.

ADX 170 Climate Control (3)
Introduces the theory and operation of heating and air conditioning systems, air conditioning terminology, and servicing and troubleshooting mechanical and electrical circuits of heating and air conditioning systems.

ADX 171 Climate Control Lab (1)
Provides opportunities to trouble shoot, repair and perform maintenance on heating and air conditioning systems. Provides experiences in safety precautions, special tool uses, component operation and servicing and troubleshooting the complete system. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

ADX 260 Electrical Systems (3)
Focuses on the theory and principles relating to automotive electrical/electronic components.

ADX 261 Electrical Systems Lab (2)
Provides practical applications and experiences related to the theory and principles of automotive electrical/electronic components. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AFS 111 Aerospace Studies I (1)
A course designed to provide the student with a basic understanding of the nature and principles of war, national power, and the Department of Defense role in the organization of national security. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership. Co-requisite: AFS 112

AFS 112 Leadership Laboratory I (1)
A course designed for development of basic skills required to be a manager, including communications, human relations, and administration of equal opportunity. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Co-requisite: AFS 111.

AFS 113 Aerospace Studies I (1)
A course designed to provide the student with a basic understanding of the contribution of aerospace power to the total U.S. strategic offensive and defensive military posture. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership. Prerequisite: AFS 111

AFS 114 Leadership Laboratory II (1)
A continuation of AFS 113. A course designed to develop managerial skills including superior/subordinate relationships, communications, customs and courtesies, basic drill movements and career progression requirements. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Co-requisite: AFS 113.

AFS 211 Aerospace Studies II (1)
Introduces the study of air power from a historical perspective; focuses on the development of air power into a primary element of national security. Leadership experience is continued through active participation in the cadet corps. Prerequisites: AFS 111, 113 or PAS approval.

AFS 212 Leadership Laboratory II (1)
A course designed for development of advanced skills required to be a manager/leader, including
AFS 213 Aerospace Studies II (1)
Provides a foundation for understanding how air power has been employed in military and non-military operations to support national objectives. Examines the changing mission of the defense establishment, with particular emphasis on the United States Air Force. Leadership experience is continued through participation in the cadet corps. Prerequisite: AFS 111, 113 or PAS approval.

AFS 214 Leadership Laboratory II (1)
A continuation of AFS 213. A course designed to develop supervisory management skills to include communications, techniques of critique, social actions, personnel evaluation procedures, problem solving, role playing and field training preparation. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Co-requisite: AFS 213.

A-H 105 Ancient Through Medieval Art (3)
Survey of the development of art and architecture with primary emphasis on cultures of Egypt, Western Asia, Greece, Rome, and medieval Europe.

A-H 106 Renaissance Through Modern Art (3)
Historical development of Western art and architecture from the 14th century through the present.

AHS 115 Medical Terminology (3)
A study of anatomical, physiological and pathological terminology with emphasis on work structures and definition of root words, suffixes, and prefixes from Greek and Latin. Additional emphasis is placed on spelling and pronunciation. Primarily designed for individuals preparing for a career in health care. No previous knowledge of Greek or Latin is required.

AHS 140 Introduction to Public and Community Health (3)
Introduces students to the management of public health emergencies. Topics include human epidemics and pandemics, agricultural and plant diseases, and emergency medicine.

AMS 101 Introduction to the Army (2)
This introductory level course is designed to give students an appreciation for the role the Army currently plays in our society. The course covers the history of the Army and the roles and relationships of the Army within our society. The course also covers some of the basic skills necessary for today’s leaders to include oral presentation, time management, map reading, basic rifle marksmanship and squad tactics.

AMS 102 Introduction to Leadership (2)
This course is designed to acquaint the student with the fundamental skills necessary to be a leader, both in military and civilian context. Course also covers basic military map reading skills.

AMS 211 Advanced Leadership I (2)
This course focuses on both theoretical and practical aspects of leadership. Students will examine topics such as written and oral communication, effective listening, assertiveness, personality, adult development, motivation, and organizational culture and change.

AMS 212 Advanced Leadership II (2)
This course focuses principally on officership, providing an extensive examination of the unique purpose, roles, and obligations of commissioned officers. It includes a detailed investigation of the origin or our institutional values and their practical application in decision making and leadership.

ANA 209 Principles of Human Anatomy (3)
The structure of the human body will be examined at various levels: cellular, tissues and organ systems. The gross anatomical arrangement of the body will be studied in a system-by-system format relating structure to function and the fundamentals of human embryology/malformation with adult anatomy. The central nervous system will be emphasized. Prerequisite: Introductory biology or zoology.

ANT 101 Introduction to Anthropology (3)
This course introduces the student to the study of human cultures, past and present. It offers a comprehensive introduction to anthropology, emphasizing the concepts and methods of the major sub-fields, i.e., cultural, biological, archaeology, and linguistics.

ANT 130 Introduction to Comparative Religion (3)
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social organization. Eastern and Western religions are considered. (Same as RS 130.)
ANT 160 Cultural Diversity in the Modern World (3)
Directed at non-majors, this course is intended to introduce the student to the diversity of human cultural experience in the contemporary world. Goals of the course include gaining an appreciation for the common humanity and uniqueness of all cultures; to gain a sensitivity toward stereotypes and ethnocentrism, and to understand the distinctions between “race,” ethnicity and racism. The course features extended descriptions of the cultural dynamics of the culture(s) with which the instructor has worked.

ANT 220 Introduction to Cultural Anthropology (3)
The study of the lifeways and beliefs of different peoples. The objectives of the course are to foster an appreciation for the variety of cultural traditions found throughout the world, and to introduce students to anthropological concepts and methods of inquiry.

ANT 221 Native People of North America (3)
A survey of the aboriginal Indian cultures of North America, and of the impact of four centuries of British, French, Spanish, and Russian contact on the Indian communities. The course will include consideration of the status of Indians in present-day North America.

ANT 240 Introduction to Archaeology (3)
Introduces the theories, techniques, and strategies used by archaeologists to recover and interpret information about past cultures.

ANT 241 Origins of Old World Civilization (3)
A survey of cultural developments in the Old World from the earliest times to the beginning stages of civilization.

ANT 242 Origins of New World Civilization (3)
Survey of the origin and growth of ancient peoples of the Americas as revealed by archaeological data.

ART 100 Introduction to Art (3)
This course is open to all students interested in an understanding and appreciation of the visual arts. The formal and expressive qualities of major art forms are examined through lectures and presentations.

ART 110 Drawing I (3)
Introduction to basic drawing skills and concepts. Projects in line, value, space and composition are among the topics that will be explored in a variety of media.

ART 210 Drawing II (3)
Advanced studio investigation of drawing techniques and concepts. Projects in line, value, composition and space will be investigated through individual development of style and expression, with extensive use of figure models.

ASL I American Sign Language I (3)
A functional-notational approach to learning beginning competency in American Sign Language (ASL). The syntax, grammar, and non-manual markers (behaviors) of ASL and cultural information will be incorporated. After an initial orientation period, no verbal communication will be used in the classroom.

ASL II American Sign Language II (3)
A functional-notational approach designed to follow SED 101 that will enhance students’ knowledge of American Sign Language and expand their understanding and appreciation of the people who use it. Prerequisite: SED 101.

ASL III American Sign Language III (3)
Emphasis is placed on practical application of ASL signing skills, development of cross-cultural communication abilities, and vocabulary expansion. Linguistic information is reviewed and additional linguistic materials are introduced. Prerequisite: SED 102.

ASL IV American Sign Language IV (3)
Continued expansion of sign vocabulary, sharpening of conversational skills including finger spelling and numbers, semantics, morphology, syntax and other ASL features applied to conversational settings. Prerequisite: SED 203.

AST 191 The Solar System (3)
A course emphasizing the nature, origin and evolution of planets, satellites and other objects in the Solar System. Topics also include historical astronomy, the naked eye phenomena of the sky and modern solar system discoveries made by spacecraft. This course may be taken independently of AST 192.

AST 192 Stars, Galaxies and the Universe (3)
A course covering the universe outside the Solar System. A principle theme is the origin and evolution of stars, galaxies and the universe at large. Topics also include black holes, quasars and the big bang model of the universe. This course may be taken independently of AST 191.
ASY 195 Introductory Astronomy Lab (1)
Students will perform exercises in both planetary and stellar astronomy, including Kepler’s Laws of Planetary Motion and Newton’s Laws of Motion. The functions and limitations of different types of telescopes and mounts will be examined. Students will observe the sun, moon, planets, binaries, galaxies, and nebulae. Prerequisites or concurrent: AST 191, MT 120 or two years of high school algebra.

AUT 110 Brake Systems (3)
Involves the operational theory and application of hydraulic and anti-lock brake systems; discusses disc and drum brakes.

AUT 111 Brake Systems Lab (2)
Develops skills in the diagnosis and repair of hydraulic and anti-lock brake systems, covering both disc and drum type braking systems. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 130 Manual Transmissions (3)
Involves an in-depth study of principles of operation, construction, and service of manual transmissions and related drive train components (differentials, clutches, u-joints, rear wheel drive and 4-wheel drive).

AUT 131 Manual Transmissions Lab (2)
Develops skills in the diagnosis and repair of manual transmissions and related drive train components (differentials, clutches, u-joints, rear wheel drive, and 4-wheel drive). May provide a work-study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 140 Basic Fuel and Ignition Systems (3)
Includes the theory, component identification, application, operation, service and repair of the basic automotive ignition, fuel, and emission systems, including related components.

AUT 141 Basic Fuel and Ignition Systems Lab (2)
Provides skills necessary to diagnose and repair the automotive basic ignition, fuel, and emission systems and related components. May provide a unique work study experience alternating between periods of work on-site and work in a classroom laboratory setting.

AUT 142 Emission Systems (3)
Presents the theory, component identification, application, operation, service and repair of advanced automotive ignition, fuel, and emission systems, including related components.

AUT 143 Emission Systems Lab (2)
Introduces skills necessary to diagnose, service and repair automotive advanced ignition, fuel, and emission systems, including related components. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 160 Suspension and Steering (3)
Covers automotive suspension system, including diagnosing of suspension problems, identifying components, recognizing tire wear problems, wheel balancing, and using alignment equipment.

AUT 161 Suspension and Steering Lab (2)
Introduces skills necessary in the diagnosis and repair of automotive suspension systems, wheel alignment, and wheel balancing. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 180 Automatic Transmissions/Transaxle (3)
Covers operating principles of rear and front wheel drive automatic transmissions and transaxles, and the testing and diagnostic process.

AUT 181 Automatic Transmission/Transaxle Lab (2)
Develops diagnostic and repair skills related to the operation of rear and front wheel automatic transmissions and transaxles. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 240 Computer Control Systems and Diagnosis (3)
Covers the comprehensive diagnostics of on-board computer control systems, including distributorless ignition systems. Presents the problem-solving process including flowchart reading.

AUT 241 Computer Control Systems and Diagnosis Lab (2)
Introduces the skills necessary to diagnose and repair drivability problems associated with on-board computer control systems. May provide a work study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 199 Cooperative Education Program (1)
Co-op provides supervised on-the-job work experience related to the student's educational
objectives. Students who participate in the Cooperative Education program receive compensation for their work.

AUT 198 Practicum (1)
The Practicum provides supervised on-the-job work experience related to the student’s educational objectives. Students who participate in the practicum do not receive compensation.

AUT 290 Special Problems I (1)
A course designed for the student who has demonstrated specific needs. The student may be provided a work-study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 291 Special Problems II (2)
A course designed for the student who has demonstrated specific needs. The student may be provided a work-study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 292 Special Problems III (3)
A course designed for the student who has demonstrated specific needs. The student may be provided a work-study experience alternating between periods of work off campus and work in a classroom laboratory setting.

AUT 298 PRACTICUM (1)
The practicum provides supervised on-the-job work experience related to the students educational objectives. Students who participate in the practicum do not receive compensation.

AUT 299 Cooperative Education Program (1)
Co-op provides supervised on-the-job work experience related to the students educational objectives. Students who participate in the Cooperative Education program receive compensation for their work.

BEX 100 Basic Electricity for Non-Majors (3)
This course introduces non-majors to the basic physics of electricity. Students apply Ohm’s law; measure resistance, voltage, ohms, watts and amps; construct various types of electrical circuits; select wire and fuse sizes; and learn to troubleshoot an electric motor and coil. Co-requisite: BEX 101.

BEX 101 Basic Electricity Lab for Non-Majors (2)
This is a hands-on class designed to allow the student to use the concepts, principles, and theories covered in BEX 100, Basic application. Electricity for non-majors. Co-requisite: BEX 100.

BIO 112 Introduction to Biology (3)
Basic study of structure, function and interactions of living organisms including cell theory, genetics, energetics, evolution and ecology.

BIO 113 Introduction to Biology Lab (1)
Basic laboratory studies of structure, function and interactions of living organisms including cell theory, genetics, energetics, evolution and ecology. Prerequisite/co-requisite: BIO 112.

BIO 118 Microbes and Society
An introduction to the science of microbiology addressing the role of microorganisms in nature and in human welfare. Contemporary topics will include infectious diseases, genetic engineering, the environment and biological warfare.

BIO 120 Human Ecology (3)
Interrelationships among humans, other organisms and the environment including principles of energy and matter, resource use, biogeochemical cycling, trophic structures, sustainability and environmental impacts by humans.

BIO 130 Aspects of Human Biology (3)
Aspects of human biology will be introduced from the molecular level to the integrated whole. Attention will be given to biological bases of various health and wellness issues.

BIO 135 Basic Anatomy and Physiology with Laboratory (4)
The fundamental structure of the human body and the physiological mechanisms involved in normal functioning are presented through lecture and student participation in laboratory activities.

BIO 137 Human Anatomy and Physiology I (4)
The interrelationship of structure and function of each body system will be presented in two semesters. The first semester will include basic chemistry, cell structure, cell physiology, metabolism, tissues, and integumentary, skeletal, muscular, and nervous systems. Prerequisites: Reading, English and Mathematics assessment exam scores above the KCTCS developmental placement level or successful completion of the prescribed developmental course(s) or consent of instructor.

BIO 139 Human Anatomy and Physiology II (4)
The second semester continues the study of the interrelationships of organ systems, including the
endocrine, reproductive, cardiovascular, lymphatic, digestive, respiratory, and urinary systems.

**Prerequisite: BIO 137**

**BIO 150 Principles of Biology I (3)**

Presents knowledge of biological principles at the cellular and molecular levels, similarities and differences in structure and function of simple and complex cells and theories on the origin and evolution of biological systems. Part one of a two semester sequence (BIO 150 and BIO 152).

Prerequisites: CHE 105 or concurrent enrollment, or consent of instructor.

**BIO 151 Principles of Biology Laboratory I (2)**

Includes studies of cellular and molecular biology.

Pre-requisite: BIO 150 or concurrent enrollment.

**BIO 152 Principles of Biology II (3)**

Presents knowledge of organismal population and community biology. Part two of a two semester sequence (BIO 150 and BIO 152).

Prerequisites: BIO 150 or consent of instructor.

**BIO 153 Principles of Biology Laboratory II (2)**

Includes organismal, population and community biology.

Prerequisite: BIO 152 or concurrent enrollment.

**BIO 154 Principles of Biology Laboratory II (2)**

Includes studies of cellular and molecular biology.

Pre-requisite: BIO 150 or concurrent enrollment.

**BIO 209 Introductory Microbiology Laboratory (2)**

Laboratory exercises in general microbiology.

Prerequisites: One unit of chemistry or consent of instructor; BIO 226 should be taken concurrently.

**BIO 226 Principles of Microbiology (3)**

Introduction to fundamental microbiological principles and techniques emphasizing structural, functional, ecological and evolutionary relationships among microorganisms.

Prerequisites: BIO 112 or consent of instructor.

**BRX 110 Basic Blueprint Reading for Machinist (2)**

Basic applied math, lines, multi-view drawings, symbols, various schematics and diagrams, dimensioning techniques, sectional views, auxiliary views, threads and fasteners, and sketching typical to all shop drawings are presented. Safety will be emphasized as an integral part of the course.

**BRX 112 Blueprint Reading for Machinist (4)**

Provides the student with a beginning and advanced series of lectures, demonstrations, and practice exercise in the study of prints. Safety will be emphasized as an integral part of this course.

**BRX 120 Basic Blueprint Reading (3)**

This course presents basic applied math, lines, multi-view drawings, symbols, various schematics and diagrams, dimensioning techniques, sectional views, auxiliary views, threads and fasteners, and sketching typical to all shop drawings. Safety will be emphasized as an integral part of the course.

**Sub-Categories of BRX 120**

**BRX 1201 Print Reading Fundamentals (1)**

This module of BRX120 presents basic applied math, lettering, lines, and multi-view drawings.

**BRX 1202 Drawing Views and Setup (1)**

This module of BRX120 presents sketching, auxiliary and sectional views, title blocks, material lists and the drawing change system.

**BRX 1203 Dimensioning and Tolerances (1)**

This module of BRX120 presents print dimensioning and tolerances and thread specifications.

**BRX 210 Mechanical Blueprint Reading (2)**

Provides the student with an advanced series of lectures, demonstrations, and practice exercises in the study of prints involving math (both decimal and metric), combination of lines, multi-view drawings, assembly drawings, fasteners, machining and construction processes, datum coordinates, numerical control prints, sheet metal prints, welding, casting and forging prints. Safety will be emphasized as an integral part of the course.

**BRX 220 Blueprint Reading for Construction (3)**

Provides a series of lectures, demonstrations, and practice exercises in the study of symbols, views, sections, details, and material lists found on architectural working drawings, building materials and specifications lists, and construction dimensioning systems and charts/schedules.

**BRX 230 Mechanical Blueprint Reading (3)**

This course provides the student with an advanced series of lectures, demonstrations, and practice exercises in the study of prints involving math (both decimal and metric), combination of lines, multiview drawings, assembly drawings, fasteners, machining and construction processes, datum coordinates, numerical control prints, sheet metal prints, welding, casting and forging prints. Safety will be emphasized as an integral part of the course.
BSL 214 Medical Microbiology (4)
The characteristics of microorganisms and their relation to health and disease are studied.
Prerequisite: BIO 137 and BIO 139, or equivalent.
[Formerly BSL 212]

BSL 295 Independent Investigation in Biology (1-3)
The investigation of a specific topic or problem in the field of the biological sciences appropriate for students at the sophomore level. May be repeated for a maximum of six credits. Laboratory varies with credit. Prerequisite: Permission of instructor.

BSL 299 Selected Topics in Biology, Subtitle required (1-3)
Recent trends and discoveries in selected areas of biology will be presented in a seminar format. Emphasis will be placed on discussion and critical thinking. May be repeated with different subtitle for a maximum of six credits. Prerequisite: Permission of instructor.

CAD 100 Introduction to Computer-Aided Design (3)
An emphasis will be placed on techniques of computer drafting; construction of straight and curved lines; orthographic and axonometric views and sections; dimensions, tolerances, and notes; as well as an introduction to the terminology associated with CAD. Basic computer operations involving move, copy, delete, and save are included, along with drawing manipulation involving translation, rotation, zooming, panning, and windowing. Prerequisites: ME 105 or ET 102 or consent of instructor.

CAD 150 Introduction to Programming CAD (3)
Students will master fundamental principles of the computer language(s) that represents and interfaces with the main CAD software being used in the Computer Aided Design Technology Program. Mastery of these principles will enable students to write subroutines and programs to perform CAD functions not presently available in the main CAD software. Prerequisites: CIS 144 or consent of instructor.

CAD 200 Intermediate Computer Aided Design (3)
Students will develop familiarity with standard symbols associated with one or more application areas. Competency will be developed in advanced techniques of drafting, including complex curves, layering, and the production of three-dimensional wire models—with and without hidden lines. The students also will learn to calculate lengths and areas associated with the drawings, and will write simple programs in an appropriate high-level language to interface with the existing CAD software. Prerequisites: CAD 100 and CAD 150 or consent of instructor; ET 105 and ET 109 or consent of instructor.

CAD 201 Advanced Computer Aided Design (4)
Students will learn to transform two-dimensional drawings into enhanced three-dimensional views. Emphasis will be placed on selecting the proper CAD equipment and software, and in using them to achieve the desired result. Detailed assembly drawings with associated views and sections will be produced. Advanced methods of performing translation, rotation, scaling, and zooming will be studied, and computer programs—both subprograms and standalone—will be written to interface with the main CAD software. Prerequisites: CAD 200 or consent of instructor.

CAR 126 Introduction to Construction Carpentry (3)
This course emphasizes the types, grades, sizes and standards of building materials including the types of fasteners and their correct uses. Students will also learn to correctly utilize and maintain commonly used hand and power tools. Safety in the lab and on the job site is stressed.

CAR 127 Introduction to Construction Carpentry Lab (1)
This course emphasizes the types, grades, sizes and standards of building materials including the types of fasteners and their correct uses. Students will also learn to correctly utilize and maintain commonly used hand and power tools. Safety in the lab and on the job site is stressed. Co-requisite: CAR 126.

CAR 140 Site Layout and Foundations (3)
Students will prepare materials, calculate the cost for a building site, and layout a site with a transit, locating property lines and corners. Students
calculate the amount of concrete needed for footing and foundation walls and construct different types of foundations and forms.

CAR 141 Site Layout and Foundations Lab (2)
Students will prepare materials, calculate the cost for a building site, and layout a site with a transit, locating property lines and corners. Students calculate the amount of concrete needed for footing and foundation walls and construct different types of foundations and forms. Co-requisite: CAR 140.

CAR 150 Construction Forms (3)
This course will introduce the student to heavy and commercial construction. The student will receive information about rigging, mall forms, vertical piers and columns, on grade curb forms, horizontal beam forms, above grade slab systems, fire proof encasement forms, stair forms, bridge and bridge deck forms.

CAR 151 Construction Forms Lab (2)
This course will introduce the student to heavy and commercial construction. The student will receive information about rigging, mall forms, vertical piers and columns, on grade curb forms, horizontal beam forms, above grade slab systems, fire proof encasement forms, stair forms, bridge and bridge deck forms. Co-requisite: CAR 150.

CAR 190 Floor and Wall Framing (2)
The student will practice floor framing, layout and construction of floor frames. Cutting and installing floor and wall framing members according to plans and specifications will also be practiced.

CAR 191 Floor and Wall Framing Lab (2)
The student will practice floor framing, layout and construction of floor frames. Cutting and installing floor and wall framing members according to plans and specifications will also be practiced. Co-requisite: CAR 190.

CAR 196 Ceiling and Roof Framing (3)
This course covers roof types and combinations of roof types used in the construction industry. The emphasis of this course is on layout, cutting and installing ceiling joists, rafters, roof decking and roof coverings.

CAR 197 Ceiling and Roof Framing Lab (2)
This course covers roof types and combinations of roof types used in the construction industry. The emphasis of the course is on layout, cutting and install ceiling joists, rafters, roof decking and roof coverings. Co-requisite: CAR 196.

CAR 200 Exterior and Interior Finish (3)
This course presents basic concepts of building trim, gypsum wallboard, paneling, base, ceiling and wall molding with instruction on acoustical ceilings and insulation, wood floors, tile, infilled adhesive and tools of the flooring trade. This course will continue to refine the techniques and skills taught in the previous carpentry courses. In this course, cost control, speed and precision are emphasized. In addition, students will perfect the skills associated with the exterior finishing of a house. Prerequisites: Permission of the instructor.

CAR 201 Exterior and Interior Finish Lab (3)
This course presents basic concepts of building trim, gypsum wallboard, paneling, base, ceiling and wall molding with instruction on acoustical ceilings and insulation, wood floors, tile, infilled adhesive and tools of the flooring trade. This course will continue to refine the techniques and skills taught in the previous carpentry courses. In this course, cost control, speed and precision are emphasized. In addition, students will perfect the skills associated with the exterior finishing of a house. Co-requisite: CAR 200.

CAR 240 Cabinet Construction and Installation (3)
Students will lay out and plan the construction of base and wall cabinets. They will construct and install cabinets and special units, and sand and prepare wood surfaces for finishing. Prerequisites: CAR 126, CAR 127.

CAR 241 Cabinet Construction and Installation Lab (2)
Students will lay out and plan the construction of base and wall cabinets. They will construct and install cabinets and special units, and sand and prepare wood surfaces for finishing. Prerequisites: CAR 126, CAR 127; Co-requisite: CAR 240.

CAR 298 Practicum (2)
The Practicum provides supervised on-the-job work experience related to the student’s education objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Permission of the instructor.

CAR 299 Cooperative Educational Program (2)
Co-op provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Co-op Education program receive compensation for their work. Prerequisite: Permission of the instructor.
CET 150 Civil Engineering Graphics (3)
This course provides the opportunity for the student to learn the basic theory necessary to generate and understand typical civil engineering working drawings. The student will develop graphic communication skills using current industry standard software. Prerequisites: CAD 100 or ACH 195.

CET 200 Civil Engineering Materials (3)
The course will provide a practical look at current practice in the use of materials for civil engineering applications. Students will learn test procedures, design considerations, and overall evaluation methods for these materials. The course will include the study of soils, aggregates, concrete, and asphalt cement. Prerequisites: ACH 160.

CET 210 Structural Analysis and Design (3)
The course will cover building structure for civil engineering technology students, including different types of building loads and their effect upon the various materials used by architects, engineers and technologists. The students will be introduced to quality construction techniques utilizing steel, concrete and reinforced concrete. Industry manuals, specifications and computer programs will be utilized to familiarize the student with current technology. Prerequisites: ACH 225.

CET 220 Intermediate Surveying (4)
The course will include the application of surveying practices for route surveying for highways, construction staking, and topographic surveys. Students will perform deed research and evaluation, convert outdated deed descriptions into current measurements, and prepare record plats. Prerequisites: CE 211.

CET 260 Hydrology and Drainage (3)
Students will be introduced to the fundamentals of hydrology, including hydraulics of open and closed systems, water quality and drainage. Characteristics of pressures and flows in pipes, storm water runoff, culvert and ditch flow will be studied. Prerequisites: ACH 160, ACH 225, and PHY 211, or consent of instructor.

CET 280 Highway Design (3)
Students will be introduced to the fundamentals of highway design. Different components involved in designing a typical highway, including planning, surveying, mapping, and preliminary and final design will be explored using computer design software. Prerequisites: CAD 100 or ACH 185, MA 109, and CE 211.

CET 295 Independent Problems (1-4)
A problem or special project, approved by the instructor, will provide an opportunity for independent study for Civil Engineering Technology students. This course may be repeated to a maximum of six credits. Prerequisites: Consent of instructor.

CHE 120 The Joy of Chemistry (3)
Introduces non-science majors to the main concepts and applications of chemistry in our society. Lecture: 3 hours Prerequisite: (Math ACTE score of 19) OR (MT 120 or MT 122 with a grade of C or better)

CHE 125 The Joy of Chemistry Laboratory (3)
Reinforces concepts covered in CHE 120 and introduces scientific inquiry through selected experiments. Laboratory: 3 hours. Prerequisite or concurrent: CHE 120

CHE 140 Introductory General Chemistry (3)
Introduces topics in general chemistry, including properties of matter, stoichiometry, gases, atomic structure, bonding, acids and bases, oxidation and reduction, and nuclear chemistry. Intended for students interested in a one-semester course in general chemistry and recommended for students seeking careers in allied health fields. Lecture: 3 hours. Prerequisite: (Math ACTE score of 19) OR (MT 120 or MT 122 with a grade of C or better)

CHE 145 Introductory General Chemistry Laboratory (1)
Reinforces concepts covered in CHE 104 and introduces basic laboratory techniques, methods, and instrumentation through selected experiments dealing with chemical and physical properties, qualitative analysis, and quantitative analysis. Laboratory: 3 hours. Prerequisite or concurrent: CHE 140.

CHE 150 Introduction to Organic and Biological Chemistry (3)
Continues the sequence begun in CHE 140. Introduces topics in organic chemistry and biochemistry. Introduces organic functional groups, their reactions, and the chemistry of proteins, nucleic acids, carbohydrates, and lipids. Prerequisite: CHE 140 with a grade of “C” or better.

CHE 155 Introduction to Organic and Biological Chemistry Laboratory (1)
Reinforces concepts covered in CHE 150 and introduces basic laboratory techniques, methods, and instrumentation through selected experiments dealing with the preparation, characterization, and purification of organic compounds and the reactions
of biomolecules. Laboratory: 3 hours. Prerequisite or concurrent: CHE 150

**CHE 170 General College Chemistry I (3)**
Focuses on major chemical topics, including stoichiometry, atomic structure, properties of matter and the relationship between molecular structure and chemical behavior. Emphasizes solving of mathematical problems which illustrate the principles of chemistry. Designed for students in the sciences, engineering, and pre-professional programs. Lecture: 3 hours. Prerequisite: (ACTE math score of 21) OR (College Algebra with "C" or better) OR (CHE 130 OR CHE 140 OR CHE 160 with a grade of “C” or better) OR (Appropriate score on math or chemistry placement exam).

**CHE 175 General College Chemistry Laboratory I (1)**
Reinforces concepts covered in CHE 170 and introduces basic laboratory techniques, methods, and instrumentation through selected experiments. Emphasizes both quantitative and qualitative techniques. Laboratory: 3 hours. Co-requisite or prerequisite: CHE 170.

**CHE 180 General College Chemistry II (3)**
Continues CHE 170. Focuses on major chemical topics, including acid-base chemistry, kinetics, thermodynamics, and chemical equilibrium. Emphasizes solving of mathematical problems which illustrate the principles of chemistry. Designed for students in the sciences, engineering, and pre-professional programs. Lecture: 3 hours. (CHE 170 with a grade of “C” or better) and (College Algebra with “C” or better).

**CHE 183 General College Chemistry II Workshop (1)**
Focuses on problem solving and further application of CHE 180 or CHE 185 course materials. Offered on a pass-fail basis only. Lecture: 1 hour. Co-requisite: CHE 180 or CHE 185. If students withdraw from the associated CHE 180/CHE 185 course, they must also withdraw from CHE 183.

**CHE 185 General College Chemistry Laboratory II (1)**
Reinforces concepts covered in CHE 105 and introduces basic laboratory techniques, methods, and instrumentation through selected experiments. Emphasizes both quantitative and qualitative techniques. Laboratory: 3 hours. Co-requisite or prerequisite CHE 180.

**CHE 270 Organic Chemistry I (3)**
Presents the fundamental principles of organic chemistry. Emphasizes the structures and properties of carbon-containing compounds. Introduces organic reactions, their mechanisms, and applications to synthesis. Lecture: 3 hours. Prerequisite: CHE 180 with a grade of “C” or better.

**CHE 280 Organic Chemistry II (3)**
Presents further applications of the principles of organic chemistry. Continues the study of organic reactions, their mechanisms, synthesis and modern spectroscopic techniques. Lecture: 3 hours. Prerequisite: CHE 270.

**CHE 290 Special Topics in Chemistry: (Topic) (1-3)**
Presents a topic in chemistry chosen by the instructor. Topics may vary from semester to semester at the discretion of the instructor; course may be repeated with different topics to a maximum of six credit hours. Lecture: 1 to 3 hours. Prerequisite: Consent of instructor.

**CHE 295 Special Topics in Chemistry Laboratory: (Topic) (1-3)**
Explores laboratory investigations that support the concepts presented in CHE 290 or other course requiring a laboratory component. Laboratory: 3 to 9 hours. Prerequisite: Consent of instructor.

**CHE 299 Laboratory Research in Chemistry: (Topic) (1-3)**
Offers students the opportunity to perform research on a problem chosen by the instructor. Course may be repeated to a maximum of six credit hours. Laboratory: 3 to 9 hours. Prerequisite: Consent of instructor.

**CHI/RAE 150 Beginning Chinese I (4)**
A course in first semester Chinese language.

**CHI/RAE 151 Beginning Chinese II (4)**
A course in second semester Chinese language. Prerequisite: RAE 150 or equivalent.

**CIS 100 Introduction to Computers (3)**
The impact of computers on society, and ethical issues are presented. Students use a microcomputer and application software, including word processing, database, spreadsheets, and the Internet, to prepare elementary documents and reports. Prerequisites: Basic keyboarding skills recommended.

**CIS 110 Operating Systems Concepts (3)**
A conceptual and practical overview of operating
systems is covered. Topics include preparing disk(s); creating, displaying, copying, and deleting files and directories; using batch files and text editors, graphical user interfaces, and memory management. Hands-on experience with hardware/software is provided. Prerequisites: Computer literacy course or consent of instructor.

**CIS 120 Program Design and Development (3)**
The design and development of computer programs for solving common business-oriented problems are covered. The emphasis is on programming concepts and techniques common to all languages. A programming language will be used to illustrate and practice these concepts. Prerequisites: Computer literacy course, MT 120 or MT 122, or consent of instructor.

**CIS 130 Microcomputer Applications (3)**
Students use a microcomputer and current word processing, database, and spreadsheet software. The word processing package includes a thesaurus and a spell checker. The requirements, capabilities, limitations, and applications of these software packages are included. Prerequisites: Computer literacy course or consent of instructor.

**CIS 148 Visual BASIC I (3)**
This course is designed to provide students with the knowledge and skills to code, execute, and document comprehensive programs in Visual Basic. The programs will involve use of forms for input/output, controls to trigger events, structures to control program execution, sequential and random access of files, arrays, and error handling. Prerequisites: CIS 120 or consent of instructor.

**CIS 155 C/C++ Programming I (3)**
Introductory course to C and C++. Students learn to write, compile, test, and debug basic applications that use a graphical user interface. Prerequisites: CIS 120 or consent of instructor.

**CIT 103 Fundamentals of Computers (1)**
Explores commonly used capabilities of computers with emphasis on computer basics and terminology as well as software packages. Gain hands-on experience with common productivity software, email, and Internet access. Note: This course does not fulfill the KCTCS computer literacy requirement.

**CIT 105 Introduction to Computing (3)**
Presents an overview of computer information systems, including concepts relating to terminology, computer hardware, software, and networks as well as the impact of computers on society, ethical issues in computing, and trends in information processing. Uses a microcomputer with systems software and applications software, including a word processor, electronic spreadsheet, database management system, and web page editor to process data and present useful information. Note: basic computer knowledge or completion of CIT 103 is recommended.

**CIT 110 Operating Systems Concepts (3)**
A conceptual and practical overview of operating systems is covered. Topics include: user interfaces such as graphical user interfaces and command syntax interfaces; task management; file systems; network connectivity and resource sharing; and operating systems installation and maintenance. Students will be exposed to multiple operating systems. Hands-on experience with hardware and software is provided. Prerequisite: CIS 105 or consent of instructor.

**CIT 111 Hardware and Software Systems Concepts (4)**
Provides a conceptual and practical view of client operating systems and the hardware systems required
to run them. Covers computer hardware components, operating system interfaces and management tools, peripheral device management, computer security, and basic networking components. Includes hands-on experience with hardware and software, and exposure to multiple operating systems. Prerequisite: CIT 105.

CIT 120 Programming Concepts (4)
Develops and designs language-independent computer programs used in solving problems including writing code for control and data structures common to most languages. Prerequisite: CIT 105 and MA108R; or consent of instructor.

CIT 130 Productivity Software (3)
Use of current word processing, spreadsheet, database, and presentation application software to solve common business problems. Cover basic features of each software application, as well as requirements, capabilities, and limitations. Prerequisite: CIT 105 or consent of instructor.

CIT 140 JavaScript I (3)
Code and execute JavaScript programs, which can be used to create dynamic behavior in elements of a Web page. Use programs to control the behavior of forms, buttons, and text elements, and can be used to write special-purpose calculators or create forms whose fields have built-in error checking. Prerequisite: CIT 120 and CIT 150; or consent of instructor.

CIT 143 COBOL I (3)
Code and execute error-free programs in the COBOL language, a level I programming language, including proper documentation. Use orderly, structured methodology for program development. Involve sequential input/output, report formatting, editing of data, numeric calculations, single level control breaks, and processing tables. Prerequisite: CIT 120 or consent of instructor.

CIT 144 Flash Programming with ActionScript I (3)
Provides students with the knowledge and skills necessary to program Flash applications with animations, video, audio, and end-user interactivity using the ActionScript programming language. Provides an equally balanced effort regarding the two main threads of the course: the theory of Flash ActionScript programming syntax, style, documentation, correctness, and efficiency; and the practice of Flash ActionScript program design, implementation, debugging, and testing. Requires students to complete a number of programming assignments. Prerequisite: CIT 105, CIT 111, CIT 120, CIT 130, and CIT 150; or consent of instructor.

CIT 145 Perl I (3)
Design, code, execute, and test scripts in the Perl programming language. Learn concepts including Perl variables, operators, and control structures as well as pattern matching, introductory Perl objects and modules, and Perl application scripts. Prerequisite: CIT 120 or consent of instructor.

CIT 148 Visual Basic I (3)
Design, code, test, and execute programs using the Visual Basic programming language. Cover topics including menus, dialogue boxes, push buttons, radio buttons, the graphical user interface, mouse input, fonts, and printing. Prerequisite: CIT 120 or consent of instructor.

CIT 149 Java I (3)
Code and execute applications in the Java programming language. Cover topics including standard control structures in Java applications, methods, arrays, object-oriented programming, and developing graphical user interfaces. Prerequisite: CIT 120 or consent of instructor.

CIT 150 Internet Technologies (3)
Provides students with a thorough study of traditional and emerging Internet technologies. Covers topics including Internet fundamentals, Internet applications, Internet client/server information delivery systems, and Internet client/server computing. Provides hands-on experience with a number of Internet applications, including rudimentary programming in an Internet environment. Prerequisite: CIT 120 or consent of instructor.

CIT 160 Data Communications and Networking (4)
Introduces data communications and networking concepts including hardware, software, transmission media, access methods, protocols, basic network configurations, and system design considerations. Includes configuration of simple local area networks. Focuses on hands-on introduction to networking using tools and hardware commonly found in home and small business environments. Completes the first of four courses that prepare students for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: CIT 111 or concurrent; or consent of instructor.

CIT 170 Introduction to Database Design (3)
Introduces the standards for designing relational
databases. Design criteria to include first, second, and third normal forms to eliminate modification anomalies. Review the capabilities of three major types of data models—hierarchical, network, and relational— as they apply to hypothetical sets of data objects. Experience the creation of a logical design, and translation into a physical database using the relational model. Perform queries using both a host language interface and Structured Query Language. Prerequisite: CIT 130 or consent of instructor.

CIT 171 SQL I (3)
Provides students with an extensive introduction to database manipulation technology. Covers the SQL and PL/SQL programming languages. Create and maintain database objects, and store, retrieve, and manipulate data. Creates PL/SQL blocks of reusable application code. Prerequisite: CIT 120 or consent of instructor.

CIT 180 Security Fundamentals (3)
Provides foundation level security skills and knowledge. Includes a broad overview of information security topics including cryptography, organizational security, system security, access control, assessments and audits, and network security. Prerequisite: CIT 160 or consent of instructor.

CIT 211 Microsoft Windows Client Operating System (3)
This course provides students with the knowledge and skills necessary to install and configure Microsoft Windows client operating systems on stand-alone computers as well as on client computers that are part of a workgroup or domain. This course will also help prepare students for exams in the Microsoft certification exam series. Prerequisites: Admission into the CIT program and CIT 160, or consent of instructor.

CIT 212 Microsoft Windows Server Operating System (3)
This course provides students with the knowledge and skills necessary to install and configure Microsoft Windows server operating systems and to provide file, print and terminal services. This course will also help prepare students for exams in the Microsoft certification exam series. Prerequisites: Admission into the CIT program and CIT 211, or consent of instructor.

CIT 213 Microsoft Windows Client and Server Configuration (3)
Covers installation and configuration of Microsoft Windows client and server operating systems. Helps prepare students for exams in the Microsoft certification exam series. Prerequisite: CIT 111 and CIT 160; or consent of instructor.

CIT 217 UNIX Administration (3)
Provides students with the knowledge and skills necessary to perform post-installation and day-to-day administration tasks in a single-domain or multiple-domain UNIX based network. CIT 111 and CIT 160; or consent of instructor.

CIT 218 Advanced UNIX Administration (3)
Provides the core foundation for supporting the Unix operating system. Provides support professionals with the skills necessary to install, configure, customize, optimize, network, integrate, and troubleshoot Unix. Prerequisite: CIT 217 or consent of instructor.

CIT 232 Applications Development and Utilization (3)
This course will give applications majors the opportunity to explore several aspects of customer service, including interacting with and training end users, and writing training manuals. Students will also write macros and modules for existing applications and use collaboration tools and software. Prerequisite: CIT 130 and CIT 170; or consent of instructor.

CIT 234 Advanced Spreadsheet Applications (3)
Covers advanced features of a spreadsheet software package, including data tables, scenarios, financial functions, creating and using template files, using hyperlinks, multiple worksheets and 3D formulas, creating and using command buttons and macros to automate repetitive tasks, and using data management features to sort, perform queries, and extract useful information. Emphasizes integration among various software applications. Prerequisite: CIT 130 or consent of instructor.

CIT 236 Advanced Database Applications (3)
Covers advanced features of a current database software package, including creating and editing custom forms and reports, creating and using macros, and creating application systems and switchboard modules. Emphasizes integration among various software applications. Prerequisite: CIT 130 or consent of instructor.

CIT 243 COBOL II (3)
Provides coding skills needed to create COBOL programs involving direct access data files, interactive screen design, table manipulation, multiple-level control breaks, top-down design, and modular construction. Covers structured COBOL
techniques including proper documentation to execute programs. Prerequisites: CIT 143 and MA 109; or consent of instructor.

**CIT 245 Perl II (3)**
Continues CIT 145, with this Level II programming language course focuses on the use of the Perl programming language in a Web server environment. Covers topics including ethics and the Web, advanced Perl programming constructs including objects and modules, Web form processing using Perl, security issues, and applications to e-commerce. Prerequisites: CIT 145 and CIT 150; or consent of instructor.

**CIT 248 Visual Basic II (3)**
Develops applications using Visual Basic with an emphasis on application design, record-handling routines, and database engine operations, including working with objects from Microsoft Office, creating ActiveX documents, and building Internet applications with these documents. Prerequisite: CIT 148 or consent of instructor.

**CIT 249 Java II (3)**
Continues CIT 149, by focusing on Java client/server programming for the internet. Covers topics including interfacing with HyperText Markup Language (HTML) documents, applets, Java Database Connectivity (JDBC), servlets, and networking. Prerequisite: CIT 149 and CIT 150; or consent of instructor.

**CIT 253 PHP/MySQL - Data-Driven Web Pages (3)**
Provides students with the knowledge and skills to design, implement, and manage a database-driven web site. Covers topics including the study of databases and web servers in e-commerce, transaction processing and client-side and server-side web scripting, including experience in creation of a database driven web site. Prerequisite: CIT 150, CIT 170; or consent of instructor.

**CIT 255 Internet Server Administration (3)**
Provides an in-depth study of the functions required to configure, maintain, and secure Internet servers. Presents security risks unique to Internet services as well as solutions to these risks. Includes hands-on experience with setting up a server, configuring services, and troubleshooting server problems. Prerequisite: Level I Network Technologies Specialization Sequence or consent of instructor.

**CIT 260 Network Hardware Installation and Troubleshooting (3)**
This course is designed to provide students with the knowledge and skills necessary to design, install, configure, and troubleshoot cabling systems and equipment used to connect a local area network. Prerequisite: CIT 160 or consent of instructor.

**CIT 261 Microsoft Windows Directory Services Administration (3)**
Provides students with the knowledge and skills necessary to install, configure, and administer Microsoft Windows Directory Services. Focuses on implementing Group Policy and understanding the Group Policy tasks required to centrally manage users and computers. Helps prepare students for exams in the Microsoft certification exam series. Prerequisites: CIT 213 and CIT 269; or consent of instructor.

**CIT 262 Microsoft Windows Network Infrastructure (3)**
Provides students with the knowledge and skills necessary to install, configure, manage, and support a network infrastructure using a Microsoft Windows server operating system. Helps prepare students for exams in the Microsoft certification exam series. Prerequisites: CIT 213 and CIT 269; or consent of instructor.

**CIT 263 Advanced Topics Microsoft Windows (1-6)**
Covers concepts and/or skills from special areas of interest in Microsoft Windows operating systems. Focus on specific topics that will vary from semester to semester at the discretion of the instructor. Prerequisites: CIT 213, or consent of instructor.

**CIT 264 Microsoft Server Administration (3)**
Focuses on the deployment, configuration and management of servers that support users and applications, especially Web Servers, Terminal Servers, SharePoint Servers and File Servers. Prerequisites: CIT 261 and CIT 262; or consent of instructor.

**CIT 265 Microsoft Applications Server Infrastructure (3)**
Focuses on planning a Microsoft server infrastructure as well as managing the server operating system, file and directory services, software distribution and updates, and troubleshooting. Prerequisites: CIT 261 and CIT 262; or consent of instructor.

**CIT 266 Microsoft Enterprise Administration (3)**
Focuses on planning a Microsoft server infrastructure as well as managing the server operating system, file and directory services, software distribution and
updates, and troubleshooting. Prerequisites: CIT 261 and CIT 262 and CIT 264; or consent of instructor.

**CIT 269 Internet Protocols (3)**
Provide students with the knowledge and skills to install, configure, manage and troubleshoot internetworks using TCP/IP and its associated protocols. Prerequisites: CIT 111 and CIT 160; or consent of instructor.

**CIT 271 SQL II (3)**
Provides knowledge and skills needed to write PL/SQL procedures, including the creation or management of PL/SQL program units and database triggers using SQL statements. Uses the Procedures Builder and SQL *Plus environments. Uses advanced features of PL/SQL to design and interface with the database and other applications. Prerequisite: CIT 171; or consent of instructor.

**CIT 280 Internship (3)**
Provides on-the-job experience in computer & information technologies, requiring a minimum of 120 clock hours of appropriate experience approved by the faculty member (40 clock hours per credit); requires a learning contract, signed by the student, faculty member, and supervisor. Note: Course is offered on pass-fail basis only. Prerequisite: Consent of instructor.

**CIT 281 Routing (4)**
Provides students with the skills necessary to understand and apply advanced principles and applications in deploying networking hardware. Covers WAN design, WAN connectivity protocols such as PPP, ISDN, and Frame Relay, as well as advanced network management projects. Completes the final of four courses that prepares students for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: CIT 281 and CIT 282; or consent of instructor.

**CIT 289 Network Security (3)**
Provides the knowledge and skills necessary to understand and defend against a variety of computer and network attacks. Focuses on both the offensive techniques used to launch attacks and the defensive techniques required to defend computers and networks. Prerequisite: CIT 180 and Level 1 Network Technologies Specialization; or consent of instructor.

**CIT 291 System Development and Implementation (4)**
Designed for Computer & Information Technologies students who have completed a significant portion of their degree course work. Requires students to use their knowledge of information technology concepts to complete a comprehensive project including a detailed project plan, implementation, documentation, and final presentation. Prerequisite: Level 1 Network Technologies Specialization Sequence or Level II Programming Language; or consent of instructor.

**CIT 294 Seminar in Internet Technologies (3)**
Students in this course will research, study and discuss current and emerging topics, issues and trends in Internet technologies. Formal class presentations as well as individual and/or group projects involving Internet technologies will be required. Prerequisite: Admission to the CIT program and CIT 253, or consent of instructor.

**CIT 295 Independent Problems in Computer and Information Technologies: (Topic) (1-3)**
A problem or special project, approved by the instructor, provides an independent study objective for Computer Information Systems students. This course may be repeated to a maximum of three credits hours. Prerequisite: None.

**CIT 299 Special Topics in CIT: (Topic) (1-3)**
This course will deal with concepts and/or skills from special areas of interest in computer information systems. Topics vary from semester to semester at the discretion of the instructor. May be repeated with different topics to maximum of 6 credit hours.
Prerequisite: (variable) given when topic is identified, or consent of instructor.

CJ 101 Introduction to Criminal Justice (3)
An introduction to the philosophical and historical background of law enforcement agencies, processes, purposes and functions. It includes an evaluation of law enforcement today, including current trends and career orientation. [Previously LEN 204]

CJ 102 Introduction to Corrections (3)
This course is an introduction to the processes, procedures and issues in modern corrections.

CJ 105 Police Supervision (3)
This course gives students the basic understanding of the administrative and supervisory roles within a police department. [Previously LEN 105]

CJ 110 Principles of Asset Protection (3)
This course gives an introductory understanding to private security procedures.

CJ 201 Introduction to Criminalistics (3)
Designed to give the student a basic knowledge of crime scene protection, collection, preservation, and identification of evidence, including proper search, dusting latent prints, casting, fingerprint classification, and use of crime laboratory in crime detection and prosecution.

CJ 202 Issues and Ethics in Criminal Justice (3)
This course gives an advanced understanding of the issues and problems within criminal justice.
Prerequisite: CJ 101.

CJ 203 Community Corrections/Probations & Parole (3)
Community Corrections, probation, and parole and philosophy and design of various programs throughout the country are addressed. Community-based punishments are contrasted and compared to incarceration in terms of goals, costs and perceived benefits. Alternatives to incarceration are discussed in areas such as electronic monitoring and house arrest, intensive supervision, probation and shock incarceration. Special needs offenders and requirements of their supervision are also examined.
Prerequisites: CJ 101 or CJ 217. [Previously LEN 207]

CJ 204 Criminal Investigations (3)
Fundamentals of criminal investigation, crime scene search and recording, collection and preservation of physical evidence, scientific aids, MODUS operandi, sources of information, interviews and interrogation, follow-up, and case preparation. [Previously LEN 204]

CJ 208 Delinquency and the Juvenile Justice System (3)
An introduction to the processes, procedures, and issues in the modern juvenile justice system. [Previously LEN 208]

CJ 210 Physical Security Technology & Systems (3)
This class introduces facility security with the use of environmental design and integrated electronic technology (cameras, monitors, alarms).

CJ 211 Liability & Legal Issues (3)
This course provides an overview of legal aspects of security. The class focuses on civil and criminal law, liability of asset protection, use of force, false imprisonment, negligent security, invasion of privacy and many other pertinent security legal issues.

CJ 215 Police Patrol (3)
This course gives a basic understanding of police operations and programs. [Previously LEN 104]

CJ 216 Criminal Law (3)
This course is a basic overview to criminal laws.

CJ 217 Criminal Procedures (3)
This course is an overview of criminal procedure laws.

CJ 222 Prison & Jail Administration (3)
Correctional procedures and administration are introduced. Course includes a historical perspective and a study of future trends.

CJ 290 Internship in Criminal Justice (3)
The Criminal Justice internship is designed to broaden student’s law enforcement education experience through appropriate criminal justice observation and work assignments. The experience will allow students to explore the various fields of interest in criminal justice field experience in an approved agency. Prerequisites: Sophomore standing and completion of at least 12 semester hours of Criminal Justice work.

CJ 299 Selected Topics in Law Enforcement (3)
Recent trends and investigations in selected areas of law enforcement will be presented in seminar format. This course may be repeated to a maximum of 12 units. Prerequisite: Consent of instructor. [Previously LEN 299]
CLA 131 Medical Terminology from Greek and Latin (3)
Latin and Greek roots, prefixes, and suffixes as found in medical terminology. Primarily for pre-medical, pre-dental, pre-nursing, and pre-veterinary students, but others will be admitted for help in vocabulary building.

CMS 142 Communications Practicum (1-4)
Student works a minimum of two hours each week with the college newspaper.

CMS 153 Newspaper Internship (4)
Student works for a newspaper a minimum of 160 hours. Prerequisite: JOU 204.

CMS 185 College Reading (3)
CMS 185 is designed to improve textbook reading at the college level by developing vocabulary techniques, comprehension strategies and understanding of textbook graphics. Theories and strategies taught in the course are applied to college level reading materials.

COE 199 Maximum (4)
Cooperative Education is a planned and evaluated work experience related to a student’s educational objective for which the student receives both financial remuneration and academic credit. One credit hour is awarded for completion of 80 hours of approved work experience and for completion of additional required activities.

COM 101 Introduction to Communications (3)
An introduction to the process of communication as a critical element in human interaction and in society. Designed to enhance effective communication and informed use of the mass media.

COM 181 Basic Public Speaking (3)
Gives platform experience in the fundamentals of effective speaking. Prerequisites: (ENG ACT 18 or ENC 091 or ENG 101) or (RDG ACT 18 or RDG 030 or CMS 185 or DRE 030) or Consent of Instructor.

COM 249 Mass Media and Mass Culture (3)
Examines the interplay between the technology and content of the mass communications media and culture. Prerequisites: (ENG ACT 18 or ENC 091 or ENG 101) or (RDG ACT 18 or RDG 030 or CMS 185 or DRE 030) or Consent of Instructor

COM 252 Introduction to Interpersonal Communication (3)
Examines basic verbal and nonverbal concepts affecting the communication process in various interpersonal contexts. Requires participation in written and oral activities designed to develop and improve interpersonal skills. Includes perspective-taking, relationship and conversation management, effective listening, conflict management, communication climate, communication anxiety, and cultural/gender differences in interpersonal communication. Prerequisites: (ENG ACT 18 or ENC 091 or ENG 101) or (RDG ACT 18 or RDG 030 or CMS 185 or DRE 030) or Consent of Instructor

COM 254 Introduction to Intercultural Communication (3)
An introduction to the topics of intercultural communication with an emphasis on the relationships between culture and communication, social/psychological variables, verbal/nonverbal language systems, intercultural communication perceptions, and conflict resolution. Contemporary issues in cross-cultural interaction, media representation, and daily social interactions will be practically applied to intercultural communication concepts. Prerequisites: (ENG ACT 18 or ENC 091 or ENG 101) or (RDG ACT 18 or RDG 030 or CMS 185 or DRE 030) or Consent of Instructor

COM 281 Communication in Small Groups (3)
A study of communication processes in small group situations. Topics include conflict, leadership, and decision making. Students will participate in group discussions and develop skills in analyzing group performance. Prerequisites: (ENG ACT 18 or ENC 091 or ENG 101) or (RDG ACT 18 or RDG 030 or CMS 185 or DRE 030) or Consent of Instructor

COM 287 Persuasive Speaking (3)
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages. Prerequisites: (ENG ACT 18 or ENC 091 or ENG 101) or (RDG ACT 18 or RDG 030 or CMS 185 or DRE 030) or Consent of Instructor

COS 114 Cosmetology I, 6-1 (14)
This course is designed to cultivate proper attitude and behavior patterns needed to create a successful Cosmetologist. Kentucky Statutes and regulations, safety, bacteriology, sanitation, infection control, first aid treatment, structure and disorders of the nail are studied. An introduction to the basic fundamentals of hair, skin and nail care, hair styling and shaping, manicures and pedicures, chemical and thermal services, and wigs. The student in developing
manipulative skills and practicing procedures utilizes mannequins and classmates. After 300 hours student begin to apply procedures on clients under the direct supervision of the instructor.

Sub-Categories of COS 114

COS 1141 Introduction to Cosmetology (3)
An introduction to professionalism and communication. Topics include Kentucky Statutes and Regulations, safety and decontamination.

COS 1142 Basics of Cosmetology (3)
Provides fundamental principles and skills of manicures, pedicures, facials, and scalp and hair care.

COS 1143 Principles of Hair Design (3)
Provides design elements and principles of hairstyling.

COS 1144 Cosmetology Skills A (1)
Focus on developing design elements of hair.

COS 1145 Hair Structure, Disorders and Diseases (1)
Focuses on the structure, diseases, and disorders of hair.

COS 1146 Cosmetology Skills B (1)
Provides basic principles of hair design and safety.

COS 1147 Nail Structure: Diseases and Disorders (1)
Focuses on nail structure, diseases and disorders.

COS 1148 Skin: Structure, Disorders and Diseases (1)
Focuses on skin structure, diseases and disorders.

COS 116 Cosmetology II, 6-2 (14)
A study of basic chemistry with emphasis placed on the physical and chemical properties of cosmetic materials. Electricity and light therapy are discussed and an in-depth study of anatomical structures affected by cosmetological services including disorders of the skin, scalp, hair, and nails. The instructor gives the students progressively more difficult assignments with close supervision.

Sub-Categories of COS 116

COS 1161 Introduction to Cosmetic Chemistry (3)
Basic study of cosmetic chemistry. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1162 Chemical Services (3)
Basic chemical services. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1163 Massage Techniques (3)
Study of massage techniques. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1164 Cosmetic Techniques Lab (1)
Provides an opportunity to apply chemical services. Focuses on perms, color application and straightening of hair. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1165 Electricity & Light Therapy for Cosmetology (1)
Study of electricity and light therapy. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1166 Intermediate Hair Design Lab (1)
Continues the application of hair design theory and skills. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1167 Facials (1)
Theory of facials. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 1168 Makeup and Hair Removal (1)
Provides the theoretical base for application of makeup. Hair removal principles and techniques. Prerequisites: ((COS 1141 and COS 1142 and COS 1143 and COS 1144 and COS 1145 and COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).
COS 1146 and COS 1147 and COS 1148) or COS 114 with a grade of C or greater).

COS 135 Special Problems (1-8)
This is a course designed for a student who has demonstrated a need for a specific study. This course may be repeated for a maximum of 8 credit hours.

COS 200 Student Teaching I, 7-1 (19)
This course is an introduction to teaching methods used in training cosmetology and nail technology students. This is inclusive of theory class methods of lecture, media use and teaching methods. This class is an introduction to training teachers for methods used to teach the practical application of learned skills. Prerequisites: Cosmetologist’s licensure; one year work experience, apprentice license.

COS 202 Student Teaching II, 7-2 (16)
This course is to expand the apprentice instructor’s ability to apply various methods used to train cosmetology and nail technology students. This course gives preparatory work which enables the apprentice instructor to prepare for the Kentucky Board of Hairdressers instructor exam. Prerequisites: COS 200.

COS 210 Student Teaching I, 5-1 (13)
This course is an introduction to teaching methods used in training cosmetology and nail technology students. This is inclusive of theory class methods of lecture, media use and testing methods. This class is an introduction to training teachers for methods used to teach the practical application of learned skills. Prerequisites: Cosmetologist’s license; one year work experience, apprentice cosmetologists instructor’s license.

COS 212 Student Teaching II, 5-2 (13)
This course continues to expand the apprentice instructor’s ability to apply various methods used to train cosmetology and nail technology students. Prerequisites: COS 210.

COS 214 Student Teaching III, 5-3 (9)
This course gives preparatory work which enables the apprentice instructor to prepare for the Kentucky Board of Hairdressers instructor exam. Prerequisites: COS 210, COS 212.

COS 215 Special Problems (1-8)
This is a course designed for a student who has demonstrated a need for specific studies. This course may be repeated for a maximum of 8 credit hours.

COS 218 Cosmetology III, 6-3 (14)
Provides knowledge of the structure and function of the human body, including the interaction of all the body systems in maintaining homeostasis. All phases of beauty salon management are studied, including interacting with clients, co-workers and supervisors. Laboratory experience is advanced with performance expectations set at a higher level.

Sub-Categories of COS 218

COS 2181 Anatomy for Cosmetology I (3)
Study of the structures and functions of the human body. Application of these studies in cosmetology services. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2182 Anatomy for Cosmetology II (3)
Study of the interaction of all body systems and the maintenance of homeostasis. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2183 Salon Management (3)
The study and application of all phases of salon management. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2184 Intermediate Chemical Services Lab (1)
The study of the interaction of all the body systems in maintaining homeostasis. Application of these studies in cosmetology services. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2185 Hair Enhancements (1)
Study of artificial hair. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2186 Client Services Lab (1)
Provides the student with the opportunity to demonstrate client services. Emphasis is on communication and positive public relation
techniques. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2187 Intermediate Hair Shaping (1)
Hair shaping techniques for the intermediate practitioner. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 2188 Cosmetology Trends and Issues (1)
Trends and issues of cosmetology are covered. Prerequisites: ((COS 1161 and COS 1162 and COS 1163 and COS 1164 and COS 1165 and COS 1166 and COS 1167 and COS 1168) or COS 116 with a grade of C or greater).

COS 220 Cosmetology IV, 6-4 (12)
This course is designed for a total review of the cosmetology curriculum. A comprehensive written and practical exam is given in preparation for the State Board Licensure exam. Students implement their own judgment of procedures and solutions to be used on clients with supervision.

Sub-Categories of COS 220

COS 2201 Advanced Cosmetology I (3)
Processes and procedures for client services. Implementation of cosmetology processes and procedures on clients. Prerequisites: ((COS 2181 and COS 2182 and COS 2183 and COS 2184 and COS 2185 and COS 2186 and COS 2187 and COS 2188) or COS 218 with a grade of C or greater).

COS 2202 Advanced Cosmetology II (3)
Implementation of cosmetology nail and skin care processes and procedures for clients. Prerequisites: ((COS 2181 and COS 2182 and COS 2183 and COS 2184 and COS 2185 and COS 2186 and COS 2187 and COS 2188) or COS 218 with a grade of C or greater).

COS 2203 Advanced Lab I (1)
Practice all lab application techniques. Prerequisites: ((COS 2181 and COS 2182 and COS 2183 and COS 2184 and COS 2185 and COS 2186 and COS 2187 and COS 2188) or COS 218 with a grade of C or greater).

COS 2204 State Board Preparation (3)
Comprehensive written and practical exams in preparation for State Board Licensure exams. Prerequisites: ((COS 2181 and COS 2182 and COS 2183 and COS 2184 and COS 2185 and COS 2186 and COS 2187 and COS 2188) or COS 218 with a grade of C or greater).

COS 2205 Advanced Lab II (1)
Practice all lab application techniques. Prerequisites: ((COS 2181 and COS 2182 and COS 2183 and COS 2184 and COS 2185 and COS 2186 and COS 2187 and COS 2188) or COS 218 with a grade of C or greater).

COS 2206 Written Review (1)
Review of written/practical/procedures related to the State Board Examination. Prerequisites: ((COS 2181 and COS 2182 and COS 2183 and COS 2184 and COS 2185 and COS 2186 and COS 2187 and COS 2188) or COS 218 with a grade of C or greater).

COS 235 Special Problems II (1-3)
Designed for the student who has demonstrated need for individualized/specific instruction. Course may be repeated to a maximum of eight credit hours. Prerequisites: Consent of instructor.

COSE 100 Skin Care History/Opportunities/Professional Image (1)
History of esthetics, today's career opportunities and professional image. Topics also include Kentucky Statutes and Regulations. Prerequisites: High school diploma or equivalent and admission to esthetician program.

COSE 101 Basic Facials (7)
Analysis of skin types for facial products, massage techniques, and hair removal. Prerequisites: High school diploma or equivalent and admission to esthetician program.

COSE 102 Sanitation and Disinfection (1)
Guidelines that prevent the contamination of products, implements, and equipment for the prevention of disease. Prerequisites: High school diploma or equivalent and admission to esthetician program.

COSE 104 Physiology and Histology of the Skin (3)
Study of the structure, composition, and function of the skin. Prerequisites: High school diploma or equivalent and admission to esthetician program.

COSE 110 Esthetician I (17)
Covers the history of esthetics, today's career
opportunities, and professional image. Includes Kentucky Statutes and Regulations, analysis of skin types for facial products, massage techniques, and hair removal. Provides guidelines that prevent the contamination of products, implements, and equipment for the prevention of disease. Includes the study of structure, composition, and function of the skin, skin conditions, disorders and diseases, and those treatable by the esthetician. Covers treatments related to skin and skin disorders. Prerequisites: High school diploma or equivalent and admission to esthetician program.

**Sub-Categories of COSE 110**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSE 1101</td>
<td>Skin Care History/Opportunities/Professional Image (1)</td>
<td></td>
<td>Covers the history of esthetics, today's career opportunities, and professional image. Includes Kentucky Statutes and Regulations.</td>
</tr>
<tr>
<td>COSE 1102</td>
<td>Basic Facials (7)</td>
<td></td>
<td>Provides an analysis of skin types for facial products, massage techniques, and hair removal.</td>
</tr>
<tr>
<td>COSE 1103</td>
<td>Sanitation and Disinfection (1)</td>
<td></td>
<td>Guidelines that prevent the contamination of products, implements, and equipment for the prevention of disease.</td>
</tr>
<tr>
<td>COSE 1104</td>
<td>Physiology and Histology of the Skin (3)</td>
<td></td>
<td>Provides a study of the structure, composition, and function of the skin.</td>
</tr>
<tr>
<td>COSE 1105</td>
<td>Skin Diseases and Disorders (5)</td>
<td></td>
<td>Provides a study of skin conditions, disorders and diseases, and those treatable by the esthetician. Treatments related to skin and skin disorders.</td>
</tr>
<tr>
<td>COSE 200</td>
<td>Kentucky State Board Rules and Regulations (1)</td>
<td></td>
<td>Study of Kentucky State Board of Hairdressers and Cosmetologists rules and regulations and anatomy and physiology as it relates to esthetics, and organic/inorganic chemistry and cosmetic ingredients. Covers facial enhancements through the use of make-up artistry and application. Includes hair removal procedures and applications. Prerequisite: Cosmetologist's license; one year work experience, apprentice cosmetologists instructor's license.</td>
</tr>
<tr>
<td>COSE 201</td>
<td>Make-Up/Hair Removal (5)</td>
<td></td>
<td>Facial enhancements through the use of make-up artistry and application. Hair removal procedures and applications. Prerequisites: (COSE 100 and 101 and 102 and 104) or consent of instructor.</td>
</tr>
<tr>
<td>COSE 202</td>
<td>Anatomy/Physiology for the Esthetician (3)</td>
<td></td>
<td>Study of anatomy/physiology as it relates to esthetics. Prerequisites: (COSE 100 and 101 and 102 and 104) or consent of instructor.</td>
</tr>
<tr>
<td>COSE 203</td>
<td>Cosmetic Chemistry (3)</td>
<td></td>
<td>Study of organic/inorganic chemistry and cosmetic ingredients. Prerequisites: (COSE 100 and 101 and 102 and 104) or consent of instructor.</td>
</tr>
<tr>
<td>COSE 204</td>
<td>Skin Diseases and Disorders (5)</td>
<td></td>
<td>Study of skin conditions, disorders and diseases, and those treatable by the esthetician. Treatments related to skin and skin disorders. Prerequisites: (COSE 100 and 101 and 102 and 104) or consent of instructor.</td>
</tr>
<tr>
<td>COSE 210</td>
<td>Esthetician II</td>
<td></td>
<td>Provides a study of Kentucky State Board of Hairdressers and Cosmetologists rules and regulations and anatomy and physiology as it relates to esthetics, and organic/inorganic chemistry and cosmetic ingredients. Covers facial enhancements through the use of make-up artistry and application. Includes hair removal procedures and applications.</td>
</tr>
<tr>
<td>COSE 2101</td>
<td>Kentucky State Board Rules and Regulations (1)</td>
<td></td>
<td>Provides a study of Kentucky Board of Hairdressers and Cosmetologists Rules and Regulations.</td>
</tr>
<tr>
<td>COSE 2102</td>
<td>Make-Up/Hair Removal (5)</td>
<td></td>
<td>Covers facial enhancements through the use of make-up artistry and application. Includes hair removal procedures and applications.</td>
</tr>
<tr>
<td>COSE 2103</td>
<td>Anatomy/Physiology for the Esthetician (3)</td>
<td></td>
<td>Provides a study of anatomy/physiology as it relates to esthetics.</td>
</tr>
<tr>
<td>COSE 2104</td>
<td>Cosmetic Chemistry (3)</td>
<td></td>
<td>Provides a study of organic/inorganic chemistry and cosmetic ingredients.</td>
</tr>
<tr>
<td>COSE 250</td>
<td>Salon/Spa Business and Management (4)</td>
<td></td>
<td>Procedures for business management. Prerequisites: (COSE 200 and 201 and 202 and 203 and 204) or consent of instructor.</td>
</tr>
<tr>
<td>COSE 251</td>
<td>Esthetic Practices (5)</td>
<td></td>
<td>Practice of esthetic setup, sanitation, and application.</td>
</tr>
</tbody>
</table>
techniques. Demonstration of various cosmeceutical products. Prerequisites: (COSE 200 and 201 and 202 and 203 and 204) or consent of instructor.

**COSE 252 Specialty Treatments** (1)
Advanced esthetics which includes peels, deep pore cleansing, clinical skin care, aroma therapy, and spa/body treatments. Prerequisites: (COSE 200 and 201 and 202 and 203 and 204) or consent of instructor.

**COSE 253 Advanced Clinical Skin Care** (3)
Study of the functions and benefits of electrotherapy. Topics will include pre- and post-operative care for physician treatments. Prerequisites: (COSE 200 and 201 and 202 and 203 and 204) or consent of instructor.

**COSE 270 Esthetician III** (13)
Covers procedures for business and management, the practice of esthetic setup, sanitation, application techniques, advanced esthetics which include peels, deep pore cleansing, clinical skin care, aroma therapy, and spa/body treatments. Provides for the study of the functions and benefits of electrotherapy including pre- and post-operative care for physician treatments and the application of various cosmeceutical products.

**Sub-Categories of COSE 270**

**COSE 2701 Salon/Spa Business and Management** (4)
Covers procedures for business management.

**COSE 2702 Esthetic Practices** (5)
Covers esthetic setup, sanitation, and application techniques. Provides for the application of various cosmeceutical products.

**COSE 2703 Specialty Treatments** (1)
Covers advanced esthetics which include peels, deep pore cleansing, clinical skin-care, aroma therapy, and spa/body treatments.

**COSE 2704 Advanced Clinical Skin Care** (3)
Covers the study of the functions and benefits of electrotherapy. Includes pre- and post-operative care for physician treatments.

**CPR 100 CPR for Healthcare Professionals** (3)
Cardiopulmonary resuscitation (Adult/Infant/Child) is a course designed to teach current emergency techniques relative to cardiac and/or respiratory arrest, as put forth by The American Heart Association, National Safety Council or American Red Cross. The American Heart Association, National Safety Council or American Red Cross standardized course qualifies a student for certification of cardiopulmonary resuscitation.

**CS 115 Introduction to Computer Programming** (3)
This course teaches introductory skills in computer programming using an object-oriented computer programming language. There is an emphasis on both the principles and practice of computer programming. Covers principles of problem solving by computer and requires completion of a number of programming assignments.

**CS 215 Introduction to Program Design, Abstraction, and Problem Solving** (4)
This course teaches introductory object-oriented problem solving, design, and programming engineering. An equally balanced effort will be devoted to the three main threads in the course: concepts, programming language skills, and rudiments of object-oriented programming and software engineering. Prerequisite: CS 115.

**CS 216 Introduction to Software Engineering** (3)
Software engineering topics to include: life cycles, metrics, requirements specifications, design methodologies, validation and verification, testing, reliability and project planning. Implementation of large programming projects using object-oriented design techniques and software tools in a modern development environment will be stressed. Prerequisite: CS 215.

**CS 275 - Discrete Mathematics** (4)
Topics in discrete math aimed at applications in Computer Science. Fundamental principles: set theory, induction, relations, functions, Boolean algebra. Techniques of counting: permutations, combinations, recurrences, algorithms to generate them. Introduction to graphs and trees. Prerequisites: MA 113 and CS 115.

**DAH 101 Infection Control & Medical Emergencies** (2)
Current regulatory mandates, specific step-by-step procedures related to infection control, management of hazardous materials in the dental office, management of emergency situations and basic concepts of pharmacology are introduced in this course. Prerequisites: Admission into the Dental Assisting/Dental Hygiene Integrated Program and completion of program Prerequisites: Dental
Hygiene: ENG 101 and BIO 137; Dental Assisting: BIO 135 or BIO 130 or HEA 110 or BIO 137 and BIO 139.

DAH 111 Preventive Dentistry (2)
Dental plaque and its role in dental diseases. The methods and agents utilized by the dental auxiliary to prevent plaque-induced diseases. The role of the dental auxiliary in a variety of prevention oriented programs. Prerequisites: (Completion of (DAH 101 and DAH 121 and DAH 135) and (DAS 120 or DHG 120) with a grade of “C” or better.

DAH 121 Dental Sciences I (3)
Oral histology and embryology, head and neck anatomy, and tooth morphology as applicable to the practice of dental assisting and dental hygiene. Prerequisites: Admission into the Dental Assisting/Dental Hygiene Integrated Program and completion of program prerequisites: Dental Hygiene: ENG 101 and BIO 137; Dental Assisting: BIO 135 or BIO 130 or HEA 110 or BIO 137 and BIO 139.

DAH 131 Oral Pathology (3)
The disciplines of general pathology and oral pathology as related to dental hygiene care. Prerequisites: Completion of (DAS 120 or DHG 120) and (DAH 101 and DAH 121 and DAH 135) with a grade of “C” or better.

DAH 135 Oral Radiology (2)
The theory and clinical practice of oral radiographic methods. History and development of x-radiation; properties and uses of x-radiation; radiation hygiene; exposing, processing and mounting of intraoral and extraoral films; and identification of radiographic anatomic landmarks. Prerequisites: Admission into the Dental Assisting/Dental Hygiene Integrated Program and completion of program prerequisites: Dental Hygiene: ENG 101 and BIO 137; Dental Assisting: BIO 135 or BIO 130 or HEA 110 or BIO 137 and BIO 139.

DAH 224 Materials in Dentistry (2)
The physical and chemical properties of dental materials with emphasis on composition and application. Prerequisites: Admission into the Dental Assisting/Dental Hygiene Integrated Program and completion of program prerequisites: Dental Hygiene: ENG 101 and BIO 137; Dental Assisting: BIO 135 or BIO 130 or HEA 110 or BIO 137 and BIO 139 or completion of DHG 130 and DHG 132 and DHG 136 with a grade ‘C’ or better.

DAH 235 Practice Management (1)
Legal, ethical and managerial aspects of the dental practice. Prerequisites: Completion of (DAH 101 and DAH 121 and DAH 135 and DAS 120) or (DHG 220 and DHG 221 and DHG 226) with a grade ‘C’ or better.

DAS 120 Dental Assisting I (5)
The preclinical application of dental assisting skills. Prerequisites: Admission to Dental Assisting/Dental Hygiene Integrated Program and completion of program prerequisites: Dental Hygiene: ENG 101 and BIO 137; Dental Assisting: BIO 135 or BIO 130 or HEA 110 or BIO 137 and BIO 139.

DAS 220 Dental Assisting II (6)
The preclinical/clinical application of dental assisting skills from DAS 120. Prerequisites: Completion of DAS 120 and DAH 101 and DAH 121 and DAH 135 and DAH 224 with a grade “C” or better.

DAS 251 Clinical Externship I (4)
A fundamental clinical experience conducted in participating dental offices. Prerequisites: Completion of DAS 120 and DAH 101 and DAH 121 and DAH 135 and DAH 224 with a grade “C” or better.

DAS 261 Clinical Externship II* This is an advanced clinical experience conducted in participating dental offices. *Integrated DA/DH Program. Prerequisites: Admission into the DA/DH Integrated Program and completion of previous semester course work with a grade “C” or better.

DFT 102 Drafting Fundamentals (4)
Explores drafting and its processes: use and maintain equipment and supplies; determine line weights; measure and read line lengths with drafting scales; measure angles; and draw lines, circles, arcs, and irregular curves. Freehand and mechanical lettering, geometric construction, freehand sketching, and beginning orthographic projection. Characteristics of lines and planes in orthographic projection and the principles applied to show the size and shapes of projects. Dimensioning techniques for orthographic drawings.

DFT 108 Introduction to Surveying (3)
Introduces the elements of surveying including measurements, distance corrections, leveling, angles, area computation, computer calculations, topographic surveying, electronic distance measuring instruments, construction surveying, GPS, and GIS.

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measurements, distance corrections, leveling, angles, area computation, computer calculations, topographic surveying, electronic distance measuring instruments, construction surveying, GPS, and GIS.

DFT 112 Engineering Graphics (4)
Includes exploration of lines and planes as they relate to orthographic projection to show the size and shape of objects. Includes application of principles and graphic elements of sectioning to show interior detail; the techniques involved in creating oblique projections, axonometric projections, and perspective drawings; and the dimensioning techniques and symbol usage common to all drafting disciplines. Prerequisites: DFT 102 with a grade of “C” or better or approval of program coordinator.

DFT 122 Introduction to Computer Aided Drafting (4)
Uses computer graphic workstation in the application of fundamental principles and capabilities of CAD, basic drafting conventions, and operations. An in-depth study of computer aided drafting commands, terminology, command utilization, and skill development. Prerequisites: DFT 102 with a grade of “C” or better or approval of program coordinator.

DFT 130 Descriptive Geometry (4)
Examines the spatial relationships between points, lines, and planes in various orthographic projections with graphical solutions; explores the processes to solve problems using auxiliary view projection methods, revolutions, intersections, and developments. Prerequisites: DFT 112 with a grade of “C” or better or approval of program coordinator.

DFT 152 Intermediate Computer Aided Drafting (4)
Uses CAD software to produce advanced two- and three-dimensional object drawings. Advanced techniques of drafting, layering, and symbols associated with one or more design applications. Calculations of perimeters, areas, and mass associated with the drawings. Prerequisites: DFT 122 with a grade of “C” or better or approval of program coordinator.

DFT 212 Industrial Drafting Processes (4)
Explores weldment design, welding symbols, welding processes, and fabrication techniques, tool and die, and jig and fixture drawings. Design specifications, pattern drawings, casting, forming processes, and mechanical drawing principles in relation to the manufacturing industry. Screw-thread design and related fastening concepts as they relate to manufactured items and construction. Prerequisites: DFT 122 with a grade of “C” or better or approval of program coordinator.

DFT 222 Mechanical Design (4)
Explores the design process involved in the development of mechanical working drawings and the design principles in various manufacturing disciplines; gear drawing and design, and cam and follower drawing and design. Design principles, mechanical adaptation, and their drawing practices. Mechanical assemblies, machine design, power transmission, bearings, and seals in assemblies. Shop processes involved in these mechanical designs. Prerequisites: DFT 122 with a grade of “C” or better or approval of program coordinator.

DFT 240 Advanced Dimensioning and Measurement (4)
Presents an in-depth study of advanced industrial dimensioning principles, tolerances, fits, and A.N.S.I. standards. Exploration of the shape and geometric characteristics of parts through geometric tolerancing. Prerequisites: DFT 112 with a grade of “C” or better or approval of program coordinator.

DFT 250 Advanced Computer Aided Drafting (4)
Introduces fundamental principles of the computer language(s) that represents and interfaces with the main CAD software. Write subroutines and programs to perform CAD functions not available in the main CAD software. Prerequisites: DFT 122 with a grade of “C” or better or approval of program coordinator.

DFT 252 Parametric Modeling (4)
Introduces Parametric Modeling and Design of a CAD workstation in exploring the techniques associated with drafting and design using Parametric modeling software. Introduces creation of parametric models and explores associative function and flexibility of concurrent part design. Prerequisites: DFT 152 with a grade of “C” or better or approval of program coordinator.

DFT 291 Special Problems (2)
This course is designed to allow the student to develop a portfolio of mechanical drawings specific to the occupational opportunities in his/her geographical location. Assignments and curriculum will vary as determined by the program instructor. Prerequisite: Permission of the instructor.

DFT 292 Industrial Applications (4)
Develop a portfolio of mechanical drawings specific to the occupational opportunities in specific geographical locations. Assignments and curriculum
will vary as determined by the program instructor. Prerequisite: Approval of program coordinator.

**DFT 293 Special Problems (1-4)**
Expands the portfolio of mechanical drawings specific to the occupational opportunities in specific geographical locations. Prerequisite: Approval of program coordinator.

**DFT 298 Practicum (1-3)**
Provides supervised work experiences related to the student’s educational objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Approval of program coordinator.

**DFT 299 Cooperative Education (1-3)**
Provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Co-op Education program receive compensation for their work. Prerequisite: Approval of program coordinator.

**DH 120 Dental Hygiene I (5)**
The basic assessment and clinical skills, related theory, professional role and responsibilities of the dental hygienist as a member of the dental health team are included. Prerequisites: Completion of BIO 137 and BIO 139, both with a grade of C or better and acceptance into the Dental Hygiene Program.

**DH 121 Oral Biology I (3)**
Oral histology and embryology, regional head and neck anatomy, and dental anatomy applicable to the practice of dental hygiene are included in this course. Prerequisites: Completion of BIO 137 and BIO 139, both with a grade of C or better and acceptance into the Dental Hygiene program.

**DH 130 Dental Hygiene II (4)**
This course is a continuation of DH 120 which prepares the student to provide treatment that includes preventative and therapeutic procedures to promote and maintain oral health and assist the patient in achieving oral health goals. Prerequisites: Completion of DH 120, DH 121 and BSL 214 (or BIO 226), all with a grade of C or better.

**DH 131 Oral Biology II (5)**
The disciplines of general pathology, oral pathology, pharmacology, and therapeutics as related to dental hygiene care are covered in this course. Prerequisites: Completion of DH 120, DH 121 and BSL 214 (or BIO 226) all with a grade of C or better.

**DH 135 Dental Radiology (3)**
The theory and clinical practice of oral radiographic methods are presented in this course. Also included are: history and development of x-ray radiation; properties and uses of x-ray radiation; radiation hygiene; exposing, processing and mounting intraoral and extraoral radiographs; identification of radiographic anatomical landmarks; and advancements in computer imaging technology in dental radiology. Prerequisites: Completion of DH 120, DH 121 and BSL 214 (or BIO 226) all with a grade of C or better.

**DH 136 Periodontics for the Dental Hygienist I (2)**
This course focuses on the clinical, histological and radiographic differences between healthy and unhealthy periodontal tissues. Topics to be discussed also include etiology, risk factor assessment, pathogenesis and classification of periodontal diseases. Prerequisites: Completion of DH 120, DH 121 and BSL 214 (or BIO 226), all with a grade of C or better.

**DH 220 Dental Hygiene III (4)**
Dental Hygiene III emphasizes the continued treatment of clinical patients. Treatment and management of dental patients with special needs are also addressed with attention to appropriate changes in dental treatment in response to a patient’s medical condition. Prerequisites: Completion of DH 130, DH 131, DH 135, DH 136 and NFS 101, all with a grade of C or better.

**DH 222 Special Needs Patients (3)**
Focus is on oral healthcare that is tailored to the specific needs of persons with a variety of medical, disabling or mental conditions. Innovative approaches to serving special care populations are discussed with special emphasis on pharmacological concerns and on treatment modifications. Prerequisites: Completion of DH 130, DH 131, DH 135, DH 136 and NFS 101, all with a grade of C or better.

**DH 224 Dental Materials (2)**
The physical and chemical properties of dental materials and their application are introduced. Prerequisites: Completion of DH 130, DH 131, DH 135 and DH 136, all with a grade of C or better.

**DH 226 Periodontics for the Dental Hygienist II (2)**
This course provides for the continuation and expansion of the content of Periodontics for the Dental Hygienist I. The role of the dental hygienist in the recognition of systemic implications as related to periodontal diseases is emphasized. Current
Advancements in the management of patients with periodontal disease are emphasized. Supportive periodontal therapy will be discussed and current surgical therapies will be introduced. Prerequisites: Completion of DH 130, DH 131, DH 135, DH 136 and NFS 101, all with a grade of C or better.

**DH 229 Local Anesthesia (2)**
Common oral local anesthesia injection techniques and the related background information are addressed in this course. Subjects include: anatomic considerations, armamentarium, basic injection techniques, record keeping, neurophysiology, related pharmacology, patient evaluation, complications and contraindications. The pharmacology, administration and contraindications of Nitrous Oxide are also included. This elective course satisfies the Kentucky State Dental Practice Act regarding “delegation of block and infiltration anesthesia and nitrous oxide analgesia to dental hygienists.” Prerequisites: Completion of DH 130, DH 131, DH 135 and DH 136 all with a grade of C or better.

**DH 230 Dental Hygiene IV (4)**
This course focuses on the mastery of all dental hygiene clinical skills utilized in treating patients. Prerequisites: Completion of DH 220, DH 221, DH 224, and DH 226, all with a grade of C or better.

**DH 235 Principles of Practice (1)**
This course covers the legal, ethical, and managerial aspects of dental hygiene practice. Prerequisites: Completion of DH 220, DH 222, DH 224 and DH 226, all with a grade of C or better.

**DH 238 Community Dental Health (4)**
Basic concepts in assessing community dental health needs are introduced. Planning, implementing and evaluating dental health programs, as well as current trends and issues in preventive dental health education, are discussed. Concepts related to reading and interpreting scientific literature are also included. Students must develop and present a community dental health project and scientific tabletop presentation. Prerequisites: Completion of DH 220, DH 222, DH 224 and DH 226, all with a grade of C or better.

**DH 299 Independent Study in Dental Hygiene (1-4)**
A special project or experience, approved by an instructor, provides an objective for independent study for dental hygiene technology students. This course may be repeated to a maximum of six credit hours. Prerequisite: Consent of instructor.

**DIT 100 Mechanical Concepts (3)**
This course introduces the student to the basic fundamentals of precision measurement and its application to the industrial setting.

**DIT 101 Basic Equipment Operation for Mechanics (3)**
This course is designed to give diesel technology students, who are seeking the construction equipment mechanic track, the basic operation of various types of heavy equipment. This class gives the student the skills needed to operate heavy equipment to the level that allows them to diagnose mechanical and other operational problems of the equipment. (This course is a prerequisite for the Construction Equipment Technician diploma program at Hazard Technical College and CVTC - Middlesboro Campus.) (This course is also a prerequisite to the Heavy Equipment Operation program at Hazard Technical College.)

**DIT 103 Preventive Maintenance Lab (1)**
Instruction on preventive maintenance practices, scheduled procedures, documents, and D.O.T. required record system and on determining the needs for repair.

**DIT 110 Introduction to Diesel Engines (3)**
Fundamental concepts of the operation of two- and four-stroke diesel and gasoline engines. Topics include basic engine components and their functions, engine performance terminology, two- and four-stroke operation, combustion principles, and engine disassembly with basic hand tools. Co-requisite: DIT 111.

**DIT 111 Introduction to Diesel Engines Lab (2)**
Practical experience of concepts from DIT 110. Co-requisite: DIT 110.

**DIT 112 Diesel Engine Repair (3)**
Students learn to take a disassembled engine and evaluate the condition of each component. They identify the use or function of each component of the engine. Topics include cylinder block and components, cylinder heads and valve train components, and engine lubrication systems. Prerequisites: DIT 110, DIT 111 or ADX 150, ADX 151 Co-requisites: DIT 113.

**DIT 113 Diesel Engine Repair Lab (2)**
Practical experience of concepts from DIT 112. Co-requisite: DIT 112.

**DIT 120 Introduction to Maintenance Welding (3)**
This course provides training in the identification, inspection and maintenance of welding electrodes.
Training will be given in the principles and processes of welding plates and pipes. Instruction will be given in lab safety and basic oxy fuel cutting.

**DIT 121 Introduction to Maintenance Welding Lab (2)**
This course provides laboratory experiences in which students acquire the manipulative skills needed to weld surface, fillet, and groove welds in flat and horizontal positions. The studies will perform oxy fuel cutting operations.

**DIT 122 Undercarriage (3)**
Students learn the theory and operation of undercarriage systems and their components. These components include endless track, roller track, roller frames, idlers, roller supports, and mainframes. Co-requisite: DIT 123

**DIT 123 Undercarriage Lab (2)**
This course provides opportunities to troubleshoot and repair some parts of undercarriage systems and their components. These components include endless track, roller track, roller frames, idlers, roller supports, and mainframes. Co-requisite: DIT 122

**DIT 140 Hydraulics (3)**
Theory and operation of a complete hydraulic system. Co-requisite: DIT 141.

**DIT 141 Hydraulics Lab (2)**
Practical application of concepts taught in DIT 140. Co-requisite: DIT 140.

**DIT 150 Power Trains (3)**

**DIT 151 Power Trains Lab (2)**
Practical application of concepts taught in DIT 150. Co-requisite: DIT 150.

**DIT 152 Powertrain for Construction Equipment (3)**
Students learn the theory and principles of the operation of power transmissions. They learn to diagnose and repair power train units including torque connectors, standard and automatic transmissions.

**DIT 153 Powertrain for Construction Equipment Lab (2)**
Students troubleshoot, disassemble, evaluate parts and reassemble components of a power train system, such as torque connectors, standard and automatic transmissions, and drive lines.

**DIT 160 Steering and Suspension (3)**

**DIT 161 Steering and Suspension Lab (2)**

**DIT 180 Brakes (3)**

**DIT 181 Brakes Lab (2)**

**DIT 190 Electrical Systems for Diesel Equipment (3)**
The theory and operation of wiring circuits and battery service. Prerequisite: DIT 102 with a grade of C or better. Co-requisite: DIT 191.

**DIT 191 Electrical Systems for Diesel Equipment Lab (2)**
Practical application of concepts taught in DIT 190. Co-requisite: DIT 190.

**DIT 193 Special Problems I (1)**
A course designed for the student who has demonstrated special needs. Prerequisite: Permission of instructor.

**DIT 195 Special Problems II (2)**
A course designed for the student who has demonstrated special needs. Prerequisite: Permission of instructor.

**DIT 197 Special Problems III (3)**
A course designed for the student who has demonstrated special needs. Prerequisite: Permission of instructor.

**DIT 198 Practicum (1)**
The Practicum provides supervised on-the-job work experience related to the student’s education objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Permission of instructor.

**DIT 199 Cooperative Education (1)**
The cooperative education program provides supervised on-the-job work experience related to the student’s education objectives. Students participating...
in the Cooperative Education Program normally receive compensation. Prerequisite: Permission of instructor.

**DIT 298 Practicum (2)**
The Practicum provides supervised on-the-job work experience related to the students education objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Permission of instructor.

**DIT 299 Cooperative Education II (2)**
The co-op provides supervised on-the-job work experience related to the students education objectives. Students participating in the Cooperative Education Program normally receive compensation. Prerequisite: Permission of instructor.

**DLT 101 Dental Morphology (2)**
The anatomical characteristics and dental terminology of the permanent human dentition are detailed. Other topics include dento-osseous structures, oral musculature, and the development of teeth. Waxing exercises of selected teeth are performed in the laboratory as a means of understanding tooth form and the development of manual dexterity. Prerequisites: Admission into the Dental Laboratory Technology Program or consent of instructor.

**DLT 111 Dental Materials I (2)**
The major content of this course includes an introduction to the study of dental materials including basic concepts in chemistry. Emphasis is placed on the chemical and physical properties of gypsum, resin, and wax used in dentistry. Basic manipulation of these materials is included in order to prepare the student for future use in the dental laboratory. Prerequisites: Admission into the Dental Laboratory Technology Program or consent of instructor.

**DLT 112 Dental Materials II (2)**
This course emphasizes the metallurgy of dental alloys including the mechanism of crystallization, strain hardening and the chemical process of corrosion. Materials associated with fabricating dental prostheses are studied and include impression materials, cast alloys and wrought alloys. Hazard and infection control procedures in the dental laboratory are presented as well as basic study of applicable physics and unit conversion. Prerequisites: DLT 111 or consent of instructor.

**DLT 121 Complete Dentures I (2)**
The basic principles of complete denture prosthodontics is presented including the fundamentals of arranging and contouring artificial dentures. Identification of oral landmarks and changes that occur in the edentulous patient are discussed. Emphasis is placed on identifying the purpose and use of custom trays, baseplates and occlusion rims. Laboratory procedures include fabricating custom trays, baseplates, occlusion rims, and a complete set of dentures. Prerequisite: Admission into the Dental Laboratory Technology program.

**DLT 122 Complete Dentures II (2)**
Advanced principles of complete denture prosthodontics are presented including balanced, monoplane and lingualized occlusion. Emphasis is also placed on the considerations in the oral cavity that affect the success of removable prosthodontic treatment. Laboratory procedures include denture repairs, selective grinding and fabricating complete dentures. Prerequisite: DLT 121.

**DLT 131 Removable Partial Dentures I (2)**
The basic principles of removable partial denture prosthodontics are presented. Emphasis is placed on the fabrication procedures and understanding of the basics of survey and design. Detailed information about the various major and minor connectors is discussed as well as learning the Kennedy Classification system. Laboratory procedures include fabricating two removable partial dentures including the attachment of artificial denture teeth. Prerequisite: DLT 121.

**DLT 132 Removable Partial Dentures II (2)**
Advanced principles of removable partial denture prosthodontics is presented with emphasis on design principles. Detailed information about direct retainers, indirect retainers, rests and bases is discussed. Laboratory procedures involve fabricating three removable partial dentures including the attachment of artificial denture teeth. Prerequisite: DLT 131.

**DLT 142 Occlusion (2)**
Theories of occlusion; interarch and intraarch relationships; the temporomandibular joint and its movements; articulators, interocclusal records, and face-bow transfer; occlusal schemes; and restorative considerations in occlusal therapy are discussed and/or put to practical application in this course. Prerequisite: Admission into the Dental Laboratory Technology program.

**DLT 151 Fixed Prosthodontics I (2)**
The basic principles of crown and bridge fixed
prosthodontics are presented including the fabrication of both single and multi-unit full metal restorations. Emphasis is placed on preparing and evaluating working casts, waxing anatomical tooth patterns, spruing, investing, burnout, casting, and polishing. Additional laboratory procedures include fabricating restorations on various types of articulators, developing functional occlusion, and soldering. Prerequisite: Admission into the Dental Laboratory Technology program.

DLT 152 Fixed Prosthodontics II (2)
The basic principles of metal ceramic fixed prosthodontics are presented including the fabrication of both single and multi-unit restorations. Emphasis is placed on esthetic restorations, preparing and evaluating working casts, waxing substructure patterns, spruing, investing, burnout, casting, and polishing. Additional laboratory procedures include applying opaque, dentin, and enamel ceramic powders and contouring fired porcelain. Prerequisite: DLT 151.

DLT 261 Applied Laboratory Techniques (8)
Students fabricate a more complex variety of dental prostheses in four specialty areas: complete denture prosthodontics, removable partial denture prosthodontics, dental ceramics, and fixed prosthodontics (crown and bridge). Curriculum content includes reinforcement of techniques and procedures that are taught in the 100 level Dental Laboratory Technology courses. Emphasis will be placed on management of laboratory time and project load to improve the quantity and quality of laboratory work. Prerequisites: DLT 122, DLT 132, DLT 142, and DLT 152.

DLT 262 Advanced Specialty Laboratory Techniques (8)
Students fabricate dental prostheses at a more advanced level in at least one of the following specialty areas: complete denture prosthodontics, dental ceramics, fixed prosthodontics (crown and bridge), orthodontic appliances, or removable partial denture prosthodontics. Emphasis is placed on incorporating productivity, flow time, and quality requirements. Laboratory experience is provided in the classroom or selected externships in local dental laboratories. Prerequisite: DLT 261.

DLT 281 Orthodontic Laboratory Techniques (2)
Fixed, removable, active and passive orthodontic appliances are studied in this course. Principles of tooth movement, classifications of malocclusion, orthodontic materials and their manipulation, orthodontic study models, and functional appliances will be discussed. Prerequisite: DLT 122.

DLT 291 Dental Laboratory Management, History and Ethics (2)
Dental laboratory management, business plans, financial planning, history of dentistry and dental technology, and those ethics and laws which are specific to dentistry will be presented. Prerequisite: Completion of all 100 level Dental Laboratory Technology courses.

DRE 010 Reading Laboratory (3)
Designed to improve reading comprehension and vocabulary skills, to develop a variety of reading rates, and to prepare students for college reading through individualized and/or group instruction and practice. Students will be recommended to this course based on the placement examination.

DRE 015 College Study Strategies (3)
Deals with the development or improvement of study strategies such as time management, study management in the content areas, organization of ideas, listening, note-taking, memory, test-taking, concentration, cognitive styles, etc. Pass/Fail.

DRE 030 Improving College Reading (3)
Designed to improve proficiency in reading comprehension, vocabulary, and critical reading skills. Strategies taught in the course are applied to college level reading materials. Students will be recommended to this course based on the placement examination.

ECO 101 Contemporary Economic Issues (3)
A basic course in the analysis of contemporary economic issues with emphasis on current economic topics such as inflation, poverty and affluence, urban congestion, and environmental pollution. (Credit will not be given for this course to students who have received prior credit in ECO 201 and/or 202, and/or ECO 260 and/or 261.)

ECO 201 Principles of Economics I (3)
The study of the allocation of scarce resources from the viewpoint of individual economic units. Topics include household and firm behavior, competitive pricing of goods and resources, and monopoly power. (Credit will not be given for this course to students who have received credit in ECO 261.)

ECO 202 Principles of Economics II (3)
A study of how society’s needs are satisfied with the limited resources available. Topics include contemporary issues such as inflation,
unemployment, economic growth, international dependencies, and how public policy deals with them. (Credit will not be given for this course to students who have received credit in ECO 260.) Prerequisites: ECO 201 or equivalent.

ED 101 Orientation to Education (3)
Introduces the roles and responsibilities of both the paraeducator and the classroom teacher. Recognizing the importance of communication and teamwork in the instructional environment, the course covers legal and ethical issues that might be encountered in the classroom, instructional support strategies that might be implemented by paraeducators, universal health and safety procedures. The student will be introduced to the design of learning environments that encourage active participation in individual and group settings. (Ten hours field work required.)

ED 102 Child and Adolescent Development (3)
Acquaints the student with the cognitive, social, moral, language, emotional, and physical development of children and adolescents. Students will develop an understanding of how these theories are applied in the modern classroom. (Ten hours field work required.)

ED 103 Introduction to Special Education (3)
An introductory course designed for all paraeducators. The student will be introduced to methods on the creation of a learning environment, basic classroom management theories, key principles and practices of special education, and the similarities and differences of individuals with and without exceptional learning needs. (Ten hours field work required.)

ED 104 Introduction to Behavior Management (3)
Introduces the student to strategies of classroom and behavior management that create a positive learning environment encouraging student self-advocacy, increased independence, and improved communication skills. This course will introduce behavior management strategies that encourage respect and value individual differences among children, youth, and adults and how consequences should be used to motivate positive student behavior. Chronic behavior problems will also be addressed. (Ten hours field work required.)

ED 105 Practical Experiences for the Paraeducator (3)
A capstone course for the paraeducator certificate and a component of the Teacher Associate option of the Education AAS degree. Students will complete their certificate portfolio in preparation for the Kentucky Paraeducator Assessment or Kentucky Department of Education approved alternative assessment. (150 hours fieldwork). Prerequisites: ED 101 and ED 102 and ED 103 and ED 104 or consent of coordinator.

ED 201 An Introduction to American Education (3)
A practical introduction to the teaching profession is presented for those considering a career in education. Topics include teaching as a profession, major educational philosophies, school reform, trends and issues in education, curriculum, and instruction. A field experience consisting of a minimum of 15 clock hours in approved educational activities is required. Prerequisites: ENG 101 or consent of instructor.

ED 280 Education Externship/Co-Op (3)
A capstone/portfolio course for the AAS degree in Education, designed to integrate program competencies and curriculum to create a cumulative portfolio which will demonstrate their professional abilities. Students in the teacher preparation option will prepare to take the Praxis I assessment. (150 hours field work). Prerequisite: All program courses or consent of coordinator.

EDP 202 Human Development and Learning (3)
Presents theories and concepts of human development, learning, and motivation and applies them to interpreting and explaining human behavior and interaction in relation to teaching across the developmental span from early childhood to adulthood. Requires field experience of a minimum of 15 clock hours in instructor-approved educational agencies. Prerequisites: PSY 100 or PY 110.

EDP 203 Teaching Exceptional Learners in the Regular Classroom (3)
Introduces the characteristics and instructional needs of exceptional learners with an overview of principles, procedures, methods, and materials for adapting educational programs to accommodate the integration of exceptional children in regular classrooms, when appropriate. Requires field experience of a minimum of 12 clock hours in instructor-approved educational agencies. Prerequisite: EDP 202 with an earned grade of C or higher.

EDP 202 Human Development and Learning (3)
Theories and concepts of human development, learning, and motivation are presented and applied to interpreting and explaining human behavior and interaction in relation to teaching across the developmental span from early childhood to adulthood. A field experience in a school or other
EDP 203 Teaching Exceptional Learners in Regular Classrooms (3)
An introduction to the characteristics and instructional needs of exceptional learners is presented with an overview of principles, procedures methods, and material for adapting education program to accommodate the integration of exceptional children in regular classrooms, when appropriate. A field experience in a school or other educational agency is a required and basic part of the course. Prerequisite: PSY 100.

EET 150 Transformers (2)
Focuses on the operation, installation and application of AC single-phase and three-phase transformers. Testing and maintaining transformer equipment are emphasized, with safety integrated as a core component of the study. Prerequisites: [(ENGT 110 and ENGT 114) with a minimum of “C”] or consent of Electrical Technology program advisor(s). Co-requisite: EET 151.

EET 151 Transformers Lab (1)
Focuses on the operation, installation and application of AC single-phase and three-phase transformers. Testing and maintaining transformer equipment is emphasized, with safety integrated as a core component of the study. Prerequisites: [(ENGT 111 and ENGT 113 and ENGT 115 and ENGT 117) with a minimum grade of “C”] or consent of Electrical Technology program advisor(s). Co-requisite: EET 150.

EET 154 Electrical Construction I (2)
Involves the study of materials and procedures used in construction wiring. Co-requisite: EET 155

EET 155 Electrical Construction I Lab (2)
Designed to give hands-on experiences with electrical materials and equipment in construction wiring. Co-requisite: EET 154.

EET 198 Practicum (2)
The practicum provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Practicum Education program do not receive compensation for their work. Prerequisite: Consent of instructor

EET 199 Cooperative Education Program (2)
Co-op provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Cooperative Education program receive compensation for their work. Prerequisite: Consent of instructor

EET 250 National Electrical Code (4)
Emphasizes the importance of the National Electrical Code as it applies to electrical installations: electrical safety issues, prevention of fire due to the use of electrical energy, prevention of loss of life and property from the hazards that might arise from the use of electrical energy, and proper selection of electrical equipment for hazardous and non-hazardous environments. A learning resource in the preparation for electrical licensing examinations. Prerequisite: [(EET 154 and EET 155 and EET 252 and EET 253) or (EET 254 and EET 255) with minimum grade of “C”] or consent of Electrical Technology program advisor(s).

EET 252 Electrical Construction II (2)
Expands the knowledge and skills needed to work in commercial and industrial construction wiring. Prerequisites: Consent of instructor or EET 154. Co-requisite: EET 253

EET 253 Electrical Construction II Lab (2)
Provides hands-on experiences needed to work in commercial and industrial construction wiring. Co-requisite: EET 252.

EET 254 Electrical Construction (3)
This course involves the study of materials and procedures and expands the knowledge and skills needed to work in commercial and industrial construction wiring. Co-requisite: EET 255.

EET 255 Electrical Construction Lab (4)
Designed to give hands-on experiences with electrical materials and equipment in commercial and industrial construction wiring. Co-requisite: EET 254.

EET 264 Rotating Machinery (2)
Focuses on the underlying principles of rotating electrical equipment including DC and AC motors and generating equipment construction, operating applications, and the maintenance of DC and AC motors and generating equipment. Prerequisites: [(ENGT 110 and ENGT 114) with a minimum grade of “C”] or consent of Electrical Technology program advisor(s). Co-requisite: EET 265.

EET 265 Rotating Machinery Lab (2)
Focuses on the principles of operation, application and maintenance of single-phase and three-phase AC motors and AC alternators, DC motors, DC
generators. A study of and compliance with the National Electrical Code standards. Prerequisites: [(ENGT 111 and ENGT 113 and ENGT 115 and ENGT 117) with a minimum grade of “C” or greater] or consent of Electrical Technology program advisor(s). Co-requisite: EET 264.

EET 270 Electrical Motor Controls I (2)
This course addresses the diversity of control devices and applications used in industry today. Safety and electrical lockouts are also included. Prerequisites: Consent of instructor or EET 108 Co-requisite: EET 271.

EET 271 Electrical Motor Controls I Lab (2)
Provides practical experience in the use of control devices and their applications in industry today. Safety and electrical lockouts are included. Co-requisite: EET 270.

EET 272 Electrical Motor Controls II (2)
This course provides advanced study of motor controls in industry. The course addresses solid state relays, hall effect sensors, proximity detectors and photo detectors. Tasks include sketching, installing and troubleshooting the following: three phase controls, variable speed drives using relays as well as solid state devices, and introduction to programmable controls. Prerequisite: EET 270. Co-requisite: EET 273.

EET 273 Electrical Motor Controls II Lab (2)
This course provides hands-on experience in advanced studies in electrical controls used in industry including three-phase motor control and variable speed control using solid state devices and programmable controls. Prerequisite: EET 270. Co-requisite: EET 272.

EET 276 Programmable Logic Controllers (2)
Underlying principles and applications of programmable logic controllers including installation, logic fundamentals, and numbering systems; basic programming of inputs, outputs, timers, and counters, comparators, basic data manipulation, and safety circuits of industrial PLCs. Prerequisites: [(ENGT 110 and ENGT 114 and EET 270 and EET 272) or (EET 274) minimum grade of “C” or consent of Electrical Technology program advisor(s). Co-requisite: EET 277.

EET 277 Programmable Logic Controllers Lab (2)
Provides practical applications of programmable logic controllers including installation, logic fundamentals, and numbering systems; basic programming of inputs, outputs, timers, and counters, comparators, basic data manipulation, and safety circuits of industrial PLCs. Prerequisites: [(ENGT 111 and ENGT 113 and ENGT 115 and ENGT 117 and EET 265 and EET 271 and EET 273) with a minimum grade of “C”] or consent of Electrical Technology program advisor(s). Co-requisite: EET 276.

EET 281 Special Problems I (1)
A course designed for the student who has demonstrated specific special needs. Prerequisite: Permission of instructor.

EET 283 Special Problems II (2)
A course designed for the student who has demonstrated specific special needs. Prerequisite: Permission of instructor.

EET 285 Special Problems III (3)
A course designed for the student who has demonstrated specific special needs. Prerequisite: Permission of instructor.

EET 286 Programmable Logic Controllers II (2)
Focuses on sequencer instructions, shift registers, process control instructions, networking, communications, human to machine interfaces, and troubleshooting techniques used with programmable logic controllers. Prerequisites: EET 276 and EET 277 with a minimum grade of “C” or consent of Electrical Technology program advisor(s). Co-requisite: EET 287.

EET 287 Programmable Logic Controllers II Lab (2)
Provides hands on lab applications dealing with sequencers, shift registers, networks, communication software, human to machine interfaces, analog devices, and troubleshooting. Prerequisites: EET 276 and EET 277 with a minimum grade of “C” or consent of Electrical Technology program advisor(s). Co-requisite: EET 286.

EET 298 Practicum (1-8)
The Practicum provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Practicum do not receive compensation. (This course may be taken for 1-8 credits.)

EET 299 Cooperative Education Program (1-8)
Co-op provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Cooperative Education program receive compensation for their
work. (This course may be taken for 1-8 credits.)
Prerequisite: Consent of instructor

**ENC 090 Foundations of College Writing I (3)**
An introduction to composition for students needing basic writing instruction and a comprehensive review of mechanics and grammar as these apply to their own writing. This course stresses clarity, organization, development, and correctness in writing with an emphasis on paragraph length assignments. Students will be recommended to this course based on the placement examination.

**ENC 091 Foundations of College Writing II (3)**
Designed for students with some writing experience, this course includes instruction in the following: the writing process, organization, multiparagraph writings, editorial improvement, and critical reading. An introduction to research and documentation is also included. Students will be recommended to this course based on the placement examination.

**ENC 092 Writing Laboratory (1)**
The writing laboratory may supplement the concurrent composition course. It is designed to provide individual assistance in meeting students' specific writing needs. This course can be repeated with each writing course taken. Pass/Fail only.

**ENC 099 Writing Lab for English 101 ESL Students (3)**
The writing lab will supplement the ENG101 writing/grammar course. It is designed to provide more time to meet the grammar/writing needs of ESL students. Prerequisites: ENC 097 or assessment placement.

**ENG 100 Writing I (3)**
Provides parallel and supplemental review of English skills needed for students with an English ACT of 18 or 19 or a Compass placement test score between 70-80 who are also enrolled in ENG 101. If these students withdraw from ENG 101, they must also withdraw from ENG 100. Credit cannot be received by special exam.

**ENG 101 Writing I (3)**
Focuses on academic writing. Provides instruction in drafting and revising essays that express ideas in Standard English, including reading critically, thinking logically, responding to texts, addressing specific audiences, researching and documenting sources. Includes review of grammar, mechanics, and usage. NOTES (a) credit not available by special examination; (b) ENG 101 and ENG 102 may not be taken concurrently. Prerequisites: Appropriate writing placement score or ENG 091.

**ENG 102 Writing II (3)**
Emphasizes argumentative writing. Provides further instruction in drafting and systematically revising essays that express ideas in Standard English. Includes continued instruction and practice in reading critically, thinking logically, responding to texts, addressing specific audiences, and researching and documenting credible academic sources. NOTE: Credit not available by special examination. Prerequisite: ENG 101.

**ENG 105 Writing an Accelerated Course (3)**
An intensive course in writing that combines the content of ENG 101 and ENG 102, emphasizing argumentation and library research. ENG 105 satisfies the University Writing Requirement for students who qualify for admission by ACT score and special examination. NOTE: Credit for this course and for fulfillment of the University Writing Requirement possible by CLEP examination.

**ENG 161 Introduction to Literature (3)**
An analytical rather than historical approach to literature intended to deepen the student's insight into the nature and purpose of literature.

**ENG 203 Business Writing (3)**
Instruction and experience in writing for business, industry, and government. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prerequisite: Completion of University Writing requirement.

**ENG 207 Beginning Workshop in Imaginative Writing (Subtitle required) (3)**
A beginning course in the craft of writing, teaching students how to read critically and how to revise work in progress. The students provide an audience for each other’s work. Exercises involve practice in aspects of craft and promote experimentation with different forms, subjects, and approaches; outside reading provides models and inspiration. May be
repeated under different subtitle to a maximum of six credits. Prerequisite: Consent of instructor.

**ENG 231 Literature and Genre (3)**
A course exploring one or two different literary forms or genres, i.e. the formal categories into which literary works are placed. Students will explore the conventions of each genre and their related sub-genres. Attention will be paid to student writing.

**ENG 232 Literature and Place (3)**
A course exploring a number of selected literary texts, with special attention to the construction of personal, ethnic, racial, or national identity. The course may consider how race, class, sexuality, and/or nationality influence representations of experience. Attention will be paid to student writing.

**ENG 233 Literature and Identities (3)**
A course exploring a number of selected literary texts, with special attention to the construction of personal, ethnic, racial, or national identity. The course may consider how race, class, sexuality, and/or nationality influence representations of experience. Attention will be paid to student writing.

**ENG 234 Introduction to Women’s Literature (3)**
This course will introduce students to a sampling of the rich body of women’s writing, focusing on some important issues and representative examples. Students will read canonical and non-canonical works, discuss continuities and differences among women writers, and master some of the basic concepts of gender studies.

**ENG 261 Survey of Western Literature from the Greeks through the Renaissance (3)**
A study of works by major Western authors from the Bible and ancient Greek literature through the Renaissance. Note: ENG 261 fulfills no requirement of the English major.

**ENG 262 Survey of Western Literature from 1660 to the Present (3)**
A study of works by major Western authors from mid-17th century to the present. Note: ENG 262 fulfills no requirements of the English major.

**ENG 264 Major Black Writers (3)**
A cross-cultural and historical approach to written and oral works by major Black authors of Africa, the Caribbean and the United States. The course includes writers such as Chinua Achebe (Africa), Wilson Harris (Caribbean), and Toni Morrison (USA). (Same as AAS 264.)

**ENG 281 Introduction to Film (3)**
An introduction to the study of the movies as a narrative art and a cultural document. Viewing of films outside of class is required. May not be taken concurrently with ENG 380.

**ENG 282 International Film Studies (3)**
Enhances student awareness of how cinema has been used as a multicultural tool for observing/analyzing various aspects of a broad range of societies. Includes critical analysis and interpretation of films from various cultures. Explores the films’ countries of origin and the cinematic impacts upon the society and the world.

**ENG 230 Introduction to Literature (3)**
An introduction to close reading and argumentative writing about literature, in relation to a significant theme. The course involves studying selected texts revolving around a single theme, learning how to relate texts to contexts, to read closely and use basic literary terms and concepts. Attention will be paid to student writing, particularly to devising a thesis, crafting an argument, and learning how to use supporting evidence.

**ENGT 110 Circuits I (5)**
Introduces application of basic DC and AC circuits, including circuit analysis techniques. Discusses introductory magnetism and transformer principles. Emphasizes design, construction, and troubleshooting of simple DC and AC circuits in laboratory exercises. Prerequisites T 065 or equivalent placement level or Consent of Instructor.

**Sub-Categories of ENGT 110**

**ENGT 1101 Basic Electricity (1)**
This module of ENGT110 is an introduction to basic DC circuits, specifically safety, basic test equipment, electrical resistance and Ohm’s law.

**ENGT 1102 Series and Parallel Circuits (1)**
This module of ENGT110 is an introduction to basic DC circuits, specifically series and parallel circuits. Emphasizes design, construction, and troubleshooting of simple DC circuits in laboratory exercises.

**ENGT 1103 Introductory Circuit Analysis (1)**
This module of ENGT110 is an introduction to basic DC circuits, specifically circuit analysis techniques. Emphasizes design, construction, and troubleshooting of simple DC circuits in laboratory exercises.

**ENGT 1104 Magnetism and Alternating Current (1)**
This module of ENGT110 is an introduction to basic AC circuits, specifically introductory magnetism and basic AC theory. Emphasizes design, construction, and troubleshooting of simple AC circuits in laboratory exercises.

**ENGT 1105 Capacitance and Inductance (1)**
This module of ENGT110 is an introduction to basic AC circuits, specifically capacitance, inductance and transformer principles. Emphasizes design, construction, and troubleshooting of simple AC circuits in laboratory exercises.

**ENGT 114 Circuits II (5)**
Addresses theory and application of complex alternating current and direct current circuits. Emphasizes impedance, reactance, power and electrical energy, electrical measurement instruments, and circuit analysis. Prerequisites: ENGT 110 with a grade of "C" or greater or Consent of Instructor.

**Sub-Categories of ENGT 114**

- **ENGT 1141 Circuit Analysis (1)**
  This module of ENGT114 addresses theory and application of complex alternating current and direct current circuits. Specifically, this course reviews AC basics, Inductive and Capacitive Reactance.

- **ENGT 1142 Complex Circuit Analysis (1)**
  This module of ENGT114 addresses theory and application of complex alternating current and direct current circuits. Specifically, this course emphasizes circuit analysis using Thevenin, Norton, superposition, Branch, Node and Mesh analysis.

- **ENGT 1143 RC, RL and RLC Circuits (1)**
  This module of ENGT114 addresses theory and application of complex alternating current and direct current circuits. Specifically, this course emphasizes impedance, reactance, power and electrical energy.

**ENGT 1144 Resonance and Filters (1)**
This module of ENGT114 addresses theory and application of complex alternating current and direct current circuits. Specifically, this course emphasizes resonance and filters.

**ENGT 1145 Phase Circuits (1)**
This module of ENGT114 addresses theory and application of complex alternating current and direct current circuits. Specifically, this course emphasizes 3-phase circuits.

**ENGT 120 Digital I (3)**
Introduces theory and application of digital logic methods. Includes Boolean algebra, combinational logic theory, sequential circuits, number systems and codes, and design and troubleshooting of digital logic circuits. Prerequisites: ENGT 065 or equivalent placement level or Consent of Instructor.

**Sub-Categories of ENGT 120**

- **ENGT 1201 Digital Basics (1)**
  This module of ENGT120 is an introduction to basic digital circuits, specifically number systems and input output functions of gates and circuits.

- **ENGT 1202 Logic Circuit Design (1)**
  This module of ENGT120 is an introduction to design methods for basic digital circuits.

- **ENGT 1203 Logic Circuit Components and Troubleshooting (1)**
  This module of ENGT120 covers construction, troubleshooting and testing of logic circuits.

**ENGT 210 Devices I (5)**
Provides basic theory and application of semiconductor devices. Emphasizes design, construction and troubleshooting of diode and transistor circuits, amplifiers and power supplies. Prerequisites: ENGT 110 with a grade of "C" or greater or Consent of Instructor.

**Sub-Categories of ENGT 210**

- **ENGT 2101 Semiconductor Basics (0.2)**
This module of ENGT 210 covers Devices, specifically basic semiconductor theory.

**ENGT 2102 Diode Circuits and Power Supplies (1.75)**
This module of ENGT 210 covers Devices, specifically: diodes, zener diodes, basic diode circuits, and power supplies.

**ENGT 2103 Transistors and Amplifiers (1.75)**
This module of ENGT 210 covers Devices, specifically: transistors, amplifiers and their characteristics, amplifier classes, and modeling of active devices.

**ENGT 2104 Design of Electronic Circuits (1.3)**
This module of ENGT 210 covers Devices, specifically: design, modify, and troubleshoot prototype circuits.

**ENGT 214 Devices II (5)**
Covers theory and application of advanced semiconductor devices. Emphasizes thyristors, FETs, integrated circuits, and other devices as applied to audio frequency amplifiers, feedback circuits, modulators, detectors, and other basic electronic circuits. Prerequisites: ENGT 210 with a grade of "C" or greater or Consent of Instructor.

*Sub-Categories of ENGT 214*

**ENGT 2141 Thyristors (0.4)**
This module of ENGT 214 covers Devices, specifically thyristor circuits.

**ENGT 2142 Op Amps (1.0)**
This module of ENGT 214 covers Devices, specifically op amp circuits and feedback.

**ENGT 2143 FET Circuits (1.0)**
This module of ENGT 214 covers Devices, specifically FET and MOSFET circuits

**ENGT 2144 Advanced Transistor Amplifier Circuits (0.8)**
This module of ENGT 214 covers Devices, specifically single and multi-stage transistor amplifier circuits.

**ENGT 2145 Power Supply Regulator Circuits (0.8)**
This module of ENGT 214 covers Devices, specifically power supply regulator circuits.

**ENGT 2146 Oscillators (1.0)**
This module of ENGT 214 covers Devices, specifically oscillators.

**ENGT 220 Digital II (3)**
Provides theory and application of advanced digital logic methods. Includes small and medium scale integrated circuits logic families, interfacing techniques, arithmetic circuitry, programmable devices, and an introduction to microprocessors. Prerequisites: ENGT 120 with a grade of "C" or greater or Consent of Instructor.

*Sub-Categories of ENGT 220*

**ENGT 2201 Medium scale integrated circuits (0.8)**
This module of ENGT 220 covers Digital Circuits, specifically medium scale integrated circuits such as counters, simple ALUs, and registers.

**ENGT 2202 Interfacing of digital circuits (0.5)**
This module of ENGT 220 covers Digital Circuits, specifically common interfacing techniques used with digital circuits.

**ENGT 2203 Logic families (0.2)**
This module of ENGT 220 covers Digital Circuits, specifically the different logic families.

**ENGT 2204 Programmable devices (0.7)**
This module of ENGT 220 covers Digital Circuits, specifically common programmable devices.

**ENGT 2205 Microprocessors (0.8)**
This module of ENGT 220 covers Digital Circuits, specifically microprocessors and basic programming.

**ENGT 250 Communications Electronics (6)**
Provides the theory of AM and FM, RF communications, transmission, reception, multiplexing, and modern data communications. Prerequisites: (ENGT 220 and ENGT 214) or Consent of Instructor.

**ENM 100 Introduction to Energy Management (4)**
Examines the most critical areas of effective energy
cost reductions providing the latest strategies for improving building resource needs. Topics include distributed generation, energy auditing, rate structures, economic evaluation techniques, lighting efficiency improvements, HVAC optimization, insulation cost effective measures, control systems, energy systems maintenance, and renewable energy.

**ENM 110 Energy Conservation Code (3)**
Provides the rationale and benefits of the current energy conservation code adopted by the Commonwealth of Kentucky for residential and commercial buildings. The course addresses the design of energy-efficient building envelopes and installation of energy efficient systems resulting in optimal utilization of energy resources. Appropriate energy management compliance software will be utilized.

**ENM 120 Residential Energy Analysis (3)**
Examines ways to improve the energy efficiency of a residential building. The course emphasizes the building envelope, lighting, HVAC, motors, appliances, water and electrical system with a focus on the owner’s energy management system. For energy savings and reductions in operational expenses appropriate residential energy compliance software and residential energy ratings will be used.

**ENM 124 Commercial Energy Analysis (3)**
Examines ways to improve the energy efficiency of a commercial building. The course emphasizes the building envelope, lighting, HVAC, motors, appliances, water and electrical systems and their controls with a focus on an energy management system. For energy savings and reductions in operational expenses, commercial energy compliance software will be used.

**ENM 130 Sustainable Energy (3)**
Examines the sustainability of various energy resources. An overview of energy technology, energy resources, and emerging future energy technologies coupled with our energy use will bring into context the strengths and weaknesses of different energy methodologies in developing a working concept of sustainable energy.

**ENM 140 Renewable Energy Systems (3)**
Examines the need for alternative and renewable energy resources as a survey course providing citizens from all walks of life an understanding for responsible stewardships of technologies that will contribute to the sustainability of energy in our present and future societies.

**ENM 150 Solar Design and Applications (3)**
Examines active and passive solar energy designs and applications. Solar water heating for domestic use, solar air systems, new and retrofit solar home designs, and solar photovoltaic applications will be explored.

**ENM 198 Energy Management Practicum (2)**
Provides supervised on-the-job work experience related to the student’s educational objectives in energy management related field. Students participating in the Practicum Educational program do not receive compensation for their work.

**EQM 100 Introduction to Equine Studies (3)**
The intent of this course is to give students a general overview and basic understanding of the horse, its care and management. Course topics include identification, anatomy, health, nutrition, facility and equipment management.

**EQM 120 Introduction to Commercial Breeding Practices (4)**
The intent of this course is to introduce prospective horse farm personnel to the breeding farm environment. Numerous topics will be discussed that relate to commercial breeding farm management and the necessary record keeping requirements.

Prerequisites: EQM 100 or consent of instructor.

**EQM 120 Introduction to Commercial Breeding Practices (4)**
The intent of this course is to introduce prospective horse farm personnel to the breeding farm environment. Numerous topics will be discussed that relate to commercial breeding farm management and the necessary record keeping requirements.

Prerequisites: EQM 100 or consent of instructor.

**EQM 140 Equine Business Management I (2)**
Course in equine management that serves to introduce the student to private and commercial horse farm operations, economic trends in the horse industry, international marketplace, capital, credit and risk associated with the equine industry.
Prerequisites: EQM 100 and BE 160, or consent of instructor.

**EQM 140 Equine Business Management I (2)**
Course in equine management that serves to introduce the student to private and commercial horse farm operations, economic trends in the horse industry, international marketplace, capital, credit and risk associated with the equine industry. Prerequisites: EQM 100 and BE 160, or consent of instructor.

**EQM 240 Equine Business Management II (2)**
This course is a continuation of Equine Business Management I. Topics of discussion include types of farm ownership, structure of the horse farm as a business, and evaluation of farm financial performance through production levels, employee management, tax planning, bloodstock value, cash flow and budgeting. Prerequisites: EQM 140 and concurrent enrollment in or successful completion of ACC 201 and ECO 201, or consent of instructor.

**EQM 242 Equine Law (3)**
This course explores the value of legal documents as they relate to commercial and recreational horse/horse farm owners. Topics discussed include review of current legislation governing horse activities, types of legal contracts, liability issues, and security interests. Prerequisites: EQM 100 and BE 267, or consent of instructor.

**EQM 246 Current Trends in the Equine Industry (1)**
Seminar course in the horse industry designed to provide students with the opportunity to investigate, evaluate and debate key issues confronting horse owners and horse industry participants. Students are encouraged to analyze controversial circumstances in the equine industry and provide insight and logical conclusion. Seminar topics may include such issues as equine adoption, slaughter, transport, medications, account wagering, and public image. Prerequisites: EQM 242 or consent of instructor.

**EQM 250 Equine Practicum (3)**
A supervised, field-based learning experience in the equine industry, including observation and proactive participation in affiliated environments. Students are required to analyze their experiences throughout the semester to develop career objectives and strong interpersonal, communication and leadership skills. Prerequisites: EQM 240, EQM 242, and concurrent enrollment in or successful completion of EQM 246.

**EQS 102 Introduction to Racehorse Care (3)**
Introduces principles of care for racehorses in a race barn training environment with students learning industry accepted standards and techniques while providing daily care for 1 or 2 racehorses. Prerequisite: Permission of instructor.

**EQS 103 Racehorse Care II (3)**
Continues the learning experiences of EQS 102 and expands on advanced industry accepted techniques of caring for racehorses in a race barn training environment. Prerequisite: EQS 102.
EQS 110 Basic Equine Physiology (3)
Continues the study of equine care begun in EQM 100 examining the anatomy and physiology of equine body systems and applications of this knowledge to the raising, training and management of horses in general and racehorses in particular. Includes identification of three muscle fiber types; types, causes and symptoms of colic; thermoregulation; blood components and flow; upper and lower respiratory airway diseases and infectious neurological diseases. Prerequisites: EQM 100 or permission of instructor. Co-requisite: EQM 100.

EQS 111 Introduction to Riding Racehorses (1)
Covers requirements for becoming a licensed professional jockey including physical, mental and emotional components, regulatory agency requirements and necessary life management skills. Includes the history of race riding, identification of important riders in history and noteworthy current riders.

EQS 112 Racehorse Riding Skills I (3)
Introduces basic horse riding skills and their application to racehorse riding. Presents and requires daily practice of proper rider position at walk, trot, canter, on turn and in straights. Includes discussion and round pen applications of center of gravity of horse, center of gravity of rider and center of gravity of the combination of horse and rider. Teaches proper techniques for cooling out after exercise and or racing. Requires successful admission to jockey school. Prerequisite: Permission of instructor. Co-requisite: EQS 111.

EQS 113 Racehorse Riding Skills II (3)
Continues development of riding skills learned in EQS 112 by applying principles to riding racehorses in morning exercise sessions. Includes application of balance to evaluate soundness in racehorses; basic starting gate techniques for riders; principles of teaching young horses to enter and leave the starting gate and techniques for handling unruly horses. Prerequisites: EQS 112 and permission of instructor.

EQS 121 Introduction to Breaking and Training Racehorses (1)
Introduces the basic requirements for becoming a licensed racehorse trainer or other equine care worker. Includes historical contributions of prominent owners, breeders, trainers and racehorses that significantly impacted the history of their respective breed. Prerequisite: EQS 100. Co-requisite: EQS 100.

EQS 122 Yearling Breaking and Management (3)
Introduces the basics of managing and training weanling and yearling racehorses including conformation, movement, pedigree analysis; pre-purchase examinations and practical application of pressure-release techniques of breaking and training young racehorses. Prerequisites: EQS 121 and permission of instructor.

EQS 123 Breaking and Prepping Two-Year Olds (3)
Covers basics of managing racehorses through their yearling to 2-year old transition. Includes acquiring yearlings and/or two-year olds, breaking, prepping for in-training sales and/or racing, concepts of nutrition for growing equine athletes, cardiovascular conditioning, muscle fitness, sale presentation and injuries of two-year olds in race training. Prerequisites: EQS 122 or permission of instructor.

EQS 130 Introduction to the Racing Industry (3)
Introduces students to racing industry organizations, personnel, facilities and the rules of racing.

EQS 200 Lameness in Racehorses (3)
Expands on basic equine anatomy with emphasis on normal function of front and rear legs and methods of evaluating deviations from normal function presented as lameness in racehorses. Also discusses response to injury, forms of therapy and training methods for horses returning from injury. Prerequisites: EQS 110 or permission of instructor. Co-requisite: Concurrent enrollment in EQS 110.

EQS 202 Racing Stable Operations I (3)
Continues the experience of daily caring for a racehorse in training and adds development of a racing stable training routine and participation in the daily exercise and training of racehorses. Prerequisites: EQS 103 and permission of instructor.

EQS 203 Racing Stable Operations II (3)
Continues racing stable practices begun in EQS 202 adding additional concepts of managing a racing stable including supervision and instruction of hotwalkers and beginning grooms while participating in daily exercise and training of racehorses. Prerequisites: EQS 202 and permission of instructor.

EQS 212 Racehorse Riding Principles (3)
Builds on basic skills learned in EQS 113 and adds principles of riding racehorses on a training track in company of other horses and riders, teaching horses to pass others, working in company, proper use of
riding crop and breaking from a starting gate. Prerequisites: EQS 113 and permission of instructor.

EQS 213 Racehorse Riding Techniques (3)
Teaches advanced fundamentals of race riding. In this final riding course in the jockey pathway students breeze racehorses alone and in company, learn techniques of riding at each point in a race, get approved to break horses from a starting gate and practice race riding skills in training races. Prerequisites: EQS 212 and permission of instructor.

EQS 215 Life Skills for Jockeys (3)
Prepares student for life as a professional jockey. Includes integration of principles of nutrition into an eating plan that will maintain weight and health. Introduces concepts of practical financial management, insurance and retirement planning on a jockey’s salary. Ties together basic riding skills with interpersonal skills necessary for a successful life as a professional jockey. Prerequisites: EQS 212 and permission of instructor. Co-requisite: EQS 212.

EQS 222 Training Methods I (3)
Examines techniques of training racehorses and compares effectiveness of different racehorse training methods including interval training, Quarter Horse training, steeplechase training and standard Thoroughbred training. Includes shoeing, veterinary examinations of racehorses and alternatives to training on a dirt oval. Prerequisites: EQS 123 or permission of instructor.

EQS 223 Training Principles and Practices (3)
Builds on training methods learned in EQS 222 and explores current training practices employed in the racing industry. Requires students to develop a training plan for assigned NARA racehorses, supervise first year NARA student “employees,” participate in NARA training races and develop a plan to communicate with owners regarding the status of horses in training. Prerequisites: EQS 222 or permission of instructor.

EQS 225 Life Skills for Horsemen (3)
Explores concepts of goal setting, time management, marketing racehorses, marketing racing services, managing personal relationships as an equine professional, communication skills unique to equine professionals plus personal and family health and wellness plans. Prerequisites: EQS 222 and permission of instructor.

EQS 230 Racing Office Operations (3)
Teaches concepts of managing a racing office to include writing a condition book, taking entries, carding races, drawing for post position and conducting races. Includes an examination of the national and state laws governing racing and pari-mutuel wagering. Prerequisites: EQS 130 or permission of instructor.

ESL 010 Introduction to Reading and Vocabulary (4)
High-beginning level students will improve fundamental reading skills and expand vocabulary as they interact with level-appropriate texts. Students will be recommended to this course based on the ESL placement examination.

ESL 011 Beginning Listening and Speaking (4)
High-beginning level students will improve the ability to speak and understand English in simple everyday and academic situations. The course will provide practice in pronunciation and basic oral communication functions. Beginning academic listening and speaking skills will also be covered. Students will be recommended to this course based on the ESL placement examination.

ESL 012 Intermediate Listening and Speaking (4)
Low-intermediate level ESL students will improve comprehension and communication in English on a variety of everyday topics and in the academic setting. Students will develop and practice techniques for greater composure and confidence in oral expression. Practice will also be provided in pronunciation and intonation. Students will be recommended to this course based on the ESL placement examination or through completion of ESL 011.

ESL 013 Advanced Listening and Speaking (4)
High-intermediate level ESL students will improve comprehension and communication in both social and academic settings. Instruction will include improving listening skills for academic note taking and small group discussion. Students will be expected to lead and share in class discussions based on reading and authentic listening materials. Students will also present orally in front of the class. Students will be recommended to this course based on the ESL placement examination or through completion of ESL 012.

ESL 020 Reading Improvement and Vocabulary (4)
Development for Low-Intermediate Non-Native English Speakers Low-intermediate level students will review fundamental reading skills, learn and practice higher order reading skills, expand vocabulary and increase reading efficiency as they
interact with level-appropriate texts. Prerequisite: Placement test.

**ESL 030 College Reading and Vocabulary (4)**
Development for High-Intermediate Non-Native English Speakers
High-intermediate level ESL students will master fundamental reading skills, improve critical reading, and further vocabulary development. Students will be introduced to a variety of genres, such as newspaper articles and essays, poems, short stories, charts, graphs and college level content textbooks. Through the selected readings, this course will foster cultural awareness, comprehension, and interaction. The readings and activities introduced in the course will allow students to engage in meaningful dialogue, and in the process, refine their English skills. Prerequisites: ESL 020 or placement test.

**ESL 31 Beginning Conversation for Non-Native English Speakers (3)**
Beginning level ESL students will learn basic conversation and practice basic sounds and intonation patterns.

**ESL 32 Low-Intermediate Conversation Non-Native English Speakers (3)**
Low intermediate level ESL students will continue to acquire basic conversational basic/idiomatic vocabulary and continue to have practice in the pronunciation of basic sounds and intonation patterns. Prerequisite: ESL 031 or placement test.

**ESL 33 High-Intermediate Conversation for Non-Native English Speakers (3)**
High-intermediate level ESL students will acquire the most practical and widely used American idioms and verbal phrases. In addition, students will become more familiar with North American Culture and will be able to prevent cultural misunderstandings. Non-native English speakers will continue to improve reading, listening comprehension and pronunciation skills. Prerequisite: ESL 032 or placement test.

**ESL 41 Beginning Vocabulary for Non-Native English Speakers (3)**
Beginning-level ESL students will learn new vocabulary systematically, through presentation and practice of terms grouped in lexical sets, and will develop a problem-solving approach to vocabulary learning. 3 credit hours

**ESL 42 Low-Intermediate Vocabulary Non-Native English Speakers (3)**
Low-Intermediate level ESL students continue to learn new vocabulary pertaining to a wide range of contexts. Systematic approach to vocabulary learning is applied: grammatical knowledge and sensitivity to collocations and usage are incorporated. Prerequisite: ESL 041 or placement test.

**ESL 51 Introduction to College Reading for Non-Native English Speakers (3)**
Beginning-level students will acquire or strengthen fundamental reading skills and expand vocabulary as they interact with level-appropriate texts.

**ESL 52 Improved College Reading for Low-Intermediate Non-Native English Speakers (3)**
Intermediate-level students will review fundamental reading skills, learn and practice higher order reading skills, expand vocabulary and increase reading efficiency as they interact with level-appropriate texts. Prerequisite: ESL 051.

**ESL 53 High-Intermediate Reading for Non-Native English Speakers (3)**
High-intermediate level ESL students will master fundamental reading skills. They will be introduced to a variety of genres, such as newspaper articles and essays, poems, short stories, charts, graphs and many other. In addition, this course will foster cultural awareness, understanding and interaction. Through the readings and activities introduced in the course students will engage in meaningful dialogue, and in the process, refine their English skills. Prerequisite: ESL 052 or placement test.

**ESL 61 Foundations of College Writing I for Non-Native English Speakers (4)**
Beginning level ESL students are introduced to composition with an emphasis on clarity, organization, development and correctness. Comprehensive review of mechanics, grammar and spelling as these apply to their own writing is also addressed in this course.

**ESL 63 - Foundations of College Writing III for Non-Native English Speakers (4)**
ESL 063 is designed to help students prepare for ENG 101. High-intermediate level ESL students continue to work on the writing process, editorial improvement and critical reading. Grammar instruction includes advanced grammatical points, such as modal auxiliaries, gerunds, infinitives, adjective and noun clauses. Prerequisite: ESL 062 or placement test.

**ESL 090 Beginning Writing (4)**
High-beginning level ESL students will learn composition skills by receiving instruction in the following: the writing process, organization, sentence development, paragraph writing, and editing. Basic instruction in grammar provided. Students will be
recommended to this course based on the ESL placement examination.

**ESL 091 Intermediate Writing for Non-Native English Speakers (4)**
Low-intermediate level ESL students will enhance their composition skills by receiving instruction in the following: the writing process, organization, multi-paragraph writings, editing, and critical reading. Basic instruction in grammar provided. Prerequisite: Placement test.

**ESL 092 Advanced Writing for Non-Native English Speakers (4)**
ESL 092 is designed to help students prepare for ENG 101. High intermediate level ESL students continue to work on the writing process, editorial improvement, and critical reading. Students will be introduced to documenting sources. Grammar instruction includes advanced grammatical points. Prerequisites: ESL 091 or placement test.

**EST 150 Introductory Ecology (4)**
This course introduces the students to the basic concepts in ecology and application of those concepts to current environmental issues. Topics include: the relationships between organisms and the environment; factors that influence the relationships between organisms and the environment; factors that influence distribution and abundance of organisms; population structure and regulation; energy flow, nutrient cycling, and community development, structure, and response to disturbance. A weekly 2 hour laboratory will provide field and laboratory experiences for the students. Prerequisites: BIO 112 and BIO 113 or equivalent.

**EST 160 Hydrological Geology (3)**
This course provides an introduction to geology and hydrology with an emphasis on understanding natural processes and the effects of human activities. Major topics covered include: plate tectonics; formation and classification of rocks and minerals; the processes affecting the hydrologic cycle; soil formation and classification; subsurface geology and groundwater movement; stream formation and flow; floods; and human impacts to stream hydrology and morphology.

**EST 170 Environmental Sampling Laboratory (2)**
A laboratory course which provides the fundamentals in evaluating and designing sampling approaches for different situations and different media. The course will provide students with field experience in sampling soil, surface water, groundwater, and benthic invertebrates. Prerequisites: EST 150 or consent of instructor.

**EST 220 Pollution of Aquatic Ecosystems (3)**
This course examines freshwater ecosystems and typical aquatic pollutants. Discussion topics focus on the sources, transport, fate, and effects of common pollutants such as domestic wastewater, metals, acidity, and pesticides. Methods to minimize or eliminate the sources and effects of pollutants are also explored. Prerequisite or concurrent: EST 150, EST 160, CHE 105, and CHM 105 or consent of instructor.

**EST 225 Freshwater Invertebrates (3)**
An overview of the morphology, life history and ecology of freshwater invertebrates and their habitats as well as their importance and role in stream protection and restoration. Students will learn how to collect, preserve and identify freshwater invertebrates. Students will learn how to calculate and analyze biometrics used to infer stream quality. Prerequisite: EST 150.

**EST 230 Aquatic Chemistry Laboratory (2)**
This course provides focused study on the chemistry of water. The course will provide students with laboratory experience in analyzing surface, ground, and drinking waters for a variety of chemical constituents. Prerequisites: CHE 105, CHM 105, and prerequisite or concurrent EST 220.

**EST 240 Sources and Effects of Air Pollution (4)**
This course provides an introduction to the study of ambient and indoor air pollution with an emphasis on sources, dispersion, and health and welfare effects of the major pollutants. Both regulatory and engineering controls of stationary and mobile sources are explored. A laboratory provides experience with sampling and analysis of air pollutants. Prerequisites: EST 150 and CIT 130, or equivalent, or consent of instructor.

**EST 250 Solid and Hazardous Waste Management (3)**
This course examines methods of managing solid and hazardous waste, with an emphasis on pollution prevention. Topics covered include relevant legislation, recycling, incineration, landfill operations, management of radioactive waste, remediation of waste sites and site worker health and safety. Prerequisites: EST 150 and EST 160, or consent of instructor.

**EST 260 Environmental Analysis Laboratory (2)**
This course provides an introduction to the fundamentals of analyzing environmental media. The course will provide students with laboratory
experience in analyzing soil, surface water, groundwater, air and microbial samples.  
Prerequisites: CHE 105, CHM 105 and prerequisite or concurrent EST 170.

**EST 270 Environmental Law and Regulation (3)**  
This course is structured to provide the student with a basic understanding of major current federal and state environmental legislation and regulation with an emphasis on those portions that affect the regulated community. The course will also include an examination of the role of common law and the branches of government in environmental protection. Prerequisites or concurrent: EST 220, EST 240, and EST 250 or consent of instructor.

**EST 280 Environmental Trends Seminar (1)**  
This course provides an examination of current approaches used to address a variety of environmental problems. Students will hear and critique presentations from professionals in the environmental field. Students will also research and give a presentation on a specific method to minimize or eliminate a current environmental problem. Prerequisites or concurrent: EST 160, EST 150, COM 181 or COM 252, EST 170, EST 220, EST 260, and EST 250 or consent of instructor.

**EST 299 Selected Topics in Environmental Science Technology: (Topic) (1-3)**  
A special project or experience in Environmental Science will be selected to enhance core material in the Environmental Science Technology program. It provides the student an opportunity for independent study or specialized instruction as approved by an instructor. This course may be repeated to a maximum of 6 hours. Prerequisite: Consent of instructor.

**ET 232 Computer Software Maintenance (3)**  
Includes maintenance of the personal computer with an emphasis on installation, upgrading, and configuration of the operating system. Covers memory management, boot sequences, printing subsystem, application software, and networking with troubleshooting as a main focal point including viruses. When combined with ET 234, this course will help prepare students to take CompTIA A+ certification tests. Prerequisites: [(Computer literacy course or demonstrate competency) and ET 234] or consent of instructor.

**ET 234 Computer Hardware Maintenance (3)**  
Includes maintenance of the personal computer with an emphasis on installation, upgrading, and configuration of computer hardware. Covers network and Internet access, internal addressing, architecture, interrupts, complete PC construction and basic troubleshooting. When combined with ET 232, this course will help prepare students to take CompTIA A+ certification tests. Prerequisites: Computer literacy course or IC3 or consent of instructor.

**ETT 101 Survey of Electricity (4)**  
This course is a one-semester overview of industrial electricity for students majoring in areas other than electricity. Topics include: AC and DC circuits, safety, transformers, generators, motors, electronic circuits, three phase, grounding, and industrial controls.

**ETT 110 Voice & Data Installer Level I (4)**  
A comprehensive orientation to the telecommunication industry. Provides entry-level telecommunications cabling installers with the background, knowledge, and basic skills needed to function effectively on the job. Designed for those with little or no telecommunication installation experience. Prerequisites: Basic physics/electricity courses are recommended but not required.

**ETT 112 Basic Electrical Theory: Telenetworking (3)**  
Introduces the theory of electricity, magnetism, and the relationship of voltage, current, resistance, and power in electrical circuits as related to telecommunications. Designed to develop an understanding of alternating and direct current fundamentals. Students will apply formulas to analyze the operation of AC and DC circuits.

**ETT 113 Basic Electrical Theory Lab (1)**  
Allows the student to do hands-on applications of the theories and fundamentals learned in ETT 112. Co-requisite: ETT 112.

**ETT 114 Voice & Data Installer Level II (4)**  
Designed for experienced telecommunications installers who wish to expand knowledge of the industry, learn new skills, and continue to advance professionally. The Installer Level 2 course requires two to five years of recent, verifiable telecommunications/low voltage cabling experience. In addition, several sections from the Installer Level 1 course will be covered comprehensively in this course. Prerequisite: ETT 110 with a grade of C or greater.

**ETT 116 Fiber Optics Systems (3)**  
Provides a technical level of understanding in the areas of networking connectivity, data communications concepts and communication
ETT 110 Introduction to Telecommunications (3)
An introduction to technical telecommunications concepts and practices. Topics covered will include analog and digital signal processing, fundamentals of transmission media, and the operational principles of communication equipment. Prerequisite: ETT 110 or Consent of instructor.

ETT 114 Introduction to the Internet (4)
An introduction to the Internet and the World Wide Web. Topics covered will include the history, structure, and use of the Internet; basic programming concepts; and implementation of client-side and server-side scripting languages. Prerequisite: ETT 110 or Consent of instructor.

ETT 116 Voice and Data Cabling (3)
An introduction to the principles and practices of structured cabling systems. Topics covered will include cable types, connector types, installation techniques, and system design. Prerequisite: ETT 110 or Consent of instructor.

ETT 118 Residential Network Wiring (3)
Provides students with the knowledge to design and install multimedia applications for residential structures; gain an understanding of industry-standards practices, codes, and ordinances that pertain to high-performance in-home systems. Includes voice, data, security, video, audio, automation, control and entertainment systems, cable performance characteristics, and appropriate cabling media, connectors, blocks, jacks, panel, pathways and spaces. Prerequisites: ETT 110 or Consent of instructor.

ETT 120 Project Management (3)
Addresses project management issues including client integration, subcontractor liaison, scheduling, organization, methodologies, status reporting, quality control and safety. Contractual obligations, legal implications, terms and conditions and other associated risks encountered on large or complex projects are also examined.

ETT 122 Voice & Data Installer Technician (3)
The most advanced phase of a telecommunication cabling installation training program. Designed for those individuals with five (5) or more years of recent verifiable telecommunications/low voltage cabling experience. Prerequisite: ETT 114 with a grade of C or greater.

ETT 123 Voice & Data Installer Technician Lab (2)
Permits hands-on applications of the theories and fundamentals learned in ETT 122. Co-requisite: ETT 122.

ETT 126 Essentials of Audio Visual Technology (4)
This course provides a brief overview of the sales, rental, design, and installation functions, with more in-depth explanations of the science and technology for basic audio, visual, and audiovisual systems integration. Completion on this course is recommended for those seeking the general Certified Technology Specialist (CTS) designation. Prerequisites: ET 110 or consent of instructor. Co-requisites: MT 150 or consent of instructor.

ETT 199 Cooperative Education for Voice and Data Wiring Technician (3)
Provides supervised on-the-job work experience related to the student’s education objectives. Students participating in the Cooperative Education program receive compensation for their work. Prerequisite: ETT 114 with a grade of C or greater.

EX 196 Experiential Education (1-6)
Experiential Education is a planned and evaluated work experience for which the student receives academic credit and may or may not receive financial remuneration. The work experience may be related to the student’s major or exploratory in nature. One credit will be awarded for each 40 hours of completed work experience. The course may be repeated for a maximum of 6 credits and is available on a pass/fail basis only. This course is open to students in programs other than the Associate in Applied Science majors plus those exploring alternate career paths or making special requests in addition to transfer, non-degree, and pre-baccalaureate students. Prerequisites: Consent of instructor and a completed learning agreement that has been signed by the student, the instructor, and the coordinator.

FAM 252 Introduction to Family Science (3)
Introduction to the scientific study of the family. Topics covered will include the important theoretical frameworks in family science, historical trends in marriage and family life, gender role theory, family life cycle theory, parenthood, communication, economics of family life, conflict, divorce, step-families and step-parenting, family strengths. Students will analyze contemporary family issues and take informed, written positions on those issues.

FAM 253 Human Sexuality: Development, Behavior and Attitudes (3)
Study of human sexuality, including the process of gender differentiation, sexual response patterns, sexual behavior and attitudes. Prerequisite: Three hours in social or behavioral sciences.

FAM 255 Child Development (3)
An overview of the various aspects of development (physical, social, emotional, intellectual) in the social context for children prenatally through adolescence. Course will emphasize techniques of directed observation.

FLM 110 Filmmaking: Treatment to Storyboard (4)
This course offers project-based instruction on the basics of filmmaking. Through lecture and hands-on activities, the student will be familiar with creating a
film treatment and proposal, writing and revising a screenplay and creating and managing a storyboard. FLM 110 is part of the certificate in Filmmaking: Script to Screen.

FLM 120 Filmmaking: Storyboard through Production (4)
This course offers project-based instruction on the basics of filmmaking. Through lecture and hands-on activities, such as directing a scene, lighting a scene, the student will be familiar with techniques involved in directing, set designing, cinematography, lighting, and audio as applied to film production. FLM 120 is part of the Certificate in Filmmaking: Script to Screen. Prerequisite: FLM 110.

FLM 130 Filmmaking: Editing through Distribution (4)
This course offers hands-on experience in elements of filmmaking including graphic design, editing, music production and promotion. Emphasis is on preparation for entry level positions in the industry. FLM 130 is part of the Certificate in Filmmaking: Script to Screen. Prerequisites: FLM 120.

FPX 100 Fluid Power (3)
This course is a study of fluid power theory, component identification and application, schematic reading, and basic calculations related to pneumatic and hydraulic systems and their operations. Co-requisite: FPX 101

**Sub-Categories of FPX 100**

FPX 1001 Basic Hydraulics (1)
Introduces students to the basic concepts of basic fluid power, fluid power systems, and how they apply to industrial applications.

FPX 1002 Intermediate Hydraulics (1)
Introduces students to the basic concepts of basic fluid power, fluid power systems, and how they apply to industrial applications.

FPX 1003 Basic Pneumatics (1)
Introduces students to the basic concepts of basic pneumatics, fluid power systems, and how they apply to industrial applications.

FPX 101 Fluid Power Lab (2)
Provides practical experiences in the study of fluid power theory, hydraulics and pneumatics component identification, schematic reading, and basic calculations related to hydraulic and pneumatic systems and their operations. Co-requisite: FPX 100 or Consent of Instructor.

**Sub-Categories of FPX 101**

FPX 1011 Basic Hydraulics Lab (0.5)
Introduces students to the basic concepts of basic fluid power, fluid power systems, and how they apply to Industrial applications.

FPX 1012 Intermediate Hydraulics Lab (1)
Introduces students to the basic concepts of basic fluid power, fluid power systems, and how they apply to industrial applications.

FPX 1013 Basic Pneumatics Lab (0.5)
Introduces students to the basic concepts of basic pneumatics, fluid power systems, and how they apply to industrial applications.

FR 101 Elementary French (4)
The study of basic French through grammar, reading and oral practice.

FR 102 Elementary French (4)
A continuation of FR 101. The study of basic French through grammar, reading and oral practice. Prerequisite: FR 101.

FRS 101 Introduction to Fire Service (3)
This course includes fire department organization, fire behavior, firefighter safety, personal protective equipment, portable fire extinguishers, fire hose, appliance and streams.

FRS 102 Firefighters Basic Skills I (3)
This course includes ropes, ladders, aircraft rescue, forcible entry, first aid, blood borne pathogens, and emergency disaster planning, and CPR.

FRS 103 Firefighters Basic Skills II (3)
This course includes building construction, wild land fire fighting, fire control and ventilation.

FRS 104 Firefighters Intermediate Skills I (3)
This course includes water supply, foam fire streams, fire alarms and communications, hazardous materials awareness, hazardous materials operations, sprinklers, and salvage and overhaul.

FRS 105 Firefighters Intermediate Skills II (3)
This course includes fire department organization, fire behavior, personal protective equipment, fire hose, appliances and streams, ropes, forcible entry.
FRS 201 Firefighters Advanced Skills I (3)
Firefighters Advanced Skills I includes firefighter safety, rescue, ventilation, ladders, fire control, and emergency disaster planning.

FRS 202 Firefighters Advanced Skills II (3)
Firefighters Advanced Skills II includes portable fire extinguishers, water supply, pump operations, foam fire streams, salvage, fire prevention, public education, and fire cause determination.

FRS 203 Firefighters Advanced Skills III (3)
Firefighters Advanced Skills III includes pump operations II, drivers training, overhaul, fire alarms and communications, sprinklers, and practicum.

FRS 204 EMT First Responder (3)
EMT First Responder includes first responder (EMS).

FRS 205 Fire Officer I (5)
Fire Officer I includes incident safety Officer, hazmat tech., fire prevention, public education and fire cause determination II.

FRS 206 Fire Officer II (8)
Fire Officer II includes EMT, managing company tactical operations, decision making, and instructional techniques for company officers.

FRS 207 Fire Officer III (6)
Fire Officer III includes company officer, incident command system (ICS), leadership strategies for company success, and fire/arson detection.

FRT 152 Fire Prevention, Public Education and Fire Cause Determination II (0.5)
Relates to prefire planning, fire incident reports, building fire safety surveys, school exit drills, home safety programs, common fire hazards, fire cause determination, protection and detection systems and identification of structural deficiencies that could cause fires. Prerequisites: FRT 100-126, or consent of instructor.

FRT 153 Firefighter Survival & Rescue (1.1)
This course examines significant areas of firefighter fatalities and injuries associated with emergency and nonemergency situations. This course addresses causes of fatalities and injuries and recommended solutions and methods to implement the latter.

FRT 154 Hazardous Materials Technician (3.4)
This course provides the required training for Federal Occupational Safety and Health Administration (OSHA), Kentucky Occupations Health and Safety regulation and U.S. Environmental Protection Agency (EPA) requirements. The course will cover responding to releases or potential releases of hazardous materials for the purpose of controlling the release and using specialized chemical-protective clothing and specialized control equipment. Prerequisites: FRT 100-151 or consent of instructor.

FRT 155 Emergency Medical Technician (EMT) (6)
This basic Emergency Medical Technician course covers all knowledge aspects of trauma care as outlined by national standards, created by federal guidelines, considered to be the responsibilities of ambulance operations. Training involves typical anatomy and physiology; patient assessment; care for respiratory and cardiac emergencies, control of bleeding; application of dressing and bandages; treatment for traumatic shock; care for fractures, dislocation, sprains and strains; medical emergencies; emergency childbirth; burns and heat emergencies; environmental emergencies; principles of vehicle rescue; transportation of patients and general operations of ambulance systems. Prerequisites: FRT 100-151 or consent of instructor.

FRT 156 Managing Company Operations: Decision Making (1)
This course is designed to meet the needs of fire officers and crew leaders with responsibilities to manage the operations of one or more companies in structural firefighting operations. The course components of this curriculum include preparation for response, decision making, and tactical operations. The foundation of the course is an extensive use of simulation to provide application of concepts and the development of skills. Managing Company Operations: Decision making provides an effective approach to command decision making and organization. The focus is a review of the command sequence and an overview of incident command for structural firefighting. Prerequisites: FRT 100-151 or consent of instructor.

FRT 157 Instructional Techniques for Company Officers (1)
Designed for company officers and other fire or rescue service personnel with the responsibility for conducting periodic company level or small unit training. Instructional Techniques for Company Officers introduces the participant to basic instructional concepts and techniques. Course emphasis is on those teaching principles and techniques applicable to fire and rescue service training. Topics include: effective communication, teaching from lesson plans, methods of instruction
with emphasis on skills training, and adult learning. Prerequisites: FRT 100-151 or consent of instructor.

**FRT 158 Company Officer (3.5)**
This course involves information and activities needed to meet the minimum standards of Fire Service Company Officers in practicing competencies relative to administrative and incident resolution consistent with National Fire Protection Association Code 1021. Prerequisites: FRT 100-151 or consent of instructor. Co-requisites: FRT 159, FRT 160, FRT 161.

**FRT 159 Incident Command System (ICS) (0.9)**
This course is designed to meet the needs of fire officers and managers with responsibilities to use, deploy, implement and/or function within a departmental Emergency Management System. This program addresses the need for incident management systems, an overview of the structure and expandability of ICS, an understanding of the command skills needed by departmental officers to effectively use ICS, guidelines and scenario practice on how to apply ICS, and guidelines and resource information for setting up and implementing a departmental ICS. Prerequisites: FRT 100-151 or consent of instructor. Co-requisites: FRT 158, FRT 160, FRT 161.

**FRT 160 Leadership: Strategies for Company Success (0.8)**
Designed to meet the needs of the company officer, this course provides the participant with basic skills and tools needed to perform effectively as a leader in the fire service environment. This leadership course addresses techniques and approaches to problem-solving, identifying and assessing the needs of the company officer’s subordinates, running meetings effectively in the fire service environment, and decision-making for the company officer. Prerequisites: FRT 100-151 or consent of instructor. Co-requisites: FRT 158, FRT 159, FRT 161.

**FRT 161 Fire/Arson Detection (0.8)**
The Fire/Arson Detection course is designed for fire officers and firefighters to improve their skills in determining fire causes at the fire scene. The course begins with the study of the motivation of the arsonist and progresses through to the prosecution of the crime of arson. The goal of the course is to provide appropriate training to the firefighter and fire officer so as to make an impact in reducing arson crimes throughout the nation. Prerequisites: FRT 100-151 or consent of instructor. Co-requisites: FRT 158, FRT 159, FRT 160.

**GE 100 Introduction to College (1)**
The new college student is introduced to college and to college life. The student will learn about the variety of support services available at the college, behaviors necessary to be successful in college, and issues which relate to choice of major and choice of career. Specific strategies to ensure successful college experiences are emphasized.

**GE 101 Strategies for Academic Success (3)**
This course is designed to teach students how to have a successful college experience both academically and personally. The focus will be on the development of practical knowledge and skills to assist students toward that goal. Topics include time planning, test taking, study techniques, critical thinking, community and campus resources, and managing the personal and relationship issues that face many students.

**GE 140 Development of Leadership (3)**
Development of leadership ability through the integration of theoretical concepts of leadership and group dynamics is the central focus. Opportunities to identify a personal philosophy of leadership and to develop leadership skills are included. Further, participants are encouraged to develop their leadership potential and to engage in productive leadership behavior.

**GEO 130 Earth’s Physical Environment (3)**
A course exploring the fundamental characteristics of earth’s physical environment. Emphasis is placed on identifying interrelationships between atmospheric processes involving energy, pressure, and moisture, weather and climate, and terrestrial processes of vegetative biomes, soils, and landscape formation and change. Fulfills elementary certification requirements in education.

**GEO 152 Regional Geography of the World (3)**
A geographical study of the world by regions with a focus on the world’s physical and human landscapes. Emphasis on how regions are connected to each other. Also how each region is affected by, and affects, global issues such as economic restructuring, food production, and environmental change, will be examined. Fulfills elementary certification requirement for Education and USP disciplinary social science requirement.

**GEO 160 Lands & Peoples of the Non-Western World (3)**
The geographic study of the conceptual and historical definition of regions of the world as “Non-Western.”
Global patterns of social, cultural, economic, and political difference between the West and Non-West as well as the processes key to the making of the Non-Western world (such as colonialism and imperialism) are discussed. In addition, selected current issues of significance to peoples in the Non-Western world, such as sustainable development, environment, human rights, and gender relations, are considered.

GEO 172 Human Geography (3)
A study of the spatial distributions of significant elements of human occupancy of the earth’s surface, including basic concepts of diffusion, population, migration, settlement forms, land utilization, impact of technology on human occupancy of the earth. Fulfills elementary certification requirement for Education and University Studies requirement.

GEO 210 Pollution, Hazards, and Environmental Management (3)
An introduction to environmental systems such as weather and climate, vegetation, land forms and soils, and how the quality of these systems is modified by human use. Resource issues discussed include: atmospheric pollution and global warming; groundwater, flooding, and flood plain management; volcanic activity and earthquakes; and biospheric processes associated with deforestation and lake eutrophication. Case studies based upon important environmental problems illustrate how human activity and environmental systems interrelate.

GEO 222 Cities of the World (3)
Focuses on the historical development, contemporary character, and alternative futures of cities in both developing and developed regions. The spatial, social, economic, and political processes of major world cities are studied and contemporary urban problems are discussed.

GEO 240 Geography and Gender (3)
Adopts a geographic approach to the study of gender relations. The role of space and place in shaping the diversity of gender relations throughout the world will be considered. Through case studies the importance of gender relations in understanding a variety of issues will be stressed. Such issues include: the design and use of urban and rural environments; “Third World” development; regional economic restructuring; changing political geographies; and migration.

GEO 260 Third World Development (3)
This course focuses on characteristics of developing countries as well as solution strategies to development problems and conditions. Cultural distinctions, traditions, and institutions are recognized as keys to development condition and progress. Selected theories show how cultural variations in language and religion may be used to explain development. Numerous case studies are discussed, including Indonesia, China, India, Brazil, Kenya and Zimbabwe.

GER 101 Basic German (4)
Fundamentals of German with development of the four basic skills: reading, writing, listening, and speaking.

GER 102 Basic German (4)
Continuation of German 101. Prerequisites: GER 101, or one year of high school German, or equivalent.

GIS 110 Spatial Data Analysis and Map Interpretation (3)
This course is an introduction to the development and spatial interpretation of data so that it may be prepared for statistical analysis on a two or three-dimensional surface. The course will also introduce remote sensing techniques, Global Positioning Systems, the interpretation of aerial photography for environmental, commercial and/or demographic purposes, and the application of Geographic Information Systems in both the public and private sector. Students will receive a cursory introduction to a current software package and will have the opportunity to complete basic projects using that software.

GIS 120 Introduction to Geographic Information Systems (3)
This course, a continuation of GIS 110, will introduce the fundamentals of Geographic Information Systems. The course will cover the basic operating systems of a current GIS software package including the use of graphic user interface, common theme operations, importation of a foreign database, introductory scripts and layouts, manipulation of tables, the creation and editing of shapefiles, and geocoding. This course is designed for those with little to no experience with GIS who are exploring career opportunities. Prerequisite: GIS 110.

GIS 210 Advanced Topics in GIS (3)
This course will explore advanced topics in Geographic Information Systems. The course will teach students how to import foreign databases into a GIS, advanced theme operations, extensive use with scripts, introductory programming with both Avenue
and Visual Basic for GIS, and how to incorporate remotely sensed imagery into GIS. Prerequisite: GIS 120.

**GLY 130 Dinosaurs and Disasters: A Brief History of the Vertebrates (3)**
More than 65 million years ago, dinosaurs and their kin dominated the earth and relegated our mammalian ancestors to positions of unimportance for nearly 155 million years. This course traces the history of dinosaurs from early vertebrate ancestors to their final extinction and surveys the evolutionary, paleogeographic, environmental, and possible extraterrestrial causes for the rise to dominance and sudden fall. Along the way and afterwards, dinosaur interactions with other organisms and the environment, as well as their indirect influence on mammals, particularly on the much later evolution of humankind, will be examined.

**GLY 220 Principles of Physical Geology (4)**
How the Earth Works: an integrated course in physical geology, covering the physical, chemical, and biological processes that combine to produce geological processes. Attention is focused on plate tectonics, earth surface processes, and properties and formation of earth materials. Laboratory exercises emphasize identification and interpretation of geologic materials and maps.

**HIS 101 World Civilization I (3)**
A multi-cultural survey of the major civilizations of the world from ancient to medieval times.

**HIS 102 World Civilization II (3)**
Presents a multicultural survey of world cultures and contemporary global issues from 1600 to the present.

**HIS 104 A History of Europe Through the Mid-Seventeenth Century (3)**
This course is a survey of the development of European politics, society, and culture through the Age of Religious Conflict.

**HIS 105 A History of Europe From the Mid-Seventeenth Century to the Present (3)**
This course is a survey of the development of European politics, society, and culture from the Age of Absolutism to the present. It is a continuation of HIS 104.

**HIS 106 Western Culture: Science and Technology I (3)**
Presents the interactions of science and technology with the social and cultural development of Western civilization; the values in scientific inquiry as compared with other kinds of inquiry; the importance of science and technology in modifying social organization and human expectations. Emphasizes the period to the Industrial Revolution.

**HIS 107 Western Culture: Science and Technology II (3)**
Presents the interactions of science and technology with the social and cultural development of Western civilization; the values in scientific inquiry as compared with other kinds of inquiry; the importance of science and technology in modifying social organization and human expectations. Emphasizes the period since the Industrial Revolution.

**HIS 108 History of the United States Through 1865 (3)**
This course traces the nation’s development through the Civil War. It is designed to meet the demands for a general understanding of American history. This course fulfills the requirements for the elementary teachers’ certificate.

**HIS 109 History of the United States Since 1865 (3)**
A continuation of HIS 108 from 1865 to the present.

**HIS 120 The World at War, 1939-45 (3)**
A global overview of the events of the Second World War, including consideration of the conflict’s military, diplomatic, political, social and economic dimensions.

**HIS 202 History of British People to the Restoration (3)**
From the Roman period to the Stuart period. A general survey of the various epochs and phases of the English people at home and abroad.

**HIS 203 History of the British People Since the Restoration (3)**
From the Stuart period to the present. A continuation of HIS 202.

**HIS 206 History of Colonial Latin America, 1492 to 1810 (3)**
A board survey of the social, economic, political and cultural development of Latin America from the fifteenth century to 1810. Includes analysis of such topics as pre-Columbian societies on the eve of conquest, the Iberian kingdoms in the Age of Expansion, the conquest and colonization of the indigenous cultures of the New World, the establishment of Spanish and Portuguese institutions, the relations between the Church and the State, the encomienda and the hacienda slavery and the impact of the Bourbon Reforms on America.
HIS 207 History of Modern Latin America, 1810 to Present (3)
A broad survey of the Latin American nations focusing on their social, economic, political and cultural development. Traces the history of the Independence movements, nation building, the struggle for modernization dependency and the phenomenon of revolution in the twentieth century.

HIS 240 History of Kentucky (3)
A general survey of the chief periods of Kentucky’s growth and development from 1750 to the present.

HIS 247 History of Islam & Middle East Peoples, 500-1250, A.D. (3)
A survey of the origins and development of the Islamic civilization from the time of the Prophet Mohammed to 1250, with special consideration on the role of the Arab, Iranian, and Turkic peoples.

HIS 248 History of Islam and Middle East Peoples, 1250 to the Present (3)
A continuation of HIS 247. A survey of the religion and institutions of the Islamic world in the Middle East with special emphasis on the Mongol, Ottoman, Safavid and Qajar empires. The demise of these empires, the response of the Middle East peoples to European imperialism, and their national development up to the present will be considered.

HIS 260 African-American History to 1865 (3)
A study of the Black experience in America through the Civil War. An examination of the African heritage, slavery, and the growth of Black institutions. (Same as AAS 260.)

HIS 261 African-American History 1865-Present (3)
This course traces the Black experience from Reconstruction to the Civil Rights Movement of the 1960s. The rise of segregation and the ghetto and aspects of race relations are examined. (Same as AAS 261.)

HIS 265 History of Women in America (3)
History of American women, with particular emphasis on the mid 19th through the mid 20th centuries. Major themes include the family, work, social ideas about women, and feminism. Prerequisites: HIS 109 or consent of instructor.

HIS 296 East Asia Since 1800 (3)
A continuation of HIS 295. A survey of the political and economic modernization of traditional East Asian society with emphasis on nationalistic reactions to Western pressure and international rivalry in East Asia.

HS 101 Human Services Survey (3)
Community human service agencies are examined regarding their organization, service delivery system, staffing patterns, and funding sources. The origin and development of the social welfare system are explored as well as social welfare policy.

HS 102 Values of Human Services in a Contemporary Society (3)
The values and ethics of human service professions are examined. A personal philosophy of client intervention is encouraged, including the development of a professional value base, achieved through the examination of major social problems and issues.

HS 103 Theories and Techniques in Human Services (3)
Philosophies, theories for intervention, and the problem-solving process will be introduced. Emphasis will be placed on the development of a skill base used in counseling techniques and client intervention. Interpersonal relationship skills will be enhanced through knowledge of communication techniques. Activities will be provided in which the student will apply this knowledge and these skills. Prerequisites: HS 101 and HS 102 or consent of coordinator.

HS 104 Group Dynamics for Human Services (3)
Based on various theoretical models, group techniques in clinical or agency settings are covered with emphasis on the leadership role, phases of group development, and interaction within the group. Prerequisites: HS 103 or consent of coordinator.

HS 210 Drugs, Society, & Human Behavior (3)
Study of the nature and progression of chemical abuse and dependency, and effects on the individual, family, and society. Includes strategies for prevention, intervention, and treatment.

HS 225 Application of Assistive Technology for Persons with Disabilities (3)
Students are provided information and practice in working with children and adults with disabilities. Students are prepared for careers in direct services working with individuals with disabilities, with a particular emphasis on developmental disabilities and mental retardation.

HS 250 Clinical Practice in Human Services (4)
The application of principles and skills previously
learned in the Human Services courses are practiced in community agencies. Prerequisites: HS 104 or consent of coordinator.

HS 265 Working with Disabilities in Human Services (3)
An in-depth study of the coordination and provision of services and supports for individuals with disabilities in community settings, including the provision of community-referenced instruction, vocational instruction in community settings, school-to-work transition planning, integrated recreation/leisure opportunities, and personal management/ independent living skill training and supports. The course emphasizes developmental disabilities and mental retardation.

HS 299 Special Topics in Human Services: (Topic) (3)
An in-depth knowledge of a selected topic in human services is the goal of this course. The topic of study may be the student’s choice per coordinator/instructor’s approval or an issue or topic developed by an instructor for course presentation.

HSE 101 Introduction to the Health Sciences (1)
Limited to students contemplating a career in one of the health sciences.

HSEM 100 Introduction to Homeland Security (3)
Introduces the basic organization of the US Department of Homeland Security as well as the history of its origins and subsequent organizational development. The student will learn the roles and functions of the various components of Homeland Security and their relationships to state and local agencies as well as current trends and career guidance.

HSEM 110 Introduction to Emergency Management (3)
Introduces the field of emergency management, the incident command system, including the terminology and definitions used in emergency and disaster management. Students will study the four phases of emergency management and disaster planning: mitigation, response, recovery, and preparedness and examine the legal requirements, responsibilities, and laws pertaining to emergency management. Students will develop an understanding of the procedures and requirements in emergency management including identification of hazards and response capabilities, both governmental and private sector.

HUM 120 Introduction to the Humanities (3)
Interdisciplinary course acquainting students with the humanities including five or more of the following topics: art, literature, drama, philosophy, music, architecture, religion, and mythology. Students will explore basic methods, themes, and forms of each discipline through exposure to primary materials.

HUM 135 Introduction to Native American Literature (3)
With an emphasis on the cultural and historical contexts, this course introduces the study of the oral and written literature of Native American peoples.

HUM 150 Introduction to African Literature (3)
Presents a cross-cultural and historical approach to the oral and written works by major Black writers of Africa.

HUM 220 Historical Perspectives on Peace and War (3)
Provides an introduction to the history of violence and peace movements. Examines the anthropological, political, cultural and technological forces contributing to the frequent occurrence of war throughout history. Explores the history of movements and organizations, both religious and secular, intended to minimize warfare and oppression. Examines literature and visual arts to enhance and elaborate on the themes presented in the anthropological and historical sections of the course. Sophomore standing or consent of instructor. (spring of even years)

HUM 221 Contemporary Perspectives on Peace and War (3)
Introduces the effects of modern-day warfare and the countervailing trends, actions, and movements to create peace. Focuses on aspects of peace and war such as the role of women, the perspectives of notable scientists, philosophical perspectives, the role of economic globalization in social justice, the environmental impacts, and conflict resolution. Sophomore standing or consent of instructor. (spring of odd years)

IECE 101 Orientation to Early Childhood Education (3)
Provides a practical and realistic introduction to the early childhood profession. Satisfies the requirements for the Kentucky Commonwealth Child Care Credential and satisfies a portion of the training component of the Child Development Associate (CDA) credential. Required: Twenty hours of field experience.
IECE 102 Foundations of Early Childhood Education (3)
Builds on a student’s knowledge of appropriate practices for children birth to eight (8) years of age. Satisfies a portion of the training component of the Child Development Associate (CDA) credential. Required: Twenty hours of field experience. (This requirement can be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291.)

IECE 120 Health, Safety, and Nutrition (3)
This course develops an understanding of components and skills necessary for maintaining a healthy and safe environment for young children. Required: ten hours of field experience. (This requirement may be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291.)

IECE 130 Early Childhood Development (3)
Addresses the physical, language, cognitive, social and emotional development of children beginning with conception. Includes methods of observation that are practiced during field experiences. Required: Ten hours of field experience. (This requirement can be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291).

IECE 170 Observation and Assessment (3)
Presents the process of observation, documentation, and assessment. Includes assessment skills, identification of appropriate methods and instruments, and linking results to planning, guidance, and instruction. Emphasizes recommended practices, ethical and legal responsibilities for educators, and the role of the family in the process. Required: Twenty hours of field experience. Prerequisites: IECE 101 or IECE 102 or IECE 130 or permission of program coordinator.

IECE 180 Approaches to Early Childhood Education Curriculum (3)
Introduces theoretical perspectives for curriculum in early childhood programs. Teaches the design of curriculum and examines the societal factors that impact programming for young children. Prerequisites: IECE 101 or IECE 102 or IECE 130 or coordinator’s approval.

IECE 190 Applied Experiences in Early Childhood Education (3)
Students will participate in supervised teaching experiences in early childhood settings. Skills will include observing, planning, implementing and assessing learning experiences based on developmentally appropriate practices. Pre-requisites: Any 100 level IECE course or coordinator’s approval.

IECE 200 Child Guidance (3)
Examines appropriate methods for guiding children and promoting the development of prosocial behaviors. Required: Ten hours of field experience. (This requirement may be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291.) Prerequisites: IECE 101 or IECE 130 or coordinator’s approval.

IECE 210 Families and Communities in Early Childhood Education (3)
Examines community programs that focus on forming partnerships with families to support child development and family well-being. Builds an awareness of family in context of a diverse society to create respect, build reciprocal relationships, and empower families. Required: Ten hours of field experience.

IECE 216 Literacy and Language in IECE (3)
Aids the teacher in bringing together language theory with classroom instruction techniques to promote language and literacy development in young children. Required: Ten hours of field experience. (This requirement may be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291.) Prerequisites: IECE 180 or coordinator’s approval.

IECE 221 Creative Expressions in Interdisciplinary Early Childhood Education (3)
Addresses the role of creativity as it relates to the development of young children. Studies a variety of art, music, drama, and movement experiences that encourage creative expression in young children. Implementation of appropriate creative activities in a child-centered environment is included. Required: Ten hours of field experience. (This requirement may be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291.) Prerequisites: IECE 180 or coordinator’s approval.

IECE 230 Business Administration of ECE Programs (3)
Students are introduced to the many facets of establishing, operating and/or owning an early childhood program. Topics include legal forms for early childhood programs, finance, accounting, insurance, governmental regulations and assistance, economics, marketing and management principles.
IECE 235 Introduction to Inclusive Education (3)
Introduces and sensitizes the student to exceptionalities that occur in the development of children. Includes the law as related to serving children with exceptionalities and their families, various disabling conditions, the gifted, advocacy, home-based intervention, referral sources and the process of diagnosing, treating, and educating children with exceptionalities. Required 20 hours of field experience. (Faculty may waive this requirement for students who are concurrently enrolled in IECE 190 or IECE 291.) Prerequisites: IECE 180 or coordinator’s approval.

IECE 240 Administration of Early Childhood Education (3)
Focuses on the administrative responsibilities of creating and implementing quality education programs for young children and their families. Develops an understanding of administrative, organizational, and legal responsibilities in operating early childhood programs. Required: Ten hours of field experience.

IECE 246 Sciences and Math in IECE (3)
Applies the concepts and principles of science, social studies, mathematics, and health in learning experiences for young children. Includes activities, materials, and units. Required: Ten (10) hours field experience. (This requirement may be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291). Prerequisites: IECE 180 or coordinator’s approval.

IECE 250 School Age Child Care (3)
Provides the student with specialized knowledge, skills, and abilities for working with school age children.

IECE 260 Infant and Toddler Education Programming (3)
Examines the developmental and educational needs of children from birth to age three. Provides an opportunity for students to plan, prepare, and implement the care and educational environment for children birth to age three by integrating an understanding of the physical, social, emotional, and cognitive development with developmentally appropriate practices for each stage. Required: Ten hours of field experience. (This requirement may be waived by faculty for students who are concurrently enrolled in IECE 190 or IECE 291.).

IECE 291 IECE Practicum/Cooperative Education (3)
Requires participation in supervised teaching experiences in early childhood settings where practical skills are applied. Includes observing, planning, implementing and assessing learning experiences based on developmentally appropriate practices. Required: Two hundred twenty-five field hours of experience. Prerequisites: Program coordinator’s approval.

IECE 299 Special Topics in Early Childhood Education (1-3)
An in-depth knowledge of a selected topic in early childhood education is the goal of this course. The topic of study may be the student’s choice per instructor’s approval or an issue or topic developed by an instructor for course presentation. Prerequisites: Coordinator’s approval.

IEX 293 Special Problems II (2)
This is a course designed for the student who has demonstrated specific needs. Prerequisites: Permission of Instructor.

IMD 100 Introduction to Information Systems (3)
Essential computer concepts and terminology are introduced in this course. An overview of operating systems software, a graphical user interface environment and multitasking concepts, disk and file management, Internet capabilities, and telecommunications are included. Introduction to word processing, spreadsheets, databases, and the integration of these three applications are included.

IMD 114 Information Literacy (3)
This course is an introduction to the use of information resources, both traditional print materials and online materials, for academic and professional research. Topics include development of search strategy, evaluation of resources, use of database search techniques, ethical and legal aspects of information management and documentation of sources.

IMD 115 Introduction to Computer Graphic Design (3)
In this course, students will be introduced to the theory and techniques behind computer graphic design. Students will be introduced to layout; color theory and use; design, photo and illustration techniques; and exploration of media in respect to digital design. Also, students will be introduced to the production process including pre-press, printing, other production techniques and distribution. Prerequisites: IMD 100 or CIS 105 or equivalent skills.
IMD 116 Keyboarding (2)
Students use a microcomputer and software to develop proper techniques of touch keyboarding. Speed, accuracy and control are emphasized.

IMD 117 Keyboarding and Basic Word Processing (3)
Students use a microcomputer and software to develop proper techniques of touch keyboarding. Basic word processing skills are integrated with a thorough study of form, style, and arrangement of business documents. Speed, accuracy and control are emphasized.

IMD 118 Document Processing (3)
Document formatting and word processing techniques are integrated to produce a wide variety of business documents. Emphasis is placed upon planning, organizing, and formatting business documents and upon meeting production standards essential to the operation of modern offices. Prerequisites: IMD 117 or consent of instructor.

IMD 120 Introduction to the Internet (1)
In this course, students will develop skills in understanding and using Internet technologies. Topics include the World Wide Web, e-mail, chat, mailing lists, newsgroups, video conferencing and webcasting. In addition, current issues surrounding the Internet such as free speech, viruses, privacy concerns, Internet culture and the exponential rise of misinformation will be explored.

IMD 126 Introduction to Desktop Publishing (3)
The use of microcomputers for designing and producing various publications is introduced. Hands-on experience is provided in using desktop publishing software and a laser printer to produce high-resolution publications, such as flyers, brochures, business forms, and newsletters. Students are also introduced to basic design techniques, type and graphics layout, and the related terminology. Prerequisites: IMD 100 or equivalent skills.

IMD 127 Vector Design with Adobe Illustrator (3)
In this course, students will be introduced to and develop vector (linebased) graphics using industry-standard application(s). Topics covered will include examining the theory behind vector graphics, investigating the advertising and print industry’s use of this type of graphic, creation and manipulation of vector-based graphics from simple to increasingly complex, as well as development of a portfolio of vector art. Prerequisites: IMD 115 or concurrent or consent of instructor.

IMD 128 Raster Design with Adobe Photoshop (3)
In this course, students will be introduced to and develop raster (photo or pixel-based) graphics using industry-standard application(s). Topics covered will include examining the theory behind raster graphics, investigating the advertising and print industry’s use of this type of graphic, creation and manipulation of raster-based graphics from simple to increasingly complex, as well as development of a portfolio of raster art and photo editing and manipulation samples. Prerequisites: IMD 115 or concurrent or consent of instructor.

IMD 130 Introduction to Web Pages (2)
An introduction to the creation and publication of a web site. The course will cover Hypertext Markup Language (HTML), using HTML codes for web design, incorporating graphics and images into web pages, and publishing pages on the web. Prerequisites: IMD 120 or equivalent.

IMD 132 Web Page Editors (1)
In this course, students will be introduced to basic web base authoring and publishing software. Students will use a web page editor to create effective web pages and upload them to the World Wide Web. Prerequisites: IMD 130 or consent of instructor.

IMD 133 Beginning Web Design (3)
Introduces the creation and publication of a web site and covers extensible hypertext markup language (XHTML) and introductory cascading style sheets (CSS). Covers code editing and web authoring software for web design, along with the incorporation of graphics into web sites and publishing.

IMD 150 Presentations (3)
In this course, students will learn to produce and present digital presentations, making effective use of correct grammar, presentation writing style, topography, graphics, sound and video. Students will install and use current digital hardware and software.

IMD 160 Introduction to E-commerce (3)
Students are introduced to the concepts, issues and application of business on the Internet. Students will examine the business as well as technical aspects of e-commerce. Topics include the relationship of business and the Internet, types and specific examples of e-business, the planning and development of an e-business as well as security issues, monetary transaction options, international concerns, legal and regulatory issues, ethical concerns, and the future of e-commerce. Specific technical issues will include examination of Internet infrastructure including the options, functions of the
web server as well as e-commerce software options. Students will create an e-commerce business website plan and develop it into a simple, effective e-business website. Prerequisites: IMD 100 or CIS 105 or consent of instructor.

IMD 175 Web Usability Design (3)
Students focus on effective communication through web design. Topics include web planning, navigation and usability based on market research (audience capabilities and preferences) as well as site content and goals, financial considerations and technical capabilities. Other issues such as browser compatibility, marketing and site "gimmicks", customer tracking, and site redesign will be addressed. Prerequisites: IMD 133 or consent of instructor.

IMD 180 Intermediate Web Design (3)
Covers the development of advanced hypertext markup language (HTML) skills and examination of new standards and technologies. Includes extensible hypertext markup language (XHTML), professional and contemporary web design theory, layout and formatting, accessibility, forms, image maps, multimedia, image optimization, web graphics, advanced cascading style sheets (CSS), JavaScript code analysis site planning, and designer-client relationships. Students will complete a well formed website on a specific topic utilizing the theories and technologies learned. Prerequisites: IMD 133 or consent of instructor.

IMD 185 Web Graphic Design with Adobe Fireworks (3)
Introduces the theory and techniques behind the design of high-quality and efficient graphics for the World Wide Web. Includes theory behind design for the Web, creation of gifs, animated gifs and jpegs, text as graphics, and sliced images for the web. Teaches how to use an industry-standard web graphics editing software application to apply design theory. Prerequisites: IMD 133.

IMD 205 Computerized Accounting Systems (3)
In this course, students will be introduced to financial accounting software. Topics and issues addressed in this applications-based course include analyzing business transaction; recording and posting business transactions; recording period end adjustments and completing the end-of-period closing process; implement internal cash controls; processing payroll activities; and recording transactions for merchandising businesses.

IMD 210 Microsoft Office Applications (3)
Utilizes Microsoft Office applications for the creation, manipulation and integration of information. Includes word processing, spreadsheet, database management, presentation and personal information management. Prerequisites: IMD 100 or equivalent skills.

IMD 212 Advanced Microsoft Office Application (3)
Students learn advanced Microsoft Office skills utilizing spreadsheet and database management applications through creation, management and integration of documents. Prerequisites: IMD 210 or consent of instructor.

IMD 215 Administrative Office Procedures (3)
The roles and responsibilities of the office professional and the interrelationships of people, procedures, and technology are introduced, with emphasis on appropriate decision-making techniques and productivity in the office. Prerequisites: IMD 118 or consent of instructor.

IMD 220 Administrative Office Simulations (3)
Students use administrative procedures to complete office simulations with an emphasis on accuracy, productivity, efficiency, and problem solving. Students will be utilizing skills in word processing, spreadsheet, database management, presentation, and e-mail applications. Standard business transactions will be completed through electronic commerce. Prerequisites: IMD 150; IMD 235; IMD 212 or concurrent; or consent of instructor.

IMD 226 Advanced Desktop Publishing (3)
In this course, students will learn to design and produce text- and image-intensive publications. Industry-standard desktop publishing software will be utilized to create brochures, newsletters, proposals and other documents. Students also will use drawing and image-editing software for the purpose of creating and editing graphics for publications. Emphasis will be placed on importing text and graphics from word processing and graphics programs into desktop publishing software. Students will study the desktop publishing process from concept and creation through pre-press and printing. Prerequisites: IMD 126; IMD 127, 128 and 150 or concurrent; or consent of instructor.
XML. Students will conclude the course via the creation of a comprehensive, database-driven dynamic website utilizing current client- and server-side technologies including PHP, MySQL, and XML. Prerequisites: IMD 180 or consent of instructor.

**IMD 232 Web Design with Adobe Dreamweaver (3)**
Utilizes an advanced web authoring software application for design and development. Uses a professional WYSIWYG (what-you-see-is-what-you-get) editor to develop and create web pages, automate production, and manage and maintain entire websites. Builds XHTML, CSS, and web development knowledge to customize features and integrate applications. Prerequisites: IMD 133 or consent of instructor.

**IMD 235 Advanced Word Processing (3)**
Students will learn current word processing software from intermediate skills through advanced utilities. Topics include producing customized documents, enhancing the visual display of documents, creating customized desktop publishing documents, organizing text in documents using advanced features, and integrating data utilizing various applications. Emphasis will be on mastering the software for optimal use. Prerequisites: IMD 210 or CIS 130, or equivalent skills.

**IMD 240 Web Development with Adobe Flash (3)**
Introduced students to designing and delivery of interactive web sites using the professional, industry-standard software Flash. Covers integrating animation into web design, along with increasing interactivity and incorporating video into a web site. Covers integration with other web development applications. Prerequisites: IMD 180 and IMD 185, or consent of instructor.

**IMD 245 Multimedia for the Web (3)**
Students develop multimedia products for information delivery, training and advertising on the web using industry-standard applications. Students will storyboard, plan, produce and execute a multimedia product; integrate the final product into a web environment; and test for product performance and correct production flaws. Students will also explore topics such as platform and server considerations and limitations and the basics of continuity in multimedia design. Prerequisites: IMD 180 and IMD 185; or consent of instructor.

**IMD 250 Digital Video Editing with Final Cut Pro (3)**
Students will capture and edit digital video using industry-standard desktop video software and export to DVD, VHS, and the Internet for use in entertainment, documentary films, commercials, and newscasts. Students will learn to storyboard, plan, and produce a digital video project from conception to final packaging and explore topics such as compositing, alpha channels, and special effects. Prerequisites: IMD 100 or IMD 133 or consent of instructor.

**IMD 270 Professional Practices (3)**
This course is designed to assist students develop strategies for entering the Information Management & Design profession by editing and refining portfolios and creating correspondence to meet professional standards, designing resumes and other self-promotional materials, developing a job search strategy, practicing interview techniques and professional presentations. Prerequisites: IMD 210 or IMD 235 or consent of instructor.

**IMD 271 Internship (1-3)**
On-the-job experience will be required of the Information Management & Design student. A minimum of 40 clock hours of appropriate experience per credit hour will be required. The learning plan will be discussed and agreed upon by the student, instructor and site supervisor. Prerequisites: Consent of instructor, 2.0 G.P.A., and the completion of 12 credit hours of IMD course work (including IMD 270).

**IMD 275 Workplace Management (3)**
Management principles and techniques and their applications to the contemporary business workplace are included. Emphasis is on information management, team concepts and the role of personnel management.

**IMD 276 Legal Office Procedures (3)**
Legal office procedures and the transcription of legal forms and documents are included in this course. Prerequisites: IMD 118 or BE 267.

**IMD 278 Medical Office Procedures (3)**
Medical office procedures using a medical practice management software program, medical coding, and the transcription of medical forms, histories, and reports are included in this course. Prerequisites: IMD 118, CLA 131, or consent of instructor.

**IMD 280 Portfolio Practicum: Graphic Design (3)**
Provides an opportunity to assemble a comprehensive graphic design portfolio using skills learned within the IMD Graphic Design core courses which will assess students’ overall skills learned in the graphic
design option. Provides IMD students with a professional design portfolio to aid in the search for employment. Provides the capstone for students choosing the graphics option. Uses presentation, vector, raster, and desktop publishing software to create design-intensive portfolio pieces. Prerequisites: IMD 127, IMD 128, IMD 185, IMD 226 or consent of instructor.

**IMD 290 Photography (3)**
Teaches students basic photography principles and skills to compose technically proficient photographs. Emphasis is on basic camera operations, with exploration of film speeds, apertures, and shutter speeds. Explores composition and elements of lighting. Uses slide lectures, a brief overview of contemporary photography to acquaint students with past and current photography.

**IMD 292 Portfolio Practicum: Web Design (3)**
In this capstone course, students will assemble a comprehensive web site design portfolio using skills learned in the IMD Web Design core courses. The purpose of the portfolio will be to assess students’ overall skills learned in the web design option. It will also be used to provide IMD students with a professional design portfolio to aid in the search for employment. Students will use Macromedia Fireworks, Dreamweaver, Flash, Adobe Photoshop/ImageReady, and dynamic scripting languages to assemble the comprehensive design portfolio. Prerequisites: IMD 225, 232, 240 or consent of instructor.

**IMD 294 Seminar in Information Management & Design Technologies (3)**
Includes research, study, and discussion of a current or emerging topic, issue, or trend in information management and design technologies. May be repeated with different topic for a maximum of 6 credit hours. Prerequisite: IMD 100 or consent of instructor.

**IMD 299 Selected Topics in Information Management and Design (1-3)**
This course is designed to expand course offerings as new technology is developed, as well as consider contemporary and/or emerging trends in information management and design. Topics may vary from semester to semester at the discretion of the instructor; course may be repeated with different topics to a maximum of six credit hours. Prerequisite: Consent of instructor.

**IMT 100 Welding for Maintenance (3)**
Provides basic instruction needed for student to weld using SMAW, MIG, TIG and Oxy-Fuel. Corequisites: IMT101 or Consent of Instructor.

**Sub-Categories of IMT 100**

**IMT 1001 Welding for Maintenance (Oxy-Fuel) (0.75)**
Provides basic instruction needed for student to weld using Oxy-Fuel.

**IMT 1002 Welding for Maintenance (SMAW) (0.75)**
Provides basic instruction needed for student to weld using Shielded Metal Arc Welding (SMAW).

**IMT 1003 Welding for Maintenance (MIG) (0.75)**
Provides basic instruction needed for student to weld using MIG (Metal Inert Gas Welding).

**IMT 1004 Welding for Maintenance (TIG) (0.75)**
Provides basic instruction needed for student to weld using TIG (Tungsten Inert Gas Welding).

**IMT 101 Welding for Maintenance Lab (2)**
Provides application of basic welding skills used in SMAW, MIG, TIG and Oxy-Fuel. Corequisites: IMT 100 or Consent of Instructor.

**Sub-Categories of IMT 101**

**IMT 1011 Welding for Maintenance (Oxy-Fuel Lab) (0.5)**
Provides application of basic welding skills used in Oxy-Fuel.

**IMT 1012 Welding for Maintenance (SMAW Lab) (0.5)**
Provides application of basic welding skills used in Shielded Metal Arc Welding (SMAW).

**IMT 1013 Welding for Maintenance (MIG Lab) (0.5)**
Provides application of basic welding skills used in Metal Inert Gas Welding (MIG).

**IMT 1014 Welding for Maintenance (TIG Lab) (0.5)**
Provides application of basic welding skills used in Tungsten Inert Gas Welding (TIG).
IMT 110 Industrial Maintenance Electrical Principles (3)
This course introduces the theory of electricity and magnetism and the relationship of voltage, current, resistance, and power in electrical circuits. The course is designed to develop an understanding of alternating and direct current fundamentals. Students will apply formulas to analyze the operation of AC and DC circuits.

IMT 111 Industrial Maintenance Electrical Principles Lab (2)
Verifies knowledge of basic theory by making measurements in working AC and DC circuits. Various types of circuits are constructed and their parameters measured. The use of test equipment, safety, and troubleshooting are stressed. Co-requisites: IMT 110 or Consent of Instructor.

IMT 115 Basic Machine Tool I (3)
This course provides the basic principles needed for a solid foundation in machine tool technology. Areas and machines covered include shop safety, benchwork, drill press, power saw, measurement, mills and lathes.

IMT 116 Basic Machine Tool I Lab (2)
Provides the basic principles needed for a solid foundation in machine tool technology. Areas and machines covered include shop safety, benchwork, drill press, power saw, measurement, mills and lathes. Co-requisite: IMT 115 or consent of instructor.

IMT 120 Industrial Maintenance Rotating Machinery (3)
Students will learn the basic principles needed for the proper maintenance of AC and DC motors. Prerequisites: Permission of the instructor.

IMT 121 Industrial Maintenance Rotating Machinery Lab (2)
Provides practical experience in the construction, operation and maintenance of AC motors and alternators and DC motors and generators. Co-requisites: IMT 120 or Consent of instructor.

IMT 131 Industrial Maintenance Electrical Concepts Lab (4)
Verifies knowledge of basic theory by making measurements in working AC and DC circuits. Various types of circuits are constructed and their parameters measured. This use of test equipment, safety, and troubleshooting are stressed. This lab course provides practical experience in the construction, operation, and maintenance of AC and DC motors. Co-requisites: IMT 130 or consent of instructor.

IMT 150 Maintaining Industrial Equipment I (3)
Introduces the student to maintenance techniques and procedures used to maintain industrial equipment. Corequisites: IMT 151 or Consent of Instructor.

Sub-Categories of IMT 150

IMT 1501 Introduction to Mechanical Drive Systems (0.3)
Introduces the student to basic mechanical systems. Covers safety, mechanical systems and a basic understanding of mechanical maintenance.

IMT 1502 Introduction to Belt Drives (0.3)
Introduces the student to basic and advance belt drive systems. Covers how to maintain, repair and troubleshoot belt drive systems.

IMT 1503 Introduction to Chain Drives (0.3)
Introduces the student to basic and advance chain drive systems.

IMT 1504 Bearings (0.3)
Introduces the student to basic and advance bearings.

IMT 1505 Gearing and Gear Drives (0.3)
Introduces the student to basic and advance gearing.

IMT 1506 Precision Shaft Alignment (0.3)
Introduces the student to basic and advance couplings.

IMT 1507 Lubrication (0.3)
Introduces the student to basic and advanced lubrication techniques.

IMT 1508 Brakes and Clutches (0.3)
Introduces the student to basic and advance brake and clutch applications.

IMT 1509 Industrial Pumps (0.3)
Introduces the student to industrial pumps and motors.
IMT 15010 Vibration Analysis (0.3)
Introduces the student to basic and advance brake and clutch applications. Includes the theory and principles of how to replace, identify and install brakes and clutches according to standard industrial methods.

IMT 151 Maintaining Industrial Equipment I Lab (2)
Provides the student with lab experience in the maintenance of industrial equipment. Corequisites: IMT 150 or Consent of Instructor.

Sub-Categories of IMT 151

IMT 1511 Introduction to Mechanical Drive Systems Lab (0.2)
Covers safety, mechanical systems, and a basic understanding of mechanical maintenance.

IMT 1512 Introduction to Belt Drives Lab (0.2)
Includes how to maintain, repair and troubleshoot belt drive systems.

IMT 1513 Introduction to Chain Drives (0.2)
Introduces the student to basic and advance chain drive systems. Students will be able to maintain, repair and troubleshoot chain drive systems.

IMT 1514 Bearings Lab (0.2)
Covers how to maintain, replace, identify and install bearings.

IMT 1515 Gearing and Gear Drives Lab (0.2)
Covers the identification, installation, maintenance, and replacement of gear drives.

IMT 1516 Precision Shaft Alignment Lab (0.2)
Introduces the student to basic and advance couplings. Covers how to maintain, replace, identify and how to install couplings using several industrial methods.

IMT 1517 Lubrication Lab (0.2)
Introduces the student to basic and advance lubrication techniques. Covers how to identify and apply proper lubrication techniques using standard industrial methods.

IMT 1518 Brakes and Clutches Lab (0.2)
Covers how to maintain, replace, identify and install brakes and clutches according to standard industrial methods.

IMT 1519 Industrial Pumps Lab (0.2)
Includes the application of skills related to industrial pumps and motors.

IMT 15110 Vibration Analysis Lab (0.2)
Introduces the student to basic and advance brake and clutch applications. Covers the replacement, identification, and installation of brakes and clutches according to standard industrial methods.

IMT 198 Practicum (3)
The Practicum provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Permission of instructor.

IMT 199 Cooperative Education (3)
Co-op provides supervised on-the-job work experience related to the student’s educational objective. Students participating in the Co-op Education program receive compensation for their work. Prerequisite: Permission of instructor.

IMT 220 Industrial Maintenance Electrical Motor Controls I (3)
This course addresses the diversity of electric motor control devices and applications used in industry today with safety and electrical lockouts included. Prerequisites: IMT 110, IMT 111.

IMT 221 Industrial Maintenance Electrical Motor Controls I Lab (2)
Addresses the diversity of control devices and applications used in industry today. Safety and electrical lockouts are also included. Co-requisites: IMT 110 and IMT 111 or consent of instructor.

IMT 230 Industrial Maintenance of PLCs (5)
This course includes the theory or programmable logic controllers to include installation, programming, interfacing, and troubleshooting of industrial PLC’s. Prerequisites: IMT 240.

IMT 231 Industrial Maintenance of PLC’s Lab (2)
Addresses the diversity of PLC control devices and applications used in industry today. Safety and electrical lockouts are also included. Prerequisites: (IMT 110 and 111) or IMT 130 and 131) with a
grade of C or greater] or consent of instructor. Co-requisites: IMT 230 or consent of instructor.

**IMT 240 Industrial Maintenance Motor Control Concepts (6)**
Addresses the diversity of control devices and applications used in industry today with safety and electrical lockouts included. The basic theory of programmable logic controllers is also included. Prerequisites: (IMT 110 and IMT 111) or (IMT 130 and IMT 131) with a grade of C or greater, or consent of instructor. Co-requisites: IMT 241 or consent of instructor.

**IMT 241 Industrial Maintenance Motor Control Concepts Lab (4)**
Verifies knowledge of basic theory by making measurements in working AC and DC circuits. Various types of circuits are constructed and their parameters measured. The use of test equipment, safety, and troubleshooting are stressed. This lab course also provides practical experience in the construction, operation, and maintenance of AC and DC motors. Prerequisites: (IMT 110 and 111) or (IMT 130 and 131) with a grade of C or greater, or consent of instructor. Co-requisites: IMT 240 or consent of instructor.

**IMT 250 Maintaining Industrial Equipment II (3)**
This class is designed to be an integration of the student’s accumulative knowledge from the IMM 150 and IMM 151 courses. Special emphasis will be placed on troubleshooting techniques and applied machine repair situations that require the student to apply learned skills from all areas of the curriculum. Prerequisites: IMT 150, IMT 151

**IT 132 Web Page Development (3)**
Web Page Design using HTML will be introduced. Creating web documents using a simple text editor will be the main focus. How to use a simple web editor will also be covered. Features such as layout, tables, images, forms, frames and the incorporation of sound and video will be explored. Developing site specifications and methods to increase the appeal and effectiveness of web sites are included. How to prepare web documents appropriate for use in business and professional web sites will be covered. Prerequisites: CIS 100 or consent of instructor.

**IT 170 Introduction to Database Design (3)**
This course introduces the standards for designing relational databases. Design criteria include first, second, and third normal forms to eliminate modification anomalies. Discussions review the capabilities of three major types of data models—hierarchical, network, and relational—as they apply to hypothetical sets of data objects. Experiences include the creation of logical design and translation into a physical database using the relational model. Interaction with the physical database will be conducted through a graphical interface and Query-by-example. Prerequisites: CIS 130 and the math component (MT 115 or MT 150) or consent of instructor.

**IT 237 Help Desk Service Skills and Tools (3)**
Self-management and soft skills to provide help-desk customer service and support including processes and associated technologies in a technical or non-technical environment. Prerequisites: CIS 100 or consent of instructor.

**IT 250 Introduction to Security (4)**
This course is designed to provide students with an introduction to the concepts of computer and network security. Communications, infrastructure, operational, and organizational security and cryptography will be covered. This course helps prepare the student for the CompTIA Security+ exam. Prerequisites: Consent of instructor or NIS 211 and IT 122 or NIS 213.

**JOU 101 Introduction to Journalism (3)**
This course surveys the history and social theories of journalism and introduces students to contemporary journalistic practice. Student will learn about the function and operation of print, electronic and on-line news media. Issues and concepts to be covered include the relationship of government to media; press freedom and controls; media ethics, and the impact of global communications. The course also covers the relationship of journalism to advertising, public relations and telecommunications, particularly with regard to new technologies.

**JOU 204 Writing for the Mass Media (3)**
An introduction to the concepts and techniques of media writing. This course offers hands-on instruction in information gathering, organization, and writing for print, broadcast and on-line media. Prerequisites: JOU pre-major status; JOU 101 or consent of instructor.

**JPN 101 Beginning Japanese I (4)**
A course in first semester Japanese language.

**JPN 102 Beginning Japanese II (4)**
A course in second semester Japanese language. Prerequisites: JPN 101 or equivalent.
KMA 100 Kentucky Medication (Rx) Aide (4)
This course is designed to prepare a Kentucky Medicaid Nurse Aide to administer specific medications in the long term care facility.
Prerequisites: MNA 100 (or current registration as a Nurse Aide – State Registered in Kentucky), six months of work experience as a Kentucky Medicaid Nurse Aide in the nursing home employing the nurse aide where the 20 hour practicum will be completed under the supervision of a facility nurse and with the consent of the Director of Nursing of the nursing home.

KHP 100 Walking (1)
Instruction in a variety of motor skill activities. Courses are designed for students at a beginner level. Up to six hours credit may be earned in service courses; however, the same activity may not be repeated for credit.

KHP 230 Human Health and Wellness (3)
The study of health promotion, wellness, and disease prevention concepts as applied to individual, familial, and community health.

LIT 115 Introduction to Reference Services (3)
This course presents an introduction to library reference sources and services. Reference interview techniques, use of standard print and online reference tools, bibliographic databases, web search engines and subject guides, and online full-text books, periodicals, documents, and interlibrary loan services are among the topics included. This is a web-based distance course that involves service learning activities.

LIT 124 Library Administration (3)
This course provides an introduction to basic principles of library organization and management. Emphasis is on the practical application of management concepts to the effective administration of library systems. This is a web-based distance course. Prerequisites: LIT 115 or consent of instructor.

LIT 132 Library Technical Services (3)
This course is an introduction to library technical services. Acquisitions, processing, cataloging and classification are introduced. This is a web-based distance course. Prerequisites: LIT 115 or consent of instructor.

LIT 200 Seminar in Kentucky Literature (Subtitle Required) (3)
This is an online or computer-assisted seminar course in Kentucky literature recognizing, examining, and studying distinct regional differences and similarities with concentration on major contemporary and traditional Kentucky writers and their texts. Topics will vary, from a group of authors, and historical period or aesthetic movement, to a genre, a theme, or an aspect of literary theory.

LIT 230 Web Publishing for Libraries (3)
This is a course in web publishing for library web sites, including HTML code, web page authoring software, web page and web site design, and trends in library web sites. This is a distance education course with a service learning component. Prerequisites: LIT 115 or consent of instructor.

LIT 240 Literature of Appalachian Kentucky (3)
This is an online or computer-assisted introductory survey course in the Appalachian literature of Kentucky concentrating on the major contemporary and traditional writers who are distinctly identified with that region. Approaches may include a group of authors, an historical period or aesthetic movement, a genre, a theme, or an aspect of literary theory.

LIT 241 Literature of Central Kentucky (3)
This is an online or computer-assisted introductory course in the literature of Central Kentucky concentrating on the major contemporary and traditional writers who are distinctly identified with that region. Approaches may include a group of authors, an historical period or aesthetic movement, a genre, a theme, or an aspect of literary theory.

LIT 242 Literature of Western Kentucky (3)
This is an online or computer-assisted introductory survey course in the literature of Western Kentucky which concentrating on the major contemporary and traditional writers who are distinctly identified with that region. Approaches may include a group of authors, an historical period, or aesthetic movement, a genre, a theme or an aspect of literary theory.

LIT 243 Library Services for Children (3)
This course is a study of library services for children. Topics include library programming development and production, children’s literature, collection development, Internet resources, and legal issues. Emphasis is on the development and promotion of young adult
library services. This is a web-based distance course that involves service learning activities. Prerequisites: LIT 115 or consent of instructor.

LIT 247 Library Services for Adults (3)
This is a study of library services for adults. Topics include adult literature, collection development, reader’s advisory service, programming, circulation services, reference services, and customer relations. This is a web-based distance course that involves service learning activities. Prerequisites: LIT 115 or consent of instructor.

LIT 248 Library Services for Preschool Children (3)
This course is a study of library services for preschool children, age infant to 5 years. Topics include library programming development and production, preschool children’s literature, services for parents and for child care services, collection development, and legal issues. This is a web-based distance course that requires service learning activities. Prerequisite: LIT 115.

LIT 280 Genealogy Services in Libraries (3)
This course prepares librarians to provide quality services to genealogical patrons. Topics include: definitions of genealogy and motivations of patrons; genealogical data, sources, and research methods; reference interviews; orientation of patrons to genealogical resources; collection development; interlibrary loan; patron referral; and legal and ethical issues relating to genealogical research. This is a web-based distance course that requires a service learning project. Prerequisites: LIT 115 or consent of instructor.

LIT 285 History of Libraries (3)
This course is a survey of the development of libraries from ancient times to the present, with emphasis on academic and public libraries in the United States. Attention is given to the interaction of libraries with economic, social and political trends in the larger society. Prerequisites: LIT 115 or consent of instructor.

LIT 299 Selected Topics in Library Information Technology: Topic (1-3)
This course is designed to expand library course offerings as new technologies develop, new issues evolve, and/or to address local library issues. Topics may vary from semester to semester at the discretion of the instructor. Course may be repeated with different topics to a maximum of nine credit hours. This is a web-based distance course that involves service learning activities. Prerequisites: LIT 115 or consent of instructor.

LSI 100 Fundamental Principles of Physical Security (2)
An introduction to the basic elements of physical security techniques, along with the direction to implement a security program, emphasizing designing a physical security program to be as effective and unobtrusive as possible, and introducing security hardware and access control systems to increase the effectiveness of evaluation, recommendations and/or purchasing decisions. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 101 Perimeter Security (2)
An introduction to principles of perimeter security, including fences and walls; perimeter intrusion detection systems, including microwave systems, cable based fence sensors, buried cable and other technologies; defeat techniques, gate and vehicle barriers, and water-floating barriers. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 103 Closed Circuit Television (CCTV) Systems (2)
CCTV - Visual Monitoring Systems camera set up, lighting, environment, lensing, and sensitivity, with hand-on involvement, including live reviews of final results. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 105 Force Protection (3)
Training for U.S. Department of Defense and government security personnel, enabling them to create a comprehensive physical security outline for the protection of personnel and property at a mobile or fixed command. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 107 Intrusion Detection (2)
Current technologies in intrusion detection systems (IDS); including applications for IDS equipment, in both interior and exterior; techniques for office environments and industrial environments, including docks, yards and shipping/warehouse environments; and application of techniques; and components, including Microwave, Passive Infrared, and pros and cons of system components. Emphasizes total system design, including set-up of interior and exterior systems. Addresses Video Intrusion. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 110 Security Surveys (2)
Aspects of security, including personnel security, physical security, technical security, and computer information security. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 112 Security Surveys/Security Audits (2)
Basics of conducting a security survey; including risk and threat analysis, pre-survey preparations, creating the survey team, and conducting the survey. Identification of the proper procedure for preparing and conducting a security survey/audit in accordance with the delineated principles. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 115 Command Security Officer Training (4)
Training for Department of Defense and Government Security personnel to create a comprehensive physical security outline for the protection of personnel and property at a mobile or fixed command. Must be Department of Defense personnel to receive ATFP Level II certification. Prerequisite: Restricted to Department of Defense Personnel

LSI 120 Comprehensive Security Specialist (4)
Training for the security professional in all aspects of security, addressing current trends in policies and procedures, including physical security, crime prevention, security surveys and contingency planning for internal and external threats. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 125 Supply Chain Security (2)
Security throughout Transportation, Storage, Shipping and Receiving of cargo; discussing the concept of proactive verses reactive, planning and the overall needs of a security operation; discussing specific security systems, as well as the creation and implementation of security policies; and considering Security Design to look at ways to maximize the security benefit within operational (financial and aesthetic) constraints. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 127 Cargo Crime (2)
Threats to cargo while it is in transit, including containers, trucks, air cargo and movement through ports, addressing truck stops, modern piracy, proactive (preventive security) measures, as well as reactive (investigation and documenting) cargo theft issues. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 130 GSA: Locks, Vaults & Containers Certified Technician Training (4)
Instruction to successfully service, maintain, perform covert and forced entry, and repair GSA approved security containers. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 131 GSA: Locks, Vaults & Containers Certified Inspectors Training (1)
Certification instruction for inspector of GSA locks, vaults and containers. Certified inspectors are able to assess and certify the complete functionality of GSA locks, vaults and containers. Prerequisites: LSI 130 or consent of instructor.

LSI 140 Managing Terrorism and Other Crises (1)
An overview of domestic and international terrorist groups, introducing the concept of contingency
planning in comparison to other types of operations planning, and providing basic knowledge regarding the management of a bomb threat and identification of explosives and incendiary devices. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 144 Terrorism (2)**
An overview of International and Domestic Terrorism, introducing students to who terrorists are, what they are capable of doing, and when, where and why they would most likely strike. Includes Pre- Incident planning and Incident and Post-Incident response, as well as identification, through threat and risk analysis, of the proper procedure for, and response to terrorism. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 146 Crisis Management/ Contingency Planning (2)**
Crisis Management/Contingency Planning. An NIMS approach to a consistent nationwide approach for Federal, State, Local, and Tribal governments to work effectively and efficiently together to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 150 Professional Locksmithing (4)**
Comprehensive hands-on knowledge of locks, providing the student with the information necessary to become a competent technician who can service, maintain, troubleshoot and master key any industrial key lock system. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 151 Basic Penetration of Safes (1)**
Techniques and skills that are required to strategically drill into a container and defeat the locking mechanism in order to penetrate a safe or security. Prerequisite: LSI 153.

**LSI 152 Combination Lock Manipulation (1)**
Complex and in-depth investigation of the working of the combination lock that will provide the technician with the capability of determining the combination without drilling the lock. Prerequisite: LSI 153.

**LSI 153 Safe Lock Servicing Mechanical and Electronic (2)**
Instruction in the operation and servicing of mechanical and electronic safe locks. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 160 Fundamentals of Electricity (2)**
Instruction in basic electrical principles, circuit design and application, and electrical components needed to comprehend the principles of electronic security systems. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 170 Electronic Access Control (2)**
Instruction in the latest security technology utilizing electronic access control systems, enabling the technician to design, install, and troubleshoot the latest electronic access control systems. Prerequisite: LSI 160.

**LSI 174 Access Control (2)**
Current technologies in access control; covering access control equipment, from card readers to biometric readers; output devices, such as electric strikes and magnetic locks; pros and cons of system components. Emphasizes total system design, including set-up of zones access levels, and includes practical exercises to practice the techniques taught. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

**LSI 177 IT Security (2)**
A comprehensive overview of the ever growing threats of IT Security (Viruses, Worms, Trojans,
Various methods of providing perimeter security and an analysis of security design. Examines the theory and application of closed circuit television systems, various applications and limitations of intrusion detection systems, and various types of protective lighting. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 190 Security Hardware and Bypass Techniques (1)
An introduction to the types of locks and locking systems currently available to the security profession, lock construction, and techniques to defeat locks. Prerequisite: Students will be required to undergo a criminal background investigation. If a student is presently employed by a law enforcement or federal agency that requires criminal checks, this requirement may be waived by LSI.

LSI 195 Tactical Entry (8)
Training for law enforcement or government personnel to gain safe entry into containers, rooms, buildings, facilities or vehicles. Prerequisite: Restricted admission to Law Enforcement Professionals and US Military Personnel.

MA 108R Intermediate Algebra (3)
This course is remedial in nature and covers material commonly found in second year high school algebra. Specific topics to be discussed include numbers, fractions, algebraic expression, simplifying, factoring, laws of exponents, linear equations, simple graphs and polynomial algebra. This course is not available for degree credit toward a bachelor’s degree. Credit not available on the basis of special examination. Prerequisite: One year of high school algebra. Recommended for students with a Math ACTE score of 18 or less, or consent of department.

MA 109 College Algebra (3) [equivalent to MT 150]
Selected topics in algebra. Develops manipulative algebraic and mathematical reasoning required for further study in mathematics. Includes brief review of basic algebra, quadratic formula, systems of linear equations, introduction to functions and graphing. This course is not available for credit to persons who have received credit in any mathematics course of a higher number with the exceptions of MA 112, 123, 162, 199, 201 and 202. Credit not available on the basis of special examination. Prerequisite: Two years of high school algebra and a Math ACTE score of 21
or above or a Math SAT score of 510 or above, or MA 108R, or math placement test.

MA 111 Contemporary Mathematics (3)
An introduction to concepts and applications of mathematics, with examples drawn from such areas as voting methods, apportionment, consumer finance, graph theory, tilings, polyhedra, number theory and game theory. This course is not available for credit to persons who have received credit in any mathematics course of a higher number with the exceptions of MA 112, 123, 162, 201 and 202. This course does not serve as a prerequisite for any calculus course. Credit not available on the basis of special examination. Prerequisites: Two years of high school algebra and a Math ACTE score of 19 or above, or MA 108R, or math placement test.

MA 113 Calculus I (4)
A course in one-variable calculus. Derivatives and integrals of elementary functions (including trigonometric functions) with applications. The fundamental theorem of calculus. Lecture, three hours; recitation, two hours per week. Prerequisite: Math ACT of 27 or above, or math SAT of 620 or above, or MA 109 and MA 112, or MA 110, or consent of the department. Students who enroll in MA 113 based on their test scores should have completed a year of pre-calculus study in high school that includes the study of the trigonometric functions. Note: Math placement test recommended.

MA 114 Calculus II (4)
A continuation of MA 113, primarily stressing techniques of integration. Prerequisites: High school trigonometry or MA 112; and a grade of C or better in MA 113 or MA 132.

MA 123 Elementary Calculus and Its Applications (3)
An introduction to differential and integral calculus, with applications to business and the biological and physical sciences. Not open to students who have credit in MA 113. Prerequisites: Math ACTE score of 26 or above, or Math SAT of 600 or above, or MA 109 or appropriate math placement score, or consent of department. Note: Math placement test recommended. Students who have received credit for MA 113 cannot receive credit for MA 123.

MA 162 Finite Mathematics and Its Applications (3)
Finite mathematics with applications to business, biology, and the social sciences. Linear functions and inequalities, matrix algebra, linear programming, probability. Emphasis on setting up mathematical models from stated problems. Prerequisites: MA 109 or equivalent.

MA 193 Supplementary Mathematics Workshop I: (Subtitle required) (1-2)
Laboratory offered (only) as an adjunct to certain mathematics lecture courses. Offered only on a pass/fail basis. Co-requisite: Set by instructor.

MA 194 Supplementary Mathematics Workshop II: (Subtitle required) (1-2)
Laboratory offered (only) as an adjunct to certain mathematics lecture courses. Offered only on a pass/fail basis. Co-requisite: Set by instructor.

MA 201 Mathematics for Elementary Teachers (3)
Sets, numbers and operations, problem solving and number theory. Recommended only for majors in elementary and middle school education. Prerequisites: MA 109 or MA 111.

MA 202 Mathematical Problem Solving for Elementary Teachers (3)
Algebraic reasoning, introduction to statistics and probability, geometry, and measurement. Prerequisite: A grade of “C” or better in MA 201. Also recommended: a course in logic (e.g. PHI 120) or a course in calculus (e.g. MA 123).

MA 213 Calculus III (4)
MA 213 is a course in multivariate calculus. Topics include three dimensional vectors calculus, partial derivatives, double and triple integrals, sequences, and infinite series. Prerequisites: MA 114 or equivalent.

MA 214 Calculus IV (3)
MA 214 is a course in ordinary differential equations. Emphasis is on first and second order equations and applications. The course includes series solutions of second order equations and Laplace transform methods. Prerequisites: MA 213 or equivalent.

MAI 105 Introduction to Medical Assisting (3)
Rights, roles, responsibilities and functions of the medical assistant including personal and professional awareness, communication, interpersonal relationships, psychological concepts, ethics and legalities. Prerequisites: Acceptance into the Medical Assisting program or consent of Medical Assisting coordinator/director.

MAI 120 Medical Assisting Laboratory Techniques I (3)
Theory and practical application in the physician’s office laboratory including patient preparation, specimen collection and transport, processing and testing, blood collection and prevention of disease transmission. Prerequisites: Acceptance into the Medical Assisting Program or consent of Medical Assisting coordinator/director.

MAI 140 Medical Assisting Clinical Procedures I (4)
Clinical skills and techniques used in the physician’s office for patient examination, diagnosis and treatment are introduced. Principles and practical applications related to medical asepsis, infection control, vital signs, routine and specialty patient examinations, diagnostic testing, and treatments are presented with an emphasis on OSHA regulations. Prerequisites: Consent of Medical Assisting program coordinator/director or acceptance into the Medical Assisting program.

MAI 150 Medical Assisting Administrative Procedures I (3)
Provides knowledge of the duties required in an office with emphasis placed on a medical office environment. Course content includes communication with patients and co-workers, completion of medical office forms, telephone techniques, filing office correspondence, mail processing, appointment scheduling, processing medical records, and an introduction to medical office computer software. Prerequisites: Acceptance into the Medical Assisting program or consent of Medical Assisting coordinator/director.

MAI 170 Dosage Calculations (2)
Provides a review of basic mathematic skills related to dosage calculations, a thorough knowledge of the systems of measurement and conversion, and application skills to perform dosage calculations. Prerequisite: Consent of Medical Assisting coordinator.

MAI 200 Pathophysiology for the Medical Assistant (3)
Provides instruction related to common acquired diseases, congenital conditions, injuries, illnesses, and trauma situations as related to the major body systems. Prerequisites (BIO 135) and (CLA 131 OR AHS 115 OR AHS 120 OR OST 103) or consent of Medical Assisting coordinator. All prerequisites must be achieved with a grade of “C” or greater.

MAI 220 Medical Assisting Laboratory Techniques II (3)
Laboratory procedures related to waived complexity testing performed in the physician’s office laboratory. CLIA and OSHA regulations are stressed. Prerequisite: MAI 120 with a grade of C or greater.

MAI 230 Medical Insurance (3)
Fundamentals of insurance processing and coding for the medical office, with focus on proper procedures for accurate coding systems using the ICD, CPT and HCPCS coding system. Prerequisite: Consent of Medical Assisting program coordinator/director.

MAI 240 Medical Assisting Clinical Procedures II (4)
Continued instruction and application techniques for specialty examination, diagnostic testing and treatment modalities. Fundamentals and practical applications of minor office surgical procedures are emphasized. Prerequisite: MAI 140 with a grade of C or greater.

MAI 250 Medical Assisting Administrative Procedures II (3)
Financial, insurance and billing procedures are covered. Areas of study include banking concepts, accounting systems frequently used in the medical office, payment procedures, insurance plans and claims, paper and electronic billing methods, and professional fees.

MAI 260 Medical Transcription (3)
This course introduces the fundamentals of medical transcription. Emphasis is placed on techniques for the production of various types of medical reports and records as well as the use and care of equipment. Prerequisite: Consent of Medical Assisting coordinator/director.

MAI 270 Pharmacology for the Medical Assistant (3)
An overview of pharmacology with concentration on prescriptions, drug nomenclature, classification of drugs, patient education, medication preparation and administration. Prerequisite: MAI 170 and BIO 135 and (AHS 115 OR AHS 120 or CLA 131 OR OST 103) with a grade of “C” or better or consent of Medical Assisting Program coordinator/director.

MAI 281 Medical Assistant Practicum (1)
Provides introductory practical experience (unpaid) through observation and work assignments in a healthcare setting. Prerequisite: Consent of Medical Assisting program coordinator/director.
MAI 282 Medical Assisting Externship (3)
Externship assignments (unpaid) are structured to allow the student to apply knowledge, perform administrative and clinical procedures, and develop professional attitudes for interacting with other professionals and consumers in the health care field. Prerequisite: Consent of Medical Assisting program coordinator/director.

MAI 299 Selected Topics: Medical Assisting: (Topic) (1-4)
Various medical assisting topics, issues and trends will be addressed. Topics may vary from semester to semester at the discretion of the instructors; course may be repeated with different topics to a maximum of six credit hours. Prerequisite: Consent of instructor.

MNA 100 Medicaid Nurse Aide (3)
Specific knowledge and skills for students and/or nurse aides to assume the role and responsibility required in long term care is communicated to the student through lectures, lab, and clinical practice. The focus of the course is communication, infection control, safety, resident’s rights, and basic nursing skills.

MNA 101 MOI for Medicaid Nurse Aide Instructors (1 or 16 CEUs)
This course provides training for nurses who are occupationally competent, but who have no formal training in educational methodology. Prerequisite: Persons enrolling for this course must meet other requirements outlined by Medicaid Services.

MGT 101 Quality Management Principles (3)
Students are introduced to fundamental concepts, principles and practices used to improve quality in organizations. Students will practice problem solving techniques, make decisions based on data, work in teams, troubleshoot and demonstrate knowledge of implementing continuous quality improvement processes.

MGT 120 Personal Finance (3)
Information needed to make intelligent choices and take effective action in the management of personal resources is provided. Topics include financial planning, buying, borrowing, saving, budgeting, investing, insurance, and taxes.

MGT 160 Introduction to Business (3)
Business careers, terminology, and the interrelationships and complexities of business are introduced and examined in this survey course.

MGT 200 Small Business Management (3)
Students are introduced to the many facets of establishing, operating and/or owning a small business. Topics include legal forms of business organization, finance, accounting, insurance, governmental regulations and assistance, economics, marketing, and management principles. Prerequisites: MGT 160 or B&E 100, or consent of instructor.

MGT 240 Business Ethics (3)
The Business Ethics class emphasizes the need for managers to be self-directed to make ethical decisions. The course explores moral principles, community standards and the ethics of decision making at personal and professional levels.

MGT 256 Operations Management (3)
Concepts and methods for economical planning and control of activities required for transforming a set of inputs into specified goods or services are introduced. Emphasis is given to forecasting, decision analysis, cost analysis, design of production systems, production/marketing relationships, operations planning and control, and the importance of global competitiveness. Prerequisites: MGT 283 or consent of instructor.

MGT 267 Introduction to Business Law (3)
The student is introduced to the state and federal court systems, tort and criminal law, law of contracts, partnership, sale of goods, government regulations, bailment and negotiable instruments.

MGT 274 Human Resource Management (3)
The student is introduced to the basic methods of recruiting, selecting, training, compensating, and maintaining a productive workforce. Concepts of effective employee relations including collective bargaining, contract administration, and safety and health programs are introduced. Techniques for systematic human resource planning and development of policies consistent with government regulations are emphasized. Prerequisites: MGT 283 or consent of instructor.

MGT 283 Principles of Management (3)
The functional framework of planning, organizing, leading, and controlling is utilized to introduce the management process. The interdisciplinary nature of management theory is introduced also, with the inclusion of relevant aspects of human behavior and rational decision making. Prerequisites: MGT 160 or consent of instructor.

MGT 284 Applied Management Skills (3)
This is the capstone course in which management
theories and techniques are applied with emphasis on the action-skills that managers need for success. Course topics include delegating, motivating employees, team-building, conflict management, coaching and managing change. Prerequisites: MGT 283 or prior supervisory experience.

MGT 288 Self-Management (3)
The need for managers to be self-directed before they can manage successfully the work of others is emphasized. Contemporary approaches to developing the behavioral skills needed to improve personal effectiveness are explored. Topics include personal planning and goal setting, time management, stress management, interpersonal and human relations skills.

MGT 299 Selected Topics in Management: (Topic) (1-3)
Technological developments, new business issues, and/or local management topics are presented and studied. Prerequisite: Consent of instructor.

MKT 155 Personal Selling (3)
The professional selling process which involves a series of interrelated activities is introduced. Emphasis is placed on planning and delivery of sales presentations. The six selling steps are examined - prospecting, qualifying, presenting, answering objections, closing, and the after sale service. Students demonstrate effective sales techniques through simulation and role playing.

MKT 282 Principles of Marketing (3)
The marketing function is introduced and applied to various types of business organizations with attention to the marketing concept. Topics include the marketing mix of product, price, promotion, and distribution decisions; international marketing; and social responsibility. Prerequisites: MGT 160 or consent of instructor.

MKT 290 Advertising and Promotion (3)
The principles of advertising will be introduced to the student. Topics will include economic and social aspects; advertising research; media strategy; consumer behavior; and legal issues in advertising. Prerequisite: MKT 282.

MKT 291 Retail Management (3)
Retail structure, merchandising, promotions, store control, and decision making are examined in this course. Fundamental principles of store organization, consumer behavior, and customer service are addressed. Retailing trends, opportunities, and problems are included also.

MKT 293 Buying and Merchandising (3)
Decision making strategies are used to solve problems inherent in merchandise selection. Analysis of financial statements and their relationship to buying situations are included, along with cost control and the establishment of sales goals and objectives. Mark-ups, reduction planning, unit cost control, and other computations are emphasized. Prerequisite: MKT 291.

MKT 299 Selected Topics in Marketing: (Topic) (1-3)
Technological developments, new business issues, and/or local marketing topics are presented and studied. Prerequisite: Consent of instructor.

MT 115 Technical Mathematics (3)
Some mathematical concepts from algebra, geometry, and trigonometry and applications relevant to these topics are studied. Topics to be covered include unit conversions, variation, measurement of geometric figures, vectors, and solving right and oblique triangles using trigonometry. Emphasis is on applications in the various technologies. Prerequisites: MT 065 or equivalent as determined by KCTCS placement examination. [AAS degrees only]

MT 125 Technical Algebra and Trigonometry (3)
Mathematical concepts from algebra and trigonometry are studied. Topics to be covered include vectors, phasor algebra, variation, trigonometric functions, coordinate systems, system of linear equations, quadratic, rational, exponential and logarithmic equations. Prerequisites: MT 065 or equivalent as determined by KCTCS placement examination. [AAS degrees only]

MT 055 Pre-Algebra (3)
Students enhance their understanding and manipulative skills in the arithmetic of rational numbers. Topics include whole numbers, powers and square roots, fractions, decimal fractions, percents, ratios, proportions, signed numbers, order of operations, prime factorization, basic formulas in geometry, measurement and tables and graphs.

MT 065 Basic Algebra with Measurement (3)
Basic algebra course covering variable expressions, linear equations and inequalities, exponents, polynomials, factoring, square and cube roots, scientific and engineering notation, elementary graphing, and measurement unit and conversions. Prerequisites: MT 055 or equivalent as determined by KCTCS placement examination.
MT 105 Business Mathematics
Basic mathematical concepts as applied to finance are covered. Topics include percentages, simple and compound interest, annuities, sinking funds, depreciation, balance sheets, and consumer debt, including installment buying, credit cards, and mortgages. Prerequisite: MT065 or equivalent as determined by KCTCS placement examination. [AAS degrees only]

MT 110 Applied Mathematics
This course includes the concepts of ratio and proportion, units and conversions, linear equations in two variables, inequalities, graphing and writing equation of a line, percents, interest, descriptive statistics, and logical symbolism. Emphasis is on applications in the various technologies. Prerequisite: MT065 or equivalent as determined by KCTCS placement examination. [AAS degrees only]

MT 155 Trigonometry
This standard college Trigonometry course includes the trigonometric functions, identities, multiple analytic formulas, laws of sines and cosines, graphs of trigonometric functions in rectangular and polar coordinates, and solving trigonometric equations. Applications are emphasized in each topic. MT 155 is not available for students who already have credit for MA110, MA112, and/or MAT145. Prerequisites: Intermediate Algebra or ACTE Math score of 20 or equivalent as determined by KCTCS placement examination.

MTT 110 Fundamentals of Machine Tools – A (3)
Provides the basic principles needed for a solid foundation in machine tool technology. Areas and machines covered include shop safety, benchwork, drill press, power saw, measurement, and mills.

MTT 112 Fundamentals of Machine Tools – B (4)
Provides the basic principles needed for a solid foundation in machine tool technology. Areas and machines covered include shop safety, benchwork, drill press, power saw, measurement, and mills. Prerequisites: MTT 110 with a grade of “C” or greater or consent of instructor.

MTT 114 Fundamentals of Machine Tools (7)
Provides the skills and knowledge that is needed to progress through the machine tool program. It will include safety and benchwork. The student will be introduced to the basic power equipment and machine tools that are used in the machine trades which includes: drill presses, power saws, measurement instruments, mills and lathes.

MTT 118 Metrology/Control Charts (3)
Provides the basic principles in using precision measurement instruments and their application to inspection and quality control.

MTT 120 Applied Machining I (3)
Consists of intermediate level skills using machining machines and surface grinders. It will include the selection of grinding wheels. Prerequisites: MTT 110 and 112 or MTT 114 with a grade of “C” or greater in the MTT course(s) or consent of instructor.

MTT 122 Applied Machining II (4)
Carries the student to higher levels in the operation of machine tools. Prerequisites: MTT 120 with a grade of “C” or greater or consent of instructor.

MTT 124 Applied Machining (7)
Allows the student to begin performing skills that will combine the use of different types of machines and begin to give them a complete picture of the machine tool career. Prerequisites: MTT 110 and 112 or MTT 114 with a grade of ”C” or greater in the MTT course(s) or consent of instructor.

MTT 130 Manual Programming (3)
Introduces the student to CNC codes and programming, set-up and operation of CNC machine tools.

MTT 132 CAD/CAM/CNC (3)
Introduces the student to CAD/CAM/CNC systems which includes CAM software.

MTT 134 Manual Programming CAD/CAM/CNC (6)
Introduces the student to CAD/CAM/CNC systems, CNC format, the Cartesian Coordinate System, CNC codes and programming, set-up and operation of CNC machine tools. Prerequisites: MTT 114 with a grade of “C” or greater or consent of instructor.

MTT 150 Shop Theory (2)
Provides the student with an understanding of shop theory, processes and basic concepts of machine tool applications utilized in the tool and die field. Areas and machine concepts covered include safety, measurement, layout work, bench work, saws, drills, drilling machines, mills, and lathes.

MTT 151 Machinery’s Handbook and Metallurgy (2)
Introduces the student to the Machinery’s Handbook as a reference source for solving manufacturing problems and provides a working knowledge of the principles and concepts contained in the Handbook.
Explores the many processes involved in heat-treating steels to specific hardness, toughness, and wear capability. Includes identification, classification, application, and processing of tool steels.

**MTT 152 Jigs, Fixtures and Gauging (3)**
Provides students with an understanding of jigs, fixtures, and work holding devices and their separate uses and principles. Utilizes knowledge of machining processes to design jigs and fixtures for different applications. Utilizes print knowledge to identify part datums for gauging points.

**MTT 153 Mold Theory (3)**
Provides students with a basic study of mold making. Includes thermoplastic and thermosetting materials, compression mold, transfer mold, injection molds and mold components, the heating and cooling of molds, and the methods of producing cores and cavities.

**MTT 154 Die Theory (3)**
Provides the student with a study of basic die making. Includes die sets, punch presses, blanking dies, piercing dies, screw and dowel holes, punch and punch blocks, die life, bending dies, pilots, die block construction, stock stripers, stock guides, progressive dies, stock strips, and secondary operations of notch, trim, and shave.

**MTT 210 Industrial Machining I (3)**
Covers the classification of metals, identification of tool steels and their applications. The student will be required to perform advanced milling machine operations that simulate industry standards. Prerequisites: MTT 122 or 124 with a grade of “C” or greater or consent of instructor.

**MTT 212 Industrial Machining II (4)**
Designed to allow the student to receive instruction in any area where advanced work is needed or an area where there is student interest. Prerequisites: MTT 210 with a grade of “C” or greater or consent of instructor.

**MTT 214 Industrial Machining (7)**
Covers the classification of metals, identification of tool steels and their applications. The student will be required to perform advanced milling machine operations that simulate industry standards. Special projects are included in this course so the student will receive instruction in a specific area. Prerequisites: MTT 122 or 124 with a grade of “C” or greater or consent of instructor.

**MTT 220 Advanced Industrial Machining I (4)**
Designed to allow for the construction of electrodes and the production of parts by the use of an Electric Discharge Machine. Prerequisites: MTT 134 and MTT 212 or 214 with a grade of “C” or greater in each MTT course or consent of instructor.

**MTT 222 Advanced Industrial Machining II (2)**
Advances students to a higher level of industrial standards by exposing them to additional tasks using a cylindrical grinder. Prerequisites: MTT 212 or 214 with a grade of “C” or greater or consent of instructor.

**MTT 224 Advanced Industrial Machining (6)**
Designed to allow for the construction of electrodes and the production of parts by the use of an Electric Discharge Machine (EDM), cylindrical grinder, and other type of grinders. Prerequisites: MTT 134 and MTT 212 or MTT 214 with a grade of “C” or greater in each MTT course or consent of instructor.

**MTT 230 Conversational Programming (6)**
Introduces the student to conversational programming of CNC machine tools. Prerequisite: consent of instructor.

**MTT 2301 Introduction to Conversational Programming (3)**
Introduce students to conversational programming guidelines which will include program preparation, conversational input, and minor editing. Prerequisite: Consent of instructor.

**MTT 2302 Conversational Editing and Subroutines (3)**
Introduces students to performing editing routines, to subroutines, and to programs that contain loops. Students will also interpret error messages from the control. Prerequisites: MTT 2301 or consent of instructor.

**MTT 240 Introduction to 3-D Programming (6)**
Introduction to 3-D Programming using CAM systems to effect engineering changes that enhance productivity. The CAM system utilized will be used to create and produce complex 3-D parts. Prerequisites: MTT 134 with a grade of “C” or greater or consent of instructor.

**MTT 2401 Introduction to 3D Code Sequencing and Tool Path Production (3)**
Introduces students to creation of 3-D models and allows those models to be used in creation of tool paths for CNC machine tools. Prerequisites: MTT 134 with a grade of “C” or greater or consent of instructor.
MTT 2402 Advanced 3D Code Sequencing and Macro Systems (3)
Introduces students to more advanced manipulation of 3-D images, including projecting to surfaces, creating wrap tool paths, and macro capabilities. Prerequisites: (MTT 134 and MTT 2401) with a grade of “C” or greater in each MTT course or consent of instructor.

MTT 298 Practicum (2)
The practicum provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Permission of the instructor.

MTT 299 Cooperative Education Program (2)
Co-op provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Co-op Education program receive compensation for their work. Prerequisite: Permission of instructor.

MU 154 Class Instruction in Voice I (1)
A beginning course in the fundamentals of singing.

MUS 100 Introduction to Music (3)
A study of the elements of music as they apply to the listening experience; designed for the non-music major with no prior knowledge of music. Emphasis will be placed upon developing an awareness and understanding of musical styles from the Renaissance to the present. Music majors may not use this course to fulfill either General Studies, Universities Studies or music history requirements.

MUS 206 American Music (3)
A history of music in America from c. 1620 to the present. Will require listening to recordings, reading the primary text and suggested readings in books, periodicals and documents. Students should become aware of important names, places, events and styles in music as well as important historical trends and movements.

MUS 222 History and Sociology of Rock Music (3)
A listening survey course, with a chronological approach, covering the years 1950- present. Emphasis will be on both the music and the sociological climate reflected and advocated by the music.

NAA 100 Nursing Assistant Skills I (3)
Provides knowledge and skills for nurse aides to assume the role and responsibility required in a long term care setting. The focus is communication, infection control, safety, resident/patient rights, and basic nursing skills. Note: Faculty and clinical sites must comply with applicable Federal and Kentucky laws and regulations including but not limited to 42 USC 1396r and 907 KAR 1:450.

NFS 101 Human Nutrition and Wellness (3)
Food composition, digestion, absorption and metabolism as related to selection of nutrients essential for human life, growth, reproduction, lactation, wellness and physical activity. Not open to NFS majors except hospitality management students.

NIS 160 Networking Core Technologies (3)
This course is designed to provide a technical level of understanding in the areas of networking connectivity, data communications concepts and communication protocols. Communications and networking concepts including hardware, software, and transmission media; access methods and protocols; and network configurations are included. System design considerations are addressed. Emphasis is on local area networks, and students will install a simple local area network. This course will help prepare student to take standard industry certification tests. Prerequisites: 1) ET 234 and 2) either ET 232 or CIS 110 and 3) either CIS 130 or ET 107 or consent of instructor.

NIS 211 Administering Microsoft Windows Professional: Topic (3)
This course provides students with the knowledge and skills necessary to install and configure Microsoft Windows Professional on stand-alone computers and on client computers that are part of a workgroup or a domain. This course measures your ability to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows Professional. This course helps prepare for the following Microsoft Certified Professional Exams: Exam 70-270 Installing, Configuring, and Administering Microsoft Windows XP Professional or Exam 70-210, Installing, Configuring, and Administering Microsoft Windows 2000 Professional. Prerequisites: NIS 160 or IT 120 or IT 124 or consent of instructor.

NIS 213 Administering Microsoft Windows Server: Topic (3)
This course provides students with the knowledge and skills necessary to install and configure Microsoft Windows Server to work in a Workgroup or Domain environment and provide various services to organizations. This course measures your ability to implement, administer, and troubleshoot information
systems that incorporate Microsoft Windows Server operating systems. This course helps prepare for the following Microsoft Certified Professional Exams: Exam 70-215 Installing, Configuring, and Administering Microsoft Windows 2000 Server or Exam 70-275 Installing, Configuring, and Administering Microsoft .NET Server. Prerequisites: NIS 160 or IT 120 or IT 124 or consent of instructor.

NIS 214 Supporting Windows Network Infrastructure Topic: (3)
This course provides students with the knowledge and skills necessary to be responsible for installing, configuring, managing and supporting a network infrastructure that uses Microsoft Windows 2000 Server products. This course helps you prepare for the Microsoft Certified Professional exam: Exam 70-216 Implementing and Administering a Microsoft Windows 2000 Network Infrastructure or Exam 70-276 Implementing and Administering a Microsoft Windows .Net Network Infrastructure. Prerequisites: NIS 213 or consent of instructor.

NIS 216 Implementing and Administering Microsoft Windows Directory Services Topic (3)
This course provides students with the knowledge and skills necessary to install, configure, and administer Microsoft Windows 2000 Active Directory directory services. The course also focuses on implementing Group Policy and understanding the Group Policy tasks required to centrally manage users and computers. This course helps you prepare for the following Microsoft Certified Professional exam(s): Exam 70-217, Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure or Exam 70-277 Implementing and Administering a Microsoft Windows .Net Server Directory Services Infrastructure. Prerequisites: NIS 214 and NIS 216 or consent of instructor.

NIS 242 Designing a Windows Directory Services Infrastructure: Topic (3)
This course provides students with the knowledge and skills necessary to design a Microsoft Windows 2000 directory services infrastructure in an enterprise network. Strategies are presented to assist the student in identifying the information technology needs of an organization, and then design an Active Directory structure that meets those needs. This course helps you prepare for the following Microsoft Certified Professional exam(s): Exam 70-221, Designing a Microsoft Windows 2000 Directory Services Infrastructure. Prerequisites: NIS 214 and NIS 216 or consent of instructor.

NIS 244 Designing a Windows Networking Services Infrastructure: Topic (3)
This course provides students with the information and skills needed to create a networking services infrastructure design that supports the required network applications. Strategies are presented to assist the student in identifying the information technology needs of an organization, and then design that meets those needs. This course helps you prepare for the following Microsoft Certified Professional exam(s): Exam 70-221, designing a Microsoft Windows 2000 Network Infrastructure. Prerequisites: NIS 214 and NIS 216 or consent of instructor.

NIS 245 Designing a Secure Windows Network: Topic (3)
This course provides students with the knowledge and skills necessary to design a security framework for small, medium, and enterprise networks using Microsoft Windows 2000 technologies. This course contains four units that describe security in specific areas of the network: Unit 1, Providing Secure Access to Local Network Users; Unit 2, Providing Secure Access to Remote Users and Remote Offices; Unit 3, Providing Secure Access Between Private and Public Networks; and Unit 4, Providing Secure Access to Partners. This course helps you prepare for the following Microsoft Certified Professional exam(s): Exam 70-220: Designing Security for a Microsoft Windows 2000 Network. Prerequisites: NIS 214 and NIS 216 or consent of instructor.

NMMI 140 Clinical Procedures I (2)
Covers skeletal system imaging procedures to demonstrate vascular, soft tissue and skeletal distribution and cardiovascular system imaging procedures for myocardial perfusion and viability, functional evaluation (equilibrium and first-pass methods) and deep vein thrombosis detection. Prereq: Admission to the NMMI program and MT 150 (or MA 109) and BIO 137 and BIO 139, or consent of instructor. Coreq: CHE 104 (or CHE 140), PH 171 (or 172), NMMI 141 and NMMI 142 and NMMI 150. Lecture: 2 cr hr (30 contact hours). [Effective Fall 2008]

NMMI 141 Physics and Instrumentation I (2)
Introduces concepts and physical principles that govern radioactivity and the interactions of radiation with matter, the principles, operation and quality control for non-imaging, gas-filled detectors and non-imaging scintillation detectors; also the principles and applications of statistics as they relate to radiation detection and counting. Prereq: Admission to NMMI program and MT 150 (or MA 109) and BIO 137 and BIO 139, or consent of instructor.
NMMI 150 Clinic I (2)
Introduces concepts of clinical practice with application of knowledge and principles from previous general education course work and/or concurrent NMNI courses. Will include actual clinical experience in an affiliated nuclear medicine clinical setting. Prereq: Admission to NMNI program and MT 150 (or MA 109) and BIO 137 and BIO 139, or consent of instructor. Coreq: CHE 104 (or CHE 140) and PH 171 (or PH 172), NMMI 140 and NMMI 141 and NMMI 150. Lecture: 1 cr/hr (15 contact hours). [Effective Fall 2008]

NMMI 160 Clinical Procedures II (2)
Covers imaging of organs and systems in relation to the abdomen and gastrointestinal tract in addition to imaging procedures and quantitative evaluation of the pulmonary system. Prereq: NMMI 140, NMMI 141, NMMI 142 and NMMI 150 with a grade of C or greater, or consent of instructor. Coreq: CHE 106 (or CHE 150 and 155 lab), NMMI 161 and NMMI 170. Lecture: 2 credits (30 contact hours). [Effective Spring 2009]

NMMI 161 Physics and Instrumentation II (2)
Includes use and quality control of the various types of systems used for scintillation imaging and computed tomography in hybrid imaging. Covers the configuration, function, and application of computers in nuclear medicine. Prereq: NMMI 140, NMMI 141, NMMI 142 and NMMI 150 with a grade of C or greater, or consent of instructor. Coreq: CHE 106 (or CHE 150 and 155 lab), NMMI 160 and NMMI 170. [Effective Spring 2009]

NMMI 170 Clinic II (2)
Continuation of NMMI 150 Clinic I. Covers clinical practice with application of knowledge and principles from previous general education course work and previous/concurrent NMNI courses. Will include actual clinical experience in an approved nuclear medicine clinical setting. Prereq: NMMI 140, NMMI 141, NMMI 142 and NMMI 150 with a grade of C or greater, or consent of instructor. Coreq: NMMI 160 and NMMI 161. Clinical: 2 credits (180 contact hours). [Effective Spring 2009]

NMMI 220 Clinic III (2)
Continuation of NMMI 170 Clinic II. Covers application of knowledge and principles from previous general education course work and/or previous/concurrent NMNI courses. Includes actual clinical experience in an affiliated nuclear medicine clinical setting. Prereq: NMMI 160 and NMMI 161 and NMMI 170 with a grade of C or greater, or consent of instructor. Coreq: NMMI 230. Clinical: 2 credits (180 hours). [Effective Summer 2009]

NMMI 230 Radiopharmacy (2)
Covers procurement, preparation, quality control, dispensing, patient dosage calculation, identification, documentation, administration, disposal, storage, and safe handling of radioactive materials used by the nuclear medicine technologist. Includes commonly used pharmaceuticals in Nuclear Medicine, including dosages, side effects, contraindications, adverse reactions and antagonists, and CT contrast media administration. Prereq: NMMI 160, NMMI 161 and NMMI 170 with a grade of C or greater, or consent of instructor. Coreq: NMMI 220. Lecture: 2 credits (30 contact hours). [Effective Summer 2009]

NMMI 240 Clinical Procedures III (4)
Covers imaging procedures of the urinary system, central nervous system and endocrine systems including appropriate interventional and challenge procedures. Prereq: NMMI 220 and NMMI 230 with a grade of “C” or greater, or consent of instructor. Coreq: NMMI 260. Clinical: 4 credits (360 contact hours). [Effective Fall 2009]

NMMI 250 Clinical Procedures IV (4)
Covers oncologic imaging procedures, inflammatory/infectious process imaging procedures, radionuclide therapy procedures, non-imaging procedures related to hematology and vitamin B-12 absorption / excretion and pediatric imaging. Prereq: NMMI 240 and NMMI 260 with a grade of C or greater, or consent of instructor. Coreq: NMMI 270. Lecture: 4 credits (60 contact hours). [Effective Fall 2009]

NMMI 260 Clinic IV (4)
Continuation of NMMI 220 Clinic III; Covers application of knowledge and principles from previous general education course work and/or previous/concurrent NMNI courses. Will include
actual clinical experience in an affiliated nuclear medicine clinical setting. Prereq: NMMI 220 and NMMI 230 with a grade of C or greater, or consent of instructor. Coreq: NMMI 240. Clinical: 4 credits (360 contact hours). [Effective Spring 2010]

NMNI 270 Clinic V (4)
Continuation of NMNI 260 Clinic IV; Covers application of knowledge and principles from previous general education course work and/or previous/concurrent NMNI courses. Includes actual clinical experience in an approved nuclear medicine clinical setting. Prereq: NMNI 240 and NMNI 260 with a grade of C or greater, or consent of instructor. Coreq: NMNI 250. Lecture: 4 credits (60 contact hours). [Effective Spring 2010]

NPN 100 Introduction to Nursing & Health Care System (2)
Includes a historical overview of current health care including medical economics, ethical and legal parameters, roles and responsibilities of health care team members with an emphasis on reflective nursing practice. Explores medical terminology, therapeutic communication techniques, concepts of health, health assessment, self care and basic needs related to activities of daily living across the lifespan. Prerequisites: Current CPR card for Health Care Providers; Current certification must be maintained throughout the program. Successful completion of a Medicaid Nurse Aide equivalent course within the past three (3) years or proof of active status on the Medicaid Nurse Aide Registry. Admission into the Practical Nursing Program. Pre-requisite or Co-requisites: (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Minimum “C” grade.

NPN 105 Development of Care Giver Role (6)
Introduces nursing and the nursing process as related to client activities of daily living across the life span. Provides an opportunity to develop and practice psychomotor skills related to health assessment, promotion, maintenance, and illness prevention. Prerequisites: Current CPR card for Health Care Providers; Current certification must be maintained throughout the program. Successful completion of a Medicaid Nurse Aide equivalent course within the past three (3) years or proof of active status on the Medicaid Nurse Aide Registry. Admission into the Practical Nursing Program. Pre-requisite or Co-requisites: (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Minimum “C” grade.

NPN 110 Pharmacology I (2)
Introduces techniques used to administer medications. Includes dosages, diagnostic studies, related medical therapies, and legal responsibilities. Prerequisites: Current CPR card for Health Care Providers; Current certification must be maintained throughout the program. Successful completion of a Medicaid Nurse Aide equivalent course within the past three (3) years or proof of active status on the Medicaid Nurse Aide Registry. Admission into the Practical Nursing Program. Pre-requisite or Co-requisites: (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Minimum “C” grade.

NPN 120 Child Bearing Family (3)
Application of nursing process with the childbearing families focusing on health promotion as well as common health alterations in the reproductive process. Prerequisites: NPN 100 and NPN 105 and NPN 110 and (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Must achieve a grade of “C” or higher in each course.

NPN 125 Mental Health (3)
Applies nursing process to clients experiencing common mental health problems with emphasis on assisting clients to cope with psychological problems through out the life span-- i.e., chemical dependency, violence and other stress and developmental problems related to mental health. Prerequisites: NPN 100 and NPN 105 and NPN 110 and (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Must achieve a grade of “C” or higher in each course.

NPN 130 Pharmacology II (3)
Study of common drugs by classification and effects with emphasis on responsibility, accountability, and application of the nursing process to drug therapy. Prerequisites: NPN 100 and NPN 105 and NPN 110 and (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Minimum “C” grade.

NPN 135 Introduction to Health Deviation (6)
Application of the nursing process for selected child/adult clients experiencing common health deviations interfering with activities of daily living. Emphasis is on the nurse as the provider of care. Prerequisites: NPN 100 and NPN 105 and NPN 110 and (BIO 135 or BIO 139) and (AHS 100 or PSY 223) or Consent of PN Coordinator. Minimum “C” grade.
NPN 200 Med/Surg I (5)
Applies nursing process to selected child/adult clients experiencing common health deviations interfering with activities of daily living with emphasis is on the nurse as the provider of care. Prerequisites: NPN 125 and NPN 130 and NPN 135 and NPN 210 or Consent of PN Coordinator. Minimum “C” grade.

NPN 205 Med Surg II (5)
Designed to apply the nursing process to child/adult clients experiencing more complex health alterations. The focus is on multi-system failure, fluid and electrolytes, neurological problems, and cellular deviation. Prerequisites: NPN 200. All courses must be achieved with a grade of “C” or higher.

NPN 210 Clinical Practicum (4)
Integrates the theoretical concepts learned throughout the program in application of this knowledge during the direct care of clients. Promotes critical thinking and problem solving skills during the nursing role performances of provider of care, manager of care, and member within the discipline. Prerequisites: NPN 205. Minimum “C” grade.

NPN 215 Nursing Trends & Issues (1)
Prepares the student for the role of the practical nurse. Prerequisites: NPN 125 and NPN 130 and NPN 125 and NPN 201. Minimum “C” grade.

NR 115 Nursing I (9)
Introduction to nursing and the nursing process are studied as related to the basic human needs of clients throughout the life span. Areas of study include foundation knowledge, concepts and skills, with emphasis on health promotion and physical assessment. Credit not available by special examination. Prerequisites: Admission to the Associate Degree Nursing Program; ENG 101, BIO 137, mathematics course with a grade of “C” or better; PY 110 or PSY 100, and CNA certification or equivalent experience current within three years. Prior to or concurrent: PSY 223, BIO 139, computer literacy course, at least a 2.0 cumulative grade point average.

NR 125 Nursing II (2)
Common drugs are studied based upon their classification and their effects upon the basic human needs. Areas of emphasis include nursing responsibility, accountability, and application of the nursing process regarding drug therapy. Credit not available by special examination. Prerequisites: Admission to the Associate Degree Nursing Program; at least a 2.0 cumulative grade point average.

NR 235 Nursing III (4)
Areas of study include the application of the nursing process with the childbearing family focusing on health promotion and the care of families experiencing interferences with basic human needs. Emphasis is on the nurse as a provider of care. Credit not available by special examination. Prerequisites: Completion of NR 115 and BIO 139 with a grade of “C” or better, PSY 223 and computer literacy; at least a 2.0 cumulative grade point average. Co-requisite: NR 245.

NR 245 Nursing IV (4)
Areas of study include the application of the nursing process to health promotion and interferences with the ability to meet selected basic human needs for child/adult clients. Emphasis is on the nurse as a provider of care. Credit not available by special examination. Prerequisites: Completion of NR 115 and BIO 139 with a grade of “C” or better, PSY 223 and computer literacy; a 2.0 cumulative grade point average. Co-requisite: NR 235.

NR 255 Nursing V (9)
Areas of study include the application of the nursing process as it relates to health promotion and care of child/adult clients experiencing interferences with the ability to meet selected basic human needs. Emphasis is on the nurse as a provider of care. Credit not available by special examination. Prerequisites: Satisfactory completion of courses required by the first year nursing curriculum as specified; satisfactory completion of NR 115; satisfactory completion being “C” or better in each nursing course; BSL 214 prior to or concurrent, at least a 2.0 cumulative grade point average.

NR 265 Nursing VI (9)
Course content will focus on the application of the nursing process as it relates to health promotion and care of child/adult clients experiencing interferences with the ability to meet selected basic human needs. Areas of emphasis include the nurse as a provider and manager of care as well as a member of the discipline. Credit not available by examination. Prerequisites: Satisfactory completion of NR 255 and BSL 214 with a grade of “C” or better; at least a 2.0 cumulative grade point average.

OST 100 Keyboarding (1)
Students develops skills operating a keyboard by touch.

OST 101 Keyboarding & Intro to Document Formatting (3)
Designed to develop skill in operating a keyboard by touch and to develop an introductory level of skill producing standard business documents using a word processing program.

**OST 103 Medical Office Terminology (3)**
This course is designed to introduce the student to medical terminology including familiar elements, body systems, operative procedures, diseases, as well as pharmacology.

**OST 104 Introduction to Medical Insurance**
Introduces students to the basics of medical insurance including: insurance terminology, various coding systems, government programs, and general insurance procedures. Prerequisites: (AHS 115 or CLA 131 or OST 103). Co-requisites: (AHS 115 or CLA 131 or OST 103).

**OST 105 Introduction to Information Systems (3)**
Introduces essential computer concepts and terminology. Includes operating systems software, multitasking concepts, disk and file management, telecommunications, word processing, spreadsheets, presentations, and databases.

**OST 106 Introduction to Medical Transcription (3)**
Provides experience in transcription of basic medical dictation; incorporating English usage, machine transcription skills, medical knowledge, and proofreading and editing skills, while meeting progressively demanding accuracy and productivity standards. Prerequisites: Computer literacy course and OST 110 and (ENG 101 or OST 108) and (AHS 115 or CLA 131 or OST 103).

**OST 108 Editing Skills for Office Professionals (3)**
A hands-on approach to editing business documents. Applies proper placement and structure of business documents. Reviews principles of grammar, punctuation, vocabulary, spelling, word and number usage, and proofreading rules.

**OST 109 Legal Terminology (3)**
Development of an understanding of the judicial system (discovery, trial, and appellate processes), civil law, criminal law, legal terminology and legal citations commonly used in the legal field. The student will learn to define the terms and use them in legal context.

**OST 110 Document Formatting and Word Processing (3)**
Provides experience in word processing using industry standard software.

**OST 112 Financial Management (3)**
Designed to teach students fundamental principles and concepts including: financial markets, futures, bonds, commodities, interest rates, and taxes. The primary emphasis is short and long term financial planning along with interpretation of financial information. Careers in the financial industry discussed.

**OST 114 Computerized Financial Management (3)**
Accounting concepts and principles are applied using a computerized accounting system. Activities include company setup, preparing a chart of accounts, preparing worksheets, journalizing and posting transactions, entering payroll data and producing financial statements. Computerized accounting software is utilized to automate, analyze, and interpret financial information while applying accounting concepts and principles in an automated accounting system.

**OST 120 Legal Office Systems (3)**
Provides a working knowledge of the scope of duties required in a legal office environment and instruction in the production of legal documentation. Prerequisite: OST 110.

**OST 130 Typography (3)**
Introduces the principles of typography, type basics, type aesthetics, how to design with type, parameters of type and how they can be used to produce quality type. Advanced commands and pagination utilizing composition skills, Grids, file management and other options such as design standards with business publications are studied.

**OST 150 Transcription and Office Technology (3)**
Produce usable business documents from machine dictation using word processing software, with emphasis on spelling, punctuation, and grammar. Proofreading and editing applications stress the importance of accuracy and quality of document creation and production. Demonstration of office machines will be incorporated.

**OST 160 Records and Database Management (3)**
Presents aspects of the management of records from creation to disposal, using database software to create and edit files and prepare reports.

**OST 204 Medical Coding (3)**
This course is designed to develop medical coding skills using ICD-9, CPT, DRGs, APCs, and HCPCS coding systems as applied. Other reimbursement
OST 205 Advanced Medical Coding (3)
Applies advanced coding rules for various coding systems and applies the rules to code patient services for a variety of payment systems emphasizing payment fraud and/or abuse.

OST 206 Medical Transcription (3)
This course applies advanced concepts of medical transcription and provides advanced practice.

OST 210 Advanced Word Processing (3)
Students learn to use advanced features of current word processing software to format and produce documents utilized in an office.

OST 213 Business Calculations for the Office Professional (3)
Applies skills required for the performance of business tasks: use of numeric keypad to compute payroll, markup/ markdown, purchases, loans, discounts, stock and bond transactions; and other business applications.

OST 215 Office Procedures (3)
Studies the practices and procedures of current office concepts with emphasis given to the electronic office including: job application procedures, human relations in the office, business ethics, decision-making skills, travel and meeting arrangements, time and stress management, incoming/outgoing mail processes, and telephone procedures.

OST 216 Selected Topics (1-6)
Expands course offerings to address local office issues as new technology is developed. Varies from semester to semester at the discretion of the instructor, may be repeated with different topics to a maximum of six credit hours.

OST 217 Medical Office Procedures (3)
Provides a working knowledge of the duties required in a medical office. Includes professional and career responsibilities, interpersonal communication, administrative responsibilities, and financial administration. Prerequisite: OST 110. Co-requisite: OST 110.

OST 220 Administrative Office Simulations (3)
Applies administrative procedures office simulations to include organizing, communicating, scheduling, and analyzing. Emphasizes productivity, efficiency, accuracy, and problem solving. Uses technology to research information on the Internet and send and receive e-mail. Continues to develop speed and accuracy.

OST 221 Legal Office Simulation (3)
Applies classroom experiences and skills in a simulated legal office environment. Prerequisite: OST 110.

OST 225 Introduction To Desktop Publishing (3)
Uses desktop publishing software to design and produce high resolution publications such as flyers, brochures, business forms, and newsletters. Introduces basic design techniques, type and graphics layout, and related terminology.

OST 227 Medical Office Software (3)
This course provides a working knowledge of computer management software in a simulated medical office setting.

OST 230 Medical Office Software (3)
This course identifies and applies rules and regulations of medical filing systems and procedures. Management of both hard copy and magnetic media are emphasized using alphabetic, numeric, chronologic, and color-coded filing systems. Concepts of file retention and archiving are mastered. Legal and ethical aspects of medical records are discussed.

OST 235 Business Communications Technology (3)
Presents aspects of communications technology used in the global business environment, including presentations software; a basic understanding of voice recognition software; planning and composition of written, oral, and electronic communications; grammar, punctuation, and spelling; and principles of proofreading, both manual and electronic.

OST 240 Software Integration (3)
Expands computer skills through the use of spreadsheet, database management, word processing, and presentation software for the integration of information.

OST 250 Advanced Desktop Publishing (3)
Provides advanced techniques in electronic publishing design, layout, composition and paste-up.

OST 255 Introduction to Business Graphics (3)
Provides instruction in the process of image-editing
including how to create original artwork, manipulate color, enhance artwork, graphics and retouch photographs and clipart used in desktop publishing programs.

**OST 272 Presentation Graphics (3)**
Uses industry standard software to create business presentations, business graphics, transparencies, and slides. Applies editing, formatting, page layout and design, and paste-up techniques for clarity and impact.

**OST 275 Office Management (3)**
Management principles and techniques and their applications to the modern business office are included. Emphasis is on information systems and the role of managerial personnel.

**OST 295 Office Systems Technology Internship (1-3)**
Provides the opportunity to apply acquired occupational skills in a realistic setting, enhancing the transition from school to work. Requires approval of OST advisor.

**PGY 206 Elementary Physiology (3)**
An introductory survey course in basic human physiology. Prerequisite: One semester of college biology.

**PH 161: Introductory Physics Laboratory I (1)**
Experiments on heat, sound, and the mechanics of solids, liquids, and gases are performed in this introductory general laboratory course. Laboratory: 2 hours. Prerequisite or concurrent: PHY 151.

**PH 162: Introductory Physics Laboratory II (1)**
Experiments in electricity, magnetism, and light are performed in this introductory general laboratory course. Laboratory: 2 hours. Prerequisite or concurrent: PHY 152

**PH 171 Applied Physics (4)**
Selected topics in mechanics, heat, sound, electricity and magnetism, light, and modern physics are covered in this course. The use of these principles in various applications is emphasized. Prerequisites: MT 110 or MT 115 or MT 120 or MT 122 or two years of high school algebra or equivalent or consent of instructor.

**PH 172 Physics for Health Sciences (2)**
This course will cover basic concepts of motion, forces, momentum, work, energy, power, and waves, as applied in electricity and magnetism, optics, atomic and nuclear physics. Prerequisites: MA 108R or 2 years of high school algebra; or consent of instructor.

**PHB 100 Phlebotomy (6)**
Prepares the student as an integral member of the health-care team. One who collects blood from patients/donors in hospitals, blood banks or clinics for analysis or other medical purposes. Practices standard precautions, record keeping, vital signs and therapeutic communication skills.

**PHB 155 Phlebotomy Clinical (3)**
This course is designed to build on the knowledge acquired in phlebotomy lecture and lab. In this course the student will utilize external institutions for clinical experience to become more proficient in the performance of routine venipuncture and dermal collections. The student will gain the experience needed to handle routine venipuncture complications, and the skills necessary to adequately perform the duties of a phlebotomist. Prerequisites: PHB 151 or PHB 100 with a grade of “C” or higher.

**PHI 100 Introduction to Philosophy: Knowledge and Reality (3)**
An introduction to philosophical studies with emphasis on issues of knowing, reality, and meaning related to human existence.

**PHI 120 Introductory Logic (3)**
A course which treats argumentation, syllogistic and sentential logic. The focus will be on the use of formal methods in the construction and criticism of actual arguments, the aim being to inculcate standards of good reasoning, e.g., clarity, consistency and validity. Credit is not given to students who already have credit for PHI 320.

**PHI 130 Introduction to Philosophy: Morality and Society (3)**
An introduction to philosophical studies with emphasis on a critical study of principles of moral action and social and political values.

**PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages (3)**
An introductory study of the development of Western philosophy from ancient through late medieval times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Plato, Aristotle, Augustine and Aquinas.

**PHI 270: History of Philosophy II: From the Renaissance to the Present Era (3)**
An introductory study of the development of Western
philosophy from early modern to recent times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Occam, Descartes, Hume and Kant.

**PHL 110 Bioethics: Moral Issues in Health Care (3)**
By applying major ethical theories to specific moral questions, this course attempts to teach the student to reason ethically about problems concerning health care. Topics such as abortion, euthanasia, care of the dying, paternalism, confidentiality, truth-telling, professional/patient relationships, medical experimentation (informed consent, coercion), professional/patient rights, rights to health care, and allocation of medical resources will be studied.

**PHY 151 Introduction to Physics (3)**
A lecture-demonstration course covering the mechanics of solids, liquids, gases, heat, and sound. Credit is not given to students who already have credit for PHY 201, PHY 211 or PHY 231. Prerequisites: Two years of high school algebra or MT 120.

**PHY 152 Introduction to Physics (3)**
A lecture-demonstration course covering electricity, magnetism, optics, atomic and nuclear physics. Credit is not given to students who already have credit for PHY 203, PHY 213 or PHY 232. Prerequisites: Two years of high school algebra or MT 120.

**PHY 160 Physics and Astronomy for Elementary Teachers (3)**
Course sequence (GLY 160-PHY 160 six credit hours) in physical science for prospective elementary teachers. The sequence addresses basic concepts of earth science, astronomy and physics appropriate for elementary teachers and is taught with an emphasis on inquiry-based, laboratory activities. PHY 160 includes the basics of the motion of objects, astronomy by sight, electrical circuits, magnetism and the behavior of light. Prerequisite: GLY 160.

**PHY 211 General Physics (5)**
First part of a two-semester survey of classical and modern physics, focusing on the motion of solids and fluids as governed by Newton's Laws and by the conservation laws of energy, momentum, and angular momentum. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for PHY 231 and 241. Prerequisites: A working knowledge of algebra and trigonometry as obtainable in MA 109 and MA 112, or as demonstrated by an ACT math score of 25 or higher.

**PHY 213 General Physics (5)**
Continuation of PHY 211, covering electrostatics, circuits, magnetism, Maxwell’s Equations, electromagnetic radiation, light and some modern physics. Credit is not given to students who already have credit for PHY 232 and 242. Prerequisites: PHY 211 or equivalent.

**PHY 231 General University Physics (4)**
First part of a two-semester survey of classical physics. Consequences of the principles of mechanics are developed conceptually, analytically and quantitatively. Familiarity with elementary concepts and techniques of calculus (derivatives and integrals) is required. Prerequisite or concurrent: MA 114.

**PHY 232 General University Physics (4)**
A general course covering electricity, magnetism, electromagnetic waves and optics. This course is a prerequisite to a significant number of courses in this and related areas of study. Familiarity with elementary vector calculus is encouraged. Prerequisite: PHY 231; concurrent: MA 213.

**PHY 241 General University Physics Laboratory (1)**
A laboratory course offering experiments in mechanics and heat, framed in a small group environment that requires coordination and team work in the development of a well-written lab report. Prerequisite or concurrent: PHY 231.

**PHY 242 General University Physics Laboratory (1)**
A laboratory course offering experiments in electricity, magnetism, and light, framed in a small group environment that requires coordination and team work in the development of a well-written lab report. Prerequisite: PHY 241; concurrent: PHY 232.

**PS 101 American Government (3)**
A survey of national government and the political process in the United States, with emphasis on the Constitution, the President, Congress and the judicial system.

**PS 212 Culture and Politics of the Third World (3)**
This course analyzes the politics of selected states in Africa, Asia, and Latin America. Various bases of political cleavage and cooperation will be examined: ethnicity, language, social class and ideology. Cultural differences between Africa, Asia, and Latin
America will be identified and their political implications explored, as well as differences within geo-cultural areas.

**PS 235 World Politics (3)**
A study of the most significant problems of world politics, including the fundamental factors governing international relations, the techniques and instruments of power politics, and conflicting the interests in organizing world peace.

**PS 255 State Government (3)**
An introduction to the institutions, political processes and policies of state governments, and the relationships of state governments with other levels of government in the United States.

**PS 271 Introduction to Political Behavior (3)**
The study of behavior in a political context; the analysis of basic behavioral concepts used in political science such as political roles, group behavior, belief systems, personality, power and decision-making.

**PS 280 Issues in Public Policy (3)**
An examination of selected major public problems, focusing on their nature, political ramifications and alternate methods of dealing with them. Policies covered will vary from semester to semester, but will include such areas as poverty, health care, energy, education, race relations environment, etc. Prerequisite: PS 101.

**PSY 100 Introduction to Psychology (4)**
An introduction to the study of behavior covering theories, methods and findings of research in major areas of psychology. Topics covered will include the biological foundations of behavior: learning, perception, motivation, personality; developmental, abnormal, and social behavior; and methods of assessment. This course is a prerequisite to a significant number of courses in this and related areas of study. Prerequisite: PS 101.

**PSY 195 Orientation to Psychology (1)**
An orientation to educational issues and career planning for students who have declared psychology as a major. Topics include career paths and opportunities, professional resources and issues, and educational planning. Pass/Fail only. Prerequisites: Declared major in Psychology, or consent of instructor.

**PSY 215 Experimental Psychology (4)**
A study of the application of scientific methods to psychological research. Special emphasis is placed on the critical evaluation of contemporary research in experimental psychology. Particular attention is focused on the design, execution, and written report of laboratory research. Prerequisites: PSY 100 and sophomore standing, or consent of instructor.

**PSY 216 Applications of Statistics in Psychology (4)**
An introduction to statistical procedures used in making decisions based on psychological data. May not be used to satisfy the laboratory requirement in the College of Arts and Sciences. Prerequisite: PSY 100.

**PSY 223 Developmental Psychology (3)**
Introduces the principles of developmental psychology as seen in human growth over the entire lifespan, focusing primarily on infancy through adolescence. Emphasizes theory and data relating to developmental aspects of cognition, language, and personality. Prerequisites: PSY 100 or equivalent. (Same as FAM 254.)

**PY 110 General Psychology (3)**
A survey course in general psychology designed to give the student an introduction to the history, methods and content of modern psychology. Topics include the history and systems of psychology, psychological research, physiological psychology, psychological processes, developmental psychology, personality, abnormal behavior and social psychology.

**PY 230 Psychosocial Aspects of Death and Dying (3)**
A one-semester course designed for students who have completed at least one semester of an introductory psychology or sociology course, or its equivalent. Focus will be on the understanding of the biopsychological, sociological and psychological aspects of death and dying. The primary goal of the course is to help the individual recognize the behavior and attitudes associated with death in preparation for dealing with dying and bereavement. Prerequisites: Introductory psychology or sociology, or consent of instructor.

**PY 297 Psychology of Aging (3)**
An overview of the demographics of aging, theories of aging and research methods used to study adult development. The course will examine the biological, psychological and social impact of aging, longevity, work, retirement, death and bereavement. Prerequisites: PY 110 or PSY 100 or consent of instructor.

**PY 298 Essentials of Abnormal Psychology (3)**
An historical overview of the services provided to
individuals with mental illness and theories of personality development. Assessment, diagnosis and treatment of the major mental disorders, and the biological, psychological, and sociological contributing causation factors are discussed. Prerequisites: PY 110 or PSY 100 or consent of instructor.

QT 101 Quality Management Principles (3)
Students are introduced to fundamental concepts, principles, and practices used to improve quality in organizations. The need for organizational change is reviewed and paradigms of quality are introduced. An overview of areas of change, methods of quality planning and methods for implementing quality policies are provided.

RADI 100 Radiography I (7)
Emphasizes historic perspective, professional ethics, introductory imaging, x-ray tube, patient management, and the role of the radiographer as a member of the health care team. Applies the principles of human anatomy to the study of fundamental radiographic procedures (exposure factors and patient positioning) used for different age groups. Covers procedures of the chest, abdomen, extremities, shoulder girdle, bony thorax, and pelvic girdle. Prerequisite: BIO 139 or equivalent at other regionally accredited college/university. Co-requisite: RADI 101.

RADI 101 Clinical I (4)
Provides experience with equipment operation, application of patient care, set-up correct technical factors for radiographic exposures, and positioning patients accurately for radiographic exams. Prerequisite: CPR must be obtained prior to enrolling in RADI 100 and certification must be kept current throughout the program. Admission to the Radiography program: BSL 110 & 111 or equivalent at other regionally accredited college/university. Co-requisite: RADI 100

RADI 110 Radiography II (7)
Continues Radiography I. Emphasizes radiographic imaging, related technical factors and accessories. Provides the opportunity to apply the principles of human anatomy to the study of fundamental radiographic procedures (exposure factors and patient positioning) used for different age groups. Includes discussion of procedures of the basic and complex skulls, vertebral column, alimentary canal, biliary, urinary system, and tomography. Covers special radiographic examinations and equipment. Prerequisite: RADI 100 with a grade of “C” or greater. Co-requisite: RADI 111

RADI 111 Clinic II (4)
Continues RADI 101 Clinical I. Provides experience with equipment operation, application of patient care, set-up of correct technical factors for radiographic exposures, and positioning patients accurately for radiographic exams. Provides opportunities for more responsibility and independence with previously learned procedures. Prerequisite: RADI 101 with a grade of “C” or greater. Co-requisite: RADI 110

RADI 201 Clinical III (2)
Continues RADI 111 Clinical II. Provides experience with equipment operation, application of patient care, set-up of correct technical factors for radiographic exposures, and positioning patients accurately for radiographic exams. Provides opportunities for more responsibility and independence with previously learned procedures. Requires performance of a critical evaluation of the finished radiograph with emphasis on acceptable technical exposure factors and accurate patient and anatomical position. Prerequisite: RADI 111 with a grade of “C” or greater.

RADI 210 Radiography IV (4)
Theories and principles involved in the production, control, and application of ionizing radiation in radiography are covered. Emphasis will be on developing a quality assurance program, quality control testing of radiographic equipment, and image intensification. Prerequisite: RADI 201 with a grade of “C” or greater.

RADI 211 Clinical IV (4)
Provides the student with an opportunity to refine skills learned in previous clinical courses. Continuous practice is performed to improve techniques and procedures previously learned. Prerequisite: RADI 201 with a grade of “C” or greater.

RADI 220 Radiography V (3)
Equipment and advanced modalities used to complement diagnostic radiology are introduced. Principles of radiation biology, radiation protection, pathology and the systematic classifications of disease are included. Professional and legal standards are discussed. Prerequisite: RADI 210 with a grade of “C” or greater.

RADI 221 Clinical V (4)
Provides the student with an opportunity to exercise independent judgment and discretion in the technical performance of medical imaging procedures. Students will complete all remaining competencies of the program. This final section of clinical education
ensures that the student is ready for entry-level employment. Prerequisite: RADI 211 with a grade of “C” or greater.

RAE/CHI 150 Beginning Chinese I (4)
A course in first semester Chinese language.

RAE/CHI 151 Beginning Chinese II (4)
A course in second semester Chinese language. Prerequisite: RAE 150 or equivalent.

RDL 230 Sectional Anatomy for Advanced Imaging (3)
Digital images will be used to aid technologists in recognizing, locating, and identifying normal and abnormal anatomy. Areas of concentration will include the head, spine, soft tissue neck, thorax, abdomen, male and female pelvis, and upper and lower extremities. Prereq: Technologists registered by the American Registry of Radiologic Technologists or Nuclear Medicine Technology Certification Board, or students who have completed one year and are currently enrolled in an accredited Radiography or Nuclear Medicine Program, or consent of instructor. Lecture: 3 credits (45 contact hours).

RDL 250 Computed Tomography Physics and Instrumentation (3)
The student will be provided with knowledge about the physics of computed tomography (CT) image production and the equipment necessary to produce these images. History of CT development, basic principles of image production, use of computers to create the CT image, methods of acquisition, image display, radiation dose, patient safety, definition of terminology specific to CT, equipment characteristics and utilization, enhancement techniques and basic site planning requirements will be included. Prerequisites: RDL/RAD 230, RDL/RAD 240, and a basic computer course, or consent of instructor.

RDL 255 Magnetic Resonance Physics and Instrumentation (3)
Basic principles of magnetic resonance imaging will be introduced. Areas of concentration will include historical development, magnetic theory, instrumentation necessary for the production of magnetic resonance images, and basic pulse sequences. Prerequisites: Technologists registered by the American Registry of Radiologic Technologists or Nuclear Medicine Technology Certification Board, or students who have completed one year and are currently enrolled in an accredited Radiography or Nuclear Medicine program, and RDL/RAD 230 and RDL/RAD 240, or consent of instructor.

RDL 265 Magnetic Resonance Imaging Technology (3)
Magnetic resonance (MRI) image quality, artifacts, advanced imaging techniques including cardiac gating and magnetic resonance angiography, fast and ultrafast scanning techniques and spectroscopy will be discussed. Students will be provided with safety considerations for patients and others. Prerequisites: RDL/RAD 255 or consent of instructor.

RE 100 Real Estate Principles I (3)
A general introduction to real estate as a business and as a profession, designed to acquaint the student with the wide range of subjects necessary to the practice of real estate. Topics include license law, ethics, purchase and listing agreements, brokerage, deeds, financing, appraisals, mortgages, and real estate property managements.

RE 120 Real Estate Marketing (3)
Marketing and selling of real estate properties are included. Topics emphasized are: qualifying prospects, preparing for property showing, negotiating the sale, developing a five-year goal plan, and managing time. Computer applications are utilized in the course.

RE 121 Appraising (3)
Appraising residential real estate for loans, estates, condemnations, and listings, and the factors that contribute to the value of real estate are addressed. The 3 methods of estimating value are included, with emphasis given to the market data approach.

RE 122 Construction and Blueprints (3)
The basic concepts of construction, design, and blueprint reading are included.

RE 200 Real Estate Principles II (3)
A continuation of Real Estate Principles I, with emphasis on license law, finance, property management, marketing, land planning and development, brokerage management, fair housing, and appraising. Prerequisite: RE 100.

RE 201 Property Management (3)
The basics of managing income-producing real property are examined and applied. Topics include management plans, tenant selection, marketing and advertising, accounting methods, net operating income statements, maintenance, and the Landlord Tenant Act. Prerequisite: RE 100.

RE 202 Real Estate Investments I (3)
A general introduction to the various types of real
estate investments. A comparison of investments in real estate with other types of investments. Basic fundamentals of investment analysis and terminology. Prerequisite: RE 100.

RE 220 Real Estate Brokerage Management (3)
A study of the basic real estate principles and theories as they apply to real estate brokerage management are included. Topics included are: legal and work environment; brokerage management concepts; employment agreements; personnel selection, compensation, and management; policy manuals; listing and marketing management; and financial control. Prerequisite: RE 100.

RE 225 Real Estate Finance (3)
All aspects of real estate finance are examined, including financial instruments, financial institutions, buyer qualifications, and mortgage markets. Governmental influence, risk analysis, and financing of income producing properties are included. Prerequisite: RE 100.

RE 230 Real Estate Law (3)
The laws and regulations pertaining to real estate and related environmental issues are studied. Topics include: ownership rights, title examination, planning and zoning, contracts of sale, Fair Housing regulations, agency issues, court systems and recent court decisions.

RE 299 Selected Topics in Real Estate (Topic) (1-3)
Topics are presented to expand course offerings as new technology and information are developed, as well as to address local real estate needs. Topics may vary from semester to semester at the discretion of the instructor. May be repeated to a maximum of six credit hours. Prerequisite: Consent of instructor.

RRT 110 Cardiopulmonary Anatomy & Physiology (3)
The normal structure and function of the respiratory and cardiovascular systems including acid-base physiology are addressed. Prerequisites: MAH 151 or MA 109, BSL 110 and BSL 111 with a grade of “C” or better, or consent of instructor.

RRT 120 Fundamentals of Respiratory Care (4)
An introduction to respiratory care including chest physical assessment, medical gas therapy, humidity and aerosol therapy, bronchial hygiene, airway management, medical asepsis and development of the respiratory care plan. Prerequisites: MAH 151 or MA 109, BSL 110 and BSL 111 with a grade of “C” or better, or consent of instructor.

RRT 121 Respiratory Care Practice I (1)
Students will observe and practice medical gas administration, humidity and aerosol therapy, infection control, airway management and bronchial hygiene. Students will also assess patients and participate in developing and implementing respiratory care plans. Laboratory: 4 hours. Prerequisites: MAH 151 or MA 109, BSL 110 and BSL 111 with a grade of “C” or better, valid Healthcare Provider CPR card and concurrent with or successful completion of RRT 120.

RRT 140 Cardiopulmonary Evaluation (2)
Cardiopulmonary assessment is addressed. Topics include blood gas analysis, pulmonary function studies, electrocardiography and chest radiography. Prerequisites: RRT 110, RRT 120, RRT 121, and RRT 130 with a grade of “C” or better; or consent of instructor.

RRT 141 Respiratory Care Practice III (2)
Students will begin practicing adult mechanical ventilation procedures and airway management in the critical care setting in addition to continued performance of the basic respiratory care skills. Prerequisites: RRT 131 and RRT 140 with a grade of “C” or better.

RRT 150 Introduction to Mechanical Ventilation (2)
An introduction to the technological aspects of mechanical ventilation including the theory of operation, classification and patient-ventilator system checks. Prerequisites: RRT 131 and RRT 140 with a grade of “C” or better; or consent of instructor.

RRT 200 Patient-Ventilator System Management (4)
Concepts in ventilatory support, including physiologic effects, indications, monitoring and management of the patient-ventilator system are addressed. Prerequisites: RRT 141 and RRT 150 with a grade of C or better; or consent of instructor.

RRT 210 Cardiopulmonary Pathophysiology (3)
The etiology, diagnosis, clinical manifestations and management of cardiopulmonary disorders as related to respiratory care are addressed. Prerequisites: RRT 141 and RRT 150 with a grade of “C” or better; or consent of instructor.

RRT 221 Respiratory Care Practice IV (4)
Students will observe and practice advanced
cardiopulmonary evaluation techniques while improving efficiency in the ventilatory management of adult patients. Students will also begin to practice pediatric/neonatal mechanical ventilation techniques. Prerequisites: RRT 141 and RRT 150 with a grade of “C” or better.

**RRT 230 Preventive and Long-Term Respiratory Care (2)**
Prevention of cardiopulmonary disorders and care of individuals with long term cardiopulmonary disability are covered. Psychosocial and physical needs of the client are addressed. Emphasis is on improving the quality of life and cardiopulmonary reserve. Special respiratory care needs of diverse client populations in a variety of settings are covered. Prerequisites: RRT 200, RRT 210, RRT 220 and RRT 221 with a grade of “C” or better; or consent of instructor.

**RRT 240 Advanced Cardiopulmonary Evaluation (3)**
Cardiopulmonary assessment is addressed. Topics include hemodynamic monitoring, pulmonary and cardiac exercise/stress testing, advanced cardiac procedures, blood chemistry/fluid and electrolyte balance. Prerequisites: RRT 200, RRT 210, RRT 220 and RRT 221 with a grade of “C” or better; or consent of instructor.

**RRT 250 Advanced Cardiac Life Support (2)**
This course focuses on managing acute cardiovascular emergencies including: cardiac arrest, acute myocardial infarction and stroke. The course adheres to the American Heart Association Advanced Cardiac Life Support (ACLS) standards. It is designed for healthcare providers whose occupation requires knowledge of ACLS skills. The course is case study driven with group interaction and hands on skills. Students demonstrating essential knowledge and skills during evaluation situations and meeting American Heart Association standards on the written exam will receive an American Heart Association ACLS Provider CPR card. Prerequisites: Current Healthcare Provider CPR card and current enrollment in or graduation from a health program whose occupation requires knowledge of ACLS skills.

**RRT 260 Respiratory Care Seminar (1).**
This course will allow students to further analyze material previously studied in the program. In addition, students will systematically prepare for the National Board for Respiratory Care (NBRC) examinations. Job seeking skills will also be addressed. Prerequisites: RRT 200, RRT 210, RRT 220 and RRT 221 with a grade of “C” or better; or consent of instructor.

**RRT 130 Cardiopulmonary Pharmacology (2)**
Pharmacologic principles, general classifications, actions and interactions of drugs affecting the cardiopulmonary system are addressed. Prerequisites: MAH 151 or MA 109, BSL 110 and BSL 111 with a grade of “C” or better; or consent of instructor.

**RRT 131 Respiratory Care Practice II (2)**
Students will participate in the health care team while practicing techniques of basic respiratory care including airway management and bronchial hygiene. Prerequisites: RRT 110, RRT 120, RRT 121, and RRT 130 with a grade of “C” or better. Concurrent with or completion of RRT 140.

**RRT 220 Neonatal/Pediatric Respiratory Care (3)**
Evaluation, respiratory care and life support of the neonatal/pediatric are addressed with an emphasis on cardiopulmonary disorders. Lecture: 2.5 hours. Laboratory: 2 hours. Pre-requisites: RRT 141 and RRT 150 with a grade of “C” or better; or consent of instructor.

**RRT 231 Respiratory Care Practice V (4)**
Emphasis is on preparing the student to participate in effectively and efficiently planning, managing and delivering respiratory care to diverse client populations in various settings. Students will also practice pediatric/neonatal mechanical ventilation techniques as well as observe/practice techniques of advanced cardiac life support. Prerequisites: RRT 200, RRT 210, RRT 220 and RRT 221 with a grade of “C” or better.

**RS 101 Introduction to Religious Studies (3)**
An introductory study of religion with emphasis upon the varieties, differences, and similarities of religious experience and expression. The course will examine, through selected examples, the interaction between religious experience and expression and their particular social and cultural contexts.

**RS 102 Philosophy of Religion (3)**
Introduces students to the philosophical plausibility of religious belief; explores religious belief as an answer to questions about ultimate human destiny and the origin of evil in the universe.

**RS 130 Introduction to Comparative Religion (3)**
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social
organization. Eastern and Western religions are considered. (Same as ANT 130.)

**SCI 295 Scientific Investigations (3)**
Provides real-time, hands-on research projects using the scientific method, for presentation at the KCTCS Conference for Student Research or other scientific meetings. Students prepare research projects for inclusion in the course text, *Handbook of Procedures Using the Scientific Method*. Prerequisites: Mathematics, reading and English assessment placement scores above developmental levels or completion of requisite developmental courses. Completion of three credit hours of general education science are in which the research project will be carried out with grade of “B” or higher. Consent of instructor.

**SDC 100 College Survival Seminar (1)**
This course is designed to introduce new students to college in order to facilitate a successful college experience. Students will discover campus resources and support services available to them. Students will be introduced to career and life planning, study strategies, coping skills (i.e., stress management, interpersonal relationships), team projects, activities aimed at self discovery, and issues that impact college campuses and our global society that are important to the development of the modern college student.

**SDC 102 Stress Management (1)**
Students will review various physiological and psychological approaches to stress with an emphasis on creating an awareness of how to change and manage their responses to stressful situations. Options and appropriate exercises for coping with anxiety will be presented. Topics will include time management, cognitive restructuring, health, wellness and relaxation training.

**SDC 105 Career Planning Seminar (1)**
Students will become more knowledgeable about themselves and career options. Self-assessments and vocational inventories measuring interests, work values, skills and abilities will be administered to students. Students will learn how to research careers, career alternatives and employment trends. Topics will include goal setting, decision-making and employability skills. Students will complete a personal career plan at the conclusion of the course.

**SDC 109 Employability Skills (1)**
This course is designed to prepare students for the world of work. Students will be introduced to self and career assessment, employability skills (i.e., the application process, resume writing, interviewing, and follow-ups), and the job market and job search strategies.

**SED115 Heritage and Culture of Deaf People (3)**
Overview of the psychological, sociological and cultural impacts of deafness upon children and adults. Explores how deafness can affect the individual’s development in language, communication, cognition and psychological-emotional growth. Examines historic relations between deaf and hearing, and compares deaf culture with that of the hearing world.

**SET 100 Introduction to Small Engine Repair (3)**
This course introduces the student to small engines and their various applications. Also included are the identification and demonstration of hand tools, special tools, and measuring tools. It covers the selection and use of shop manuals and applying safety procedures when working with small engines.

**SET 110 Basic Small Engine Theory (3)**
This course introduces the student to the principles of construction and operation of internal combustion engines including the definitions of the following trade terms: valve overlap, reed value, two-stroke cycle engine and four-stroke cycle engine. Co-requisite: SET 100.

**SET 111 Basic Small Engine Lab (1)**
This course provides applications of the theory presented in SET 110. It includes hands-on experience, step-by-step procedures for disassembling engines, identification of engine components, inspection of parts, performing precision measurements on crankshaft, cylinder bore and valves, and the reassembly of the engines. Co-requisite: SET 110.

**SET 116 Introduction to Marine Technology (3)**
This course introduces the student to outboard and inboard motors and boats, safety practices and the operation of two-cycle and four-cycle motors.

**SET 117 Marine Electrical and Fuel Systems (2)**
This course presents electrical theory and applications for the marine technician including the marine battery, starter systems, alternator charging systems, and fuel systems.

**SET 118 Powerhead Overhaul (3)**
This course presents instruction in overhauling two-cycle engines and repairing and/or replacing ignition systems.
SET 119 Powerhead Overhaul Lab (1)
This course presents hands-on experience in overhauling two-cycle motors, tuning-up motors and repairing and/or replacing ignition systems. Co-requisite: SET 118

SET 120 Mid-Section, Lower Unit and Trim/Tilt Lab (3)
This course presents the theory and application necessary to repair and/or replace parts in the mid-section, lower unit, and trim/tilt systems in marine applications.

SET 121 Mid-Section, Lower Unit and Trim/Tilt Lab (2)
This course presents hands-on instruction in the theory necessary to repair and/or replace parts in the mid-section, lower units, and trim/tilt systems in marine applications. Co-requisite: SET 120.

SET 122 Four-Cycle Engine/Stern Drive (3)
This course presents the theory and application of repair and overhaul methods for the four-cycle engines, and how to make repairs of various stern drive systems.

SET 123 Four-Cycle Engine/Stern Drive Lab (1)
This course presents hands-on training in the theory and application of repair and overhaul methods for the four-cycle engines, and how to make repairs of various stern drive systems. Co-requisite: SET 122.

SET 200 Electrical Systems (3)
This course presents electrical systems and their application. Basic electrical theory, including electrical pressure, current, resistance and power measured in volts, amperes, and ohms is also presented. Ohm’s law will be discussed with its application to electrical circuits. Basic circuits (series, parallel, and combination of series and parallel) will be discussed.

SET 201 Electrical Systems Lab (1)
This course presents hands-on training in electrical systems and their application. Basic electrical theory, including electrical pressure, current, resistance and power measured in volts, amperes, and ohms is presented. Ohm’s law will be discussed with its application to electrical circuits. Basic circuits (series, parallel, and combination of series and parallel) will be discussed. Co-requisite: SET 200

SET 210 Ignition/Charging Systems (3)
This course presents ignition/charging systems theory, the principle of operation of a generator/alternator system, and component identification and application.

SET 211 Ignition/Charging Systems Lab (1)
This course presents hands-on experience with ignition/charging systems, the principle of operation of a generator/alternator system, and component identification and application. Co-requisite: SET 210.

SET 220 Fuel Systems (3)
This course introduces fuel systems used on two-cycle and four-cycle engines: the basic types, components, the types of carburetors, the types of fuel filters, and the types of fuel pumps and air filters.

SET 221 Fuel Systems Lab (1)
This course provides hands-on experience with fuel systems. The student will diagnose carburetor problems, rebuild diaphragm-type and float type carburetors, test carburetors and make needed adjustments, and adjust the governor according to manufacturers’ specifications on two-cycle and four-cycle engines. Co-requisite: SET 220.

SET 230 Introduction to Motorcycle Technology (3)
This course will introduce the student to motorcycle repair. It will cover the career of the motorcycle repair technician, including entry-level skills, advancement opportunities and activities performed at a dealership. Safe working practices, accident prevention, proper lifting, and recognizing typical hazards around a motorcycle service department will be stressed.

SET 231 Motorcycle Chassis Systems (3)
After completion of this course, the student will be able to identify front fork components and service procedures for the steering assembly. The student will be able to identify the service requirements for final drives and the front fork. Instruction will be given in the inspection of brake systems, safe handling of brake fluid, replacing brake shoes and pads, and bleeding hydraulic brake systems.

SET 233 Carburetors and Fuel Systems (2)
The student will be able to identify parts of a motorcycle carburetor and discuss the components and operations of various carburetor circuits. The student will also be able to remove, clean, and install a carburetor and remove, clean and install a fuel valve.

SET 235 Clutches and Starter Systems (1)
Upon completion of this course the student will be able to discuss starter systems found on motorcycles
and have a working knowledge of servicing kick and electric starters. The student will also be able to identify parts of a clutch, discuss guidelines for clutch service and be able to remove, disassemble, inspect and reassemble a motorcycle clutch.

SET 237 Engine Tune-Up (2)
After completion of this course the student will be able to perform motorcycle engine tune-ups including: ignition systems, replacing points and condensers, adjusting and verifying timing and service guidelines.

SET 239 Tools and Measurements (1)
After completing this course the student will be able to list and demonstrate the ability to use the tools of the motorcycle technician, including hand tools, power tools, measuring instruments and specialty tools.

SET 240 Four Stroke Cycle Engine (3)
This course presents theory, repair and overhaul methods of four-cycle engines. The student will learn to inspect engines for problems, follow service manuals for measuring cylinder bore, piston fit, ring clearance, rod clearance, crankshaft clearance and valve train components. The student will use special tools including a cylinder hone, valve guide reamer, valve seat cutter, and valve grinder and demonstrate safety practices while using this equipment.

SET 241 Four Stroke Cycle Engine Lab (1)
In this course, students repair and overhaul four-cycle engines, inspect engines for problems, follow service manual specifications needed for measuring cylinder bore, piston fit, ring clearance, rod clearance, crankshaft clearance and valve training components. Students will use the following special tools: cylinder hone, valve guide reamer, valve seat cutter, and valve grinder. Safety practices will be observed while using the equipment. Co-requisite: SET 240.

SET 250 Two Stroke Cycle Engine (3)
This course presents theory, repair and overhaul methods of two-stroke cycle engines. Students learn to inspect engines for problems, follow a service manual for measuring cylinder bore, piston fit, ring clearance, rod clearance, crankshaft clearance and valve training components. This course introduces students to the following special tools: cylinder hone, valve guide reamer, valve seat cutter, and valve grinder. Safety practices will be observed while using equipment.

SET 251 Two Stroke Cycle Engine Lab (1)
Students repair and overhaul two-cycle engines.

Students disassemble, inspect, and service cylinder, piston rings and connecting rod, crankshaft and crankcase assembly, and demonstrate effective safety practices while using special equipment. Students also reassemble and test engines and components to standards set by manufacturer. Co-requisite: SET 250.

SET 255 Chassis Systems (2)
This class presents hands-on application of the theory, repair, and overhaul methods of manual and hydrostatic transmissions. It includes how to inspect, diagnose, and repair manual and hydraulic steering systems and deck assemblies. The student will also learn how to perform preventative maintenance, adjust wheel bearings, check steering alignment and remove and replace tires. This course will introduce the student to special tools, tire changers, and the safety practices associated with the use of this equipment.

SET 257 Welding for Small Engines (1)
This class introduces students to the art and science of welding. Students learn to prepare the equipment and to perform basic welding operations.

SET 259 Portable Two Cycle Equipment Lab (2)
This class will enable the student to identify the external parts of the equipment, operate equipment, handle and mix fuel, and transport and handle trimmers and saws. Instruction will be given to identify and diagnose related problems in chain saws, trimmers and other two-stroke cycle equipment.

SET 298 Practicum (2)
Practicum provides supervised on-the-job work experience related to the student’s education objectives. Students participating in practicum do not receive compensation. Prerequisite: Permission of instructor.

SET 299 Cooperative Education (2)
Co-op provides supervised on-the-job work experience related to the student’s educational objectives. Students participating in the Co-op Education Program receive compensation for their work. Prerequisite: Permission of instructor.

SOC 101 Introductory Sociology (3)
Introduction to the concepts and methods of sociology. Investigation of socialization, group processes, social institutions and social change. Student may not receive credit for both this course and GEN 102.
SOC 152 Modern Social Problems (3)
An introductory course involving an examination of selected social problems of the day. Topics may include family, poverty, education, crime, race, housing, population, health care, industrial development, and power. Prerequisites: SOC 101 or SOC 151 or equivalent social science background.

SOC 235 Inequality in Society (3)
Analysis of the nature, development, and persistence of inequality in various societies. Diverse dimensions of inequality are viewed as the basis for a number of specific social problems in Western and non-Western societies. Social origins of inequality are emphasized. Policy implications are addressed. Prerequisites: Three hours of sociology or equivalent social science background.

SOC 260 Population, Resource, and Change (3)
The interrelationship among population variables (size, composition, change), social systems, and environmental conditions will be explored from an issue of problems approach. The tools of populations studies will be introduced and used to examine how population influences society and mankind’s use of the environment. Prerequisites: Three hours of sociology or equivalent social science background.

SOC 299 Special Introductory Topics in Sociology (Subtitle required) (3)
An introductory study of a selected topic in sociology. Topics may include, but are not limited to, industrial sociology, sociology of aging, sex roles, criminology, stratification and urban sociology. May be repeated to a maximum of six credits under different subtitle. Prerequisites: Three hours of introductory level sociology or consent of instructor.

SPA 101 Elementary Spanish I (spoken approach) (4)
This course is designed to introduce basic modes of communication in Spanish. The emphasis is on everyday language which the students will learn by applying essential grammatical structures to vocabulary. Both listening and reading comprehension are stressed. The textbook provides instructional assignments and self-correctional exercises. Not open to students who have credit for SPI 141.

SPA 102 Elementary Spanish II (spoken approach) (4)
A continuation of SPI 101. Not open to students who have credit for SPI 142. Prerequisites: SPA 101 or consent of the department and placement test.

SPA 201 Intermediate Spanish III (spoken approach) (3)
Review and reinforcement of grammatical and phonological patterns. Emphasis will be given to developing reading, listening and speaking skills based on contemporary texts. Not open to students who have credit for SPI 241. Prerequisites: SPA 102 or consent of department and placement test.

SPA 202 Intermediate Spanish IV (spoken approach) (3)
Continuation of SPI 201. Not open to students who have credit for SPI 242. Prerequisites: SPA 201 or consent of department and placement test.

STA 200 Statistics: A Force in Human Judgment (3)
This course is concerned with the interaction of the science and art of statistics with our everyday lives emphasizing examples from the social and behavioral sciences. The student will not be required to learn mathematical formulas. Topics include the nature of statistics, uses and misuses of statistics, the scope and limitations of statistics, criteria by which published statistics may be judged, interpretation of probability and the art of decision making. Prerequisite: Completion of the mathematics basic skills requirement.

STA 291 Statistical Method (3)
Introduction to principles of statistics. Statistical description of sample data including frequency distributions, measures of central tendency, and measures of dispersion. Theoretical distributions, statistical estimation, and hypothesis testing. Introduction to simple linear regression and correlation. Prerequisites: MA 113, MA 123 or equivalent.

SUR 100 Surgical Technology Fundamentals Theory (12)
Provides a brief overview of the history of surgery and an in-depth introduction of the role and responsibilities of the surgical technologists, an integral health care professional in the delivery of perioperative patient care and surgical services. Includes professional responsibilities, legal and ethical considerations, interpersonal relationships and communication skills. The course also incorporates safety, aseptic technique and duties of the scrubbed and the circulating surgical technologist during a surgical procedure. It provides in-depth information for the successful preparation performance and completion of basic surgical procedures. Specialty areas of general surgery, ob/gyn with attendant specialty equipment are addressed. It further
introduces the theory of abdominal incisions, wound closures, and standard precaution skills in each clinical assignment. Prerequisites: [BIO 130 or BIO 135 or (BIO 137 and BIO 139)] and (AHS 115 or CLA 131 or OST 103) and (BIO 225 or BIO 227 or BIO 118 or AHS 130). Current CPR certification for healthcare professionals. All prerequisites must be achieved with a grade of “C” or greater. Co-requisites: SUR 101 and SUR 125 and SUR 130.

SUR 101 Surgical Technology Fundamentals Lab (1)
Addresses skills in preparing the patient, operating room, basic equipment, supplies, and performance of the daily functions of an operating room team member. Incorporates safety, aseptic technique, and duties of both the scrubbed and circulating technologist during a surgical procedure, following OSHA standards. **Students must successfully complete SUR 101 prior to being eligible to participate in SUR 125; failure to successfully complete SUR 101 leads to being administratively withdrawn from the program. (SUR 101 is usually offered the first half of the semester.) Prerequisites: [BIO 130 or BIO 135 or (BIO 137 and BIO 139)] and (AHS 115 or CLA 131 or OST 103) and (BIO 225 or BIO 227 or BIO 118 or AHS 130). Current CPR certification for Healthcare Professionals. All prerequisites must be achieved with a grade of “C” or greater. Co-requisites: SUR 100 or (SUR 109 and SUR 110). If prerequisite, the student must achieve a grade of “C” or greater.

SUR 103 Surgical Technology Didactic Practicum (1)
Provides additional experience in the following areas as needed by the individual student: preparation and maintenance of operating room physical environment, patient preparation, scrub, gown and glove, setup (instrumentation, equipment, supplies) and counts. Recommended to accompany SUR 101. This course is Pass/Fail. Prerequisites: [BIO 130 or BIO 135 or (BIO 137 and BIO 139)] and (AHS 115 or CLA 131 or OST 103) and (AHS 130 or BIO 225 or BIO 227 or BIO 118). Current CPR certification for healthcare professionals. All prerequisites must be achieved with a grade of “C” or greater. Co-requisites: SUR 101 and SUR 130 and [SUR 100 or (SUR 109 and 110)].

SUR 125 Surgical Technology Skills Practicum (2)
Provides students with experience in a clinical setting, performing the duties of a scrubbed and/or circulating technologist during an assigned surgical procedure. OSHA standards are emphasized. Prerequisites: [BIO 130 or BIO 135 or (BIO 137 and BIO 139)] and (AHS 115 or CLA 131 or OST 103) and (BIO 225 or BIO 227 or BIO 118 or AHS 130). Current CPR certification for healthcare professionals. All prerequisites must be achieved with a grade of “C” or greater. Co-requisites: [SUR 100 or (SUR 109 and SUR 110)] and SUR 101 and SUR 130.

SUR 130 Principles of Surgical Pharmacology (2)
Introduces the fundamental principles of the clinical use of drugs. Emphasizes the role and responsibility of the surgical technologist related to drugs, a review of basic mathematic skills, a thorough knowledge of the systems of measurement, and conversion and application of skills to perform dosage calculations. Presents information related to medicines in common use in the surgical setting. Prerequisites: [BIO 130 or BIO 135 or (BIO 137 and BIO 139)] and (AHS 115 or CLA 131 or OST 103) and (BIO 225 or BIO 227 or BIO 118 or AHS 130). Current CPR certification for healthcare professionals. All prerequisites must be achieved with a grade of “C” or greater. Prerequisites or co-requisites: [SUR 100 or (SUR 109 and SUR 110)] and SUR 101 and SUR 125.

SUR 200 Surgical Technology Advanced Theory (9)
Focuses on the relevant anatomy, indications for surgery, patient preparation, special equipment and supplies, purpose, expected outcomes, and possible complications of specialty areas following OSHA standards. Prerequisites: Option 1: (SUR 100 or (SUR 109 and 110)] and SUR 101 and SUR 125 and SUR 130. Option 2: [SUR 100 or (SUR 109 and 110)] and SUR 101 and SUR 125 and SUR 130. All prerequisites must be achieved with a grade of “C” or greater. Co-requisite: Option 1: SUR 201 OR Option 2: SUR 201 and SUR 202.

SUR 201 Surgical Technology Skills Practicum II (6)
Experience in a clinical setting, performing the duties of a scrubbed and/or circulating technologist during an assigned surgical procedure, following OSHA standards. Prerequisites: Option 1: [SUR 100 or (SUR 109 and 110)] and SUR 101 and SUR 125 and SUR 130. Option 2: [SUR 100 or (SUR 109 and 110)] and SUR 101 and SUR 125 and SUR 130. All prerequisites must be achieved with a grade of “C” or greater. Co-requisites: Option 1: SUR 200 OR Option 2: SUR 200 and SUR 202.

SUR 275 Surgical Technology Advanced Clinical Practicum (2)
Designed to provide students experience in an
advanced clinical setting performing the duties of a scrubbed and/or circulating technologist during an assigned surgical procedure with limited supervision. OSHA standards will be followed. Prerequisites: SUR 200 and SUR 201. All prerequisites must be achieved with a grade of “C” or greater.

**SW 124 Introduction to Social Services (3)**
Introduction to social welfare concepts and philosophies. Examination of the profession of social work and its philosophy and value commitments within social welfare. Public and private service delivery systems will be studied. Required of social work majors and recommended it be taken the first year.

**SW 222 Development of Social Welfare (3)**
Study of the cultural traditions, value orientations, and political and economic forces which have contributed to the emergence of present social welfare policies and systems in the United States. Required of social work majors and open to all others.

**SWK 180 Introduction to Gerontology (3)**
The major biological, psychological, and sociological issues facing America's aging population are examined. Attention is also focused on the resources available to meet needs of older Americans.

**SWK 275 The Family (3)**
The nature and structure of family systems and examination of major family issues. Patterns of family interaction are discussed, with attention paid to resources designed to meet family needs.

**TA 101 Introduction to Theatre: Principles and Practice (3)**
The cultivation of judgment, perception, and creative response to theatre, with emphasis on what and how theatre communicates through examination of both the processes and product of theatre.

**TA 126 Acting I: Fundamentals of Acting (3)**
A broad spectrum of skills will be explored in the creative process of acting ensemble. These skills include improvisation, movement disciplines (including theatre games, modern dance, and characterization), emotional and sensory awareness, and the process of integrating these into a clearly defined stage technique.

**TA 127- Acting Techniques (3)**
Movement exercises, sensory work and theatre games are used to heighten awareness, release personal blocks, and discover the experience of being truthful with fellow actors. From there, students will move on to individual work to establish techniques they will use when working on a play. Students will explore physical and emotional awareness and develop a more creative use of their imaginations. Pre req. TA 126.

**TA 190 Production Practicum (1)**
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of two credits. Pass/Fail only. Prerequisites: Consent of instructor and filing of prospectus.

**TA 191 Performance Practicum (1)**
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of two credits. Pass/fail only.

**TA 226 Acting II: Scene Study (Realism) (3)**
A lecture/laboratory course concentrating on several components of the acting process: preliminary study in modern acting theories, Stanislavski to the present; textual analysis, character study and scene work; studio exercises aimed at refining rehearsal skills for the actor.

**TA 227 Acting III: Scene Study (Styles) (3)**
A continuation of TA 226, with continued emphasis on developing the actor's skills in analysis and rehearsal. This course will introduce the actor to a performance style other than realism.

**TA 260 Stagecraft (3)**
Study of theory, principles, and techniques of stage construction. Assignments in laboratory and backstage during rehearsals and performances.

**TEC 200 Technical Communication (3)**
Students will study written and oral communications in a technical environment. Emphasis is on preparing business communications, technical reports, technical instructions and proposals used in industry. Students also develop and prepare oral presentations. A review of basic grammar and writing principles is included. Students are introduced to electronic communication equipment and its functions.

**WLD 100 Oxy-Fuel Systems (2)**
A working knowledge of oxy-fuel identification, setup, inspection, and maintenance; consumable identification, selection and care; principles of operation; and effects of variables for manual and mechanized oxy-fuel cutting, welding, brazing principles and practices, and metallurgy. Shop safety and equipment use are also covered. Co-requisites: WLD 101 or consent of instructor.
WLD 101 Oxy-Fuel Systems Lab (2)
Manipulative skills necessary to weld and cut plate and pipe in all positions, as well as brazing, braze welding, and gouging. Co-requisites: WLD 100 or consent of instructor.

WLD 110 Cutting Processes (2)
A working knowledge of various cutting processes used by the welding industry. Will include, but is not limited to, safety, theory of operation, setup and operating techniques, troubleshooting and making minor equipment repairs, terms and definitions, identification, evaluation, repair and prevention of discontinuities of cut surfaces. Includes oxy-fuel cutting, plasma arc cutting, exothermic cutting, arc carbon arc cutting, shielded metal arc cutting, and mechanical cutting process. Co-requisites: WLD 111 or consent of instructor.

WLD 111 Cutting Processes Lab (3)
Designed to provide the student with practical experience to become proficient in the use of various metal cutting processes. Safety, setup, and operating techniques are employed. Students will troubleshoot and make minor repairs to equipment. Students will also learn to identify, repair, and prevent reoccurrence of cut surface discontinuities. Processes shall include, but not limited to: OFC, PAC, AAC, and mechanical methods. Various materials will be used where appropriate. Co-requisites: WLD 110 or consent of instructor.

WLD 120 Shielded Metal Arc Welding (2)
Teaches students the identification, inspection, and maintenance of SMAW electrodes; principles of SMAW; the effects of variables on the SMAW process to weld plate and pipe; and metallurgy. Co-requisites: WLD 121 or consent of instructor.

WLD 121 Shielded Metal Arc Welding Fillet Lab (3)
Provides laboratory experiences in which the student acquires the manipulative skills to perform fillet welds in all positions. Co-requisite: WLD 120 or consent of instructor.

WLD 123 Shielded Metal Arc Welding Groove with Backing Lab
Provides experiences in which students acquire the manipulative skills to do groove welds in all positions with backing. Prerequisites: WLD 120 and 121 or consent of instructor.

WLD 130 Gas Tungsten Arc Welding (2)
Identification, inspection, and maintenance of GTAW machines; identification, selection and storage of GTAW electrodes; principles of GTAW; the effects of variables on the GTAW process; and metallurgy. This course also teaches the theory and application of Plasma Arc Cutting. Co-requisites: WLD 131 or consent of instructor.

WLD 131 Gas Tungsten Arc Welding Fillet Lab (3)
Teaches the necessary manipulative skills needed to apply the Gas Tungsten Arc on various joint designs on plate with both ferrous and non-ferrous metals. Plasma Arc cutting included. Co-requisite: WLD 130 or consent of instructor.

WLD 133 Gas Tungsten Arc Welding Groove Lab (3)
Teaches the method of operation and application of the gas tungsten arc welding process for welding groove welds in both ferrous and nonferrous plate in all positions. Prerequisites: WLD 130 or consent of instructor.

WLD 140 Gas Metal Arc Welding (2)
Identification, inspection, and maintenance of GMAW machines; identification, selection, and storage of GMAW electrodes; principles of GMAW; and the effects of variables on the GMAW process. Theory and applications of related processes such as FCAW and SAW and metallurgy are also included.

WLD 141 Gas Metal Arc Welding Fillet Lab (3)
Teaches the practical application and manipulative skills of Gas Metal Arc Welding and the proper safety situations needed in this process. Both ferrous and non-ferrous metals will be covered, as well as various joint designs on plate in all positions. Co-requisites: WLD 140 or consent of instructor.

WLD 143 Gas Metal Arc Welding Groove Lab (3)
Teaches the method of operation and application of the gas metal arc 170 welding process for welding groove welds in both ferrous and nonferrous plate in all positions using both short circuiting and spray transfer where appropriate. Prerequisites: WLD 140 or consent of instructor.

WLD 145 Gas Metal Arc Welding Aluminum Lab (1)
Teaches welding aluminum using the GMAW process. Fillets and groove welds are made in all positions in both plate and pipe. Short Circuiting and Spray transfers are used where appropriate. Prerequisites: WLD 140 or consent of Instructor.
WLD 147 Flux Cored Arc Welding Lab (1)
Acquaints the student with the method of operation and application of the flux cored welding system. 
Prerequisites: WLD 140 or consent of instructor.

WLD 151 Basic Welding A (2)
Introduction to welding, cutting processes, and related equipment. Basic setup, operation, and related safety are applied.

WLD 152 Basic Welding B (5)
An introduction to common cutting and welding processes used in industry. Theory, setup, operation, and related safety are applied.

WLD 161 Submerged Arc Welding Lab (1)
Designed to provide the student with a working knowledge of SAW set-up, maintenance, and consumable identification. Includes practice in basic SAW principles and techniques related to the field of study. Prerequisites: WLD 140 or consent of Instructor.

WLD 170 Blueprint Reading for Welding (2)
Provides a study of occupationally specific prints for welders. Advanced study of multi-view drawings, assembly drawings, datum dimensions, numerical control drawings, sheet metal prints, castings and forgings, instrumentation and control charts and diagrams, working drawings, geometric dimensioning and tolerancing and use of reference materials and books are included. Occupational specifics including welding drawings, symbols, joint types, grooves, pipe welding symbols, testing symbols and specification interpretations are stressed. Co-requisites: WLD 171 or consent of Instructor.

WLD 171 Blueprint Reading for Welding Lab (3)
Provides students with practice fabricating from a blueprint. Students will read and fabricate from detail prints, control distortion during fabrication, and follow the proper sequence in welding a fabricated part. Students will use welding symbols and study weld sizes and strengths. Co-requisites: WLD 170 or consent of instructor.

WLD 181 Advanced Welding Systems Lab (1)
Provides the student a working knowledge and hands on experience using advanced arc welding machines (STT surface tension transfer and pulsed GMA welding) on various joints and metals. Prerequisites: WLD 140 and 141 and 143 or consent of instructor.

WLD 191 Plasma Arc Welding Systems Lab (1)
Teaches the necessary manipulative techniques for plasma arc welding. Plasma arc cutting may be included.

WLD 198 Special Topics in Welding (1-6)
Various Welding Technology topics, issues and trends will be addressed. Topics may vary from semester to semester at the discretion of the instructor; course may be repeated with different topics to a maximum of six credit hours. Prerequisite: Consent of instructor.

WLD 220 Welding Certification (2)
Provides the student with a working knowledge of certification encountered in welding. The student will start with developing a WPS, qualify the WPS, and qualify personnel. Documents used in welding certification are developed and used. Co-requisites: WLD 221 or consent of instructor.

WLD 221 Welding Certification Lab (3)
Provides the student with an opportunity to test to certification standards on all types of welding. Prerequisites: WLD 220 or consent of instructor.

WLD 225 Shielded Metal Arc Welding Open Groove Lab (3)
Designed to build upon SMAW Plate Lab I & II. Offers the student the opportunity to advance skills in the practical aspects of vee-butt plate welding using SMAW. Prerequisites: WLD 120 and 121 or consent of instructor.

WLD 227 Shielded Metal Arc Welding Pipe Lab A (3)
Teaches the required manipulative skills to arc weld pipe using mild steel electrodes in the 2G and 5G positions including proper pipe preparations, electrodes, safety precautions, and welding sequences. Fillet welds on pipe joints are also included in 2F, 2FR, 4F, and 5F positions. Prerequisites: WLD 225 or consent of instructor.

WLD 229 Shielded Metal Arc Welding Pipe Lab B (3)
Teaches the required manipulative skills to arc weld pipe using mild steel electrodes in the 6G position including proper pipe preparations, electrodes, safety precautions, and welding sequences. Prerequisites: WLD 225 or consent of instructor.

WLD 230 Welding Quality Control Lab (1)
Provides the student with a working knowledge of quality controls encountered in welding.

WLD 235 Gas Tungsten Arc Welding Pipe Lab A (3)
Teaches the method of operation and application of the gas tungsten arc welding system for welding of
both ferrous and non-ferrous pipe in 2G and 5G positions. Prerequisites: WLD 133 or consent of instructor.

WLD 237 Gas Tungsten Arc Welding Pipe Lab B (3)
Teaches the method of operation and application of the gas tungsten arc welding process for welding of both ferrous and non-ferrous pipe in 6G position. Prerequisites: WLD 133 or consent of instructor.

WLD 240 Materials Technology (2)
Provides the student with a working knowledge of materials used in welding. This class includes materials identification and classification. Metallurgy is included with a detailed analysis of physical, mechanical, and chemical properties. Introduces the student to the application of metallurgy to welding including preheat, interpass temperature, and post-weld heat treatment and their effects on welding and welding effect on them.

WLD 245 Gas Metal Arc Welding Pipe Lab A (3)
Acquaints the student with the operation and application of the Gas Metal Arc System for welding pipe in 2G and 5G positions. Co-requisites: WLD 143 or consent of instructor.

WLD 247 Gas Metal Arc Welding Pipe Lab B (3)
Acquaints the student with the operation and application of the Gas Metal Arc System for welding groove welds in pipe in 6G position. Lab: 3 credits (90 contact hours/30:1 ratio). Prerequisites: WLD 143 or consent of instructor.

WLD 251 Welding Automation Lab (1)
Provides the student a working knowledge and hands-on experience using automatic welding equipment such as robotic welding systems, bug-o systems, and automated GTA welding systems.

WLD 253 Pipe Fitting and Template Development Lab (1)
Provides experiences in pipe template development and job knowledge and experience with the techniques and tools used to field layout, cut, and fit the various pipe joints that are used in pipe trades.

WLD 298 Welding Practicum (1-6)
Provides on-the-job work experience related to the student’s educational objectives. Students participating in the Practicum do not receive compensation. Prerequisite: Consent of instructor.

WLD 299 Cooperative Education Program (1-6)
Provides supervised on-the-job work experience related to the student’s educational objectives. Prerequisite: Consent of instructor.

WPP 200 Workplace Principles (3)
Workplace Principles examines the changing workforce and the skills needed to adapt to constantly changing demands and expectations. The course includes but is not limited to problem solving, teamwork, time management, and self-management skills. Job-seeking and job-retention skills are taught through the development of resumes and job search materials. Maximum benefit is received if this course is taken in the latter part of the student’s course work.

WS 200 Introduction to Women’s Studies in the Social Sciences (3)
An introduction to women’s studies from a social science perspective, using a cross-cultural and interdisciplinary approach. Introduces students to social science explanations for sex-typed behavior, to social perceptions of women and men, and to the roles of women in social and cultural life.

WS 201 Introduction to Women’s Studies in the Arts and Humanities (3)
An introduction to women’s history in work, family and creative production. This course presents a set of organizing ideas for examining issues and problems of women in contemporary society, and gives students opportunities for writing, interviewing and discussing issues of gender, class and race from an interdisciplinary point of view. It introduces students to the basic methods of humanistic inquiry in general and humanistic women’s studies in particular.