

COURSE DESCRIPTIONS



SEMESTER HOUR CREDIT

The Alabama Community College System requires institutions to operate on a semester system. Semester hours of credit are then based upon the average number of hours of instruction weekly during a 15-week period, with an hour of instruction defined as not less than 50 minutes of instructor/

student contact. A semester system is defined as a fall semester, spring semester, and a summer term. A variety of class meeting schedules that fall within this structure may be present within the institutions.

CONVERTING CONTACT HOURS TO CREDIT HOUR EQUIVALENCIES

A semester hour of credit (or credit hour) is based upon the average number of hours of instruction taught weekly. The ratio of weekly contact hours to credit hours varies with the type of instruction being used. There are six general categories of types of instruction: (1) Theory, (2) Experimental Laboratory, (3) Practical Application Laboratory, (4) Clinical Practice, (5) Preceptorship, and (6) Internship.

The definitions for each category/type of instruction are:

T - Theory. Instruction focused on principles, concepts, or ideas. Generally requires extensive out-of-class preparation prior to class each week as well as follow-up assignments. “Theory” instruction is the term which will be used to include lecture, recitation, discussion, demonstration, seminar, and other standard classroom instruction. “Theory” instruction is under the direct supervision of an instructor. Ratio: 1:1 (one hour of credit for one hour of theory instruction as defined).

E - Experimental Laboratory. Instruction focused on experimentation in a classroom, laboratory, or studio through teacher-assisted, hands-on learning experiences. An experimental laboratory is generally required in conjunction with the theory of an academic course. “Work is normally completed in the learning environment, but may include out-of-class assignments such as practice and/or laboratory report writing. “Experimental laboratory” instruction is generally under the direct supervision of an instructor. Ratio: 2:1 (one hour of credit for two hours of “experimental” instruction as defined.) or 3:1 (one hour of credit for three hours of “experimental” instruction as defined).

L - Practical Application Laboratory. Experience-based instruction focused on “real world” activities, albeit in a simulated environment for the purpose of developing occupational competencies related to the use of equipment, tools, machines, and other program-specific work products. A practical application laboratory is generally required in career and technical programs; requires limited out-of-class assignments per week; emphasis is in the use of equipment, tools, machines, etc. found within the lab environment. “Practical application laboratory” involves the development of manual skills and job proficiency and is under the direct supervision of an instructor. Ratio: 2:1 or 3:1

C - Clinical Practice. Experience-based instruction focused on “real world” activities, generally in healthcare of service occupation programs, offered in a “real world” environment, for the purpose of developing skills related to the discipline. A clinical practice laboratory is generally required in

healthcare related fields. Work is normally completed in the learning environment, but may include out-of-class assignments. “Clinical Practice” is under the direct supervision of an instructor. Out-of-class assignments each week are used to prepare the student for the clinical experience. Ratio: 3:1 (one hour of credit for three hours of “clinical practice” instruction as defined).

P - Preceptorship. P3 or P5. Advanced experience-based instruction, under the supervision of a licensed healthcare professional, for the purpose of enhancing occupational competencies. The course instructor works with the healthcare professional to determine the clinical assignments for students. The instructor must be readily available for consultation with the healthcare professionals. Ratio: 5:1 or 3:1 (one hour of credit for five hours or three hours of preceptorship instruction as defined.) NOTE: programs of study for which accreditation and/or licensing bodies require a different ratio must comply with discipline-specific time-to-credit criteria.

I - Internship. “Internship” is the term which will be used to include cooperative education, apprenticeships, practicums, sponsored work instruction. Internship involves the development of job skills by providing the student with a structured employment situation that is directly related to, and coordinated with, the educational program. Student activity in internship is planned and coordinated jointly by an institutional representative and the employer, with the employer having the responsibility for control and supervision of the student on the job. Work is normally completed in the learning environment, but may include out-of-class assignments. Ratio: 5:1 (one hour of credit for five hours of “internship” instruction as defined.) NOTE: programs of study for which accreditation and/or licensing bodies require a different ratio must comply with discipline-specific time-to-credit criteria

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COURSE #	COURSE DESCRIPTION	CREDITS
ABR 111	NON-STRUCTURAL REPAIR Students are introduced to basic principles of non-structural panel repairs. Topics include shop safety, identification and use of hand/power tools, panel preparation, sheet metal repairs, and materials. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 114	NON-STRUCTURAL PANEL REPLACEMENT Students are introduced to the principles of non-structural panel replacement. Topics include replacement and alignment of bolt-on panels, full and partial panel replacement procedures, and attachment methods. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 122	SURFACE PREPARATION This course introduces students to methods of surface preparation for vehicular refinishing. Topics include sanding techniques, metal treatment, selection of undercoats, and proper masking procedures. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 123	PAINT APPLICATION AND EQUIPMENT This course introduces students to methods of paint application and equipment used for vehicular refinishing. Topics include spray gun and related equipment use, paint mixing, matching, and applying the final topcoat. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 151	SAFETY AND ENVIRONMENTAL PRACTICES This course is designed to instruct the student in the safe use of tools, equipment, and appropriate work practices. Topics include OSHA requirements, the right to know laws, EPA regulations as well as state and local laws. This is a CORE course. <i>Prerequisite:</i> As required by College	3 hours: 1T, 5L
ABR 154	AUTOMOTIVE GLASS AND TRIM This course is a study of automotive glass and trim. Emphasis is placed on removal and replacement of structural and nonstructural glass and automotive trim. Upon completion, students should be able to remove and replace automotive trim and glass. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 156	AUTOMOTIVE CUTTING AND WELDING Students are introduced to the various automotive cutting and welding processes. Emphasis is placed on safety, plasma arc, oxy-acetylene cutting, resistance type spot welding, and Metal Inert Gas (MIG) welding. Upon completion, students should be able to safely perform automotive cutting and welding procedures.	3 hours: 1T, 5L
ABR 157	AUTOMOTIVE PLASTIC REPAIRS This course provides instruction in automotive plastic repairs. Topics include plastic welding (airless, hot and chemical), use of flexible repair fillers, identification of types of plastics, and determining the correct repair procedures for each. Upon completion, students should be able to correctly identify and repair the different types of automotive plastics. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 181	SPECIAL TOPICS IN AUTO BODY This course is guided independent study in special projects to give the student additional training in a specific area selected by the instructor. Emphasis is placed on individual student needs to improve or expand skills. Upon course completion, students should be able to demonstrate skills to meet specific needs. <i>Prerequisite:</i> As required by program	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
ABR 182	<p>SPECIAL TOPICS IN AUTO BODY</p> <p>This course is guided independent study in special projects to give the student additional training in a specific area selected by the instructor. Emphasis is placed on individual student needs to improve or expand skills. Upon course completion, students should be able to demonstrate skills to meet specific needs. <i>Prerequisite:</i> As required by program</p>	3 hours: 6L
ABR 183	<p>SPECIAL TOPICS IN AUTO BODY</p> <p>This course is guided independent study in special projects to give the student additional training in a specific area selected by the instructor. Emphasis is placed on individual student needs to improve or expand skills. Upon course completion, students should be able to demonstrate skills to meet specific needs.</p>	2 hours: 4L
ABR 213	<p>AUTOMOTIVE STRUCTURAL ANALYSIS</p> <p>Students learn methods of determining structural misalignment. Topics include methods of inspection, types of measuring equipment, data sheets, and identifying types of structural damage. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L
ABR 214	<p>AUTOMOTIVE STRUCTURAL REPAIR</p> <p>This course provides instruction in the correction of structural damage. Topics include types and use of alignment equipment, anchoring and pulling methods, and repair/replacement of structural components. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L
ABR 223	<p>AUTOMOTIVE MECHANICAL COMPONENTS</p> <p>This course provides instruction in collision related mechanical repairs. Emphasis is placed on diagnosis and repairs to drive train, steering/suspension components, and various other mechanical repairs. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L
ABR 224	<p>AUTOMOTIVE ELECTRICAL COMPONENTS</p> <p>This course provides instruction in collision related electrical repairs and various restraints systems, including seat belts, seat belt tensioners, and airbags. Topics include basic DC theory, types of diagnostic equipment, circuit protection, wire repair, use of wiring diagrams, airbag modules, and impact sensors. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L
ABR 255	<p>STEERING AND SUSPENSION</p> <p>This course introduces students to the various types of suspension and steering systems used in the automotive industry. Emphasis is placed on system components, suspension angles and effect of body/frame alignment on these components and angles. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L
ABR 258	<p>HEATING AND AC IN COLLISION REPAIR</p> <p>This course is a study of automotive air conditioning, heating, and cooling systems. Topics include automotive air conditioning, heating and cooling systems theory, component replacement and system service. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L
ABR 261	<p>RESTRAINT SYSTEMS</p> <p>Both the function and design of various restraints and passive restraints systems, including seat belts, seat belt tensioners, and airbags, will be discussed. Topics include airbag modules and impact sensors for both front and side airbag systems. Students learn about using service manuals, flow charts, and wiring diagrams during the diagnosis and repair process. <i>Prerequisite:</i> As required by program</p>	3 hours: 1T, 5L

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ABR 265	PAINT DEFECTS AND FINAL REPAIR This course introduces students to methods of identifying paint defects, causes, cures, and final detailing. Students learn to troubleshoot and correct paint imperfections. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 267	SHOP MANAGEMENT This course introduces the students to the basic principles of body shop management. Emphasis is placed on management structure, customer/insurance company relations, sound business practices, principles of cycle time, and basic collision/damage estimation. Upon completion, students should be able to understand the principles of operating a collision repair facility. <i>Prerequisite:</i> As required by program	3 hours: 1T, 5L
ABR 269	ESTIMATING AND DAMAGE ANALYSIS This course introduces the students to the principles of collision/damage estimation. Topics include cost and time estimations, determinations of repair or replacement of parts, and whether to use new, used, or aftermarket parts. Upon completion of this course students should be able to provide a hand written or computerized damage report/estimate. <i>Prerequisite:</i> As required by College	3 hours: 1T, 5L
ABR 281	SPECIAL TOPICS IN AUTO BODY This course is guided independent study in special projects to give the student additional training in a specific area selected by the instructor. Emphasis is placed on individual student needs to improve or expand skills. Upon course completion, students should be able to demonstrate skills to meet specific needs. <i>Prerequisite:</i> As required by program	3 hours: 9L
ABR 291	AUTO BODY REPAIR CO-OP This course is designed to provide practical shop experience for advanced students through part-time employment in the collision repair industry. Emphasis is placed on techniques used in collision repair facilities. Upon completion, students should have gained skills necessary for entry-level employment. <i>Prerequisite:</i> Advisor approval	3 hours: 15i
ABR 292	AUTO BODY REPAIR CO-OP This course is designed to provide practical shop experience for advanced students through part-time employment in the collision repair industry. Emphasis is placed on techniques used in collision repair facilities. Upon completion, students should have gained skills necessary for entry-level employment. <i>Prerequisite:</i> Advisor approval	3 hours: 15i
ABR 293	AUTO BODY REPAIR CO-OP This course is designed to provide practical shop experience for advanced students through part-time employment in the collision repair industry. Emphasis is placed on techniques used in collision repair facilities. Upon completion, students should have gained skills necessary for entry-level employment. <i>Prerequisite:</i> Advisor approval	3 hours: 15i
ACR 111	PRINCIPLES OF REFRIGERATION This course emphasizes the fundamental principles for air conditioning and refrigeration. Instruction is provided in the theory and principles of refrigeration and heat transfer, HVAC/R system components, common, and specialty tools for HVAC/R, and application of the concepts of basic compression refrigeration. Upon completion, students should identify system components and understand their functions, identify and use common and specialty HVAC/R tools, and maintain components of a basic compression refrigeration system. Also taught as AUT 136. <i>Prerequisite:</i> As determined by College CORE	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
ACR 112	HVACR SERVICE PROCEDURES This course covers system performance checks and refrigerant cycle diagnosis. Emphasis is placed on the use of refrigerant recovery/recycle units, industry codes, refrigerant coils, and correct methods of charging and recovering refrigerants. Upon completion, students should be able to recover/recycle refrigerants and demonstrate safe, correct service procedures which comply with the no-venting laws. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 113	REFRIGERATION PIPING PRACTICES This course introduces students to the proper installation procedures of refrigerant piping and tubing for the heating, ventilation, air conditioning, and refrigeration industry. This course includes various methods of working with and joining tubing. Upon completion, students should comprehend related terminology, and be able to fabricate pipe, tubing, and pipe fittings. <i>Prerequisite:</i> As determined by College CORE	3 hours: 1T, 4L
ACR 119	FUNDAMENTALS OF GAS HEATING SYSTEMS This course provides instruction on general service and installation for common gas furnace system components. Upon completion, students will be able to install and service gas furnaces in a wide range of applications. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 120	FUNDAMENTALS OF ELECTRIC HEATING SYSTEMS This course covers the fundamentals of electric furnace systems. Emphasis is placed on components, general service procedures, and basic installation. Upon completion, students should be able to install and service electric furnaces, heat pumps, and solar and hydronics systems. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 121	PRINCIPLES OF ELECTRICITY FOR HVACR This course is designed to provide the student with the basic knowledge of electrical theory and circuitry as it pertains to air conditioning and refrigeration. This course emphasizes safety, definitions, symbols, laws, circuits, and electrical test instruments. Upon completion students should understand and be able to apply the basic principles of HVACR circuits and circuit components. <i>Prerequisite:</i> As determined by College CORE	3 hours: 1T, 4L
ACR 122	HVAC/R ELECTRIC CIRCUITS This course introduces the student to electrical circuits and diagrams. Electrical symbols and basic wiring diagrams are constructed in this course. Upon completion, student should understand standard wiring diagrams and symbols and be able to construct various types of electrical circuits. <i>Prerequisite:</i> As determined by College CORE	3 hours: 1T, 4L
ACR 123	HVACR ELECTRICAL COMPONENTS This course introduces students to electrical components and controls. Emphasis is placed of the operations on motors, relays, contactors, starters, and other HVAC electrical components. Upon completion, students should be able to install electrical components and determine their proper operation. <i>Prerequisite:</i> As required by College CORE	3hours: 1T, 4L
ACR 125	FUNDAMENTALS OF GAS AND ELECTRICAL HEATING SYSTEMS This course provides instruction on general service and installation for common gas and electrical heating systems. Emphasis is placed on components, general service procedures, and basic installation. Upon completion, students will be able to install and service gas and electrical heating systems in a wide range of applications. This course is a suitable substitution for ACR 119 and 120 if both courses are taken. <i>Prerequisite:</i> As required by College	6 hours: 2T, 8L

COURSE #	COURSE DESCRIPTION	CREDITS
ACR 126	COMMERCIAL HEATING SYSTEMS This course covers the theory and application of larger heating systems. Emphasis is placed on larger heating systems associated with commercial applications such as gas heaters, boilers, unit heaters, and duct heaters. Upon completion, student should be able to troubleshoot and perform general maintenance on commercial heating systems. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
ACR 127	HVACR ELECTRIC MOTORS This course covers the basic maintenance of electric motors used in HVAC/R systems. Topics include types of motors, motor operations, motor installation, and troubleshooting motors. Upon completion students should be able to install and service HVAC/R electric motors. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
ACR 128	HEAT LOAD CALCULATIONS This course focuses on heat flow into and out of building structures. Emphasis is placed on determining heat gain/heat loss of a given structure. Upon completion, students should be able to calculate heat load and determine HVAC equipment size requirements. <i>Prerequisite:</i> As required by College	3 hours: 3T
ACR 130	COMPUTER ASSISTED HVAC TROUBLESHOOTING This course focuses on troubleshooting procedures. Emphasis is placed on the proper use of test equipment and machine/electrical malfunctions. Upon completion, students should be able to diagnose and repair service problems in HVAC equipment. <i>Prerequisite:</i> As required by College	1 hour: 2L
ACR 132	RESIDENTIAL AIR CONDITIONING This course introduces students to residential air conditioning systems. Emphasis is placed on the operation, service, and repair of residential air conditioning systems. Upon completion, students will be able to service and repair residential air conditioning systems. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 133	DOMESTIC REFRIGERATION This course covers domestic refrigerators and freezers. Emphasis is placed on installation, removal, and maintenance of components. Upon completion, students should be able to service and adjust domestic refrigeration units. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
ACR 134	ICE MACHINES This course introduces students to commercial ice machines. Emphasis is placed on components, electrical and mechanical operation sequences, control adjustment procedures, preventive maintenance, repairs, and installation procedures. Upon completion, student should be able to install, service and repair commercial ice machines. <i>Prerequisite:</i> As required by College	3hours: 1T, 4L
ACR 135	MECHANICAL / GAS / SAFETY CODES This course is to enhance the student's knowledge of the International Fuel Gas Code and International Mechanical Code as well as fire and job safety requirements. Emphasis is placed on code book content and compliance with installation requirements. Upon completion, students should be able to apply code requirements to all work. <i>Prerequisite:</i> As required by College	3 hours: 3T
ACR 138	CUSTOMER RELATIONS IN HVAC This course covers the basic aspects of customer relations needed by the HVAC technician. Topics include employability skills associated with job performance, record keeping, service invoices, certification requirements, local ordinances, and business ethics. Upon completion, students should be able to get a job and keep it. <i>Prerequisite:</i> As required by College	3 hours:3T

COURSE #	COURSE DESCRIPTION	CREDITS
ACR 141	ENVIRONMENTAL SYSTEMS This course provides students with knowledge and skills of environmental chambers. Topics include theory of the refrigerant components and refrigerant circuits, programmable controllers, electrical pressure and calibration instruments and places emphasis on safety. Upon course completion, students should be able to apply environmentally-safe practices. <i>Prerequisite:</i> As required by College	4 hours: 2T, 4L
ACR 144	BASIC DRAWING AND BLUEPRINT READING IN HVAC This course covers basic drawing and blueprint reading as applied to the HVAC industry. Emphasis is on three-view drawings, basic duct systems, and isometric piping. Upon course completion, students should be able to perform basic drawings related to HVAC systems and read pertinent blueprints. <i>Prerequisite:</i> As required by College	3 hours: 3T
ACR 147	REFRIGERANT TRANSITION AND RECOVERY THEORY This course is EPA-approved and covers material relating to the requirements necessary for type I, II, and III universal certifications. Upon completion, students should be prepared to take the EPA 608 certification examination. <i>Prerequisite:</i> As determined by College	3 hours: 3T
ACR 148	HEAT PUMP SYSTEMS I Instruction received in this course centers around the basic theory and application of heat pump systems and components. Upon completion students will be able to install and service heat pumps in a wide variety of applications. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 149	HEAT PUMP SYSTEMS II This is a continuation course of the basic theory and application of heat pump systems. Topics include the electrical components of heat pumps and their function. Upon completion student should be able to install and service heat pumps. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 152	HEAT PUMP SYSTEMS This course provides instruction on the operation and servicing of heat pump systems. Emphasis is placed on theory and application of refrigerants for heat pump systems and on basic service of components. Students should possess a strong foundation of electrical principles and theory. Upon completion students will be able to install and service heat pumps. NOTE: Information in this course is identical to ACR 148 and 149 and may be used as an alternative to those courses. <i>Prerequisite:</i> As required by College	6 hours: 2T, 8L
ACR 181	SPECIAL TOPICS IN ACR I This course provides specialized instruction in various areas related to the air conditioning and refrigeration industry. <i>Prerequisite:</i> As required by College	3 hours: 3T
ACR 182	SPECIAL TOPICS IN ACR II This course provides students with opportunities to experience hands-on application of specialized instruction in various areas related to the air conditioning and refrigeration industry. <i>Prerequisite:</i> As required by College	3 hours: 6L
ACR 183	SPECIAL TOPICS IN ACR This course provides students with opportunities to experience hands-on application of specialized instruction in various areas related to the air conditioning and refrigeration industry. <i>Prerequisite:</i> As required by College	1 hour: 1T

COURSE #	COURSE DESCRIPTION	CREDITS
ACR 184	SPECIAL TOPICS IN ACR This course provides students with opportunities to experience hands-on application of specialized instruction in various areas related to the air conditioning and refrigeration industry. <i>Prerequisite:</i> As required by College	1 hour: 2L
ACR 185	SPECIAL TOPICS IN ACR This course provides students with opportunities to experience hands-on application of specialized instruction in various areas related to the air conditioning and refrigeration industry. <i>Prerequisite:</i> As required by College	2 hours: 2T
ACR 186	SPECIAL TOPICS IN ACR This course provides students with opportunities to experience hands-on application of specialized instruction in various areas related to the air conditioning and refrigeration industry. <i>Prerequisite:</i> As required by College	2 hours: 4L
ACR 192	HVAC APPRENTICESHIP / INTERNSHIP This course is designed to provide basic hands-on experiences in the work place. The student is provided with a training plan developed by the employer and instructor working together to guide the learning experience. Upon course completion, students should be able to work independently and apply related skills and knowledge. This course involves a minimum of 15 work hours weekly. <i>Prerequisite:</i> As required by College	3 hours: 15i
ACR 200	REVIEW FOR CONTRACTORS EXAM This course prepares students to take the State Certification Examination. Emphasis is placed on all pertinent codes, piping procedures, duct design, load calculation, psychometrics, installation procedures, and air distribution. Upon completion, students should be prepared to take the contractors exam. <i>Prerequisite:</i> As required by College	3 hours: 3T
ACR 202	SPECIAL REFRIGERATION SYSTEMS This course is designed to give the students the basic knowledge of a variety of commercial refrigeration systems. Topics include expandable refrigeration evaporator systems, combination spray and compressor system, open cycle ammonia, CO2 pellets, vortex tubes, reach in coolers, and soft serve ice cream machines. Upon completion, students should be able to perform general troubleshooting and maintenance on various commercial refrigeration systems. <i>Prerequisite:</i> As determined by College	2 hours: 1T, 4L
ACR 203	COMMERCIAL REFRIGERATION This course focuses on commercial refrigeration systems. Emphasis is placed on evaporators, condensers, compressors, expansion devices, special refrigeration components and application of refrigeration systems. Upon completion, students should be able to service and repair commercial refrigeration systems. <i>Prerequisite:</i> As determined by College	3hours: 1T, 4L
ACR 205	SYSTEM SIZING AND AIR DISTRIBUTION This course provides instruction in the load calculation of a structure and system sizing. Topics of instruction include heat loss, heat gain, equipment and air distribution sizing, and factors making acceptable indoor air quality. Upon course completion, students should be able to calculate system requirements. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L

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ACR 209	COMMERCIAL AIR CONDITIONING SYSTEMS This course focuses on servicing and maintaining commercial and residential HVAC/R systems. Topics include system component installation and removal and service techniques. Upon completion, the student should be able to troubleshoot and perform general maintenance on commercial and residential HVAC/R systems. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACR 210	TROUBLESHOOTING HVACR SYSTEMS This course provides instruction in the use of various meters and gauges used in the HVACR industry. Emphasis is placed on general service procedures, system diagnosis, and corrective measure, methods of leak detection, and system evacuation, charging and performance checks. Upon completion students should be able to perform basic troubleshooting of HVAC/R. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
ACT 246	MICROCOMPUTER ACCOUNTING This course utilizes the microcomputer in the study of financial accounting principles and practices. Emphasis is placed on the use of software programs for financial accounting applications. Upon completion of this course, the student will be able to use software programs for financial accounting applications. <i>Prerequisite:</i> BUS 241 CORE	3 hours
ACT 247	ADVANCED ACCOUNTING APPLICATIONS ON THE MICROCOMPUTER In this course, students use the microcomputer in managerial accounting. Emphasis is on a variety of software programs for managerial accounting applications. Upon completion of this course, the student will be able to use various managerial accounting software programs. <i>Prerequisite:</i> BUS 241	3 hours
ACT 249	PAYROLL ACCOUNTING This course focuses on federal, state and local laws affecting payrolls. Emphasis is on payroll accounting procedures and practices, and on payroll tax reports. Upon completion of this course, the student will be able to apply knowledge of federal, state and local laws affecting payrolls. <i>Prerequisite:</i> BUS 241 or permission of instructors	3 hours
ACT 253	INDIVIDUAL INCOME TAX This course focuses on the fundamentals of the federal income tax laws with primary emphasis on those affecting the individual. Emphasis is on gross income determination, adjustments to income, business expenses, itemized deductions, exemption, capital gains/losses, depreciation, and tax credits. Upon completion of this course, the student will be able to apply the fundamentals of the federal income tax laws affecting the individual.	3 hours
ACT 256	COST ACCOUNTING This course familiarizes the student with cost accounting principles and techniques. Emphasis is on procedures to provide data for job order and continuous process types of industries, determination of unit costs, and preparation of cost reports. Upon completion of this course, the student will be able to apply cost accounting principles and techniques. <i>Prerequisite:</i> BUS 241	3 hours
AGP 130	POULTRY PRODUCTION This course focuses on the basic technical aspects of poultry production. Topics include housing, growing contacts, heating and cooling, nutrition, economics, and poultry health. Upon course completion, students will be able to develop a poultry production and marketing plan. NDC <i>Prerequisite:</i> As required by program	4 hours: 3T, 1L

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ART 100	ART APPRECIATION This course is designed to help the student find personal meaning in works of art and to develop a better understanding of the nature and validity of art. Emphasis is on the diversity of form and content in original works of art. Upon completion, students should understand the fundamentals of art and the materials used, as well as have a basic overview of the history of art.	3 hours: 3T
ART 109	ART MUSEUM SURVEY This course covers the art experience through supervised visits to museums and art galleries. Emphasis is placed on learning through critical study. Upon completion, students should be able to write a critical analysis of the art work experience that demonstrates an understanding of aesthetics.	3 hours: 3T
ART 113	DRAWING This course provides the opportunity for students to develop perceptual and technical skills in a variety of media. Emphasis is placed on communication through experimenting with composition, subject matter, and techniques. Upon completion, students should demonstrate and apply the fundamentals of art to various creative-drawing projects.	3 hours: 6E
ART 114	DRAWING II This course advances the students' drawing skills in various art media. Emphasis is placed on communication through experimentation, composition, technique, and personal expression. Upon completion, students should demonstrate creative drawing skills, the application of the fundamentals of art, and the communication of personal feelings and thoughts. <i>Prerequisite:</i> ART 113	3 hours: 6E
ART 121	TWO-DIMENSIONAL COMPOSITION This course introduces the basic concepts of two-dimensional images. Emphasis is placed on the elements and principles of design, understanding and familiarization with art materials, and the arrangements and relationships between them. Upon completion, students should demonstrate an effective use of these elements and principles of design in creating two-dimensional compositions.	3 hours: 6E
ART 127	THREE-DIMENSIONAL COMPOSITION This course introduces art materials and principles of design that acquaint the beginner with the fundamentals of three-dimensional art. Emphasis is placed on the use of art fundamentals and the creative exploration of materials in constructing three-dimensional art works. Upon completion, students should demonstrate basic technical skills and a personal awareness of the creative potential inherent in three-dimensional art forms.	3 hours: 6E
ART 175	DIGITAL PHOTOGRAPHY This course introduces students to digital imaging techniques. Emphasis is placed on the technical application of the camera, digital photographic lighting methods, and overall composition. Upon completion, students should be able to take digital images and understand the technical aspects of producing high quality photos.	3 hours
ART 203	ART HISTORY I This course covers a study of the chronological development of different forms of art, such as sculpture, painting, and architecture. Emphasis is placed on history from the ancient period through the Renaissance. Upon completion, students should be able to communicate a knowledge of time periods and chronological sequence, including a knowledge of themes and styles and of the impact of society on the arts.	3 hours: 3T

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ART 204	ART HISTORY II This course covers a study of the chronological development of different forms of art, such as sculpture, painting, and architecture. Emphasis is placed on history from the Baroque to the present. Upon completion, students should be able to communicate a knowledge of time periods and chronological sequence, including a knowledge of themes and styles and of the impact of society on the arts.	3 hours: 3T
ART 231	WATERCOLOR PAINTING I This course introduces materials and techniques appropriate to painting on paper with water-based medium. Emphasis is placed on developing the technical skills and the expressive qualities of watercolor painting. Upon completion, students should be able to demonstrate a basic proficiency in handling the techniques of watercolor and how it can be used for personal expression. <i>Prerequisite:</i> ART 113 or permission of the instructor	3 hours: 6E
ART 232	WATERCOLOR PAINTING II This course advances the skills and techniques of painting on paper using water-based medium. Emphasis is placed on exploring the creative uses of watercolor and developing professional skills. Upon completion, students should be able to demonstrate and compile a body of original watercolor paintings that reflect a personal awareness of the medium's potential. <i>Prerequisite:</i> ART 231	3 hours: 6E
ART 233	PAINTING I This course is designed to introduce the student to fundamental painting processes and materials. Topics include art fundamentals, color theory, and composition. Upon completion, students should be able to demonstrate the fundamentals of art and to discuss various approaches to the media and the creative processes associated with painting. <i>Prerequisite:</i> ART 113 or permission of the instructor	3 hours: 6E
ART 234	PAINTING II This course is designed to develop the student's knowledge of the materials and procedures of painting beyond the introductory level. Emphasis is placed on the creative and technical problems associated with communicating through composition and style. Upon completion, students should be able to demonstrate the application of the fundamentals of painting and the creative process to the communication of ideas. <i>Prerequisite:</i> ART 233	3 hours: 6E
ART 253	GRAPHIC DESIGN I These courses introduce and explore the art of visual communication through design. Emphasis is placed on the application of design principles to projects involving such skills as illustration, layout, typography, and production technology. Upon completion, students should demonstrate a knowledge of the fundamentals of art and an understanding of the relationship between materials, tools, and visual communication	3 hours each: 6E
ART 254	GRAPHIC DESIGN II These courses introduce and explore the art of visual communication through design. Emphasis is placed on the application of design principles to projects involving such skills as illustration, layout, typography, and production technology. Upon completion, students should demonstrate a knowledge of the fundamentals of art and an understanding of the relationship between materials, tools, and visual communication. <i>Prerequisite:</i> ART 253	3 hours each: 6E
ART 258	PHOTOGRAPHIC AND MEDIA PROBLEMS: DIGITAL MEDIA This course deals with special problems in the student's area of interest. Emphasis is placed on design, technique and results. Upon completion the student will be able to produce professional quality photographs in one particular area of photography.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
ART 263	MUSEUM PRACTICE I This course provides an introduction to a variety of museum works, with practical training supervised by museum staff. Topics may include promotion, shipping, labeling and hanging of a museum exhibit as well as the study of the work itself. Upon completion, students should understand the activities surrounding a museum exhibit and be able to explain how the experience advanced their knowledge of communicating through art.	1-4 hours
ART 264	MUSEUM PRACTICE II This course provides further study of museum artworks, with practical training supervised by museum staff. Topics may include promotion, shipping, labeling and hanging of a museum exhibit as well as the study of the work itself. Upon completion, students should understand the activities surrounding a museum exhibit and be able to explain how the experience advanced their knowledge of communicating through art.	1-4 hours
ART 291	SUPERVISED STUDY IN STUDIO ART This course is designed to enable the student to continue studio experiences in greater depth. Topics are presented, but are variable based on instructor/student discussions. This class involves the incorporation of the vast amounts of accumulated knowledge of art techniques and ideologies obtained from other art classes. Special problems are assigned and finished works of art are created with portfolio presentation in mind.	3 hours
ART 299	ART PORTFOLIO This course is designed to help the art major in the preparation and presentation of an art portfolio. Emphasis is placed on representing the student's potential as an artist in order to interest employers, clients, or schools. Upon completion, students should be able to make a professional presentation of their design and communication skills.	3 hours: 6E
AST 220	INTRODUCTION TO ASTRONOMY This course covers the history of astronomy and the development of astronomical thought leading to the birth of modern astronomy and its most recent development. Emphasis is placed on the coverage of astronomical instruments and measuring technologies, the solar system, the Milky Way galaxy, important extra galactic objects and cosmology. Laboratory is required.	4 hours: 3T, 2E
AUM 101	FUNDAMENTALS OF AUTOMOTIVE TECHNOLOGY This course provides basic instruction in Fundamentals of Automotive Technology. Prerequisite: As determined by College CORE	3 hours: 1T, 5L
AUM 112	ELECTRICAL FUNDAMENTALS This course introduces the principles and laws of electricity. Emphasis is placed on wiring diagrams, test equipment, and identifying series, parallel and series-parallel circuits. Upon completion, students should be able to calculate, build, and measure circuits. Prerequisite: As determined by college CORE	3 hours: 1T, 5L
AUM 121	BRAKING SYSTEMS This course provides instruction in automotive technology or auto mechanics. Emphasis is placed on practical application of brakes. Prerequisite: As determined by College CORE	3 hours: 1T, 5L
AUM 122	STEERING AND SUSPENSION This course provides instruction in automotive technology or auto mechanics. Emphasis is placed on the practical application of steering and suspension. Prerequisite: As determined by College CORE	3 hours: 1T, 5L
AUM 124	AUTOMOTIVE ENGINES This course provides instruction on the operation, design, and superficial repair of automotive engines. Emphasis is placed on understanding the four-stroke cycle, intake and exhaust manifolds and related parts, engine mechanical timing components, engine cooling and lubrication system principles and repairs, and basic fuel and ignition operation. Prerequisite As determined by College CORE	3 hours: 1T, 5L

COURSE #	COURSE DESCRIPTION	CREDITS
AUM 130	DRIVE TRAIN AND AXLES This course provides basic instruction in automotive drive trains and axles. Emphasis is placed on the understanding and application of basic internal and external operation relating to proper operation and drivability. <i>Prerequisite:</i> As determined by College CORE	3 hours: 1T, 5L
AUM 133	MOTOR VEHICLE AIR CONDITIONING This course provides basic instruction in theory, operation, and repair of automotive heating and air conditioning systems. Emphasis is placed on the understanding and repair of vehicle air conditioning and heating systems, including but not limited to air management, electrical and vacuum controls, refrigerant recovery, and component replacement. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
AUM 162	ELECTRICAL AND ELECTRONIC SYSTEMS This is an intermediate course in automotive electrical and electronic systems. Emphasis is placed on troubleshooting and repair of battery, starting, charging, and lighting systems, subsystems, and components. <i>Prerequisite:</i> AUM 112 CORE	3 hours: 1T, 5L
AUM 181	SPECIAL TOPICS These courses are designed to allow the student to specialize in a particular area of study with minimum instruction in automotive mechanics application and with evaluation at the instructor's discretion. Emphasis is placed on a topic/project that the student is interested in and may include any automotive or related area in automotive mechanics. Upon completion, the student should be able to work with minimum instruction and execute the necessary techniques to finish a live work project of their choice. <i>Prerequisite:</i> As determined by College	1 hour: 3L
AUM 182	SPECIAL TOPICS These courses are designed to allow the student to specialize in a particular area of study with minimum instruction in automotive mechanics application and with evaluation at the instructor's discretion. Emphasis is placed on a topic/project that the student is interested in and may include any automotive or related area in automotive mechanics. Upon completion, the student should be able to work with minimum instruction and execute the necessary techniques to finish a live work project of their choice. <i>Prerequisite:</i> As determined by College	2 hours: 6L
AUM 183	SPECIAL TOPICS These courses are designed to allow the student to specialize in a particular area of study with minimum instruction in automotive mechanics application and with evaluation at the instructor's discretion. Emphasis is placed on a topic/project that the student is interested in and may include any automotive or related area in automotive mechanics. Upon completion, the student should be able to work with minimum instruction and execute the necessary techniques to finish a live work project of their choice. <i>Prerequisite:</i> As determined by College	2 hours: 2T
AUM 191	CO-OP These courses constitute a series wherein the student works on a part-time basis in a job directly related to automotive mechanics. In these courses the employer evaluates the student's productivity, and the student submits a descriptive report of his/her work experiences. Upon completion, the student will demonstrate skills learned in an employment setting. <i>Prerequisite:</i> As determined by College	2 hours: 10i
AUM 212	ADVANCED ELECTRICAL AND ELECTRONIC SYSTEMS This course provides instruction in advanced automotive electrical and electronic systems. Emphasis is placed on troubleshooting and repair of advanced electrical and electronic systems, subsystems, and components. <i>Prerequisite:</i> AUM 162	3 hours: 1T, 5L

COURSE #	COURSE DESCRIPTION	CREDITS
AUM 220	ADVANCED AUTOMOTIVE ENGINES This course provides in depth instruction concerning internal engine diagnosis, overhaul and repair, including but not necessarily limited to the replacement of timing chains, belts, and gears, as well as the replacement or reconditioning of valve train components as well as replacement of pistons, connecting rods, piston rings, bearings, lubrication system components, gaskets, and oil seals. <i>Prerequisite:</i> As required by College	3 hours: 1T, 5L
AUM 224	MAN TRANSMISSION AND TRANSAXLE This course covers basic instruction in manual transmissions and transaxles. Emphasis is placed on the understanding and application of basic internal and external operation relating to proper operation and drivability. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
AUM 230	AUTO TRANSMISSION AND TRANSAXLE This course provides basic instruction in automatic transmissions and transaxles. Emphasis is placed on the comprehension of principles and powerflow of automatic transmissions and repairing or replacing internal and external components. <i>Prerequisite:</i> As required by College CORE	3 hours: 1T, 4L
AUM 239	ENGINE PERFORMANCE This course provides basic instruction in engine performance with emphasis on fuel and ignition systems relating to engine operation. <i>Prerequisite:</i> As required by College CORE	3 hours: 1T, 5L
AUM 244	ENGINE PERFORMANCE AND DIAGNOSTICS This course provides advanced instruction in engine performance. Emphasis is placed on engine management and computer controls of ignition, fuel, and emissions systems relating to engine performance and drivability. <i>Prerequisite:</i> As required by College CORE	3 hours: 1T, 5L
AUM 246	AUTOMOTIVE EMISSIONS This is an introductory course in automotive emission systems. Emphasis is placed on troubleshooting and repair of systems, subsystems, and components. <i>Prerequisite:</i> As required by College	3 hours: 1T, 5L
AUM 281	SPECIAL TOPICS These courses are designed to allow the student to specialize in a particular area of study with minimum instruction in automotive mechanics application and with evaluation at the instructor's discretion. Emphasis is placed on a topic/project that the student is interested in and may include any automotive or related area in automotive mechanics. Upon completion, the student should be able to work with minimum instruction and execute the necessary techniques to finish a live work project of his/her choice.	3 hours: 9L
AUM 291	CO-OP These courses constitute a series wherein the student works on a part-time basis in a job directly related to automotive mechanics. In these courses the employer evaluates the student's productivity and the student submits a descriptive report of his work experiences. Upon completion, the student will demonstrate skills learned in an employment setting. <i>Prerequisite:</i> As determined by College	3 hours: 15i
AUT100	INTRODUCTION TO AUTOMOTIVE CONCEPTS An introduction to automotive manufacturing concepts is the focus of this course. This course reviews the history of automotive manufacturing and discusses the automotive manufacturing processes for various automotive assembly and sub-assembly plants. It outlines the historical development of automotive manufacturing in Alabama. Finally, the electro-mechanical systems and body components of a typical vehicle will be examined.	3 hours: 3T

COURSE #		CREDITS
AUT 102	<p>LEAN MANUFACTURING AND INDUSTRIAL SAFETY</p> <p>This course will introduce students to manufacturing fundamentals. It introduces various tools and techniques typically used in Lean manufacturing. It also will provide Occupational Safety and Health Administration (OSHA) certification instruction. OSHA standards will include electrical, Lock Out/Tag Out, hazardous communications, personal protective equipment, machine guarding, and walking and working surfaces. <i>Prerequisite or corequisite:</i> As determined by College CORE</p>	3 hours: 3T
AUT 104	<p>BLUEPRINT READING FOR MANUFACTURING</p> <p>This course provides the students with terms and definitions, theory of orthographic projection, and other information required to interpret drawings used in the manufacturing and industrial trade areas. Topics include multiview projection, pictorial drawings, dimensions and notes, lines and symbols, tolerances, industrial applications, scales, and quality requirements. Upon completion, students should be able to interpret blueprint drawings used in the manufacturing and industrial trades. This course may be tailored to meet specific local industry needs. Also taught as CET 100, DDT 114, MTT 121. <i>Prerequisite or corequisite:</i> As determined by College CORE</p>	3 hours: 3T
AUT 106	<p>QUALITY CONTROL AND INSPECTION TECHNIQUES</p> <p>This course provides the student with a basic understanding of quality assurance including the history of the quality movement in the United States; national and international standards for quality management systems; the impact of quality on an organization's performance; group problem solving; and statistical methods, such as statistical process control (SPC); process capability studies, quality tools, idea-generating tools, and corrective and preventive actions. <i>Prerequisite or corequisite:</i> As determined by College</p>	3 hours: 3T
AUT 110	<p>DC FUNDAMENTALS</p> <p>This course is designed to provide students with a working knowledge of basic direct current (DC) electrical principles. Topics include safety, basic atomic structure and theory, magnetism, conductors, insulators, use of Ohm's law to solve for voltage, current, and resistance, electrical sources, power, inductors, and capacitors. Students will perform lockout/tagout procedures, troubleshoot circuits and analyze series, parallel, and combination DC circuits using the electrical law and basic testing equipment to determine unknown electrical quantities. <i>Prerequisite or corequisite:</i> As determined by College CORE</p>	3 hours: 1T, 4L
AUT 111	<p>AC FUNDAMENTALS</p> <p>This course is designed to provide students with a working knowledge of basic alternating current (AC) electrical principles. Topics include basic concepts of electricity, electrical components, basic circuits, measurement instruments, the laws of alternating current, and electrical safety with lock-out procedures. Hands on laboratory exercises are provided to analyze various series, parallel, and combination alternating current circuit configurations containing resistors, inductors, and capacitors. Upon course completion, students will be able to describe and explain alternating current circuit fundamentals such as RLC circuits, impedance, phase relationships, and power factors. They should be able to perform fundamental tasks associated with troubleshooting, repairing, and maintaining industrial AC systems. <i>Prerequisite:</i> AUT 100</p>	3 hours: 1T, 4L
AUT 114	<p>INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLERS</p> <p>This course provides an introduction to programmable logic controllers. Emphasis is placed on, but not limited to, the following: PLC hardware and software, numbering systems, installation, and programming. Upon completion, students must demonstrate their ability by developing, loading, debugging, and optimizing PLC programs. Also taught as ELT 231, INT 184. <i>Prerequisite or corequisite:</i> As determined by College CORE</p>	3 hours: 2T, 3L

COURSE #		CREDITS
AUT 116	INTRODUCTION TO ROBOTICS This course provides instruction in concepts and theories for the operation of robotic servo motors and power systems used with industrial robotic equipment. Emphasis is on the application of the computer to control power systems to perform work. Student competencies include understanding of the functions of hydraulic, pneumatic, and electrical power system components, ability to read and interpret circuitry for proper troubleshooting and ability to perform preventative maintenance. Also taught as ELT 253, INT 253. <i>Prerequisite or corequisite:</i> As determined by College CORE	3 hours: 2T, 3L
AUT 117	AC/DC MACHINES This course covers the theory and operation of DC motors single and three phase AC motors and the labs will reinforce this knowledge. Emphasis is placed on the various types of single and three phase motors, wiring diagrams, starting devices, and practical application in the lab. Also taught as ELT 117. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
AUT 118	INTRODUCTION TO ENGINEERING TECHNOLOGY This course is designed to introduce the student to the basic concepts, terminology, procedures associated with applied analytical skills needed to succeed in higher level courses. Topics include engineering notation, use of scientific calculator, basic algebra, triangulation methods, basic geometry, and basic laws of electricity. Also taught as CET 101, EET 100, MTT 107. <i>Prerequisite:</i> Math placement score for MTH 116 <i>Corequisite:</i> As determined by College	3 hours: 3T
AUT 121	ELEMENTS OF INDUSTRIAL CONTROL This course covers the basics of automatic control of industrial systems using the programmable logic controller. Topics include relay logic, ladder logic, and the development of ladder logic using software. Upon completion of this course and AUT 122, a student will be able to configure and program a PLC. Also taught as EET 224. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> AUT 122	3 hours: 3T
AUT 122	ELEMENTS OF INDUSTRIAL CONTROL LAB This course covers the basics of automatic control of industrial systems using the programmable logic controller. Topics include relay logic, ladder logic, and the development of ladder logic using software. Upon completion of this course and the associated theory course a student should be able to configure and program a PLC. Also taught as EET 229. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> AUT 121	2 hours: 4L
AUT 130	FUNDAMENTALS OF INDUSTRIAL HYDRAULICS AND PNEUMATICS This course provides an introduction to hydraulics/pneumatics. Topics include hydraulic pumps, pneumatic compressors work and system components such as valves, filters, regulators, actuators, accumulators, and lubricators. The lab enables students to test, troubleshoot, and repair hydraulic pumps, pneumatic compressors work and system components such as valves, filters, regulators, actuators, accumulators, and lubricators. Upon completion, students will be able to apply principles of hydraulic/pneumatics. Also taught as INT 118. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 2T, 3L
AUT 132	PRINCIPLES OF TECHNOLOGY This course provides an introduction to the application of the principles of physics in technology. Topics include fundamentals of mechanics, properties of matter, heat and temperature, electricity and magnetism, optics, and modern physics. Also taught as INT 104. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 2T, 2L

COURSE #		CREDITS
AUT 134	INDUSTRIAL MOTORS This course focuses on basic information regarding industrial electrical motors. Upon completion students will be able to troubleshoot, remove, replace, and perform routine maintenance on various types of motors. Also taught as INT 206. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 1T, 4L
AUT 136	PRINCIPLES OF REFRIGERATION This course emphasizes the fundamental principles for air conditioning and refrigeration. Instruction is provided in the theory and principles of refrigeration and heat transfer, HVAC/R system components, common, and specialty tools for HVAC/R, and application of the concepts of basic compression refrigeration. Upon completion, students should identify system components and understand their functions, identify and use common and specialty HVAC/R tools, and maintain components of a basic compression refrigeration system. Also taught as ACR 111. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
AUT 138	PRINCIPLES OF INDUSTRIAL MECHANICS This course provides instruction in basic physics concepts applicable to mechanics of industrial production equipment. Topics include basic application of mechanical principles with emphasis on power transmission, specific mechanical components, alignment, and tension. Upon completion, students will be able to perform basic troubleshooting, repair and maintenance functions on industrial production equipment. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
AUT 139	INTRODUCTION TO ROBOTIC PROGRAMMING This course provides an introduction robotic programming. Emphasis is placed on but not limited to the following: Safety, motion programming, creating and editing programs, I/O instructions, macros, program and file storage. Upon completion the student will be able to safely perform basic functions in the work cell as well as program a robot to perform simple functions. Also taught as INT 139. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 1T, 4L
AUT 142	INDUSTRIAL WIRING This course focuses on principles and applications of commercial and industrial wiring. Topics include electrical safety practices, an overview of National Electric Code requirements as applied to commercial and industrial wiring, conduit bending, circuit design, pulling cables, transformers, switch gear, and generation principles. Also taught as ELT 118, INT 158. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
AUT 150	INTRODUCTION TO MACHINE SHOP I This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, saws, milling machines, bench grinders, and layout instruments. Upon completion, students will be able to perform the basic operations of measuring, layout, drilling, sawing, turning, and milling. Also taught as MTT 147. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> AUT 151	3 hours: 2T, 2L
AUT 151	INTRODUCTION TO MACHINE SHOP I LAB This course provides practical application of the concepts and principles of machining operations learned in AUT 150. Topics include machine shop safety, measuring tools, lathes, saws, milling machines, bench grinders, and layout instruments. Upon completion, students will be able to perform the basic operations of measuring, layout, drilling, sawing, turning, and milling. Also taught as MTT 148. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> AUT 150	3 hours: 6L

COURSE #		CREDITS
AUT 155	METROLOGY This course covers the use of precision measuring instruments. Emphasis is placed on the inspection of machine parts and use of a wide variety of measuring instruments. Upon completion, students should be able to demonstrate correct use of measuring instruments. This course is aligned with NIMS Certification Standards. Also taught as MTT 127. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 2T, 2L
AUT 186	PRINCIPLES OF INDUSTRIAL MAINTENANCE: WELDING & METAL CUTTING TECHNIQUES This course provides instruction in the fundamentals of acetylene cutting and the basics of welding needed for the maintenance and repair of industrial production equipment. Topics include oxy-fuel safety, choice of cutting equipment, proper cutting angles, equipment setup, cutting plate and pipe, hand tools, types of metal welding machines, rod and welding joints, and common welding passes and beads. Upon course completion, students will demonstrate the ability to perform metal welding and cutting techniques necessary for repairing and maintaining industrial equipment. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> As determined by College	3 hours: 1T, 4L
AUT 193	SPECIAL TOPICS (ELECTRICAL/ELECTRONIC) This course is designed to allow students an opportunity to study directly related topics of particular interest which require the application of technical knowledge and technical skills. Emphasis is placed on the application of skills and knowledge with practical experiences. Upon completion, students should be able to solve job-related problems using technical skills and knowledge. <i>Prerequisite or corequisite:</i> As determined by College	1 hour: 2L
AUT 194	SPECIAL TOPICS (ELECTRICAL/ELECTRONIC) This course is designed to allow students an opportunity to study directly related topics of particular interest which require the application of technical knowledge and technical skills. Emphasis is placed on the application of skills and knowledge with practical experiences. Upon completion, students should be able to solve job-related problems using technical skills and knowledge. <i>Prerequisite or corequisite:</i> As determined by College	2 hours: 4L
AUT 195	SPECIAL TOPICS (ELECTRICAL/ELECTRONIC) This course is designed to allow students an opportunity to study directly related topics of particular interest which require the application of technical knowledge and technical skills. Emphasis is placed on the application of skills and knowledge with practical experiences. Upon completion, students should be able to solve job-related problems using technical skills and knowledge. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 6L
AUT 221	ADVANCED PROGRAMMABLE LOGIC CONTROLLERS This course includes the advanced principals of PLC's including hardware, programming, and troubleshooting. Emphasis is placed on developing advanced working programs, and troubleshooting hardware and software communication problems. Upon completion, students should be able to demonstrate their ability in developing programs and troubleshooting the system. Also taught as ELT 232. <i>Prerequisite:</i> As determined by College	3 hours: 2T, 3L
AUT 230	PREVENTIVE AND PREDICTIVE MAINTENANCE This course focuses on the concepts and applications of preventive maintenance. Topics include the introduction of alignment equipment, job safety, tool safety, preventive maintenance concepts, procedures, tasks, and predictive maintenance concepts. Upon course completion, students will demonstrate the ability to apply proper preventive maintenance and explain predictive maintenance concepts. Also taught as INT 126. <i>Prerequisite or corequisite:</i> As determined by College	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
AUT 234	INDUSTRIAL MOTOR CONTROLS I This course is a study of the construction, operating characteristics, and installation of different motor control circuits and devices. Emphasis is placed on the control of three phase AC motors. This course covers the use of motor control symbols, magnetic motor starters, running overload protection, pushbutton stations, multiple control stations, two wire control, three wire control, jogging control, sequence control, and ladder diagrams of motor control circuits. Upon completion, students should be able to understand the operation of motor starters, overload protection, interpret ladder diagrams using pushbutton stations and understand complex motor control diagrams. Also taught as ELT 209, INT 113. <i>Prerequisite or corequisite: As determined by College</i>	3 hours: 1T, 4L
AUT 262	COMPUTER INTEGRATED MANUFACTURING This course is a basic introduction to concepts related to the computer integrated manufacturing (CIM) process. Students cover the design requirements associated with such a cell (center), how a center is integrated into the full system, and the technician's role in the process improvement of not only the cell but the full CIM system. Related safety and inspection and process adjustment are also covered. <i>Prerequisite or corequisite: As determined by College</i>	3 hours: 3T
AUT 291	AUTOMOTIVE COOPERATIVE EDUCATION This course is designed to give students practical, on-the-job experiences in all phases of automotive manufacturing under the supervision of a qualified professional. Grades are based on the successful completion of the work experience as judged by the students' work, supervisor, and faculty coordinator. <i>Prerequisite or corequisite: As determined by College</i>	1 hour: 5i
AUT 292	AUTOMOTIVE COOPERATIVE EDUCATION This course is designed to give students practical, on-the-job experiences in all phases of automotive manufacturing under the supervision of a qualified professional. Grades are based on the successful completion of the work experience as judged by the students' work, supervisor, and faculty coordinator. <i>Prerequisite or corequisite: As determined by College</i>	2 hours: 10i
AUT 293	AUTOMOTIVE COOPERATIVE EDUCATION This course is designed to give students practical, on-the-job experiences in all phases of automotive manufacturing under the supervision of a qualified professional. Grades are based on the successful completion of the work experience as judged by the students' work, supervisor, and faculty coordinator. <i>Prerequisite or corequisite: As determined by College</i>	3 hours: 15i
BAR 108	INTRODUCTION TO BARBERING This course provides an orientation to professional barber styling. Topics include learning skills, history of barbering, professional image, microbiology, safety, infection control, implements and tools, razor shaving properties and disorders of hair and scalp, and the treatment of hair. <i>Prerequisite: As required by program</i> CORE	3 hours: 3T
BAR 109	BACTERIOLOGY AND SANITATION This course provides the theory of bacteriology and sanitation. Topics include the types of bacteria and sanitation procedures, and razor shaving. Upon completion, the student should be able to identify types of bacteria and methods of sanitation. <i>Prerequisite: As required by program</i>	3 hours: 3T
BAR 111	INTRODUCTION TO BARBERING LAB This course provides practical application of barber-styling fundamentals. Emphasis is placed on safety, infection control, the use and care of implements, treatment of hair, and razor shaving. Upon completion, the student will demonstrate proper infection control, hair care, and use of implements. <i>Prerequisite: As required by program</i> CORE	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
BAR 112	SCIENCE OF BARBERING This course introduces the student to the basic science of barber-styling. Topics include anatomy/physiology, disorders and treatments of the skin, scalp, and hair, and theory of facial and scalp massage. Upon completion, the student should be familiar with the anatomical structures, as well as disorders and treatments of the skin, scalp, and hair. <i>Prerequisite:</i> As required by program CORE	3 hours: 3T
BAR 113	FUNDAMENTALS OF BARBERING APPLICATIONS This course provides practical application of barber fundamentals learned in earlier courses. Emphasis is placed on safety, facial massage, treatment of hair and scalp proper use and care of implements, shampooing and haircutting, and razor shaving. Upon completion, the student should be able to perform fundamental barbering techniques with limited supervision. <i>Prerequisite:</i> As required by program CORE	3 hours: 6L
BAR 114	BARBER-STYLING LAB This course provides students with the opportunity to demonstrate skills in hair care, hair cutting, and facial massage. Emphasis is placed on safety and infection control. <i>Prerequisite:</i> As required by program	3 hours: 6L
BAR 120	PROPERTIES OF CHEMISTRY This course provides the student with a basic knowledge of chemicals used in barber-styling. Topics include the changes produced in the hair and skin through exposure to chemicals, electricity, and special light spectrums. Upon completion, the student should understand the proper use of implements and chemicals to treat hair and skin. <i>Prerequisite:</i> As required by program	3 hours: 3T
BAR 121	CHEMICAL HAIR PROCESSING This course provides the student with opportunities to apply the use of chemicals to alter the appearance of hair. Emphasis is placed on the use of chemicals to relax, wave, and soft curl the hair. Upon completion, students will be competent in the use of chemicals to produce desired structure changes to the hair. <i>Prerequisite:</i> As required by program	3 hours: 6L
BAR 143	STATE BOARD REVIEW Students are provided a complete review of all written and practical procedures in barbering and state board requirements. Upon completion students should be able to demonstrate the practical skills necessary to meet the requirements of state board certification and employment. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
BAR 181	SPECIAL TOPICS IN BARBERING This course provides specialized instruction in various areas related to the barbering profession. Student learning outcomes are developed to support specific student needs. <i>Prerequisite:</i> As required by program	1 hour: 1T
BAR 183	SPECIAL TOPICS IN BARBERING This course provides specialized instruction in various areas related to the barbering profession. Student learning outcomes are developed to support specific student needs. <i>Prerequisite:</i> As required by program	2 hours: 4L
BAR 185	SPECIAL TOPICS IN BARBERING This course provides specialized instruction in various areas related to the barbering profession. Student learning outcomes are developed to support specific student needs. <i>Prerequisite:</i> As required by program	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
BAR 187	SPECIAL TOPICS IN BARBERING This course provides specialized instruction in various areas related to the barbering profession. Student learning outcomes are developed to support specific student needs. <i>Prerequisite:</i> As required by program	3 hours: 6L
BIO 101	INTRODUCTION TO BIOLOGY I Introduction to Biology I is the first of a two-course sequence designed for non-science majors. It covers historical studies illustrating the scientific method, cellular structure, bioenergetics, cell reproduction, Mendelian and molecular genetics, and a survey of human organ systems. A 120 minute laboratory is required.	4 hours: 3T, 2E
BIO 102	INTRODUCTION TO BIOLOGY II This is an introductory course for science and non-science majors. It covers physical, chemical, and biological principles common to all organisms. These principles are explained through a study of cell structure and function, cellular reproduction, basic biochemistry, cell energetics, the process of photosynthesis, and Mendelian and molecular genetics. Also included are the scientific method, basic principles of evolution, and an overview of the diversity of life with emphasis on viruses, prokaryotes, and protist. A 120 minute laboratory is required.	4 hours: 3T, 2E
BIO 103	PRINCIPLES OF BIOLOGY I This is an introductory course for science and non-science majors. It covers physical, chemical, and biological principles common to all organisms. These principles are explained through a study of cell structure and function, cellular reproduction, basic biochemistry, cell energetics, the process of photosynthesis, and Mendelian and molecular genetics. Also included are the scientific method, basic principles of evolution, and an overview of the diversity of life with emphasis on viruses, prokaryotes, and protista.	4 hours: 3T, 2E
BIO 104	PRINCIPLES OF BIOLOGY II This is an introduction to the basic ecological and evolutionary relationships of plants and animals and a survey of plant and animal diversity including classification, morphology, physiology, and reproduction. <i>Prerequisite:</i> BIO 103	4 hours: 3T, 3E
BIO 150	HUMAN BIOLOGY This course serves as an introduction to the structure, function, and pathology of the human body. The emphasis is on the basic anatomy of all systems, basic physiology, and the various terms related to pathology. No laboratory is required.	3 hours: 3T
BIO 120	MEDICAL TERMINOLOGY This course is a survey of words, terms, and descriptions commonly used in medical arts. Emphasis is placed on spelling, pronunciation, and meanings of prefixes, suffixes, and roots.	3 hours: 3T
BIO 201	HUMAN ANATOMY AND PHYSIOLOGY This course covers the structure and function of the human body. Included is an orientation of the human body, basic principles of chemistry, a study of cells and tissues, metabolism, joints, the integumentary, skeletal, muscular, nervous systems, and the senses. Dissection, histological studies, and physiology are featured in the laboratory experience. <i>Prerequisite:</i> BIO 103 (Please speak with Advisor)	4 hours: 3T, 2E
BIO 202	HUMAN ANATOMY AND PHYSIOLOGY II This course covers the structure and function of the human body. Included is a study of basic nutrition, basic principles of water, electrolyte and acid-base balance, the endocrine, respiratory, digestive, excretory, cardiovascular, lymphatic, and reproductive systems. Dissection, histological studies, and physiology are featured in the laboratory experience. <i>Prerequisite:</i> BIO 201 (Please speak with Advisor)	4 hours: 3T, 2E

COURSE #	COURSE DESCRIPTION	CREDITS
BIO 206	HUMAN ANATOMY This course covers the basic structure and function of the human body. Emphasis is placed on the structure of the organ systems, cells, and tissues. Mammalian dissection and histological studies are featured in the required laboratory. <i>Prerequisite:</i> BIO 103 (Please speak with Advisor)	4 hours: 3T, 2E
BIO 220	GENERAL MICROBIOLOGY This course includes historical perspectives, cell structure and function, microbial genetics, infectious diseases, immunology, distribution physiology, culture, identification, classification, and disease control of microorganisms. The laboratory experience includes micro-techniques distribution, culture, identification, and control. Two 120 minute laboratories are required. <i>Prerequisite:</i> BIO 103 (Please speak with Advisor) [Recommended 4 semester hours of Chemistry]	4 hours: 2T, 4E
BIO 251	DIRECTED STUDIES IN BIOLOGY II This course permits the student, with the approval of the instructor, to study and/or to research a topic in biology appropriate to the student's interest. <i>Prerequisite:</i> Permission of instructor	4 hours: 4C
BIO 271	HUMAN GROSS ANATOMY / PATHOPHYSIOLOGY This course uses a system by system approach to discuss the manifestations, terminology, diagnosis, and mechanisms of disease. Human cadaver dissection is used to gain an in-depth knowledge of human anatomy and physiology. A 180-minute laboratory is required. <i>Prerequisite:</i> BIO 201 and permission of instructor	4 hours: 1T, 3E
BUS 100	INTRODUCTION TO BUSINESS This is a survey course designed to acquaint the student with American business as a dynamic process in a global setting. Topics include the private enterprise system, forms of business ownership, marketing, factors of production, personnel, labor, finance, and taxation.	3 hours
BUS 146	PERSONAL FINANCE This course is a survey of topics of interest to the consumer. Topics include budgeting, financial institutions, basic income tax, credit, consumer protection, insurance, house purchase, retirement planning, estate planning, investing and consumer purchases.	3 hours
BUS 186	ELEMENTS OF SUPERVISION This course is an introduction to the fundamentals of supervision. Topics include the functions of management, responsibilities of the supervisor, management-employee relations, organizational structure, project management, and employee training and rating.	3 hours
BUS 189	HUMAN RELATIONSHIPS This course enables employees to better understand actions and motivations within the organizational structure. Topics include general principles of human behavior operating in the workplace.	3 hours
BUS 215	BUSINESS COMMUNICATION This course covers written, oral, and nonverbal communications. Topics include the application of communication principles to the production of clear, correct, and logically organized faxes, e-mail, memos, letters, resumes, reports, and other business communications.	3 hours
BUS 241	PRINCIPLES OF ACCOUNTING I This course is designed to provide a basic theory of accounting principles and practices used by service and merchandising enterprises. Emphasis is placed on financial accounting, including the accounting cycle, and financial statement preparation analysis.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
BUS 242	PRINCIPLES OF ACCOUNTING II This course is a continuation of BUS 241. In addition to a study of financial accounting, this course also places emphasis upon managerial accounting, with coverage of corporations, statement analysis, introductory cost accounting, and use of information for planning, control, and decision making. <i>Prerequisite:</i> BUS 241	3 hours
BUS 263	THE LEGAL AND SOCIAL ENVIRONMENT OF BUSINESS This course provides an overview of the legal and social environment for business operations with emphasis on contemporary issues and their subsequent impact on business. Topics include the Constitution, the Bill of Rights, the legislative process, civil and criminal law, administrative agencies, trade regulations, consumer protection, contracts, employment and personal property.	3 hours
BUS 271	BUSINESS STATISTICS I This is an introductory study of basic statistical concepts applied to economic and business problems. Topics include the collection, classification, and presentation of data, statistical description and analysis of data, measures of central tendency and dispersion, elementary probability, sampling, estimation and introduction to hypotheses testing. <i>Prerequisite:</i> two years of high school algebra, intermediate algebra, or appropriate score on math placement test.	3 hours
BUS 272	BUSINESS STATISTICS II This course is a continuation of BUS 271. Topics include sampling theory, statistical inference, regression and correlation, chi-square, analysis of variance, time series index numbers, and decision theory. <i>Prerequisite:</i> BUS 271	3 hours
BUS 276	HUMAN RESOURCES MANAGEMENT This course provides an overview of the responsibilities of the supervisor of human resources. Topics include the selection, placement, testing, orientation, training, rating, promotion, and transfer of employees.	3 hours
BUS 296	BUSINESS INTERNSHIP I This two-course sequence allows the student to work part-time on a job closely related to the student's academic major while attending classes on a full-time basis. Emphasis is placed on a student's work experience as it integrates academic knowledge with practical applications in the business environment. The grade is based on a term paper, job-site visits by the instructor, the employer's evaluation of the student, and the development and assessment by the student of a learning contract. <i>Prerequisite:</i> A minimum of 6 semester hours completed and a minimum GPA of 2.0 ("C")	3 hours each: 15i
BUS 297	BUSINESS INTERNSHIP II This two-course sequence allows the student to work part-time on a job closely related to the student's academic major while attending classes on a full-time basis. Emphasis is placed on a student's work experience as it integrates academic knowledge with practical applications in the business environment. The grade is based on a term paper, job-site visits by the instructor, the employer's evaluation of the student, and the development and assessment by the student of a learning contract. <i>Prerequisite:</i> A minimum of 6 semester hours completed and a minimum GPA of 2.0 ("C")	3 hours each: 15i
CAR 111	CONSTRUCTION BASICS This course introduces the student to the opportunities in and the requirements of the construction industry. Topics include economic outlook for construction, employment outlook, job opportunities, training, apprenticeship, entrepreneurship, construction tools, materials, and equipment, job safety, and OSHA standards. Upon course completion, students should be able to identify the job market, types of training, knowledge of apprenticeship opportunities, construction tools, materials, equipment, and safety procedures. <i>Prerequisite:</i> As determined by College CORE	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
CAR 112	<p>FLOORS, WALLS AND SITE PREP</p> <p>This course introduces the student to site preparation, floor and wall layout, and construction. Topics include methods of site preparation, measurement and leveling tools, framing, layouts, and components of wall and floor framing to include beams, girders, floor joists, sub-flooring, partitions, bracing, headers, sills, doors, and corners. Upon course completion, students will be able to identify various types of wall and floor framing systems and their components, identify building lines, set backs, and demonstrate a working knowledge of leveling applications. <i>Prerequisite:</i> As determined by College CORE</p>	3 hours: 3T
CAR 113	<p>FLOORS, WALLS AND SITE PREP LAB</p> <p>In this course the student will engage in applications of site preparation, floor and wall layout, and construction. Emphasis is placed on following job safety, procedures, the use of required tools and equipment, performing site preparation, laying out and framing a floor system, and laying out and erecting walls. Students will use various measurement and leveling tools, identify and install beams, girders, floor joists, sub-flooring and install various wall components, such as partitions, bracing, headers, sills, doors and windows, and corners. Upon course completion, students should be able to follow proper safety procedures, identify building lines and setbacks, ensure proper site preparation, layout and frame a floor, and layout, frame, and erect walls. <i>Prerequisite:</i> As determined by College CORE</p>	3 hours: 9L
CAR 114	<p>CONSTRUCTION BASICS LAB</p> <p>This course provides practical and safe application of hand, portable power, stationary, and pneumatic tools, use of building materials, fasteners, and adhesives, and job site safety. Emphasis is placed on the safe use of hand, power, and pneumatic tools, proper selection of lumber, plywood, byproducts, nails, bolts, screws, adhesives, fasteners, construction materials, and job safety. Upon course completion, the student should be able to identify hand, power, stationary, and pneumatic tools, and demonstrate their safe use; identify and select wood and non-wood building products, and properly use nails, fasteners and adhesives. <i>Prerequisite:</i> As determined by program CORE</p>	3 hours: 9L
CAR 121	<p>INTRODUCTION TO BLUEPRINT READING</p> <p>This course introduces the student to the basic concepts of blueprint reading. Topics include scales, symbols, site plans, notations, schedules, elevations, sections, specifications, and detail drawings. Upon completion, the student should be able to identify drawings, scale various drawings, identify different types of lines, symbols, and notations, as well as plot plans, describe easements, understand building code concepts, locate utilities, and explain various aspects of all types of plans and drawings. <i>Prerequisite:</i> As determined by program <i>Corequisite:</i> As required by program CORE</p>	3 hours: 3T
CAR 122	<p>CONCRETE AND FORMING</p> <p>This course introduces the student to concrete, its properties and uses, and procedures for designing concrete forms. Topics include making and pouring concrete, constructing concrete forms, reinforcement methods, finishing concrete, and job safety. Upon completion, students should be able to list safety rules for the job site, list what concrete is made of, describe how concrete forms are built, and how concrete is poured, reinforced, and finished. <i>Prerequisite:</i> As determined by program CORE</p>	3 hours: 3T
CAR 123	<p>CONCRETE AND FORMING LAB</p> <p>This course provides practical experience in mixing concrete, building forms, using reinforcing materials, pouring and finishing concrete, and demonstrating proper safety techniques at the job site. Emphasis is placed on job site safety, concrete forming, mixing, pouring, finishing, and reinforcing. Upon completion, the student should be able to demonstrate job safety, set forms, reinforce, mix, pour, and finish concrete correctly. <i>Prerequisite:</i> As determined by program CORE</p>	3 hours: 9L

COURSE #	COURSE DESCRIPTION	CREDITS
CAR 131	ROOF AND CEILING SYSTEMS This course focuses on framing ceilings and roofs. Emphasis is placed on various types of ceiling and roofing frames, rafters, trusses, ceiling joists, roof decking, and roofing materials. Upon completion, students should be able to explain how to frame a roof and ceiling, identify proper installation methods of roofing materials, and describe applicable safety rules. <i>Prerequisite:</i> As determined by program CORE	3 hours: 3T
CAR 132	INTERIOR AND EXTERIOR FINISHING This course introduces the student to interior and exterior finishing materials and techniques. Topics include interior trim of windows and doors, ceilings, and wall moldings, exterior sidings, trim work, painting, and masonry finishes. Upon completion the students should be able to identify, describe the uses of, and install different types of doors, windows and moldings; identify and install the types of exterior sidings and trim, and describe the different types of paint and their proper application. <i>Prerequisite or corequisite:</i> As determined by program CORE	3 hours: 1T, 6L
CAR 133	ROOFING AND CEILING SYSTEMS LAB The course provides students with practical experience in roof and ceiling layout, framing, and installation. Upon completion, the student should be able to layout and frame a roof and ceiling, cut and install rafters, and joists, install trusses, cut and apply roof decking and roofing materials, and apply job site safety. <i>Prerequisite:</i> As determined by program CORE	3 hours: 9L
CAR 191	INTERNSHIP IN CARPENTRY This course is designed to provide carpentry practices in non-employment situations. Emphasis is placed on techniques used in the carpentry profession. This course allow students to refine their skills necessary for entry-level employment. <i>Prerequisite:</i> As determined by program	1 hour: 5i
CAR 192	INTERNSHIP IN CARPENTRY This course is designed to provide carpentry practices in non-employment situations. Emphasis is placed on techniques used in the carpentry profession. This course allow students to refine their skills necessary for entry-level employment. <i>Prerequisite:</i> As determined by program	2 hours: 10i
CAR 193	INTERNSHIP IN CARPENTRY This course is designed to provide carpentry practices in non-employment situations. Emphasis is placed on techniques used in the carpentry profession. This course allow students to refine their skills necessary for entry-level employment. <i>Prerequisite:</i> As determined by program	3 hours: 15i
CAR 203	SPECIAL PROJECTS IN CARPENTRY This course allows the student to plan, execute, and present results of individual projects in carpentry. Emphasis is placed on enhancing skill attainment in the carpentry field. This culminating course allows students to independently apply skills attained in previous courses. <i>Prerequisite:</i> As determined by program	3 hours: 9L
CAR 205	SPECIAL PROJECTS IN CARPENTRY This course allows the student to plan, execute, and present results of individual projects in carpentry. Emphasis is placed on enhancing skill attainment in the carpentry field. This culminating course allows students to independently apply skills attained in previous courses. <i>Prerequisite:</i> As determined by program	3 hours: 2T, 3L
CAR 206	SPECIAL PROJECTS IN CARPENTRY This course allows the student to plan, execute, and present results of individual projects in carpentry. Emphasis is placed on enhancing skill attainment in the carpentry field. This culminating course allows students to independently apply skills attained in previous courses. <i>Prerequisite:</i> As determined by program	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
CAR 214	INTRODUCTION TO CABINETRY This course is an introductory cabinetry course. Emphasis is placed on design and construction of cabinetry. Upon completion, the student should be able to design and to build cabinets according to specification. <i>Prerequisite:</i> As determined by program	3 hours: 1T, 6L
CAR 224	FLOOR, WALL AND CEILING SPECIALTIES This course focuses on advanced interior applications for floors, walls, and ceilings. Topics may include paneling, hard wood floors, drop ceilings, acoustical ceilings, tray ceilings, and box ceilings. Upon completion the students should have a working knowledge of the specialties covered. This is an advanced course. <i>Prerequisite:</i> As determined by program	3 hours: 1T, 6L
CAR 226	METAL FRAMING This course introduces the students to metal framing of floors, walls, ceilings, and roofs. Emphasis is placed on metal frame construction. Upon completion, students are expected to be able to describe components and proper application of metal framing, properly construct floors, walls, ceilings, and roofs. <i>Prerequisite:</i> As determined by program	3 hours: 9L
CAR 228	STAIRS, MOLDING AND TRIM This course focuses on the basics of stair design, layout, and construction. Topics also include cutting and installing stair trim and molding. Upon course completion, students should be able to layout, cut, and construct stairs and to install trim and molding. <i>Prerequisite:</i> As determined by program	3 hours: 1T, 6L
CAR 230	RESIDENTIAL REPAIR AND REMODELING This course focuses on the methods used for a repair or remodeling project. Topics include design, estimation of materials, cost, time, manpower, and bid preparation. Upon completion the students should be able to demonstrate an ability to design a repair or remodeling project according to code, accurately quote material, cost, time, and manpower requirements, and obtain all necessary permits for construction. <i>Prerequisite:</i> As determined by program	3 hours: 3T
CAR 232	CONSTRUCTION PROJECT MANAGEMENT This course focuses on the basic information necessary for successfully managing a construction project. Topics include basic building blocks of scheduling, refining a schedule, communications, techniques for estimating time to complete projects, timely delivery of materials, appropriate manpower scheduling, and use of construction management software. Upon completion, students are expected to understand the meaning and purpose of project planning and management, use of a schedule in management, and be able to communicate and coordinate work activities. The students should also be able to develop a comprehensive estimate for the completion of a construction project. <i>Prerequisite:</i> As determined by program	3 hours: 3T
CET 100	ENGINEERING BLUEPRINTS This course introduces the student to the various types of engineering drawings. Topics include architectural, civil, electrical, electronic, and mechanical engineering blueprints. Upon completion of this course, students will be able to identify techniques, symbols, language, and purpose of the engineering drawings covered. Also taught as AUT 104, DDT 114, MTT 121. <i>Prerequisite:</i> As required by program	3 hours: 3T
CET 101	INTRODUCTION TO ENGINEERING TECHNOLOGY This course is designed to introduce the student to the basic concepts, terminology, and procedures associated with applied analytical skills needed to succeed in higher level courses. Topics include engineering notation, use of scientific calculator, basic algebra, trigonometry, and geometry. Also taught as AUT 118, EET 100, MTT 107. <i>Prerequisite:</i> Math placement score for MTH 116 CORE	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
CET 105	INTRODUCTION TO MICROSTATION This course teaches the basic techniques and concepts used in setting up a computer-aided drafting software program on a personal computer to make technical drawings. Students use Microstation in application of drawing/design techniques. Students will be expected to draw proper basic, multi-view drawings using Microstation by the completion of the course. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L
CET 111	FUNDAMENTALS OF SURVEYING This course introduces the theory and practice of plane surveying and presents the basics associated with measuring angles and distances. Topics include historical perspective, care and use of instruments, taping, differential and profile leveling, transit, stadia, and transit-tape surveys. Upon completion, students will be able to apply the theory and practice of plane surveying to determine boundaries, areas, and volumes of land measurements. <i>Prerequisite:</i> As required by program CORE	3 hours: 1T, 4L
CET 112	INTERMEDIATE SURVEYING This course is a continuation of CET 111 with emphasis on route surveying. Topics include design and layout of horizontal and vertical curves, super elevation, and site distances. Upon completion, students will be able to design and to lay out roadways. <i>Prerequisite:</i> CET 111 CORE	3 hours: 2T, 2L
CET 121	ENGINEERING MATERIALS This course introduces the student to the applications and characteristics of materials commonly used in engineering design. Topics include soil, wood, steel, concrete, and asphalt. Upon completion, students will be able identify and to explain the characteristics and uses of the various building materials and complete basic design or inspection of these materials. <i>Prerequisite:</i> As required by program	3 hours: 3T
CET 131	HIGHWAY DESIGN AND CONSTRUCTION This course presents an overview of street and highway design from concept to construction. Topics include highway planning, design, and construction as well as driver, vehicle, and traffic characteristics, highway capacity, sight distances, design of cross section and grade line, and drainage. Upon completion, students will be able to determine the best and most economical highway design practices. <i>Prerequisite:</i> As determined by instructor, MDT 105, CET 112 CORE	3 hours: 3T
CET 181	SPECIAL TOPICS IN CIVIL ENGINEERING TECHNOLOGY These courses provide specialized instruction in various areas related to civil engineering technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As determined by instructor	1 hour, 2L
CET 183	SPECIAL TOPICS IN CIVIL ENGINEERING TECHNOLOGY These courses provide specialized instruction in various areas related to civil engineering technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As determined by instructor	2 hours, 6L
CET 213	TOPOGRAPHICAL SURVEYING AND DRAWING This course introduces the student to the application of surveying and drafting principles to depict accurately a section of terrain with respect to elevations, distance, and contour lines. Topics include cross sections, contour lines, and stadia. Upon completion, students will be able to complete a topographical survey of a piece of property and draw a contour map of the property. <i>Prerequisite:</i> CET 111 and/or as required by program	3 hours: 1T, 4L
CET 214	HYDRAULICS This course introduces fluid mechanics with primary emphasis on water and sewer. Topics include water at rest, open channel flow, drainage, area calculations, and sanitary and storm system design. Upon completion, students will be able to design a storm water system. <i>Prerequisite:</i> CET 101 and/or as required by program CORE	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
CET 215	<p>STATICS</p> <p>This course is an overview of the principles of mechanics-statics whereby the external and the internal forces acting on a body may be analyzed and their effects ascertained. Topics such as coplanar and non-coplanar systems, parallel and non-parallel, and concurrent and non-concurrent forces will be examined. Upon completion, the student will be able to analyze simple to moderately complex structures and to determine the effects of these forces on the members of various systems. <i>Prerequisite:</i> CET 101 CORE</p>	3 hours: 3T
CET 216	<p>ADVANCED SURVEYING</p> <p>This course presents complex principles and practices used in high precision civil engineering survey projects. Topics include Alabama law as applied to modern surveying, minimum technical standards, use of electronic surveying equipment, and Global Positioning Systems (GPS). Upon completion of the course, the student should be able to complete a survey using minimum technical standards accurate to 1:10,000. <i>Prerequisite:</i> CET 111, CET 112</p>	3 hours: 6L
CET 217	<p>STRENGTH OF MATERIALS</p> <p>This course presents a look at the techniques used in the analysis and design of structural elements in systems with a view toward equipping the student to select structural members that are safe and economical. Topics include the study of stress strain curves, material properties and uses, and both bolted and welded connections. Upon completion of this course, the student should be able to identify stresses in various structural members. <i>Prerequisite:</i> CET 215 CORE</p>	3 hours: 3T
CET 221	<p>CONSTRUCTION EQUIPMENT</p> <p>This course is a study in the use and economics of various types of construction equipment. Topics include owning and operating costs, rental rates, application, production maintenance, and equipment safety. Upon completion, the student should be able to evaluate the most economical and efficient uses of construction equipment.</p>	3 hours: 1T, 4L
CET 222	<p>RESIDENTIAL LAND DEVELOPMENT</p> <p>This course is an overview of engineering principles concerning various types of land development for residential use. Topics include single family, garden home, and multi-family development master planning. Upon completion of this course students will be able to design various types of residential developments. <i>Prerequisite:</i> MDT 105 and/or as required by program</p>	3 hours: 1T, 4L
CET 223	<p>SITE PLANNING AND DEVELOPMENT</p> <p>This course is an overview of the engineering principles of site grading and development. Topics include building orientation, parking, traffic flow, drainage, site grading, and earthwork. Upon completion of this course students will be able to design a site to include grading, drainage, parking, and building orientation. <i>Prerequisite:</i> MDT 105 and/or as required by program</p>	3 hours: 1T, 4L
CET 240	<p>GEOGRAPHIC INFORMATION SYSTEMS</p> <p>This course is designed to introduce the student to the Geographic Information System (GIS) software. Topics will include storing, managing, and displaying spatial features and geographic data, coordinate systems, vector and raster data models, spatial data editing, and attribute data management. Upon completion students should be able to manipulate and edit GIS data. <i>Prerequisite:</i> As required by program</p>	3 hours: 3T
CET 281	<p>SPECIAL TOPICS IN CIVIL ENGINEERING TECHNOLOGY</p> <p>These courses provide specialized instruction in various areas related to civil engineering technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As determined by instructor</p>	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
CET 281A-H	SPECIAL TOPICS IN CIVIL ENGINEERING TECHNOLOGY These courses provide specialized instruction in various areas related to civil engineering technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As determined by instructor	3 hours: CONTACT HOURS WILL VARY
CET 284A	COOPERATIVE EDUCATION This course is designed to provide paid cooperative work experience directly related to the civil engineering technology field. The average hours worked each week will determine the number of credit hours allowed. Grades are based on the successful completion of the work experience as judged by the student's work supervisor and the faculty coordinator. <i>Prerequisite:</i> As required by program	1 hour, 5i
CET 284B	COOPERATIVE EDUCATION This course is designed to provide paid cooperative work experience directly related to the civil engineering technology field. The average hours worked each week will determine the number of credit hours allowed. Grades are based on the successful completion of the work experience as judged by the student's work supervisor and the faculty coordinator. <i>Prerequisite:</i> As required by program	2 hours, 10i
CET 284D	COOPERATIVE EDUCATION This course is designed to provide paid cooperative work experience directly related to the civil engineering technology field. The average hours worked each week will determine the number of credit hours allowed. Grades are based on the successful completion of the work experience as judged by the student's work supervisor and the faculty coordinator. <i>Prerequisite:</i> As required by program	3 hours, 15i
CHD 100	INTRODUCTION TO EARLY CARE EDUCATION OF CHILDREN This course is an introduction to the child care profession, and it includes the six functional areas of the Child Development Associate (CDA) credential. Emphasis is placed on using positive guidance techniques, setting up a classroom, and planning a schedule. Upon completion, students should be able to create and to modify children's environments to meet individual needs, to use positive guidance to develop positive relationships with children, and to promote children's self-esteem, self-control, and self-motivation.	3 hours
CHD 201	CHILD GROWTH AND DEVELOPMENT PRINCIPLES This course is a systematic study of child growth and development from conception through early childhood. Emphasis is placed on principles underlying physical, mental, emotional, and social development and on methods of child study and practical implications. Upon completion, students should be able to use knowledge of how young children differ in their development and approaches to learning to provide opportunities that support the physical, social, emotional, language, cognitive, and aesthetic development of children. CORE	3 hours
CHD 202	CHILDREN'S CREATIVE EXPERIENCES This course focuses on fostering creativity in preschool children and on development a creative attitude in teachers. Topics include selecting and developing creative experiences in language arts, music, art, science, math, and movement, with observation of and participation with young children required. Upon completion, students should be able to select and implement creative and age-appropriate experiences for young children. <i>Prerequisite:</i> CHD 100	3 hours
CHD 203	CHILDREN'S LITERATURE AND LANGUAGE DEVELOPMENT This course surveys appropriate literature and language arts activities designed to enhance young children's speaking, listening, pre-reading, and writing skills. Emphasis is placed on developmental appropriateness as related to language. Upon completion, students should be able to create, evaluate, and demonstrate activities that support a language-rich environment for young children. CORE	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
CHD 204	METHODS AND MATERIALS FOR TEACHING CHILDREN This course introduces basic methods and materials used in teaching young children. Emphasis is placed on students compiling a professional resource file of activities used for teaching math, language arts, science, and social science concepts. Upon completion, students should be able to demonstrate basic methods of creating learning experiences using appropriate techniques, materials, and realistic expectations. <i>Prerequisite:</i> CHD 100 CORE	3 hours
CHD 205	PROGRAM PLANNING FOR EDUCATING YOUNG CHILDREN This course is designed to give students practice in lesson and unit planning, writing behavioral objectives, and evaluating activities taught to young children. Emphasis is placed on identifying basic aspects of cognitive development and how children learn. Upon completion, students should be able to plan and implement developmentally appropriate curriculum and instructional practices based on knowledge of individual differences and the curriculum goals and content.	3 hours
CHD 206	CHILDREN'S HEALTH AND SAFETY This course introduces basic health, nutrition, and safety management practices for young children. Emphasis is placed on setting up and maintaining a safe, healthy environment for young children, including specific procedures for infants and toddlers and procedures regarding childhood illnesses and communicable diseases. Upon completion, students should be able to prepare a healthy, safe environment to plan nutritious meals and snacks, and to recommend referrals if necessary. CORE	3 hours
CHD 208	ADMINISTRATION OF CHILD DEVELOPMENT PROGRAMS This course includes appropriate administrative policies and procedures relevant to preschool programs. Topics include local, state, and federal regulations; budget planning; record keeping; personnel policies; and parent involvement. Upon completion, students should be able to identify elements of a sound business plan, to demonstrate familiarity with basic record keeping techniques, and to identify elements of a developmentally appropriate program.	3 hours
CHD 209	INFANT AND TODDLER EDUCATION PROGRAMS This course focuses on child development from infancy to thirty months of age, with emphasis on planning programs using developmentally appropriate material. Emphasis is placed on positive ways to support an infant's social, emotional, physical, and intellectual development. Upon completion, students should be able to plan an infant-toddler program and environment that is appropriate and supportive of the families and the children.	3 hours
CHD 210	EDUCATING EXCEPTIONAL YOUNG CHILDREN This course explores the many different types of exceptionalities found in young children. Topics include speech, language, hearing, and visual impairments; gifted and talented children; mental retardation; and emotional, behavioral, and neurological handicaps. Upon completion, students should be able to identify appropriate strategies for working with young exceptional children. CORE	3 hours
CHD 211A CHD 211B CHD 211C CHD 211D CHD 211E CHD 211F	CHILD DEVELOPMENT SEMINAR This course provides students with knowledge of a variety of issues and trends related to the childcare profession. Subject matter will vary according to industry and student needs. Upon completion students should be able to discuss special topics related to current trends and issues in child development.	1 hour
CHD 212A CHD 212B CHD 212C CHD 212D CHD 212E CHD 212F	SPECIAL TOPICS IN CHILD DEVELOPMENT This course provides students with knowledge of a variety of issues and trends related to the childcare profession. Subject matter will vary according to industry and student needs. Upon completion students should be able to discuss special topics related to current trends and issues in child development. <i>Prerequisite:</i> Permission of instructor	2 hours

COURSE #	COURSE DESCRIPTION	CREDITS
CHD 214	FAMILIES AND COMMUNITIES This course will provide students information about how to work with diverse families and communities. Students will be introduced to family and community settings, their important relationship to children, and the pressing needs of today's society. Students will study and practice techniques for developing these important relationships and effective communication skills.	3 hours
CHD 215	SUPERVISED PRACTICAL EXPERIENCE IN CHILD DEVELOPMENT This course includes current topics in the child development field as an update for the professional caregiver. The needs of industry determine course topics. Upon completion, students should demonstrate competencies designed to assess course objectives. <i>Prerequisite:</i> Advisor approval	3 hours: 6E
CHD 217	MATH AND SCIENCE FOR YOUNG CHILDREN This course will provide students information on children's conceptual development and the fundamental basic concepts of both math and science. Students will learn various techniques for planning, implementing and evaluating developmentally appropriate activities. Students will also learn more about the integrated curriculum.	1 hour
CHD 219	SUPERVISED PRACTICAL EXPERIENCE This course provides hands-on, supervised experienced in an approved program for young children. Emphasis is placed on performance of daily duties which are assessed by the college instructor and the cooperating teacher. Upon completion, students will be able to demonstrate competency in a child care setting. <i>Prerequisite:</i> As determined by College	2 hours
CHD 220	PARENTING SKILLS This course will focus on important issues in parenting education, beginning with prenatal concerns and continuing through childhood years. Particular emphasis will be placed on appropriate positive discipline methods.	3 hours
CHM 104	INTRODUCTION TO INORGANIC CHEMISTRY This is a survey course of general chemistry for students who do not intend to major in science or engineering; it may not be substituted for CHM 111. Lecture will emphasize the facts, principles, and theories of general chemistry including math operations, matter and energy, atomic structure, symbols and formulas, nomenclature, the periodic table, bonding concepts, equations, reactions, stoichiometry, gas laws, phases of matter, solutions, pH, and equilibrium reactions. Laboratory is required. <i>Prerequisite:</i> MTH 098 or equivalent math placement score	4 hours: 3T, 3E
CHM 105	INTRODUCTION TO ORGANIC CHEMISTRY This is a survey course of organic chemistry and biochemistry for students who do not intend to major in science or engineering. Topics include basic nomenclature, classification of organic compounds, typical organic reactions, reactions involved in life processes, function of biomolecules, and the handling and disposal of organic compounds. Laboratory is required. <i>Prerequisite:</i> CHM 104 or CHM 111	4 hours: 3T, 3E
CHM 111	COLLEGE CHEMISTRY I This is the first course in a two-semester sequence designed for the science or engineering major who is expected to have a strong background in mathematics. Topics include measurement, nomenclature, stoichiometry, atomic structure, equations and reactions, basic concepts of thermochemistry, chemical and physical properties, bonding, molecular structure, gas laws, kinetic-molecular theory, condensed matter, solutions, colloids, and some descriptive chemistry topics. Laboratory is required. <i>Prerequisite:</i> MTH 112 (Precalculus Algebra or equivalent math placement score)	4 hours: 3T, 3E

COURSE #	COURSE DESCRIPTION	CREDITS
CHM 112	<p>COLLEGE CHEMISTRY II</p> <p>This is the second course in a two-semester sequence designed primarily for the science or engineering student who is expected to have a strong background in mathematics. Topics include chemical kinetics, chemical equilibria, acids and bases, ionic equilibria of weak electrolytes, solubility product principle, chemical thermodynamics, electrochemistry, oxidation-reduction, nuclear chemistry, an introduction to organic chemistry and biochemistry, atmospheric chemistry, and selected topics in descriptive chemistry including the metals, nonmetals, semimetals, coordination compounds, transition compounds, and post-transition compounds. Laboratory is required.</p> <p><i>Prerequisite:</i> CHM 111 (College Chemistry I)</p>	4 hours: 3T, 3E
CHM 221	<p>ORGANIC CHEMISTRY</p> <p>This is the first course in a two-semester sequence. Topics include nomenclature, structure, physical and chemical properties, synthesis, and typical reactions for aliphatic, alicyclic, and aromatic compounds with special emphasis on reaction mechanisms, spectroscopy, and stereochemistry. Laboratory is required and will include the synthesis and confirmation of representative organic compounds with emphasis on basic techniques. <i>Prerequisite:</i> CHM 112 (College Chemistry II)</p>	4 hours: 3T, 3E
CHM 222	<p>ORGANIC CHEMISTRY II</p> <p>This is the second course in a two-semester sequence. Topics include nomenclature; structure; physical and chemical properties; synthesis; typical reactions for aliphatic, alicyclic, aromatic, and biological compounds; and polymers and their derivatives, with special emphasis on reaction mechanisms, spectroscopy, and stereochemistry. Laboratory is required and will include the synthesis and confirmation of representative organic compounds with emphasis on basic techniques. <i>Prerequisite:</i> CHM 221 (Organic Chemistry I)</p>	4 hours: 3T, 3E
CIS 113	<p>SPREADSHEET SOFTWARE APPLICATIONS</p> <p>This course provides students with hands-on experience using spreadsheet software. Students will develop skills common to most spreadsheet software by developing a wide variety of spreadsheets. Emphasis is on planning, developing, and editing functions associated with spreadsheets.</p>	3 hours
CIS 146	<p>MICROCOMPUTER APPLICATIONS</p> <p>This course is an introduction to the most common microcomputer software applications. These software packages should include typical features of applications, such as word processing, spreadsheets, database management, and presentation software. Upon completion, students will be able to utilize selected features of these packages. <i>Prerequisite:</i> DPT 100 OR Placement Score at ENG 093 and RDG 085 or placement at ENR 094.</p>	3 hours
CIS 147	<p>ADVANCED MICRO APPLICATIONS</p> <p>This course is a continuation of CIS 146 in which students utilize the advanced features of topics covered in CIS 146. Advanced functions and integration of word processing, spreadsheets, database, and presentation packages among other topics are generally incorporated into the course and are to be applied to situations found in society and business. Upon completion, the student should be able to apply the advanced features of selected software appropriately to typical problems found in society and business. This course will help prepare students for the MOS certification. <i>Prerequisite:</i> CIS 146</p>	3 hours
CIS 165A	<p>NETWORK LAB</p> <p>This lab is designed to allow instructors to provide additional implementation of networking concepts as needed. <i>Prerequisite:</i> Permission of instructor <i>Corequisite:</i> CIS 268 Software Support</p>	1 hour
CIS 165B	<p>NETWORK LAB</p> <p>This lab is designed to allow instructors to provide additional implementation of networking concepts as needed. <i>Prerequisite:</i> Permission of instructor <i>Corequisite:</i> CIS 269 Hardware Support</p>	1 hour

COURSE #	COURSE DESCRIPTION	CREDITS
CIS 165D	NETWORK LAB This lab is designed to allow instructors to provide additional implementation of networking concepts as needed. <i>Prerequisite:</i> Permission of instructor <i>Corequisite:</i> CIS 270 CISCO CCNA I	1 hour
CIS 165E	NETWORK LAB This lab is designed to allow instructors to provide additional implementation of networking concepts as needed. <i>Prerequisite:</i> Permission of instructor <i>Corequisite:</i> CIS 272 CISCO CCNA III	1 hour
CIS 165F	NETWORK LAB This lab is designed to allow instructors to provide additional implementation of networking concepts as needed. <i>Prerequisite:</i> Permission of instructor	1 hour
CIS 171	LINUX I This course presents fundamental applications in Linux. Included in this course are skills development for OS installation and setup, recompile techniques, system configuration settings, file/folder structures and types, run levels, basic network applications, and scripting. Additionally, the course presents security features from an administrative and user consideration. <i>Prerequisite:</i> Instructor Approval	3 hours
CIS 172	LINUX II This course is a continuation of CIS 171 and includes advanced features of Linux. Included in the course are web applications, integrated network configurations, file transfer, server administration, system controls, IP tables/firewall to secure Linux systems, and strategic user-group applications specific to administrative network control. <i>Prerequisite:</i> CIS 171	3 hours
CIS 199	NETWORK COMMUNICATIONS This course is designed to introduce students to the basic concepts of computer networks. Emphasis is placed on gaining an understanding of the terminology and technology involved in implementing networked systems. The course will cover the OSI and TCP/IP network models, communications protocols, transmission media, networking hardware and software, LANs (Local Area Networks) and WANs (Wide Area Networks), Client/Server technology, the Internet, Intranets, and network troubleshooting. Upon completion of this course, students will be able to design and implement a computer network. Students will create network shares, user accounts, and install print devices while ensuring basic network security. They will receive hands-on experience building a mock network in the classroom. <i>Prerequisite:</i> CIS 146	3 hours
CIS 201	INTRODUCTION TO COMPUTER PROGRAMMING CONCEPTS This course presents fundamental programming concepts. Included in this course are problem solving and algorithms, various design tools, programming structures, variable data types and definitions, modularization, and selected programming languages. Techniques are introduced to enable students to develop programs. <i>Prerequisite:</i> Intermediate algebra and CIS 146	3 hours
CIS 207	WEB DEVELOPMENT This course provides students with opportunities to learn Hypertext Markup Language, cascading style sheets, and Java Script. At the conclusion of this course, students will be able to use specified markup languages to develop basic Web pages. <i>Prerequisite:</i> CIS 146	3 hours
CIS 208	WEB AUTHORIZING SOFTWARE Students utilize various Web authoring tools to construct and edit Web sites for a variety of applications. Upon completion students will be able to use these tools to develop or enhance Web sites. <i>Prerequisite:</i> CIS 146	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
CIS 209	ADVANCED WEB DEVELOPMENT This is an advanced Web design course emphasizing the use of scripting languages to develop interactive Web sites. Upon completion students will be able to create data driven Web sites. <i>Prerequisites:</i> CIS 207 and CIS 208	3 hours
CIS 211	PRINCIPLES OF INFORMATION ASSURANCE This course is designed to introduce students to information security principles. Topics covered in this course will include the need for security, risk management, security technology, cryptography, and physical security. Security policies and legal/ethical issues will also be covered. <i>Prerequisite:</i> CIS 146	3 hours
CIS 212	VISUAL BASIC PROGRAMMING This course emphasizes BASIC programming using a graphical user interface. The course will emphasize graphical user interfaces with additional topics on such topics as advanced file handling techniques, simulation, and other selected areas. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests. <i>Prerequisite:</i> Elementary Algebra	3 hours
CIS 213	ADVANCED VISUAL BASIC PROGRAMMING This course is a continuation of CIS 212 using Visual BASIC as the language to cover advanced topics. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests. <i>Prerequisite:</i> CIS 212	3 hours
CIS 222	DATABASE MANAGEMENT SYSTEMS This course will discuss database system architectures, concentrating on Structured Query Language (SQL). It will teach students how to design, normalize and use databases with SQL, and to link those to the Web. <i>Prerequisite:</i> Permission of Instructor	3 hours
CIS 249	MICROCOMPUTER OPERATING SYSTEMS This course provides an introduction to microcomputer operating systems. Topics include a description of the operating system, system commands, and effective and efficient use of the microcomputer with the aid of its system programs. Upon completion, students should understand the function and role of the operating system, its operational characteristics, its configuration, how to execute programs, and efficient disk and file management. <i>Prerequisite:</i> CIS 146	3 hours
CIS 251	C++ PROGRAMMING This course is an introduction to the C++ programming language including object oriented programming. Topics include: problem solving and design; control structures; objects and events; user interface construction; and document and program testing. <i>Prerequisite:</i> Intermediate algebra	3 hours
CIS 255	JAVA PROGRAMMING This course is an introduction to the Java programming language. Topics in this course include object-oriented programming constructs, Web page applet development, class definitions, threads, events and exceptions. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.	3 hours
CIS 263	COMPUTER MAINTENANCE This course provides students with hands-on practical experience in installing software, operating systems, trouble-shooting, and maintaining systems. The class will help to prepare participants for the A+ Certification sponsored by CompTIA.	3 hours
CIS 268	SOFTWARE SUPPORT This course provides students with hands-on practical experience in installing computer software, operating systems, and trouble-shooting. The class will help to prepare participants for the A+ Certification sponsored by CompTIA. <i>Prerequisite:</i> Permission of instructor <i>Corequisite:</i> CIS 165A	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
CIS 269	HARDWARE SUPPORT This course provides students with hands-on practical experience in installation and troubleshooting computer hardware. The class will help to prepare participants for the A+ Certification sponsored by CompTIA. Prerequisite: Permission of instructor Corequisite: CIS 165B	3 hours
CIS 270	CISCO CCNA I This course is the first part of a four part curriculum leading to Cisco Certified Network Associate (CCNA) certification. The content of this course is based on current requirements from the CISCO Networking Academy certification standards. Prerequisite: Permission of instructor Corequisite: CIS 165D	3 hours
CIS 271	CISCO CCNA II This course is the second part of a four part curriculum leading to Cisco Certified Network Associate (CCNA) certification. The content of this course is based on current requirements from the Cisco Networking Academy certification standards. Prerequisite: CIS 270	3 hours
CIS 272	CISCO CCNA III This course is the third part of a four part curriculum leading to Cisco Certified Network Associate (CCNA) certification. The content of this course is based on current requirements from the Cisco Networking Academy certification standards. Prerequisite: CIS 271 Corequisite: CIS 165E	3 hours
CIS 273	CISCO CCNA IV This course is the fourth part of a four part curriculum leading to Cisco Certified Network Associate (CCNA) certification. The content of this course is based on current requirements from the Cisco Networking Academy certification standards. Prerequisite: CIS 272	3 hours
CIS 274A	ADVANCED NETWORKING LAB This lab is designed to allow instructors to provide additional application of networking concepts as needed. Prerequisite: As required by College Corequisite: CIS 276	1 hour
CIS 274B	ADVANCED NETWORKING LAB This lab is designed to allow instructors to provide additional application of networking concepts as needed. Prerequisite: As required by College	1 hour
CIS 274D	ADVANCED NETWORKING LAB This lab is designed to allow instructors to provide additional application of networking concepts as needed. Prerequisite: As required by College	1 hour
CIS 274E	ADVANCED NETWORKING LAB This lab is designed to allow instructors to provide additional application of networking concepts as needed. Prerequisite: As required by College	1 hour
CIS 276	SERVER ADMINISTRATION This course introduces network operating system administration. Topics included in this course are network operating system software installation, administration, monitoring, and maintenance; user, group, and computer account management; shared resource management; and server hardware management. Students gain hand-on experience in managing and maintaining a network operating system environment. Prerequisite: Permission of instructor Corequisite: CIS 274A	3 hours
CIS 280	NETWORK SECURITY This course provides a study of threats to network security and methods of securing a computer network from such threats. Topics included in this course are security risks, intrusion detection, and methods of securing authentication, network access, remote access, Web access, and wired and wireless network communications. Upon completion students will be able to identify security risks and describe appropriate counter measures. Prerequisite: Permission of instructor Corequisite: CIS 274B	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
CIS 285	OBJECT-ORIENTED PROGRAMMING This course is an advanced object-oriented programming course that covers advanced program development techniques and concepts in the context of an object-oriented language. Subject matter includes object-oriented analysis and design, encapsulation, inheritance, polymorphism (operator and function overloading), information hiding, abstract data types, reuse, dynamic memory allocation, and file manipulation. Upon completion, the student should be able to develop a hierarchical class structure necessary to the implementation of an object-oriented software system. <i>Prerequisite:</i> Intermediate Algebra	3 hours
CIS 286	COMPUTERIZED MANAGEMENT INFO SYSTEMS The nature of computerized management information systems, problems created by the computer relative to personnel, components of computer systems, programming, and application of computers to business problems. <i>Prerequisite:</i> CIS 146	3 hours
CIS 289	WIRELESS NETWORKING The purpose of this course is to allow students to explore current issues related to wireless technology. Students will be able to develop and maintain wireless networks using advancements in current technology. <i>Prerequisite:</i> Permission of Instructor	3 hours
CIS 296	SPECIAL TOPICS This course allows study of currently relevant computer science topics, with the course being able to be repeated for credit for each different topic covered. Course content will be determined by the instructor and will vary according to the topic being covered. Upon completion, the student will be able to demonstrate specified skills. <i>Prerequisite:</i> Permission of Instructor	1-3 hours
CIS 299	DIRECTED STUDIES IN COMPUTER SCIENCE This course allows independent study under the direction of an instructor. Topics to be included in the course material will be approved by the instructor prior to or at the beginning of the class. Upon completion, the student will be able to demonstrate knowledge of the topics specified by the instructor. <i>Prerequisite:</i> Permission of the instructor	3 hours
CIT 211	TEACHING AND CURRICULUM DEVELOPMENT This course focuses on principles of teaching, teaching maturity, professional conduct, and the development of cosmetology curriculum. Emphasis is placed on teacher roles, teaching styles, teacher challenges, aspects of curriculum development, and designing individual courses. Upon completion, the student should be able to describe the role of teacher, identify means of motivating students, develop a course outline, and develop lesson plans.	3 hours: 3T
CIT 212	TEACHER MENTORSHIP This course is designed to provide the practice through working with a cosmetology instructor in a mentoring relationship. Emphasis is placed on communication, student assessment, and assisting students in the lab. Upon completion, the student should be able to communicate with students, develop a course of study, and apply appropriate teaching methods.	3 hours: 9L
CIT 213	COSMETOLOGY INSTRUCTOR CO-OP The course provides students with additional opportunities to observe instructors and develop teaching materials and skills.	3 hours: 6L
CIT 214	LESSON PLAN METHODS AND DEVELOPMENT During this course students have the opportunity to further apply knowledge of lesson planning and lesson delivery by using lesson plans they have developed from previous courses or this course. Emphasis is placed on the use of lesson plans in various classroom and laboratory settings. Upon completion, students will be able to teach a variety of cosmetology classes using various techniques. This course serves as a suitable substitute for CIT 221. If used as a substitute, this course becomes a core course.	3 hours: 1T, 6L

COURSE #	COURSE DESCRIPTION	CREDITS
CIT 221	LESSON PLAN IMPLEMENTATION This course is designed to provide practice in preparing and using lesson plans. Emphasis is placed on organizing, writing, and presenting lesson plans using the four-step teaching method. Upon completion, students should be able to prepare and present a lesson using the four step teaching method.	3 hours: 9L
CIT 222	AUDIO VISUAL MATERIALS AND METHODS This course focuses on visual and audio aids and materials. Emphasis is placed on the use and characteristics of instructional aids. Upon completion, students should be able to prepare teaching aids and determine their most effective use.	3 hours: 3T
CIT 223	AUDIO VISUAL MATERIALS AND METHODS APPLICATIONS This course is designed to provide practice in preparing and using visual and audio aids and materials. Emphasis is placed on the preparation and the use of different categories of instructional aids. Upon completion, the student should be able to prepare and effectively present different types of aids for use with a four step lesson plan.	3 hours: 9L
CNC 103	MANUAL PROGRAMMING This course will emphasize calculations for CNC machine tools. Topics include G & M codes, radius programming and cutter compensations. Students will learn to write a variety of CNC programs which can be used on the job as reference programs. <i>Prerequisite:</i> As required by program	6 hours: 2T, 8L
CNC 104	CNC MILLING OPERATIONS This is a course in programming and operations of the CNC Milling Machines. Applications include maintenance, safety, and production of machine parts through programming, set up and operation. Students will learn to produce finished parts on the CNC milling machines.	6 hours: 3T, 6L
CNC 215	QUALITY CONTROL AND ASSURANCE This is an advanced course in parts inspection using Geometric Dimensioning and Tolerancing, and familiarization of the Coordinate Measuring Machine. Topics include part set-up, tolerance applications, maximum material and least material conditions, perpendicularity and point of inspection. Upon completion, students should be able to inspect machined parts demonstrating an understanding of G.D.T. and C.M.M. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L
CNC 232	BASIC TOOL AND DIE This course introduces the application and use of jigs, fixtures and stamping dies. Emphasis is placed on design and manufacture of simple jigs, fixtures and stamping dies. Upon completion, students should be able to design and build simple jigs, fixtures, and stamping dies components. <i>Prerequisite:</i> MTT 102	4 hours: 2T, 4L
COM 100	INTRODUCTORY TECHNICAL ENGLISH I This course, which is designed specifically for students in technical programs, teaches the basic communication skills of listening, speaking, reading, writing, and thinking. The emphasis is on grammar, usage, punctuation, and mechanics, as well as on the total writing process, so that the students learn to write effective sentences, paragraphs, memos, letters, resumes, abstracts, and reports. This course does not satisfy the general education component of a degree.	3 hours
COS 111	INTRODUCTION TO COSMETOLOGY This course is designed to provide students with an overview of the history and development of cosmetology and standards of professional behavior. Students receive basic information regarding principles and practices of infection control, diseases, and disorders. Additionally, students receive introductory information regarding hair design. The information presented in this course is enhanced by hands-on application performed in a controlled lab environment. Upon completion, students should be able to apply safety rules and regulations and write procedures for skills identified in this course. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> COS 112 CORE	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
COS 112	INTRODUCTION TO COSMETOLOGY LAB In this course, students are provided the practical experience for sanitation, shampooing, hair shaping, and hairstyling. Emphasis is placed on disinfection, shampooing, hair shaping, and hair-styling for various types of hair for men and women. This course offers opportunities for students to put into practice concepts learned in the theory component from COS 111. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> COS 111 CORE	3 hours: 6L
COS 113	THEORY OF CHEMICAL SERVICES During this course students learn concepts of theory of chemical services related to the chemical hair texturing. Specific topics include basics of chemistry and electricity, properties of the hair and scalp, and chemical texture services. Safety considerations are emphasized throughout this course. This course is foundational for other courses providing more detailed instruction on these topics. <i>Prerequisite:</i> As required by College CORE	3 hours: 3T
COS 114	CHEMICAL SERVICES LAB During this course students perform various chemical texturing activities. Emphasis is placed on cosmetologist and client safety, chemical use and handling, hair and scalp analysis, and client consulting. <i>Prerequisite:</i> As required by College CORE	3 hours: 6L
COS 115	HAIR COLORING THEORY In this course, students learn the techniques of hair coloring and hair lightening. Emphasis is placed on color application, laws, levels and classifications of color and problem solving. Upon completion, the student will be able to identify all classifications of hair coloring and the effects on the hair. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> COS 116 CORE	3 hours: 3T
COS 116	HAIR COLORING LAB In this course, students apply hair coloring and hair lightening techniques. Topics include consultation, hair analysis, skin test and procedures and applications of all classifications of hair coloring and lightening. Upon completion, the student will be able to perform procedures for hair coloring and hair lightening. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> COS 115 CORE	3 hours: 6L
COS 117	BASIC SPA TECHNIQUES This course is the study of cosmetic products, massage, skin care, and hair removal, as well as identifying the structure and function of various systems of the body. Topics include massage, skin analysis, skin structure, disease and disorder, light therapy, facials, facial cosmetics, anatomy, hair removal, and nail care. Upon completion, the student will be able to state procedures for analysis, light therapy, facials, hair removal, and identify the structures, functions, disorders of the skin, and nail care. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> COS 118 CORE	3 hours: 3T
COS 118	BASIC SPA TECHNIQUES LAB This course provides practical applications related to the care of the skin and related structure. Emphasis is placed on facial treatments, product application, skin analysis, massage techniques, facial make-up, hair removal, and nail care. Upon completion, the student should be able to prepare clients, assemble sanitized materials, follow procedures for product application, recognize skin disorders, demonstrate facial massage movement, cosmetic application, and hair removal using safety and sanitary precautions, and nail care. <i>Prerequisite:</i> As required by College <i>Corequisite:</i> COS 117 CORE	3 hours: 6L
COS 119	BUSINESS OF COSMETOLOGY This course is designed to develop job-seeking and entry-level management skills for the beauty industry. Topics include job seeking, leader and entrepreneurship development, business principles, business laws, insurance, marketing, and technology issues in the workplace. Upon completion, the student should be able to list job-seeking and management skills and the technology that is available for use in the salon. <i>Prerequisite:</i> As required by College	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
COS 123	COSMETOLOGY SALON PRACTICES This course is designed to allow students to practice all phases of cosmetology in a salon setting. Emphasis is placed on professionalism, receptionist duties, hair styling, hair shaping, chemical, and nail and skin services for clients. Upon completion, the student should be able to demonstrate professionalism and the procedures of cosmetology in a salon setting. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 125	CAREER AND PERSONAL DEVELOPMENT This course provides the study and practice of personal development and career building. Emphasis is placed on building and retaining clientele, communication skills, customer service, continuing education, and goal setting. Upon completion, the student should be able to communicate effectively and practice methods for building and retaining clientele. <i>Prerequisite:</i> As required by College	3 hours: 3T
COS 134	ADVANCED ESTHETICS This course includes an advanced study of anatomy and physiology relating to skin care, cosmetic chemistry, histology of the skin, and massage and facial treatments. Upon completion, the student should be able to discuss the functions of the skin, effects of chemicals on skin, different types of massage and benefits, and key elements of the basic facial treatment. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 135	ADVANCED ESTHETICS APPLICATIONS This course provides advanced practical applications related to skin care. Principal topics include massage techniques, various facial treatments, proper product application through skin analysis, and introduction to ingredients and treatments used by the esthetician. Upon completion, the student should be able to perform various massage techniques, prescribe proper type of facial treatment and product, and demonstrate facials using any of the eight functions of the facial machine. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 141	APPLIED CHEMISTRY FOR COSMETOLOGY This course focuses on chemistry relevant to professional hair and skin care products, hair and its related structures, permanent waving, chemical hair relaxing, and hair coloring. Topics include knowledge of basic chemistry, pH scale measurements, water, shampooing and cosmetic chemistry, physical and chemical changes in hair structure. Upon completion, the student should be able to define chemistry, types of matter, and describe chemical and cosmetic reactions as related to the hair and skin structure. <i>Prerequisite:</i> As required by College	3 hours: 3T
COS 142	APPLIED CHEMISTRY FOR COSMETOLOGY LAB This course provides practical applications of the knowledge and skills learned in reference to chemical reactions, as well as the chemical application to the hair and skin. Emphasis is placed on knowledge of basic chemistry, pH scale, cosmetic chemistry, and physical and chemical changes in the hair and skin structure. Upon completion, the student should be able to determine the proper chemical product for each prescribed service. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 143	SPECIALTY HAIR PREPARATION TECHNIQUES This course focuses on the theory and practice of hair designing. Topics include creating styles using basic and advanced techniques of back combing, up sweeps, and braiding. Upon completion, the student should be able to demonstrate the techniques and procedures for hair designing. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 144	HAIR SHAPING AND DESIGN In this course, students learn the art and techniques of hair shaping. Topics include hair sectioning, correct use of hair shaping implements, and elevations used to create design lines. Upon completion, the student should be able to demonstrate the techniques and procedures for creating hair designs. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
COS 145	HAIR SHAPING LAB This covers the study of the art and techniques of hair shaping. Topics include hair sectioning, correct use of hair shaping implements, and elevations used to create design lines. Upon completion, the student should be able to demonstrate the techniques and procedures for creating hair designs using safety and sanitary precautions. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 146	HAIR ADDIITONS This course focuses on the practice of adding artificial hair. Topics include hair extensions, weaving, and braiding. Upon completion, the student should be able to demonstrate the techniques and procedures for attaching human and synthetic hair. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 150	MANICURING This course focuses on the theory and practice of nail care. Topics include sanitation, nail structure, nail disorders and diseases, manicuring, pedicuring, nail wrapping, sculptured nails, and acrylic overlays. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 151	NAIL CARE This course focuses on all aspects of nail care. Topics include salon conduct, professional ethics, sanitation, nail structure, manicuring, pedicuring, nail disorders, and anatomy and physiology of the arm and hand. Upon completion, the student should be able to demonstrate professional conduct, recognize nail disorders and diseases, and identify the procedures for sanitation and nail care services. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 152	NAIL CARE APPLICATIONS This course provides practice in all aspects of nail care. Topics include salon conduct, professional ethics, bacteriology, sanitation and safety, manicuring, and pedicuring. Upon completion, the student should be able to perform nail care procedures. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 153	NAIL ART This course focuses on the advanced nail techniques. Topics include acrylic, gel, fiberglass nails, and nail art. Upon completion, the student should be able to identify the different types of sculptured nails and recognize the different techniques of nail art. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 154	NAIL ART APPLICATIONS This course provides practice in advanced nail techniques. Topics include acrylic, gel, fiberglass nails, and nail art. Upon completion, the student should be able to perform the procedures for nail sculpturing and nail art. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 158	EMPLOYABILITY SKILLS This course provides the study of marketable skills to prepare the student to enter the world of work. Emphasis is placed on resumes, interviews, client and business relations, personality, computer literacy, and attitude. Upon completion, the student should be prepared to obtain employment in the field for which they have been trained. <i>Prerequisite:</i> As required by College	3 hours: 3T
COS 161	SPECIAL TOPICS IN COSMETOLOGY This course is designed to allow students to explore issues relevant to the profession of cosmetology. Upon completion, students should have developed new skills in areas of specialization for the cosmetology profession. <i>Prerequisite:</i> As required by College	1 hour: 1T

COURSE #	COURSE DESCRIPTION	CREDITS
COS 162	SPECIAL TOPICS IN COSMETOLOGY This course is designed to allow students to explore issues relevant to the profession of cosmetology. Upon completion, students should have developed new skills in areas of specialization for the cosmetology profession. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 163	FACIAL TREATMENTS This course includes all phases of facial treatments in the study of skin care. Topics include treatments for oily, dry, and special skin applications. Upon completion, students will be able to apply facial treatments according to skin type. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 164	FACIAL MACHINE This is a course designed to provide practical experience using the vapor and facial machine with hydraulic chair. Topics include the uses of electricity and safety practices, machine and apparatus, use of the magnifying lamp, and light therapy. Upon completion, the student will be able to demonstrate an understanding of electrical safety and skills in the use of facial machines. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 165	RELATED SUBJECTS ESTHETICIANS This course includes subjects related to the methods for removing unwanted hair. This course includes such topics as electrolysis information and definitions, safety methods of permanent hair removal, the practice of removal of superfluous hair, and the use of depilatories. Upon completion of this course, students will be able to apply depilatories and practice all safety precautions. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 167	STATE BOARD REVIEW Students are provided a complete review of all procedures and practical skills pertaining to their training in the program. Upon completion, the student should be able to demonstrate the practical skills necessary to complete successfully the required State Board of Cosmetology examination and entry-level employment. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 168	BACTERIOLOGY AND SANITATION In this skin care course, emphasis is placed on the decontamination, infection control, and safety practiced in the esthetics facility. Topics covered include demonstration of sanitation, sterilization methods, and bacterial prevention. Upon completion, the student will be able to properly sanitize facial implements and identify non-reusable items. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
COS 169	SKIN FUNCTIONS This course introduces skin functions and disorders. Topics include practical application for skin disorder treatments, dermabrasion, and skin refining. Upon completion of this course, students will be able to demonstrate procedures for acne, facials and masks for deeper layers and wrinkles. <i>Prerequisite:</i> As required by College	3 hours: 6L
COS 181	SPECIAL TOPICS This course is designed to allow students to explore issues relevant to the profession of cosmetology. Upon completion, students should have developed new skills in areas of specialization for the cosmetology profession. <i>Prerequisite:</i> As required by College	3 hours: 3T
COS 182	SPECIAL TOPICS This course is designed to allow students to explore issues relevant to the profession of cosmetology. Upon completion, students should have developed new skills in areas of specialization for the cosmetology profession. <i>Prerequisite:</i> As required by College	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
COS 190	CO-OP This course is designed to provide exposure to cosmetology practices in non-employment situations. Emphasis is on dependability, attitude, professional judgment, and practical cosmetology skills. Upon completion, the student should have gained skills necessary for entry-level employment. <i>Prerequisite:</i> As required by College	3 hours: 15i
COS 191	CO-OP This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> As required by College	3 hours: 15i
COS 291	CO-OP This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> As required by College	3 hours: 15i
CRJ 100	INTRODUCTION TO CRIMINAL JUSTICE This course surveys the entire criminal justice process from law enforcement to the administration of justice through corrections. It discusses the history and philosophy of the system and introduces various career opportunities.	3 hours
CRJ 110	INTRODUCTION TO LAW ENFORCEMENT This course examines the history and philosophy of law enforcement, as well as the organization and jurisdiction of local, state, and federal agencies. It includes the duties and functions of law enforcement officers.	3 hours
CRJ 130	INTRODUCTION TO LAW AND JUDICIAL PROCESS This course provides an introduction to the basic elements of substantive and procedural law and the stages in the judicial process. It includes an overview of state and federal court structure.	3 hours
CRJ 140	CRIMINAL LAW AND PROCEDURE This course examines both substantive and procedural law. The legal elements of various crimes are discussed, with emphasis placed on the contents of the Alabama Code. Areas of criminal procedure essential to the criminal justice profession are also covered.	3 hours
CRJ 146	CRIMINAL EVIDENCE This course considers the origins of the law of evidence and current rules of evidence. Types of evidence, their definitions, and uses are covered, as well as the functions of the court regarding evidence.	3 hours
CRJ 150	INTRODUCTION TO CORRECTIONS This course provides an introduction to the philosophical and historical foundations of corrections in America. Incarceration and some of its alternatives are considered.	3 hours
CRJ 160	INTRODUCTION TO SECURITY This course surveys the operation, organization, and problems in providing safety and security to business enterprises. Private, retail, and industrial security is covered.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
CRJ 177	CRIMINAL AND DEVIANT BEHAVIOR This course is an analysis of criminal and deviant behavior with emphasis on sociological and psychological theories of crime causation. <i>Prerequisite:</i> Advisor approval CRJ / SOC 208 or SOC 200	3 hours
CRJ 208	INTRODUCTION TO CRIMINOLOGY This course delves into the nature and extent of crime in the United States, as well as criminal delinquent behavior and theories of causation. The study includes criminal personalities, principles of prevention, control, and treatment.	3 hours
CRJ 209	JUVENILE DELINQUENCY This course examines the causes of delinquency. It also reviews programs of prevention and control of juvenile delinquency, as well as the role of the courts.	3 hours
CRJ 216	POLICE ORGANIZATION AND ADMINISTRATION This course examines the principles of organization and administration of law enforcement agencies. Theories of management, budgeting, and various personnel issues are covered.	3 hours
CRJ 220	CRIMINAL INVESTIGATION This course explores the theory and scope of criminal investigation. The duties and responsibilities of the investigator are included. The techniques and strategies used in investigation are emphasized.	3 hours
CRJ 280A	INTERNSHIP IN CRIMINAL JUSTICE This course involves practical experience with a criminal justice agency under faculty supervision. Permission of the instructor is required. This course may be repeated with the approval of the department head.	3 hours each: 15i
CRJ 280B	INTERNSHIP IN CRIMINAL JUSTICE This course involves practical experience with a criminal justice agency under faculty supervision. Permission of the instructor is required. This course may be repeated with the approval of the department head.	3 hours each: 15i
CRJ 280D	INTERNSHIP IN CRIMINAL JUSTICE This course involves practical experience with a criminal justice agency under faculty supervision. Permission of the instructor is required. This course may be repeated with the approval of the department head.	3 hours each: 15i
CRJ 290	SELECTED TOPICS: SEMINAR IN CRIMINAL JUSTICE This course involves reading, research, writing, and discussion of selected subjects relating to criminal justice. Various contemporary problems in criminal justice are analyzed. This course may be repeated with approval of the department head.	3 hours
DDT 104	BASIC COMPUTER AIDED DRAFTING AND DESIGN This course provides an introduction to basic Computer Aided Drafting and Design (CADD) functions and techniques, using "hands-on" applications. Topics include terminology, hardware, basic CADD and operating system functions, file manipulation, and basic CADD software applications in producing softcopy and hardcopy. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
DDT 111	FUNDAMENTALS OF DRAFTING AND DESIGN TECHNOLOGY This course serves as an introduction to the field of drafting and design and provides a foundation for the entire curriculum. Topics include safety, lettering, tools and equipment, geometric constructions, and orthographic sketching and drawing. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
DDT 114	INDUSTRIAL BLUEPRINT READING This course provides students with basic blueprint reading for various industrial applications. Topics include orthographic projection, dimensions and tolerances, symbols, industrial application, scales, and notes. This course may be tailored to meet a specific industry need. Also taught as AUT 104, CET 100, MTT 121. <i>Prerequisite:</i> As required by program	3 hours: 3T
DDT 115	BLUEPRINT READING FOR MACHINISTS This course provides the students with terms and definitions, theory of orthographic projection, and other information required to interpret drawings used in the machine trades. Topics include multi-view projection, pictorial drawings, dimensions and notes, lines and symbols, and sketching. Upon completion, students should be able to interpret blueprint drawings used in the machine trades. <i>Prerequisite:</i> As required by program	3 hours: 3T
DDT 116	BLUEPRINT READING FOR CONSTRUCTION This course provides the students with terms and definitions, theory of orthographic projection, and other information required to interpret drawings used in the construction trades. Topics include multi-view projection, dimensions and notes, lines and symbols, sketching, foundations plans, site plans, floor plans, elevations, sections, details, schedules, electrical plans, and specifications. Upon completion, students should be able to interpret blueprint drawings used in the construction trades. <i>Prerequisite:</i> As required by program	3 hours: 3T
DDT 117	MANUFACTURING PROCESS This course in materials and processes includes the principles and methodology of material selection, application, and manufacturing processes. Emphasis is directed to solids to include material characteristics, castings, forging, and die assemblies. Upon completion, students should be able to discuss and understand the significance of materials' properties, structure, basic manufacturing processes, and to express and interpret material specifications. <i>Prerequisite:</i> As required by program	3 hours: 3T
DDT 124	BASIC TECHNICAL DRAWING This course covers sections, auxiliary views, and basic space geometry. Emphasis will be placed on the theory as well as the mechanics of applying sections, basic dimensioning, auxiliary views, and basic space geometry. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
DDT 127	INTERMEDIATE COMPUTER AIDED DRAFTING AND DESIGN This course covers intermediate-level concepts and applications of CADD. Emphasis will be placed on intermediate-level features, commands, and applications of CADD software. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
DDT 128	INTERMEDIATE TECHNICAL DRAWING This course is designed to develop a strong foundation in common drafting and design practices and procedures. Topics include multi-view working drawings with advanced dimensioning, basic tolerancing, and pictorial drawings. CORE	3 hours: 1T, 4L
DDT 131	MACHINE DRAFTING BASICS This course in machine drafting and design provides instruction in the largest specialty area of drafting in the United States, in terms of scope and job opportunities. Emphasis will be placed on the applications of multi-view drawings, including drawing organization and content, title blocks and parts lists, assembly drawings, detail drawings, dimensioning and application of engineering controls in producing industrial-type working drawings. Upon completion, students should be able to organize, lay out, and produce industrial-type working drawings, including the application of title blocks, parts lists, assemblies, details, dimensions, and engineering controls. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
DDT 132	ARCHITECTURAL DRAFTING This course in architectural design and drafting introduces basic terminology, concepts and principles of architectural design and drawing. Topics include design considerations, lettering, terminology, site plans, and construction drawings. Upon completion, students should be able to draw, dimension, and specify basic residential architectural construction drawings. <i>Prerequisite:</i> DDT 104	3 hours: 1T, 4L
DDT 133	BASIC SURVEYING This course covers the use of surveying instruments, mathematical calculations, and the theory of land surveying. Topics include USGS benchmarks, measuring horizontal and vertical angles and distances, terms, and recording and interpreting field notes. Upon completion, students should be able to recognize benchmarks and measure, specify, and record field notes. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
DDT 181	SPECIAL TOPICS IN DRAFTING AND DESIGN TECHNOLOGY This course provides specialized instruction in various areas related to the drafting industry. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
DDT 182	SPECIAL TOPICS IN DRAFTING AND DESIGN TECHNOLOGY This course provides students with opportunities to apply drafting and design concepts. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
DDT 193	DRAFTING INTERNSHIP This course is limited to those who are involved in a structured employment situation that is directly related to the field of drafting and design and is coordinated with the drafting instructor. The student must spend at least 15 hours per week in an activity planned and coordinated jointly by the instructor and the employer. Upon completion, the student will have gained valuable work experience in a well-planned, coordinated training/work situation. <i>Prerequisite:</i> DDT 132	3hours: 15i
DDT 211	INTERMEDIATE MACHINE DRAFTING This second course in machine drafting and design provides more advanced instruction in the largest specialty area of drafting. Topics include applications of previously developed skills in the organization and development of more complex working drawings, use of vendor catalogs and the <u>Machinery's Handbook</u> for developing specifications, and use of standardized abbreviations in working drawings. <i>Prerequisite:</i> DDT 131	3 hours: 1T, 4L
DDT 212	INTERMEDIATE ARCHITECTURAL DRAFTING This second course in architectural design and drafting continues with more advanced and detailed architectural plans. Topics include interior elevations, plot plans, and interior details. Upon completion, students should be able to draw and specify advanced level plans including various architectural details. <i>Prerequisite:</i> DDT 132	3 hours: 1T, 4L
DDT 220	ADVANCED TECHNICAL DRAWING This course covers the methods of providing size description and manufacturing information for production drawings. Emphasis will be placed on accepted dimensioning and tolerancing practices including Geometric Dimensioning and Tolerancing for both the ANSI and the ISO System. Upon completion, students should be able to apply dimensions, tolerances, and notes to drawings to acceptable standards, including Geometric Dimensioning and Tolerancing, and produce drawings using and specifying common threads and various fasteners, including welding methods. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
DDT 226	TECHNICAL ILLUSTRATION This course provides the student with various methods of illustrating structures and machine parts. Topics include axonometric drawings; exploded assembly drawings; one-point, two-point, and three-point perspectives, surface textures, and renderings. Upon completion, students should be able to produce drawings and illustrations using the previously described methods. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
DDT 231	ADVANCED CAD This course allows the student to plan, execute, and present results of individual projects in Advanced CAD topics. Emphasis is placed on enhancing skill attainment in Advanced CAD skill sets. The student will be able to demonstrate and apply competencies identified and agreed upon between the student and instructor. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
DDT 233	INTERMEDIATE 3D MODELING This course emphasizes the more advanced techniques in 3D solid modeling. It covers advanced features of part creation, part editing, and analysis. Some techniques that will be discussed are: lofting, sweeping, sheet metal part creation, interference checking and stress analysis. Upon completion of the course students should be able to create advanced 3D models and perform stress analysis/interference checking. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
DDT 235	SPECIALIZED CAD This course allows the student to plan, execute, and present results of individual projects in Specialized CAD topics. Emphasis is placed on enhancing skill attainment in Specialized CAD skill sets. The student will be able to demonstrate and apply competencies identified by the instructor. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
DDT 237	CURRENT TOPICS IN CAD This course allows the student to plan, execute, and present results of individual projects relating to the current topics in CAD. Emphasis is placed on attainment of skills related to changes in current CAD technology. The student will be able to demonstrate and apply competencies identified by the instructor. <i>Prerequisite:</i> As required by College	3 hours: 1T, 4L
DDT 239	INDEPENDENT STUDIES This course provides practical application of prior attained skills and experiences as selected by the instructor for the individual student. Emphasis is placed on applying knowledge from prior courses toward the solution of individual drafting and design problems. With completion of this course, the student will demonstrate the application of previously attained skills and knowledge in the solution of typical drafting applications and problems. <i>Prerequisite:</i> As required by College	3 hours: 6L
DDT 244	ADVANCED 3D MODELING In this course, students will receive instruction on advanced 3D modeling concepts such as surfacing, advanced sheet metal creation and editing, assemblies utilizing sub-assemblies, advanced assembly features and top down design, and 3D sketching and weldments. Students will continue to enhance their skills using 3D software to produce 3D models using advanced techniques and create detailed industry ready 2D working drawings. Students will also use industry standard dimensioning and advanced tolerancing practices per ANSI standards as applicable to 3D design and working drawings. Students will explore current industry topics and work on team building exercises in an effort to prepare the students for the workforce.	3 hours: 1T, 4L
DDT 268	DRAFTING INTERNSHIP This course allows the student to alternate semesters of full-time work in a job closely related to the student's major with semesters of full-time school. The grade is based on the employer's evaluation of the student's productivity, an evaluation work report submitted by the student, and the student's learning contract. <i>Prerequisite:</i> As required by program	2 hours: 10i

COURSE #	COURSE DESCRIPTION	CREDITS
DEM 104	<p>BASIC ENGINES</p> <p>This course is designed to give the student knowledge of the diesel engine components and auxiliary systems, the proper way to maintain them, and the proper procedures for testing and rebuilding components. Emphasis is placed on safety, theory of operation, inspection, and measuring and rebuilding diesel engines according to factory specifications. Upon completion, students should be able to measure, diagnose problems, and repair diesel engines. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 1T, 4L
DEM 105	<p>PREVENTIVE MAINTENANCE</p> <p>This course provides instruction on how to plan, develop, and install equipment surveillance and reliability strategies. Descriptions of various maintenance techniques for specialized preventive programs are discussed and computerized parts and equipment inventories and fleet management systems software are emphasized. Upon completion, students should be able to set up and follow a preventive maintenance schedule as directed by manufacturers. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 1T, 4L
DEM 111	<p>EQUIPMENT SAFETY / MECHANICAL FUNDAMENTALS</p> <p>This course provides instruction in the fundamentals of vehicle operation and safety when basic service work is to be performed in the shop. Topics include service manuals, mechanical fundamentals, preventive maintenance and component adjustment. Upon completion, students should be able to demonstrate knowledge of the fundamentals of vehicle operation and safety in the shop. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 1T, 4L
DEM 114	<p>FLUID POWER COMPONENTS</p> <p>This course is designed to provide the fundamental knowledge of hydraulic and pneumatic components currently in use on mobile as well as stationary equipment. Instruction is provided in the identification and repair of various pumps, motors, valves, heat exchanger and cylinders. Upon completion, students should be able to diagnose, service, and repair hydraulic and pneumatic components. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 2T, 2L
DEM 116	<p>TRACK VEHICLE DRIVE TRAINS</p> <p>This course provides instruction in track vehicles and drive trains. Emphasis is placed on track frame roller, rail, steering clutch, axle, and driveline building and repair. Upon completion, students should be able to identify, research specifications, repair, and adjust drive train components. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 1T, 4L
DEM 119	<p>BEARINGS AND LUBRICANTS</p> <p>This course focuses on roller, ball, and shell bearing design and application. Topics include vehicle and industrial bearings and lubrication requirements. Upon course completion, students should diagnose related problems and service and replace bearings. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 1T, 4L
DEM 122	<p>HEAVY VEHICLE BRAKES</p> <p>This course covers the theory and repair of braking systems used in medium and heavy-duty vehicles. Topics include hydraulic, and ABS system diagnosis and repair. Upon completion, students should be able to troubleshoot, adjust, and repair braking systems on medium and heavy vehicles. <i>Prerequisite or corequisite:</i> As required by College CORE</p>	3 hours: 1T, 4L
DEM 123	<p>PNEUMATICS AND HYDRAULICS</p> <p>This course provides instruction in the identification and repair of components found in hydraulic and pneumatic systems. Topics include schematics and symbols used in fluid power transmission and the troubleshooting of components in these systems. Upon completion, students should be able to diagnose, adjust, and repair hydraulic and pneumatic system components. <i>Prerequisite or corequisite:</i> As required by College</p>	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
DEM 124	ELECTRONIC ENGINE SYSTEMS This course introduces the principles of electronically controlled diesel engines. Emphasis is placed on testing and adjusting diesel engines in accordance with manufacturers' specifications. Upon completion, students should be able to diagnose, test, and calibrate electronically controlled diesel engines. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 125	HEAVY VEHICLE DRIVE TRAINS This course introduces operational principles of mechanical medium and heavy-duty vehicle transmissions. Topics include multiple counter shafts, power take offs, slider idler clutches, friction clutches, mechanical transmission power components, and hydraulics. Upon completion, students should be able to diagnose, inspect, and repair mechanical transmissions. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 127	FUEL SYSTEMS This course is designed to provide practice in troubleshooting, fault code diagnosis, information retrieval, calibration, repair and replacement of fuel injectors, nozzles, and pumps. Emphasis is placed on test equipment, component functions, and theory. Upon completion, students should be able to diagnose, service, and repair fuel systems and governors. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 128	HEAVY VEHICLE DRIVE TRAIN LAB This lab provides reinforcement of material covered in DEM 116 or DEM 125. The students will apply the knowledge they learned on driveshafts, power take-offs, standard transmissions, fluid drives, torque converters, clutch assemblies, drive axles, and special drives through experiential learning techniques. Upon completion, students should be able to diagnose, inspect, remove, repair or replace, and install heavy vehicle drive train components. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 9L
DEM 129	DIESEL ENGINE LAB This lab allows the student to refine the skills required to repair diesel engines. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 6L
DEM 130	ELECTRICAL / ELECTRONIC FUNDAMENTALS This course introduces the student to basic Electrical / Electronic concepts and fundamentals. It provides the principles of electricity, magnetism, and Ohm's Law. Emphasis is placed on batteries, starting, charging, and lighting circuits, which include series, parallel, and series-parallel circuits. Troubleshooting and repair of wiring harnesses, starting motors, charging systems, and accessories are included, along with the computerized monitoring of vehicle systems. Upon completion, students should be able to identify components, test systems, and repair minor electrical problems according to manufacturers' literature. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 131	ELECTRICAL / ELECTRONIC FUNDAMENTALS II This course is a continuation of the Electrical/Electronic Fundamentals course providing advanced instruction on the principles of electricity, magnetism and Ohm's Law. Batteries, starting, charging, and lighting circuits including series, parallel, and series-parallel circuits are covered in-depth. Advanced instruction is provided on the troubleshooting and repair of wiring harnesses, starting motors, charging systems, and accessories. <i>Prerequisite:</i> As required by college.	3 hours: 2T, 2L
DEM 134	COMPUTER CONTROLLED ENGINE AND POWER TRAIN SYSTEMS This course introduces the student to the fundamentals of operation of computer controlled engine and power train systems. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
DEM 135	HEAVY VEHICLE STEERING AND SUSPENSION SYSTEMS This course introduces the theory and principles of medium and heavy-duty steering and suspension systems. Topics include wheel and tire problems, frame members, fifth wheel, bearings, and coupling systems. Upon completion, students should be able to troubleshoot, adjust, and repair suspension and steering components, and perform front and rear wheel alignments on medium and heavy duty vehicles. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 137	HEATING, A/C AND REFRIGERATION SYSTEMS This course provides instruction in fundamentals, diagnosis, and repair of cab and cargo heating and refrigeration systems. Topics include operation theory, safety, maintenance, recycling and recovery procedures, recharging procedures, troubleshooting procedures, refrigerant leaks, and system repairs. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 145	ELECTRICAL SCHEMATICS AND SYMBOLS This course introduces the student to electrical symbols and schematics. It prepares the student to utilize wiring diagrams and schematics to troubleshoot electrical problems. Upon completion students should be able to understand electrical circuits by reading wiring diagrams. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 3T
DEM 154	VEHICLE MAINTENANCE & SAFE OPERATING PRACTICES This course provides instruction in basic entry level driving skills relating to the maintenance and safe operation of a commercial motor vehicle. Topics include preventive maintenance and safe vehicle operations. Upon successful completion, students will have the skill and knowledge to safely operate a commercial motor vehicle.	3 hours: 1T
DEM 155	PREVENTIVE MAINTENANCE II This course is a continuation of the Preventive Maintenance course providing advanced instruction on planning, developing and installing equipment for surveillance and reliability strategies. Advanced instruction is provided on various maintenance techniques for specialized preventive programs and computerized parts as well as equipment inventories and fleet management systems software. <i>Prerequisite:</i> As required by college.	3 hours: 2T, 2L
DEM 158	PNEUMATICS AND HYDRAULICS II This course provides instruction in the identification and repair of components found in hydraulic systems. Topics include schematics, circuits, and symbols used in fluid power transmission and the troubleshooting of components in these systems. Upon completion, students should be able to diagnose, adjust, and repair hydraulic system components. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 2T, 2L
DEM 180	SPECIAL PROJECTS IN COMMERCIAL VEHICLES This course provides specialized instruction in various areas related to the diesel mechanics industry. Emphasis is placed on meeting students' needs. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 3T
DEM 181	SPECIAL TOPICS IN ELECTRICAL This course provides specialized instruction on various areas related to the electrical systems of the diesel mechanics industry. Emphasis is placed on meeting student's needs. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 6L
DEM 182	SPECIAL TOPICS IN ENGINES This course provides specialized instruction in various areas related to engines in the diesel mechanics industry. Emphasis is placed on meeting student's needs. <i>Prerequisite:</i> As required by College.	3 hours: 9L

COURSE #	COURSE DESCRIPTION	CREDITS
DEM 183	SPECIAL TOPICS IN POWER TRAIN This course provides specialized instruction in various areas related to the power train in the diesel mechanics industry. Emphasis is placed on meeting student's needs. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 6L
DEM 184	SPECIAL TOPICS IN HEAVY DUTY BRAKES, STEERING AND SUSPENSION This course provides specialized instruction in various areas related to heavy-duty brakes, steering, and suspension systems in the diesel mechanics industry. Emphasis is placed on meeting students' needs. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 9L
DEM 186	SPECIAL PROJECTS IN COMMERCIAL VEHICLES This course provides specialized instruction in various areas related to the diesel mechanics industry. Emphasis is placed on meeting student's needs. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 187	INDUSTRIAL SAFETY This course provides specialized instruction on the safety issues and requirements of the Occupational Safety and Health Administration (OSHA) as related to the diesel mechanics industry. Emphasis is placed on identifying and correcting potential safety issues relating to OSHA requirements as well as the accompanying administration of the requirements. <i>Prerequisite:</i> As required by College.	1 hour: 1T
DEM 191	SPECIAL PROJECTS IN DIESEL MECHANICS This course provides information on current trends in diesel mechanics as they relate to employment responsibilities. Topics may vary by term to reflect relevant training needs of the industry. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 1T, 4L
DEM 192	CO-OP ELECTIVE This course allows the student to work parallel in a job closely related to the student's major while attending college. The grade is based on the employer's evaluation of the student's productivity, an evaluation work report submitted by the student, and the student's learning contract. <i>Prerequisite or corequisite:</i> As required by College	3 hours: 15i
DEM 196A	CO-OP ELECTIVE This course allows the student to work parallel in a job closely related to the student's major while attending college. The grade is based on the employer's evaluation of the student's productivity, an evaluation work report submitted by the student, and the student's learning contract. <i>Prerequisite or corequisite:</i> As required by College	1 hour: 5i
DEM 196B	CO-OP ELECTIVE This course allows the student to work parallel in a job closely related to the student's major while attending college. The grade is based on the employer's evaluation of the student's productivity, an evaluation work report submitted by the student, and the student's learning contract. <i>Prerequisite or corequisite:</i> As required by College	1 hour: 5i
DEM 197	CO-OP ELECTIVE This course allows the student to work parallel in a job closely related to the student's major while attending college. The grade is based on the employer's evaluation of the student's productivity, an evaluation work report submitted by the student, and the student's learning contract. <i>Prerequisite or corequisite:</i> As required by College	2 hours: 10i

COURSE #	COURSE DESCRIPTION	CREDITS
DPT 100	INTRODUCTORY COMPUTER SKILLS I This course places emphasis on the usage of personal computers and software applications for personal and workplace use. Topics include impact of computers in business and industry, word processing, spreadsheets, ethical issues, database, and related concepts. Upon completion, the student will be able to demonstrate computer skills as applied to occupational-related fields. This course does not satisfy the general education component of most degrees and may not be used by Computer Science majors as an elective. <i>Prerequisite:</i> Placement at ENG 093 or successful completion of ENG 092 and placement at RDG 085	3 hours
ECO 231	PRINCIPLES OF MACROECONOMICS This course is an introduction to macroeconomic theory, analysis, and policy applications. Topics include the following: scarcity, demand and supply, national income analysis, major economic theories concerning monetary and fiscal policies as stabilization measures, the banking system, and other economic issues or problems including international trade.	3 hours
ECO 232	PRINCIPLES OF MICROECONOMICS This course is an introduction of the microeconomic theory, analysis, and applications. Topics include scarcity; the theories of consumer behavior, production and cost, markets, output and resource pricing, and international aspects of microeconomics.	3 hours
EET 100	INTRODUCTION TO ENGINEERING TECHNOLOGIES This course is designed to introduce the student to the basic concepts, terminology, and procedures associated with applied analytical skills needed to succeed in higher level courses. Topics include: engineering notation, use of scientific calculators, triangulation methods, and the basic laws of electricity. Also taught as AUT 118, CET 101, MTT 107. <i>Prerequisite:</i> Math placement score for MTH 116	3 hours: 3T
EET 103	DC FUNDAMENTALS This course provides an in depth study of direct current (DC) electronic theory. Topics include atomic theory, magnetism, properties of conductors and insulators, and characteristics of series, parallel, and series-parallel circuits. Inductors and capacitors are introduced and their effects on DC circuits are examined. Students are prepared to analyze complex DC circuits, solve for unknown circuit variables and to use basic electronic test equipment. This course also provides hands on laboratory exercises to analyze, construct, test, and troubleshoot DC circuits. Emphasis is placed on the use of scientific calculator and the operation of common test equipment used to analyze and troubleshoot DC and to prove the theories taught during classroom instruction. Also taught as INT 101. <i>Prerequisite:</i> Math placement score for MTH 116 CORE	3 hours: 2T, 3L
EET 104	AC FUNDAMENTALS This course provides an in depth study of alternating current (AC) electronic theory. Students are prepared to analyze complex AC circuit configurations with resistors, capacitors, and inductors in series and parallel combinations. Topics include electrical safety and lockout procedures, specific AC theory functions such as RLC, impedance, phase relationships, and power factor. Students will be able to define terms, identify waveforms, solve complex mathematical problems, construct circuits, explain circuit characteristics, identify components, and make accurate circuit measurements using appropriate measurement instruments. They should also be able to perform fundamental tasks associated with troubleshooting, repairing, and maintaining industrial AC systems. Also taught as INT 103. <i>Prerequisite:</i> EET 103 CORE	3 hours: 2T, 3L
EET 109	ELECTRICAL BLUEPRINT READING I This course will enable the student to obtain a working knowledge of the elements of blueprint reading, the ability to interpret electrical, mechanical, and architectural drawings, and the ability to visualize the entire building structure in relationship to the electrical system. <i>Prerequisite:</i> As required by program CORE	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
EET 114	CONCEPTS OF SOLID STATE ELECTRONICS This course is an introduction to semiconductor fundamentals and applications to electronic devices. Course covers the basic operations and applications to include rectifier circuits, transistors, and thyristors. Coverage is given to safety, use, and care with hazardous materials and personal as well as material and environmental considerations. Upon completion, students will be able to construct and test for proper operation of various types of solid state devices. <i>Prerequisite:</i> EET 103	5 hours: 3T, 4L
EET 115	CONCEPTS OF DIGITAL ELECTRONICS This course provides instruction in digital electronics. Topics include number systems and codes, a review of Boolean algebra, logic elements, digital circuits, programmable logic circuits, and memory and computing circuits. This course provides laboratory exercises to analyze, construct, test, and troubleshoot digital circuits. <i>Prerequisite:</i> EET 103	5 hours: 3T, 4L
EET 116	CONCEPTS OF ELECTRONIC CIRCUITS This course covers the commonly utilized circuits found in all areas of electronics. These include various rectifiers, filters, voltage regulating circuits, operational amplifier circuits, ICs, and oscillator circuits. Upon completion students will be able to construct and test various types of electronic circuits. <i>Prerequisite:</i> EET 114	5 hours: 3T, 4L
EET 119	CIRCUIT FABRICATION I This course provides instruction in fabrication of functional circuits and is an introduction to device construction and fabrication. Utilizing discrete components, students will fabricate functional circuits. Topics include soldering, cable construction, coaxial cable connection and termination, component mounting, cases and chassis, printed circuit board design, layout, fabrication and repair, as well as soldering techniques, care of tools, wire splicing, wire wrapping, connector maintenance, and related shop safety. Upon completion of this course, students should be able to perform basic circuit and project construction. <i>Prerequisite:</i> As determined by College CORE	1 hour: 2L
EET 122	TRANSMISSION FUNDAMENTALS This course is designed to give the student a working knowledge of telephone voice and data transmission over wires or carrier, including the fundamentals of signaling, supervision, and loop treatment. <i>Prerequisite:</i> As required by program	3 hours: 3T
EET 172	TRANSMISSION FUNDAMENTALS LAB This is a concurrent lab for EET 122. Experiments are designed to teach testing and analysis of transmission signals. <i>Prerequisite:</i> As required by program	2 hours: 4L
EET 178	POWER SYSTEMS This covers the theory and practical application of telephone power equipment. Ferroresonance power supplies, batteries, and signaling equipment maintenance are included. <i>Prerequisite:</i> As required by program	3 hours: 3T
EET 192	INSTALLATION PRACTICES This course is a study of various tasks, wiring methods, materials, and associated NEC requirements that students will be required to work with in residential and commercial wiring courses. Also taught as ELT 110. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
EET 195	SELECTED TOPICS IN EET These are selected courses offered in areas of special interest to full and part-time students. Emphasis will be placed on principles and skills identified by the instructor. Upon course completion, the student should demonstrate the ability to apply theory and principles in constructing, testing, or modifying electronic circuits or systems. <i>Prerequisite:</i> As required by program	1 hour, 1T

COURSE #	COURSE DESCRIPTION	CREDITS
EET 196	SELECTED TOPICS IN EET These are selected courses offered in areas of special interest to full and part-time students. Emphasis will be placed on principles and skills identified by the instructor. Upon course completion, the student should demonstrate the ability to apply theory and principles in constructing, testing, or modifying electronic circuits or systems. <i>Prerequisite:</i> As required by program	2 hours, 2T
EET 197	SELECTED TOPICS IN EET These are selected courses offered in areas of special interest to full and part-time students. Emphasis will be placed on principles and skills identified by the instructor. Upon course completion, the student should demonstrate the ability to apply theory and principles in constructing, testing, or modifying electronic circuits or systems. <i>Prerequisite:</i> As required by program	3 hours, 3T
EET 207	INTRODICTION TO ROBOTICS This course provides an introduction to robots for students preparing to work in environments using robots. Topics covered include the service and repair of robots and the applications and uses of robots. Upon completion of this course and EET 212, a student will be able to program and operate a simple robot. <i>Prerequisite:</i> EET 104, INT 103, or AUT 111	3 hours: 3T
EET 208	FIBER OPTICS This course covers basic fiber optic transmissions principles including optical devices and light propagation through glass fibers. Connectors and splicing fibers are integrated, along with data transmission measurement. <i>Prerequisite:</i> EET 103, INT 101, or AUT 110	3 hours: 3T
EET 212	INTRODUCTION TO ROBOTICS LAB Companion to EET 207. Emphasizes hands-on experience with actual robots. Upon completion of this course and EET 207 a student will be able to program and operate a simple robot. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> EET 207	2 hours: 4L
EET 213	PROCESS CONTROL AND INSTRUMENTATION This course provides an introduction to the field of process control and instrumentation. Topics covered include sensors, transducers, signal conditioning, control devices, process meters and PID controllers. Upon completion of this course and EET 238 a student will be able to analyze a simple industrial process control system. <i>Prerequisite:</i> Advisor approval <i>Corequisite:</i> EET 238	3 hours: 3T
EET 224	ELEMENTS OF INDUSTRIAL CONTROL WITH PLCs This course covers the basics of automatic control of industrial systems using the programmable logic controller. Topics include relay logic, ladder logic, motor controls, and the development of ladder logic using software. Upon completion of this course and the associated lab a student will be able to configure and program a PLC. Also taught as AUT 121. <i>Prerequisite:</i> EET 104, INT 103, or AUT 111	3 hours: 3T
EET 225	ELECTRONICS COMMUNICATION A study of electronic circuits used for communication. Topics include amplitude modulation, frequency modulation, single sideband operation, and performance measurements. Upon completion of this course, a student will be able to analyze and operate a simple communication system. <i>Prerequisite:</i> EET 104, INT 103, or AUT 111	3 hours: 3T
EET 229	ELEMENTS OF INDUSTRIAL CONTROLS WITH PLCs LAB This course covers the basics of automatic control of industrial systems using the programmable logic controller. Topics include relay logic, ladder logic, motor controls, and the development of ladder logic using software. Upon completion of this course and the associated theory course a student should be able to configure and program a PLC. Also taught as AUT 122. <i>Prerequisite:</i> EET 104, INT 103, or AUT 111 <i>Corequisite:</i> EET 224	2 hours, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
EET 230	COMMUNICATIONS BASICS An introduction to electronic communication. Topics include AM and FM modulation and demodulation, RF amplifiers, mixers, heterodyning and frequency shifting, and oscillators. Upon completion of this course and EET 231 students should be able to describe operate, and troubleshoot basic communication circuits. <i>Prerequisite:</i> EET 116	3 hours: 3T
EET 231	COMMUNICATIONS BASICS LABORATORY Companion to EET 230. Topics include RF amplifiers, oscillators, mixers, AM and FM modulation and demodulation. Upon completion of this course and EET 230 a student will be able to describe operate, and troubleshoot basic communication circuits. <i>Prerequisite:</i> EET 116 <i>Corequisite:</i> EET 230	1 hour: 3L
EET 238	PROCESS CONTROL AND INSTRUMENTATION LAB Companion to EET 213. Emphasizes hands-on experience for the student using transducers and sensors, as well as control of processes. Upon completion of this course and EET 213 a student will be able to analyze a simple industrial process control system. <i>Prerequisite:</i> As required by program <i>Corequisite:</i> EET 213	2 hours: 4L
EET 249	CET PREPARATION This course is designed to prepare students for the Associate Certified Electronics Technicians (CET) examination. This course covers a wide spectrum of materials presented in the electronics program. Upon completion, students should be prepared to take the CET exam. <i>Prerequisite:</i> As required by program	3 hours: 3T
EET 252	ELECTRONIC SERVICE LAB An introduction to product service technique. Emphasis is placed on the repair, calibration, and operation of a wide variety of test equipment, instruments and systems. Upon completion of this course and EET 253 a student will be able to repair an actual electronic device	1 hour: 2L
EET 254	MICROCOMPUTER SYSTEMS BASIC I This course is a fundamental study of the systems and subsystems in a microcomputer and covers the Core Hardware requirements for A+ certification. <i>Prerequisite:</i> As determined by College	3 hours: 3T
EET 255	MICROCOMPUTER SYSTEMS BASIC I LAB This course is a practical application of the techniques learned in EET 254. Upon completion, students should have the core computer hardware skills necessary for acquiring A+ certification. <i>Prerequisite:</i> As determined by College	2 hours: 4L
EET 256	MICROCOMPUTER SYSTEMS ADVANCED I This course is a continuation of EET 254 and 255. Topics covered in this course include operating systems and networking. Students are prepared to acquire A+ certification after completion of this course.	3 hours: 3T
EET 257	MICROCOMPUTER SYSTEMS ADVANCED I LAB This course is a continuation of EET 256 and provides opportunities for practical application of the techniques learned in EET 256. Upon completion, students should be prepared to acquire A+ certification.	2 hours, 4L
EET 260	MICROPROCESSORS INTERFACING A continuation of EET 250. Emphasis is placed on interfacing microprocessor systems. Upon completion of this course and EET 261 a student will be able to interface a microprocessor. <i>Prerequisite:</i> EET 115	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
EET 261	MICROPROCESSORS INTERFACING LABORATORY A continuation of EET 251. Emphasis is placed on interfacing microprocessor systems. Upon completion of this course and EET 260 a student will be able to interface a microprocessor. <i>Prerequisite:</i> EET 250 and EET 251	1 hour: 2L
EET 262	INDUSTRIAL AUTOMATION PROJECT A technical elective which gives students the opportunity to work on projects with area industries. The nature and size of the projects undertaken will vary and will typically require assistance from other technical disciplines such as engineering, mechanical design, and machine tool. Upon completion of this course a student will be able to apply skills learned in preceding courses. <i>Prerequisite:</i> As required by program	3 hours: 6L
EET 276	ELEMENTS OF INDUSTRIAL CONTROLS WITH PLCs II This course includes the advanced principles of PLCs, including hardware, programming, variable speed drives, and troubleshooting. Emphasis is placed on developing advanced working programs and troubleshooting hardware and software communication problems. Upon completion, students should be able to demonstrate their ability in developing programs and troubleshooting the system. <i>Prerequisite:</i> As required by program <i>Corequisite:</i> EET 277	3 hours: 3T
EET 277	ELEMENTS OF INDUSTRIAL CONTROLS WITH PLCs II LAB This course includes the advanced principles of PLCs, including hardware, programming, variable speed drives, and troubleshooting. Emphasis is placed on developing advanced working programs, and troubleshooting hardware and software communication problems. Upon completion, students should be able to demonstrate their ability in developing programs and troubleshooting the system. <i>Prerequisite:</i> As required by program <i>Corequisite:</i> EET 276	2 hours: 4L
EET 281	SPECIAL TOPICS IN ELECTRONIC ENGINEERING TECHNOLOGY This course provides specialized instruction in various areas related to electronic engineering technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by program	3 hours: 3T, 6L
EET 290	ELECTRONICS PROJECT This course integrates skills and knowledge from other courses. Upon course completion, a student will be able to design, fabricate, analyze, program, and/or operate an electronic system under faculty supervision. Emphasis will be placed on skills identified by the instructor. <i>Prerequisite:</i> Advisor Approval	3 hours: 6L
EET 294	CO-OP EDUCATION This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> As required by College	3 hours: 15i
EET 294A	CO-OP EDUCATION This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> Advisor Approval	1 hour, 5i
EET 294B	CO-OP EDUCATION This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> Advisor Approval	2 hours, 10i

COURSE #	COURSE DESCRIPTION	CREDITS
EET 294D	CO-OP EDUCATION This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> Advisor Approval	3 hours: 15i
EGR 100	ENGINEERING ORIENTATION This course is designed to make beginning engineering students aware of the many facets of engineering, of their relation to society, and of the objectives of the engineering curriculum. It is designed to stimulate interest in engineering and student-instructor dialogue. <i>Prerequisite:</i> As required by program	1 hour: 1T
EGR 125	MODERN GRAPHICS FOR ENGINEERS This course provides an introduction to manual and computer-assisted techniques of graphic communication employed by professional engineers. Topics include lettering, instrumental and computer-aided drafting; technical sketching, orthographic projection, pictorial, sectional, and auxiliary views, and dimensioning. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4E
ELT 110	WIRING METHODS This course is a study of various tasks, wiring methods, materials, and associated NEC requirements that students will be required to work with in residential and commercial wiring courses. Also taught as EET 192. <i>Prerequisite:</i> As required by program CORE	3 hours: 1T, 4L
ELT 114	RESIDENTIAL WIRING METHODS This course is a study of residential wiring practices and methods, the NEC requirements and residential blueprint interpretations. <i>Prerequisite:</i> As required by program CORE	3 hours: 2T, 3L
ELT 115	RESIDENTIAL WIRING METHODS II This course is a study of residential wiring practices and methods, the NEC requirements and residential blueprint interpretations. <i>Prerequisite:</i> ELT 114 CORE	3 hours: 2T, 3L
ELT 117	AC/DC MACHINES This course covers the theory and operation of DC motors single and three phase AC motors and the labs will reinforce this knowledge. Emphasis is placed on the various types of single and three phase motors, wiring diagrams, starting devices, and practical application in the lab. Also taught as AUT 117. <i>Prerequisite:</i> As required by program CORE	3 hours: 1T, 4L
ELT 118	COMMERCIAL / INDUSTRIAL WIRING I This course focuses on principles and applications of commercial and industrial wiring. Topics include electrical safety practices, an overview of National Electric Code requirements as applied to commercial and industrial wiring, conduit bending, circuit design, pulling cables, transformers, switch gear, and generation principles. Also taught as AUT 142, INT 158. <i>Prerequisite:</i> As required by program CORE	3 hours: 1T, 4L
ELT 122	ADVANCED AC/DC MACHINES This course focuses on single and three phase motors and also introduces students to DC motors. Emphasis is placed on field wiring various types of AC and DC motors, troubleshooting procedures, and utilization of test equipment. Upon completion, students should be able to explain, wire, troubleshoot, and test all types of AC and DC electric motors. <i>Prerequisite:</i> ELT 117	3 hours: 2T, 3L
ELT 181	SPECIAL TOPICS IN ELECTRICAL TECHNOLOGY These courses provide specialized instruction in various areas related to electrical technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by program	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
ELT 182	SPECIAL TOPICS IN ELECTRICAL TECHNOLOGY These courses provide specialized instruction in various areas related to electrical technology. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by program	3 hours: 3T
ELT 183	SPECIAL TOPICS IN ELECTRICAL TECHNOLOGY—NCCER CERTIFICATION These courses provide specialized instruction in various areas related to electrical technology. Emphasis is placed on meeting student needs. Also taught as INT 280. <i>Prerequisite:</i> As required by program	3 hours: 3T
ELT 192	PRACTICUM / INTERN / CO-OP This course provides practical experience in the field early in the student's training as an electrician's helper on the job, working a special project, or conducting research in a directed area of the field. Emphasis is placed on gaining hands-on experience with tools of the trade, as well as a better understanding of NEC directives. Upon completion, students should possess a higher state of proficiency in the basic skills of connecting electrical wiring and conduit; this course may be repeated with the instructor's permission. <i>Prerequisite:</i> As required by program	1 hour: 5i
ELT 194	PRACTICUM / INTERN / CO-OP This course provides additional practical experience in the electrical craft as an apprentice electrician or higher level working advanced projects or research in a directed area of the field. Emphasis is placed on gaining more hands on experience with tools of the trade was well as NEC directives while studying in the classroom two hours per week. Upon completion, students should possess a higher state of proficiency in all electrician skills and a better knowledge of testing for Electrical Journeyman's Block Test. <i>Prerequisite:</i> As required by program	3 hours: 15i
ELT 200	SPECIAL PROJECTS This course provides additional time and or practice for the electrical technology major or a project which will enhance his/her abilities to perform required tasks. Emphasis is placed on the upgrading of the student's skills and abilities. Upon completion, students should be able to perform at a higher ability within his/her chosen field of study. <i>Prerequisite:</i> As required by program	3 hours: 6L
ELT 206	OSHA SAFETY STANDARDS This course provides the student with the knowledge of OSHA safety standards as required by this organization, and as it related to the job site. Emphasis is placed on overall safety practices, construction site safety practices, and safety procedures required by Federal/State laws. Upon completion, students should be able to understand the requirements of OSHA as it relates to general and specific construction sites. <i>Prerequisite:</i> As required by program	3 hours: 3T
ELT 209	MOTOR CONTROLS I This course is a study of the construction, operating characteristics, and installation of different motor control circuits and devices. Emphasis is placed on the control of three phase AC motors. This course covers the use of motor control symbols, magnetic motor starters, running overload protection, pushbutton stations, multiple control stations, two wire control, three wire control, jogging control, sequence control, and ladder diagrams of motor control circuits. Upon completion, students should be able to understand the operation of motor starters, overload protection, interpret ladder diagrams using pushbutton stations and understand complex motor control diagrams. Also taught as AUT 234, INT 113. <i>Prerequisite:</i> As required by program CORE	3 hours: 1T, 4L
ELT 212	MOTOR CONTROLS II This course covers complex ladder diagrams of motor control circuits and the uses of different motor starting techniques. Topics include wye-delta starting, part start winding, resistor starting and electronic starting devices. Upon completion, the students should be able to understand and interpret the more complex motor control diagrams and understand the different starting techniques of electrical motors. <i>Prerequisite:</i> ELT 209 or INT 212	3 hours: 2T, 3L

COURSE #	COURSE DESCRIPTION	CREDITS
ELT 231	INTRODUCTION TO PROGRAMMABLE CONTROLLERS This course provides an introduction to programmable logic controllers. Emphasis is placed on, but not limited to, the following: PLC hardware and software, numbering systems, installation, and programming. Upon completion, students must demonstrate their ability by developing, loading, debugging, and optimizing PLC programs. Also taught as AUT 114, INT 184. <i>Prerequisite:</i> As required by program	3 hours: 2T, 3L
ELT 232	ADVANCED PROGRAMMABLE CONTROLLERS This course includes the advanced principles of PLC's including hardware, programming, and troubleshooting. Emphasis is placed on developing advanced working programs, and troubleshooting hardware and software communication problems. Upon completion, students should be able to demonstrate their ability in developing programs and troubleshooting the system. Also taught as AUT 221. <i>Prerequisite:</i> As required by program <i>Corequisite:</i> ELT 231	3 hours: 2T, 3L
ELT 234	PLC APPLICATIONS This course introduces advanced PLC programming techniques. Topics include tags, parallel processing, program optimization, and advanced math instructions. Emphasis is placed on optimizing PLC functions. Upon completion students will be able utilize advanced instructions to control PLC functions. <i>Prerequisite:</i> As determined by college.	3 hours: 2T, 3L
ELT 241	NATIONAL ELECTRIC CODE This course introduces students to the National Electric Code and text and teaches the student how to find needed information within this manual. Emphasis is placed on locating and interpreting needed information within the NEC code manual. Upon completion, students should be able to locate with the NEC code requirements for a specific electrical installation. <i>Prerequisite:</i> As required by program	3 hours: 3T
ELT 242	JOURNEYMAN MASTER PREP EXAM This course is designed to help prepare a student to take either the Journeyman or the Master Certification Exam. Emphasis is placed on review of electrical concepts and/or principles, practice tests, and test-taking procedures. Upon completion, students should be able to pass the Journeyman/Master Certifying Exam. <i>Prerequisite:</i> As required by program	3 hours: 3T
ELT 243	ELECTRICAL COST ESTIMATING This course provides an in-depth study of calculating wiring materials required and labor needed by man-hours to complete a job. Emphasis is placed on how to document scope of work required, use various take-off sheets, and correct means by which to arrive at total job costs. Upon completion, students should be able to perform actual calculations of sample jobs including overhead and operating costs. <i>Prerequisite:</i> As required by program	3 hours: 3T
ELT 244	CONDUIT BENDING AND INSTALLATION This course provides students the knowledge to properly bend electrical metallic tubing, rigid galvanized and intermediate metal conduit, and PVC conduit. Emphasis is placed on the theory and practical application of conduit bending methods. Upon completion, students should be able to get measurements, layout, and successfully bend conduit using hand type, mechanical, and hydraulic benders. <i>Prerequisite:</i> As required by program	3 hours: 2T, 3L
ELT 245	ELECTRICAL GROUNDING SYSTEMS This course provides the knowledge to understand how to properly ground an electrical system. Emphasis is placed on, but not limited to the following: residential installations, commercial installations, and the function of independent grounding elements. Upon completion, the students should be able to explain and design a simple grounding system. <i>Prerequisite:</i> As required by program	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
ELT 253	INDUSTRIAL ROBOTICS This course provides instruction in concepts and theories for the operation of robotic servo motors and power systems used with industrial robotic equipment. Emphasis is on the application of the computer to control power systems to perform work. Student competencies include understanding of the functions of hydraulic, pneumatic, and electrical power system components, ability to read and interpret circuitry for proper troubleshooting and ability to perform preventative maintenance. Also taught as AUT 116, INT 253. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L
ELT 254	ROBOT MAINTENANCE AND TROUBLESHOOTING This course introduces principle concepts troubleshooting and maintenance of robots. Topics include Recognize and describe major robot component. Students will learn to diagnose robot mechanical problems to the component level, replacement of mechanical components and perform adjustments, troubleshooting class 1, 2, and 3 faults, to manipulate I/O for the robot, and periodic and preventive maintenance. Students will learn how to safely power up robots for complete shut-down and how to manipulate robots using the teach pendant. Upon completion students will be able to describe the various robot classifications, characteristics, explain system operations of simple robots, and maintain robotic systems. Also taught as INT 254. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L
EMS 100	CARDIOPULMONARY RESUSCITATION I This course provides students with concepts related to areas of basic life support, including coronary artery disease, prudent heart living, symptoms of heart attack, adult one-and-two rescuer CPR, first aid for choking, pediatric basic life support, airway adjuncts, EMS system entry access, automated external defibrillation (AED), and special situations for CPR. Upon course completion, students should be able to identify situations requiring action related to heart or breathing conditions and effectively implementing appropriate management for each condition. Students successfully completing this course will receive appropriate documentation of course completion.	1 hour: 1T
EMS 105	EMERGENCY MEDICAL RESPONDER This course provides theory in emergency procedures as contained in the current National Standard Training Curriculum (NSTC) for the First Responder. The course is an introduction to the emergency medical services system and provides fundamentals for students to improve the quality of emergency care provided as the first person to an emergency scene until emergency medical services arrive. Completion of specific student competencies, as outlined in the current NSTC for the First Responder, is required for successful course completion.	3 hours: 3T
EMS 107	EMERGENCY VEHICLE OPERATOR AMBULANCE The Emergency Vehicle Operator Course Ambulance provides the student with training as contained in the current National Standard Training Curriculum (NSTC) for the Emergency Vehicle Operator Course (EVOC) Ambulance. The course provides the knowledge and skill practice necessary for individuals to learn how to operate safely all types of ambulances. Topics include introduction to NSTC for ambulance operators; legal aspects of ambulance operation; communication and reporting; roles and responsibilities; ambulance types and operation; ambulance inspection, maintenance, and repair; navigation and route planning; basic maneuvers and normal operating situations; operations in emergency mode and unusual situations; special considerations in safety; and the run. Completion of specific student competencies, utilizing NSTC guidelines, is required for successful completion of this course. <i>Prerequisite:</i> A valid driver's license and program approval	1 hour: 1T
EMS 113	INFECTION CONTROL FOR HEALTH PROFESSIONALS This course is designed for students planning to enter a health-related field of study or a public service occupation. The course focuses on the sources of communicable diseases and describes methods for prevention of transmission of bloodborne and airborne pathogens. Topics include prevention; universal precautions (body-substance isolation) and asepsis; immunization; exposure control; disposal; labeling; transmission; exposure determination; post-exposure reporting; and an exposure control plan. The course is taught following current guidelines set forth by the Occupational Safety and Health Administration (OSHA). Upon course completion, students should be able to participate in the clinical setting, identify potential sources of bloodborne and airborne pathogens, and use appropriate universal precautions.	1 hour: 1T

COURSE #	COURSE DESCRIPTION	CREDITS
EMS 118	EMERGENCY MEDICAL TECHNICIAN This course is required to apply for certification as an Emergency Medical Technician. This course provides students with insights into the theory and application of concepts related to the profession of emergency medical services. Specific topics include: EMS preparatory, airway maintenance, patient assessment, management of trauma patients, management of medical patients, treating infants and children, and various EMS operations. This course is based on the NHTSA National Emergency Medical Services Education Standards.	9 hours: 6T, 3L
EMS 119	EMERGENCY MEDICAL TECHNICIAN CLINICAL This course is required to apply for certification as an EMT. This course provides students with clinical education experiences to enhance knowledge and skills learned in the EMS 118, Emergency Medical Technician Theory and Lab. This course helps students prepare for the National Registry Exam.	1 hour: 1P
EMS 150	24 HOUR EMT REFRESHER This course provides students with theory in review of the current National Standard Training Curriculum (NSTC) for the EMT-Basic. It also serves as a transition or bridge course when a new national curriculum is adopted. This course contains specific content areas as defined by the NSTC. Students are required to complete specific competencies, as outlined by the NSTC, for successful course completion. <i>Prerequisite:</i> Completion of an NSTC course for EMT-Basic or program approval	2 hours: 2T
EMS 155	ADVANCED EMERGENCY MEDICAL TECHNICIAN This course is required to apply for certification as an Advanced Emergency Medical Technician (AEMT). This course introduces the theory and application of concepts related to the profession of the AEMT. The primary focus of the AEMT is to provide basic and limited advanced emergency medical care and transportation for critical and emergent patients who access the emergency medical system. This individual possesses the basic knowledge and skills necessary to provide patient care and transportation. Topics include: extending the knowledge of the EMT to a more complex breadth and depth, intravenous access and fluid therapy, medication administration, blind insertion airway devices, as well as the advanced assessment and management of various medical illnesses and traumatic injuries. This course is based on the NHTSA National Emergency Medical Services Education Standards. Requires licensure or eligibility for licensure at the EMT level and EMS 156 must be taken as a Corequisite. <i>Corequisite:</i> EMS 156	7 hours: 4T, 3P
EMS 156	ADVANCED EMERGENCY MEDICAL TECHNICIAN CLINICAL This course is required to apply for certification as an Advanced Emergency Medical Technician (AEMT). This course provides students with clinical education experiences to enhance knowledge and skills learned in EMS 155. This course helps prepare students for the National Registry AEMT Exam. The student will have the opportunity to use the basic and advanced skills of the AEMT in the clinical and field settings under the direct supervision of licensed healthcare professionals. Requires licensure or eligibility for licensure at the EMT level and EMS 155 must be taken as a Corequisite. <i>Corequisite:</i> EMS 155	2 hours: 2P
EMS 189	APPLIED ANATOMY AND PHYSIOLOGY FOR THE PARAMEDIC This course introduces human anatomy and physiology and includes concepts related to basic chemistry; fluid, electrolyte, and acid-base balance; functions of cells, tissues, organs, and systems; pathophysiology; and associated medical terminology. Emphasis is placed on applying content to signs, symptoms, and treatments; and situations commonly seen by paramedics. Upon course completion, students should be able to demonstrate a basic understanding of the structure and function of the human body. <i>Prerequisite:</i> As required by program. NOTE: EMS 189 or BIO 201 is a prerequisite for the first Paramedic course.	4 hours: 4T

COURSE #	COURSE DESCRIPTION	CREDITS
EMS 241	<p>PARAMEDIC CARDIOLOGY</p> <p>This course introduces the cardiovascular system, cardiovascular electrophysiology, and electrocardiographic monitoring. The course further relates pathophysiology and assessment findings to the formulation of field impressions and implementation of treatment plans for specific cardiovascular conditions. Content areas include: cardiovascular anatomy and physiology, cardiovascular electrophysiology, electrocardiographic monitoring, rhythm analysis, and prehospital 12-lead electrocardiogram monitoring and interpretation, assessment of the cardiovascular patient, pathophysiology of cardiovascular disease and techniques of management including appropriate pharmacologic agents and electrical therapy.</p>	3 hours: 2T, 1L
EMS 242	<p>PARAMEDIC PATIENT ASSESSMENT</p> <p>This course provides the knowledge and skills needed to perform a comprehensive patient assessment, make initial management decisions, and to communicate assessment findings and patient care verbally and in writing. Content areas include: airway management, history taking, techniques of the physical examination, patient assessment, clinical decision making, communications, documentation and assessment based management.</p>	2 hours: 1T, 1P
EMS 244	<p>PARAMEDIC CLINICAL I</p> <p>This course is directed toward the application of knowledge and skills developed in didactic and skills laboratory experiences to the clinical setting. Theory and skills are applied to a variety of patient situations in the clinical setting, with a focus on patient assessment and management, advanced airway management, electro-therapy, I.V./I.O. initiation and medication administration.</p>	1 hour: 1P
EMS 245	<p>PARAMEDIC MEDICAL EMERGENCIES</p> <p>This course relates pathophysiology and assessment findings to the formulation of field impressions and implementation treatment plans for specific medical conditions. Content areas include: pulmonology, neurology, gastroenterology, renal/urology, toxicology, hematology, environmental conditions, infectious and communicable diseases, abuse and assault, patients with special challenges, and acute interventions for the chronic care patient.</p>	3 hours: 2T, 1L
EMS 246	<p>PARAMEDIC TRAUMA MANAGEMENT</p> <p>This course relates pathophysiology and assessment findings to the formulation of field impressions and implementation of treatment plans for trauma patients. Content areas include the pathophysiology, assessment, and management of trauma as related to: trauma systems; mechanisms of injury; hemorrhage and shock; soft tissue injuries; burns; and head, facial, spinal, thoracic, abdominal, and musculoskeletal trauma.</p>	3 hours: 2T, 1L
EMS 247	<p>PARAMEDIC SPECIAL POPULATIONS</p> <p>This course relates pathophysiology and assessment findings to the formulation of field impressions and implementation of treatment plans for specific medical conditions. Content areas include: endocrinology, allergies and anaphylaxis, behavioral/psychiatric conditions, gynecology, obstetrics, neonatology, pediatrics, and geriatrics. In the clinical setting, theory and skills are applied to a variety of medical situations across the life span of the patient, with a focus on communication with and management of cardiac, acute care, psychiatric/behavioral, obstetrical, newborn, pediatric, geriatric, and acute interventions for chronic care patients, and patients with special challenges.</p>	2 hours: 1T, 1L

COURSE #	COURSE DESCRIPTION	CREDITS
EMS 248	<p>PARAMEDIC CLINICAL II</p> <p>This course is required to apply for certification as a Paramedic. This course provides students with clinical education experiences to enhance knowledge and skills learned in EMS 245, 246, and 247 and knowledge and proficiency from previous clinical experiences. This course helps prepare students for the National Registry Paramedic Exam. The student will have the opportunity to use the basic and advanced skills of the Paramedic in the clinical setting under the direct supervision of licensed healthcare professionals. Requires licensure at the AEMT level.</p>	3 hours: 3P
EMS 253	<p>PARAMEDIC TRANSITION TO THE WORKFORCE</p> <p>This course is designed to meet additional state and local educational requirements for paramedic practice. Content includes: ACLS, PALS or PEPP, ITLS or PHTLS, prehospital protocols, transfer drugs, and other courses as dictated by local needs or state requirement.</p>	2 hours: 1T, 1L
EMS 254	<p>ADVANCED COMPETENCIES FOR PARAMEDICS</p> <p>This course is designed to assist students in preparation for the paramedic licensure examination. Emphasis is placed on validation of knowledge and skills through didactic review, skills lab performance, and/or computer simulation and practice testing. Upon course completion, students should be sufficiently prepared to sit for the paramedic licensure examination.</p>	2 hours: 1T, 1L
EMS 255	<p>PARAMEDIC FIELD PRECEPTORSHIP</p> <p>This course is required to apply for certification as a paramedic. This course provides students with field experiences to enhance knowledge and skills learned throughout the paramedic program. This course helps prepare students for the National Registry Paramedic Exam. Students will utilize paramedic skills in a field setting under the direct supervision of a licensed paramedic. Requires licensure at the AEMT level and completion of EMS 240, 241, 242, 243, 244, 245, 246, 247, and 248.</p>	5 hours: 5P
EMS 256	<p>PARAMEDIC TEAM LEADERSHIP</p> <p>This course is designed to evaluate students' ability to integrate didactic, psychomotor skills, clinical, and field internship instruction to serve as a competent entry-level paramedic. This final evaluative (rather than instructional) course focuses on students' professional attributes and integrative competence in clinical decision-making and team leadership in the prehospital setting. Upon course completion, students should have demonstrated adequate knowledge and skills, professional attitudes and attributes, clinical decision-making and team leadership abilities to effectively function as a competent entry-level paramedic.</p>	1 hour: 1P
EMS 257	<p>PARAMEDIC APPLIED PHARMACOLOGY</p> <p>This course introduces basic and advanced pharmacological agents and concepts, with an emphasis on drug classifications and the knowledge and skills required for safe, effective medication administration. Medication pharmacokinetics and pharmacodynamics will be evaluated for most medicines used in the pre-hospital setting. Students will also learn how to establish various routes of medication administration and procedures for administering medications via these routes. Students will also demonstrate mathematic computations for various drug and solution dose administration problems.</p>	2 hours: 1T, 1P

COURSE #	COURSE DESCRIPTION	CREDITS
EMS 266	<p>ADVANCED CV LIFE SUPPORT PROVIDER</p> <p>This course provides students with concepts related to advanced cardiovascular life support. Content areas include acute myocardial infarction, stroke, cardiovascular pharmacology, electrophysiology, various rhythm disturbances, and techniques of management of cardiovascular emergencies. This course is taught in accordance with national standards and requires specific student competencies. Students successfully completing this course will receive appropriate documentation of course completion. <i>Prerequisite:</i> LPN, RN, EMT-Intermediate, or Paramedic status or program approval</p>	1 hour: 1T
EMS 267	<p>INTERNATIONAL TRAUMA LIFE SUPPORT</p> <p>This course provides students with theory and demonstration in advanced trauma care and management. Content areas include mechanism of trauma, trauma assessment, airway-breathing-circulation management, trauma to various portions of the body, multiple system trauma, and load-handling situations. The course is taught in accordance with national standards and requires specific student competencies. Students successfully completing this course will receive appropriate documentation of course completion. <i>Prerequisite:</i> LPN, RN, EMT-Intermediate, or Paramedic status or program approval</p>	1 hour: 1T
EMS 269	<p>PEDIATRIC MEDICAL LIFE SUPPORT</p> <p>This course provides students with theory and simulated case studies in pediatric care. Content areas include recognition of pediatric pre-arrest conditions; shock, basic life support, oxygenation and airway control, newborn resuscitation, essentials in pediatric resuscitation, dysrhythmia recognition and management, vascular access, and use of medications. The course is taught in accordance with national standards and requires specific student competencies. Students successfully completing this course will receive appropriate documentation of course completion. <i>Prerequisite:</i> LPN, RN, EMT-Intermediate, or Paramedic status or program approval</p>	1 hour: 1 T
ENG 080	<p>ENGLISH LABORATORY</p> <p>This course, which may be repeated as needed, provides students with a laboratory environment where they can receive help from qualified instructors on English assignments at the developmental level. Emphasis is placed on one-to-one guidance to supplement instruction in English courses. A student's success in this course is measured by success in those other English courses in which the student is enrolled.</p>	1 hour
ENG 080H	<p>DIRECTED ENGLISH LABORATORY</p> <p>This course, which may be repeated as needed, is for non-native English speakers. It provides students with a laboratory environment where they can receive help from qualified instructors and practice the English skills developed in the other ESL courses in which the student is enrolled.</p>	3 hours
ENG 092	<p>BASIC ENGLISH I</p> <p>This course reviews basic writing and grammar skills, emphasizing the process of composing sentences and paragraphs in Standard American English. Students demonstrate these skills chiefly through writing well-developed sentences and paragraphs. NOTICE: This course produces institutional, non-transferable credit only and will not satisfy the requirements for degrees, certificates, and diplomas. Additionally, the grade a student earns in a developmental course does not factor into the student's GPA (grade point average).</p>	3 hours
ENG 093	<p>BASIC ENGLISH II</p> <p>This course reviews grammar conventions and composition skills, emphasizing varied sentence structures and coherence in the writing process. Students demonstrate these skills by writing well-developed paragraphs and essays using Standard American English. NOTICE: This course produces institutional, non-transferable credit only and will not satisfy the requirements for degrees, certificates, and diplomas. Additionally, the grade a student earns in a developmental course does not factor into the student's GPA (grade point average). <i>Prerequisite:</i> A grade of "C" or higher in ENG 092 or appropriate placement score</p>	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
ENG 101	<p>ENGLISH COMPOSITION I</p> <p>English Composition I provides instruction and practice in the writing of at least six (6) extended compositions and the development of analytical and critical reading skills and basic reference and documentation skills in the composition process. English Composition I may include instruction and practice in library usage. <i>Prerequisite:</i> Successful completion of ENG 093 or appropriate placement scores in Writing and Reading or a score of 18 or better on the ACT (or equivalent SAT score)</p>	3 hours
ENG 102	<p>ENGLISH COMPOSITION II</p> <p>English Composition II provides instruction and practice in the writing of six (6) formal, analytical essays, at least one of which is a research project using outside sources and/or references effectively and legally. Additionally, English Composition II provides instruction in the development of analytical and critical reading skills in the composition process. English Composition II may include instruction and practice in library usage. <i>Prerequisite:</i> A grade of "C" or better in ENG 101 or the equivalent</p>	3 hours
ENG 130	<p>TECHNICAL REPORT WRITING</p> <p>This course provides instruction in the production of technical and/or scientific reports. Emphasis is placed on research, objectivity, organization, composition, documentation, and presentation of the report. Students will demonstrate the ability to produce a written technical or scientific report by following the prescribed process and format. <i>Prerequisite:</i> ENG 101 or the equivalent</p>	3 hours
ENG 131	<p>APPLIED WRITING I</p> <p>This course is a study of various types of written documents required in scientific, technical, and other specialized fields. Emphasis is placed on the production of such documents, including research, documentation, graphical displays, the abstract, appropriate diction, grammar, punctuation, and audience. Students will demonstrate the ability to produce effective reports, letters, memoranda, and similar documents. (This course is for Realtime Reporting students only.)</p> <p><i>Prerequisite:</i> Appropriate placement score</p>	3 hours
ENG 132	<p>APPLIED WRITING II</p> <p>A continuation of ENG131, this course is a study of various types of written documents required in scientific, technical, and other specialized fields. Emphasis is placed on the production of such documents, including research, documentation, and graphical displays, the abstract, appropriate diction, grammar, punctuation, and audience. Students will demonstrate the ability to produce effective reports, letters, memoranda, and similar documents. (This course is for Realtime Reporting students only.) <i>Prerequisite:</i> ENG 131</p>	3 hours
ENG 246	<p>CREATIVE WRITING I</p> <p>These courses provide instruction and practice in the writing of critical analyses of imaginative forms of literature. Emphasis is placed on originality in the creative writing process, and this course may include instruction on publishing. Students will compose a significant body of imaginative literature, which may be read by or to the class. <i>Prerequisite:</i> ENG 102 or permission of the instructor</p>	3 hours
ENG 247	<p>CREATIVE WRITING II</p> <p>These courses provide instruction and practice in the writing of critical analyses of imaginative forms of literature. Emphasis is placed on originality in the creative writing process, and this course may include instruction on publishing. Students will compose a significant body of imaginative literature, which may be read by or to the class. <i>Prerequisite:</i> ENG 102 or permission of the instructor</p>	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
ENG 248	<p>CREATIVE WRITING III</p> <p>These courses provide instruction and practice in the writing of critical analyses of imaginative forms of literature. Emphasis is placed on originality in the creative writing process, and this course may include instruction on publishing. Students will compose a significant body of imaginative literature, which may be read by or to the class. <i>Prerequisite:</i> ENG 102 or permission of the instructor</p>	3 hours
ENG 249	<p>CREATIVE WRITING IV</p> <p>These courses provide instruction and practice in the writing of critical analyses of imaginative forms of literature. Emphasis is placed on originality in the creative writing process, and this course may include instruction on publishing. Students will compose a significant body of imaginative literature, which may be read by or to the class. <i>Prerequisite:</i> ENG 102 or permission of the instructor</p>	3 hours
ENG 251	<p>AMERICAN LITERATURE I</p> <p>This course is a survey of American literature from its inception to the middle of the nineteenth century. Emphasis is placed on representative works and writers of this period and on the literary, cultural, historical, and philosophical forces that shaped these works and that are reflected in them. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate the works to their historical and literary contexts, and understand relevant criticism and research. <i>Prerequisite:</i> ENG 102 or equivalent</p>	3 hours
ENG 252	<p>AMERICAN LITERATURE II</p> <p>This course is a survey of American literature from the middle of the nineteenth century to the present. Emphasis is placed on representative works and writers of this period and on the literary, cultural, historical, and philosophical forces that shaped these works and that are reflected in them. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate the works to their historical and literary contexts, and understand relevant criticism and research. <i>Prerequisite:</i> ENG 102 or equivalent</p>	3 hours
ENG 261	<p>ENGLISH LITERATURE I</p> <p>This course is a survey of English literature from the Anglo-Saxon period to the Romantic Age. Emphasis is placed on representative works and writers of this period and on the literary, cultural, historical, and philosophical forces that shaped these works and that are reflected in them. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate the works to their historical and literary contexts, and understand relevant criticism and research. <i>Prerequisite:</i> ENG 102 or equivalent</p>	3 hours
ENG 262	<p>ENGLISH LITERATURE II</p> <p>This course is a survey of English literature from the Romantic Age to the present. Emphasis is placed on representative works and writers of this period and on the literary, cultural, historical, and philosophical forces that shaped these works and that are reflected in them. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate the works to their historical and literary contexts, and understand relevant criticism and research. <i>Prerequisite:</i> ENG 102 or equivalent</p>	3 hours
ENG 271	<p>WORLD LITERATURE I</p> <p>This course is a study of selected literary masterpieces from Homer to the Renaissance. Emphasis is placed on major representative works and writers of this period and on the literary, cultural, historical, and philosophical forces that shaped these works and that are reflected in them. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate the works to their historical and literary contexts, and understand relevant criticism and research. <i>Prerequisite:</i> ENG 102 or equivalent</p>	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
ENG 272	WORLD LITERATURE II This course is a study of selected literary masterpieces from the Renaissance to the present. Emphasis is placed on major representative works and writers of this period and on the literary, cultural, historical, and philosophical forces that shaped these works and that are reflected in them. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate the works to their historical and literary contexts, and understand relevant criticism and research. <i>Prerequisite:</i> ENG 102 or equivalent	3 hours
ENG 299	DIRECTED STUDIES IN LANGUAGE AND LITERATURE This course, which may be repeated for credit so long as the topics differ, provides the student the opportunity to study an English-language or literary topic chosen by the student in consultation with the instructor. Emphasis is placed on the student's investigating the topic and reporting the results of the investigation. The student will demonstrate knowledge of the topic through a written or an oral presentation.	3 hours
ENR 094	INTEGRATED READING AND WRITING Integrated Reading and Writing integrates reading and writing skills students need to comprehend and interact with college-level texts and to produce original college-level writing, in standard written English, through the processes of generating ideas, drafting, organizing, revising, and editing. This course includes both a lecture and lab component. <i>Prerequisite:</i> Appropriate English placement score	4 hours
ESL 010	PRONUNCIATION & LISTENING I This course is the first pronunciation and listening course and is designed for students with low level English skills. This course emphasizes practice dialogues, phonetic instruction and listening comprehension. Upon completion, students will demonstrate improvement in the ability to speak and understand standard spoken English.	3 hours
ESL 011	PRONUNCIATION & LISTENING II This course is a beginning pronunciation and listening course and is designed for students with low level English skills (but higher than student in 010). This course emphasizes practice dialogues, phonetic instruction, and listening comprehension. Upon completion, students will demonstrate improvement in the ability to speak and understand standard spoken English	3 hours
ESL 012	INTRODUCTION TO T.O.E.F.L. I This course introduces students to skills necessary for the Test of English as a Foreign Language (TOEFL). This course emphasizes listening comprehension, grammar and structure, and reading. Upon completion, students will demonstrate improvement in test scores on the Test of English as a Foreign Language or equivalent test.	3 hours
ESL 021	ENGLISH GRAMMAR / STRUCTURE II This is a beginning course in American English grammar. ESL 021 provides instruction in the basics of English grammar and structure. Upon completion, students will demonstrate improvement in the use of standard American English grammar.	3 hours
ESL 023	ENGLISH GRAMMAR / STRUCTURE IV This is an intermediate course in American English grammar. ESL 023 is a level higher than ESL 022. This course provides a review of the basics of English grammar and structure and introduces additional structures. Upon completion, students will demonstrate improvement in the use of American English grammar.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
ESL 025	ENGLISH GRAMMAR / STRUCTURE VI This is an advanced course in American English grammar. ESL 025 is a level higher than ESL 023. This course provides a review of basic and intermediate English grammar and structure and introduces additional advanced structures. Upon completion, students will demonstrate improvement in the use of American English grammar.	3 hours
ESL 031	COMPOSITION II This is the beginning course in writing for non-native speakers. This course provides instruction in basic sentence patterns and progresses through fully-developed paragraphs. Upon completion, students will demonstrate improvement in use of standard written English.	3 hours
ESL 033	COMPOSITION IV This is the intermediate course in writing for non-native speakers at a level higher than 031. This course provides instruction in basic paragraphs with emphasis on style, as well as grammatical construction. Upon completion, students will demonstrate improvement in use of standard written English.	3 hours
ESL 035	COMPOSITION VI This is the advanced course in writing for non-native speakers at a level higher than 033. This course provides instruction in basic paragraphs and progresses through fully developed essays with emphasis on style, as well as grammatical construction. Upon completion, students will demonstrate improvement in use of standard written English.	3 hours
ESL 041	READING AND WRITING II This is the beginning course in reading and writing for non-native English speakers. ESL 041 must be taken in conjunction with ESL 031. This course provides instruction in a variety of readings and instruction in basic writing skills. Upon completion, students will demonstrate improvement in English reading and comprehension, as well as improvement in English writing skills.	3 hours
ESL 043	READING AND WRITING IV This is the intermediate course in reading and writing for non-native English speakers. ESL 043 must be taken in conjunction with ESL 033. This course provides instruction in a variety of readings and instruction in basic writing skills. Upon completion, students will demonstrate improvement in English reading and comprehension, as well as improvement in English writing skills.	3 hours
ESL 045	READING AND WRITING VI This is the advanced course in reading and writing for non-native English speakers. ESL 045 must be taken in conjunction with ESL 035. This course provides instruction in a variety of readings and instruction in basic writing skills. Upon completion, students will demonstrate improvement in English reading and comprehension, as well as improvement in English writing skills.	3 hours
ESL 051	CONVERSATIONAL ENGLISH II This is the beginning course in oral communication skills for non-native English speakers. This course provides instruction through practice dialogues and grammatical exercises, as well as through conversation. Upon completion of this course, students will show improvement in oral communication skills.	3 hours
ESL 053	CONVERSATIONAL ENGLISH IV This is the intermediate course in oral communication skills for non-native English speakers. This course provides instruction through practice dialogues and grammatical exercises, as well as through conversation. Upon completion of this course, students will show improvement in oral communication skills.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
ESL 055	CONVERSATIONAL ENGLISH VI This is the advanced course in oral communication skills for non-native English speakers. This course provides instruction through practice dialogues and grammatical exercises, as well as through conversation. Upon completion of this course, students will show improvement in oral communication skills.	3 hours
ESL 061	BEGINNING VOCABULARY This is the beginning level course in American English vocabulary. This course provides instruction in acquiring functional vocabulary. Upon completion, students will demonstrate an improvement in functional vocabulary retention and usage and knowledge of vocabulary learning strategies.	3 hours
ESL 063	ADVANCED VOCABULARY This is the advanced level course in American English vocabulary. ESL 063 is a level higher than ESL 061. This course provides instruction in acquiring academic vocabulary. Upon completion, students will demonstrate an improvement in advanced academic vocabulary retention and usage and knowledge of advanced vocabulary learning strategies.	3 hours
ETP 265	ENTREPRENEURIAL MARKETING This Course is designed to help students learn about best practices in Entrepreneurial Marketing. Topics include the analysis of marketing opportunities, identification of the target audience, and the development of a marketing strategy, brand positioning and an integrated marketing plan. Upon completion, students should be able to demonstrate an understanding of marketing issues that are unique to new ventures and small business. <i>Prerequisite:</i> As required by program	3
ETP 266	ENTREPRENEURIAL FINANCE This course is designed to teach students the accounting issues that are important to the business owner, not the accounting practitioner. Topics include start-up funding, sources of financing, identifying and preventing fraud, buying and valuing ventures, and harvesting the value created in business ventures. This course also covers the creation of personal financial statements and pro forma financial statements which are crucial components of a business plan. <i>Prerequisite:</i> As required by program	3T
ETP 267	INNOVATION AND CREATIVITY This course is designed to develop in students a mindset for thinking creatively and prepare them to create their own businesses or revitalize a business that has lost its direction by learning to observe things from different perspectives and to reason from different viewpoints in order to develop effective solutions to problems. <i>Prerequisite:</i> As required by program	3T
ETP 268	BUSINESS PLANNING This capstone course is designed to build upon information from previous courses. Students will complete a business plan, pieces of which were constructed in previous courses. Additionally, teams of students will compete in a business simulation. As a part of this activity, teams will submit regular "management" reports discussing the results of the decisions they have made. Upon completion, students will be prepared to lead their own venture. <i>Prerequisite:</i> As required by program	3T
FHS 101	PRINCIPLES OF AQUACULTURE This course is an introduction to aquaculture, including an examination of its origin and history, basic principles, and current trends. Students will study topics such as biological fundamentals of aquatic plants and animals, water management, growing and processing of aqua crops, and aqua business management. This course also includes hands-on activities, laboratory activities, and fieldwork. Upon completion, students should be familiar with the aquaculture industry and basic culture principles of aquatic organisms.	3 hours: 2T, 1M

COURSE #	COURSE DESCRIPTION	CREDITS
FHS 102	WATER CHEMISTRY FOR AQUACULTURE This course introduces students to those aspects of water quality considered most important to the aquaculturist, including dissolved oxygen, pH, alkalinity, water hardness, and salinity. Students will study topics such as the importance of water quality, the effects of environment on water quality, and ways of monitoring and maintaining water quality. In addition to theory this course includes hands-on activities, laboratory testing, aquarium/pond maintenance and fieldwork. Upon completion, students should be familiar with field and laboratory techniques involved in the collection, analysis, and reporting of data using water quality instrumentation.	3 hours: 2T, 1M
FHS 112	BIOLOGY AND DISEASES OF AQUACULTURE SPECIES This course introduces students to the general biology and diseases of commercially important finfish and crustacean species. Students will study topics such as anatomy, physiology, nutrition, and reproduction in normal fish or crustaceans and in animals infected with disease agents such as bacteria, viruses, or protozoans. This course also includes hands-on activities, dissection, laboratory activities and fieldwork. Upon completion, students should be able to diagnose sick aquatic organisms, to identify the disease-causing pathogens, and to treat or to prevent further disease problems.	3 hours: 2T, 1M
FHS 114	AQUACULTURE HATCHERY / POND MANAGEMENT This course is an introduction to contemporary hatchery and pond management issues. Students will study topics such as breeding strategies for indoor culture, system designs for indoor culture, fry and fingerling production, harvesting, and processing. This course also includes hands-on activities, hatchery activities and fieldwork. Upon completion, students should be able to culture various commercially important species, such as channel catfish, tilapia, and freshwater shrimp.	3 hours: 2T, 1M
FHS 140	AQUACULTURE PRACTICUM This course provides students the opportunity to apply previously-learned aquaculture techniques in a functional setting. Upon completion, students should have refined their job skills necessary to compete in today's aquaculture industry.	3 hours: 3M
FHS 141	AQUACULTURE PRACTICUM II This course provides students the continuing opportunity to apply previously learned aquaculture techniques in a functional setting and extends the practical lessons begun in FHS 140.	2 hours: 2M
GEO 100	WORLD REGIONAL GEOGRAPHY This course surveys various countries and major regions of the world with respect to location and landscape, world importance, political status, population, type of economy, and its external and internal organization problems and potentials.	3 hours: 3T
GEO 101	PRINCIPLES OF PHYSICAL GEOGRAPHY Physical Geography I is the first in a two part sequence including topics such as weather and climate relative to the earth and relationships between the earth and the sun. Laboratory is required.	4 hours: 3T, 2E
GEO 102	PRINCIPLES OF GEOGRAPHY II Physical Geography II is the second in a two part sequence including topics such as landforms, landscapes, soil, and vegetation of the earth. Laboratory is required.	4 hours: 3T, 2E
GRN 101	INTRODUCTORY GERMAN I This course provides an introduction to German. Topics include the development of basic communication skills and the acquisition of basic knowledge of the cultures of German-speaking areas.	4 hours

COURSE #	COURSE DESCRIPTION	CREDITS
GRN 102	INTRODUCTORY GERMAN II This continuation course includes the development of basic communication skills and the acquisition of basic knowledge of the cultures of German-speaking areas.	4 hours
HEC 140	PRINCIPLES OF NUTRITION This course introduces students to the principles of nutrition and the role and functions of nutrients in man's food. Basic information concerning food selection and nutrition as factors in health, ecology, and economy is included. Implications of nutrition for children may be stressed.	3 hours
HEC 250	MANAGEMENT IN FAMILY LIVING This course covers goals and values in family living, basic principles of decision making, and management of resources to achieve goals in family life.	3 hours
HED 224	PERSONAL AND COMMUNITY HEALTH This course covers health problems for the individual and for the community. Areas of study include mental health, family life, physical health, chronic and degenerative diseases, control of communicable diseases, and the understanding of depressants and stimulants. Healthful living habits will be emphasized. <i>Prerequisite:</i> As required by program	3 hours
HED 231	FIRST AID This course provides instruction for the immediate, temporary care that should be given to the victims of accidents and sudden illness. It also includes standard and advanced requirements of the American Red Cross and/or the American Heart Association. CPR training also is included. <i>Prerequisite:</i> As required by program	3 hours
HED 232	CARE AND PREVENTION OF ATHLETIC INJURIES This course provides a study of specific athletic injuries, their treatment, and preventive measures. <i>Prerequisite:</i> As required by program	3 hours (3-0)
HIS 101	WESTERN CIVILIZATION I This course is a survey of social, intellectual, economic, and political developments which have molded the modern western world. This course covers the ancient and medieval periods and concludes in the era of the Renaissance and Reformation.	3 hours
HIS 102	WESTERN CIVILIZATION II This course is a continuation of HIS 101; it surveys the development of the modern western world from the era of the Renaissance and Reformation to the present.	3 hours
HIS 121	WORLD HISTORY I This course surveys social, intellectual, economic, and political developments which have molded the modern world. Focus is on both non-western and western civilizations from the prehistoric to the early modern era. <i>Prerequisite:</i> As required by program	3 hours
HIS 122	WORLD HISTORY II This course is a continuation of HIS 121; it covers world history, both western and non-western, from the early modern era to the present. The course surveys social, intellectual, economic, and political developments which have molded the modern world. Focus is on both non-western and western civilizations from the early modern era to the present. <i>Prerequisite:</i> As required by program	3 hours
HIS 201	UNITED STATES HISTORY I This course surveys United States history during the colonial, revolutionary, early national, and antebellum periods. It concludes with the Civil War and Reconstruction.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
HIS 202	UNITED STATES HISTORY II This course is a continuation of HIS 201; it surveys United States history from the Reconstruction era to the present.	3 hours
HIS 216	HISTORY OF WORLD RELIGIONS This course presents a comparison of the major religions of the world from a historical perspective. Emphasis is placed on the origin, development, and social influence of Christianity, Judaism, Islam, Hinduism, Buddhism, and others.	3 hours
HIS 256	AFRICAN-AMERICAN HISTORY This course focuses on the experience of African-American people in the western hemisphere, particularly the United States. It surveys the period from the African origins of the slave trade during the period of exploration and colonization to the present. The course presents a comparison between the African experience in the United States and in Mexico and South America.	3 hours
HIS 260	ALABAMA HISTORY This course surveys the development of the state of Alabama from pre-historic times to the present. The course presents material on the discovery, exploration, colonization, territorial period, ante-bellum Alabama, reconstruction, and modern history.	3 hours
HIT 134	HIT LEGAL AND ETHICAL ISSUES This course is a review of the legal aspects applicable to health information. The course focuses on the health record as a legal document, legal principles, patient rights/advocacy issues, definition and application of professional ethics, privacy, and release of information and confidentiality of health information. Student outcomes include demonstration of the use of legal vocabulary and application of release of information guidelines. <i>Prerequisite:</i> HIT 153 Health Care Delivery Systems	3 hours: T
HIT 151	HEALTH DATA CONTENT AND STRUCTURE This course is an introduction to the health information technology (HIT) profession and its basic skill requirements. The course includes an introduction to the content, use and structure of health care data and data sets and how these components relate to primary and secondary record systems. Student outcomes include mastery of basic concepts and functions in HIT including storage and retrieval systems, documentation requirements, abstracting, quantitative and qualitative analysis, registries and indexes. <i>Prerequisite:</i> HIT 153 Health Care Delivery Systems	3 hours: 3T
HIT 155	HEALTH CARE DELIVERY SYSTEM This course includes a review of health care delivery systems. Course focus is on information management practices of agencies that provide health services in ambulatory care, home health care, hospice, long term care, mental health, an other alternate care system. Student competency includes the ability to describe and contrast the structure of health services in relation to operational and accrediting agency standards, and the role of the health information practitioner in each of these settings.	2 hours: 2T
HIT 230	MEDICAL CODING SYSTEMS 1 This course is intended to develop an understanding of coding and classification systems in order to assign valid medical codes. Instruction includes description of classification and nomenclature systems; coding diagnoses and/or procedures; sequencing codes; analyzing actual medical records to identify data elements to be coded; and validating coded clinical information. Student competency includes demonstration of coding principles and applications (manual and/or computer assisted). <i>Prerequisite:</i> BIO 120 Medical Terminology <i>Corequisite:</i> HIT 231 CORE	3 hours: 3T
HIT 231	MEDICAL CODING SKILLS LABORATORY This course provides laboratory practice in medical coding. The course allows the student to become proficient at skills learned in classification and coding systems theory classes. Student competency is demonstrated by accuracy in medical coding. <i>Prerequisite:</i> BIO 120 Medical Terminology <i>Corequisite:</i> HIT 230	1 hour: 3S

COURSE #	COURSE DESCRIPTION	CREDITS
HIT 232	<p>MEDICAL CODING SYSTEMS II</p> <p>This course is a continuation of Medical Coding Systems I which is intended to develop an understanding of coding and classification systems in order to assign valid medical codes. Instruction includes coding diagnoses and/or procedures; sequencing codes; analyzing actual medical records to identify data elements to be coded; validating coded clinical information. Student competency includes demonstration of coding principles and applications (manual and/ or computer assisted). <i>Prerequisite:</i> HIT 230 Medical Coding Systems I and HIT 231 Medical Coding Skills Lab <i>Corequisite:</i> HIT 233 CORE</p>	3 hours: 3T
HIT 233	<p>MEDICAL CODING SKILLS LABORATORY</p> <p>This course provides laboratory experience in medical coding. The course allows the student to become proficient at skills learned in medical coding systems theory classes. Student competency is demonstrated by accuracy and speed in medical coding simulation. <i>Prerequisite:</i> HIT 230 Medical Coding Systems I and HIT 231 Medical Coding Skills Lab <i>Corequisite:</i> HIT 232</p>	1 hour: 3S
HIT 254	<p>ORGANIZATIONAL IMPROVEMENT</p> <p>This course is a study of the purpose and principles of improving organizational performance through quality assessment and utilization management. Topics include use of quality improvement tools; data collection, display, analysis, and reporting methods; resource and risk management techniques; healthcare statistics; and application of accreditation and licensing standards. Student outcomes include demonstrated proficiency in the use of quality improvement techniques and application of accrediting agency standards. <i>Prerequisite:</i> HIT 153 Health Care Delivery Systems</p>	3 hours: 3T
HIT 295	<p>SPECIAL TOPICS IN HIT III</p> <p>This course includes specialized study on current topics and issues in the field of health information technology. Health information topics discussed may include quality assessment, emerging technology, security and control programs, risk assessment, and/or data analysis techniques. Student outcomes include demonstrated understanding of the topics covered in this course. <i>Prerequisite:</i> HIT 153 Health Care Delivery Systems</p>	3 hours: 3T
HPS 100	<p>SAFETY ISSUES FOR CLINICAL PRACTICE</p> <p>This course focuses on microbial and physical safety for clinical practice. Emphasis is placed on guidelines established by the Occupational Safety and Health Administration (OSHA) and the Alabama State Department of Public Health; topics include prevention of transmission of blood-borne and air-borne pathogens, as well as prevention of injuries during clinical practice. Upon completion of this course, the student should be able to participate in the clinical setting implementing measures that will prevent injuries and using appropriate universal precautions.</p>	1 hour: 1T
HPS 103	<p>FOUNDATION COMPETENCIES FOR HEALTH SCIENCES</p> <p>This course is designed to assist the student in developing the knowledge, skills, and abilities necessary to be successful in health-related disciplines. Content focuses on development and use of effective study and test-taking skills, assertiveness training, stress management, values clarification, diversity, ethical-legal concepts, problem-solving and communication skills. Upon completion of this course, the student will demonstrate the knowledge, skills, and abilities needed to be successful in the student role.</p>	3 hours: 3T
HPS 105	<p>MEDICAL TERMINOLOGY</p> <p>This course is an application for the language of medicine. Emphasis is placed on terminology associated with health care, spelling, pronunciation, and meanings associated with prefixes, suffixes, and roots as they relate to anatomical body systems. Upon completion of this course, the student should be able to correctly abbreviate medical terms and appropriately use medical terminology in verbal and written communication.</p>	3 hours 2T, 2L

COURSE #	COURSE DESCRIPTION	CREDITS
HUM 101	INTRODUCTION TO HUMANITIES I This is the first course in a two-semester sequence which offers the student an introduction to the humanities using selections from art, music, literature, history, religion, and philosophy which relates to a unifying theme. <i>Prerequisite:</i> As required by program	3 hours
HUM 102	INTRODUCTION TO HUMANITIES II This is the second course in a two-semester sequence which offers the student an introduction to the humanities using selections from art, music, literature, history, religion, and philosophy which relates to a unifying theme. <i>Prerequisite:</i> As required by program	3 hours
HUM 298	DIRECTED STUDIES IN THE HUMANITIES This course provides an opportunity for the student to study selected topics in the area of the humanities under the supervision of a qualified instructor. The specific topics will be determined by the interests of the students and faculty.	3 hours
HUM 299	PTK HONORS COURSE This course combines HUM 299-01, -02, and -03 into a single semester course with a total of 3 credit hours (not repeatable for credit). It provides an opportunity for the student to study selected topics in the area of the humanities under the supervision of a qualified instructor. The topics selected will be broad in scope and content rather than specific, and will reference important cultural works from a variety of areas, which may include literature, religious studies, speech, foreign languages, art, music, theatre, and dance.	3 hours
HUS 101	INTRODUCTION TO HUMAN SERVICES This course provides an introduction to human services and related theories and systems. Emphasis is placed on the roles and functions within the existing human services organizations by utilizing service learning or field trips to the different organizations, and guest lecturers representing different human service occupations. Upon completion of this course, students should be familiar with the many agencies and institutions which deliver human services and the components of their delivery systems. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 102	INTRODUCTION TO CASEWORK In this course the basic principles and procedures in problem resolution are examined through the presentation of cases, problems, and solutions. Emphasis is placed on the application and effective role of the case aide. Upon completion of this course, the student will be familiar with the procedures for making referrals and sharing information with the professional staff. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 110	SPECIAL EDUCATION ISSUES AND INTERVENTIONS This course is designed to present basic concepts and practices in special education. Emphasis is placed on the acceptance of persons with disabilities and/or special instruction needs. The use of behavior modification and other behavioral training techniques will be included. Upon completion of this course, the student should be able to optimize learning opportunities for the gifted/talented student and to utilize techniques to enhance the quality of life for persons with disabilities. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 112	ACTIVITY THERAPY This course provides an overview of various activity therapies. Emphasis is on the use of activity therapies to increase self-esteem, dignity, social interaction and for physical, social, emotional and intellectual development. Upon completion of this course, the student will be able to present different therapies and techniques for use in agencies, hospitals, and other settings. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
HUS 113	<p>GROUP DYNAMICS</p> <p>This course introduces the concepts related to the functioning of small and large groups. Emphasis is on the understanding of behavior and the role of the group leader and members in the group process. The effects of verbal and non-verbal communication on behavior are included. Upon completion of this course, the student should have an understanding of the role and function of groups, both as a member and facilitator. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T
HUS 131	<p>PROBLEMS OF CHILDREN AND YOUTH</p> <p>This course provides the student with the understanding of the emotional, social, psychological, and physical needs of children and youth. Emphasis is placed on the influences and responsibilities of natural and surrogate parents and the nature and cause of the more common problems of children and youth. Upon completion of this course, the student should be able to assist with problem prevention and common problem resolution for these age groups. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T
HUS 133	<p>GERIATRICS</p> <p>This course introduces the need for making adjustments to retirement. Course topics include activities, hobbies and community agencies available for the aged. Emphasis is placed on common psychological and physical problems for the aging. Upon completion of this course, the student will have learned the many services available to the elderly and techniques to help them accept the changes in later life. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T
HUS 138	<p>COUNSELING FROM A CULTURAL PERSPECTIVE</p> <p>This course introduces problems facing minorities and the importance of the counselor's knowledge of, and sensitivity to, the minority client experience. Emphasis is placed on how the counselor and mental health practitioner can maximize effectiveness when working with a culturally diverse population. Upon completion of this course, the student will have an understanding of how to establish a counseling relationship with culturally diverse clients. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T
HUS 211	<p>INTRODUCTION: ALCOHOL AND DRUG PREVENTION AND ABUSE</p> <p>This course is an introduction to the factors involved in the prevention, use, and abuse of alcohol and drugs. Emphasis is on a basic orientation to the field of alcohol and drug education and treatment. Upon completion of this course, the student will be aware of the importance of the historical, physiological, sociological, psychological and economic factors involved in substance abuse. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T
HUS 212	<p>PREVENTION RESOURCES IN DRUG AND ALCOHOL ABUSE</p> <p>This course will examine the roles and functions of helping professionals and paraprofessionals concerned with prevention of and solutions to alcohol and drug abuse. Emphasis will be placed on abuse as a community problem and the need for organized efforts toward prevention. Topics will include local, state and federal alcohol and drug abuse prevention programs. Upon completion of this course the student will be able to utilize available material in creating new approaches to educating the community, group, and individuals in the area of alcohol abuse. The student will also have an awareness of resources available and the need for community, regional and state cooperation in abuse prevention. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T
HUS 214	<p>WORKING WITH THE CHEMICALLY DEPENDENT</p> <p>This course introduces the purpose, structure and techniques employed in working with the chemically dependent and other persons involved. Emphasis is placed on the role of the helper(s) as well as the professional obligation of the counselor. Upon completion of this course, the student will be familiar with classical therapy techniques as well as more current approaches. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
HUS 215	WORKING WITH THE FAMILY OF THE CHEMICALLY DEPENDENT This course provides an in-depth study of the therapeutic techniques used in working with the family of the chemically dependent with careful exploration given to the psychodynamics of family interaction. Topics include the etiology, perpetuation, and treatment of alcoholism. Emphasis is placed on family and group counseling techniques. Upon completion the student will have the ability to conduct therapeutic sessions with the family of the chemically dependent. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 216	RELAPSE PREVENTION This course focuses on information needed to prevent an addiction relapse. Topics include identifying client needs and assisting in utilizing available support systems and community resources. Emphasis will be placed on procedures and strategies utilized by a counselor to identify client high risk situations, triggers, warning signs, coping skills, strengths and weaknesses. Upon completion the student will be able to work with a client to establish immediate and long term goals, treatment plans, resources, and coping skills necessary to prevent relapse. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 217	ALCOHOLISM AND DRUG ABUSE SEMINAR This course provides a review of research in the field of alcoholism and drug abuse. Emphasis is placed on current trends and issues within the field. Upon completion of this course, the student will be able to discuss current research, both orally and in writing. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 222	GROUP COUNSELING TECHNIQUES This course provides instruction on group techniques used for facilitating individuals in seeking a variety of social experiences and interests. Emphasis is placed on meeting needs such as status, security and other emotional feelings in a non-threatening atmosphere. Upon completion of this course the student will have attained leadership techniques and skills that enable them to effectively work through the group process. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 223	GUIDANCE AND COUNSELING TECHNIQUES This course provides an introduction to the role and function of guidance and counseling with various types of clients. Emphasis is placed on the different models of behavior. <i>Prerequisite:</i> Admission to Human Services Program and permission of instructor	3 hours: 3T
HUS 224	CLINICAL INTERNSHIP I This course includes field experience in agencies, treatment centers, hospitals, institutions, outpatient clinics, etc. Emphasis is placed on "hands-on" experience under the supervision of professional staff workers. Upon completion of this course, the student will have an understanding of the role of the human service worker through an observational experience with professional staff. <i>Prerequisite:</i> Admission to Human Services Program and advisor approval	3 hours: 15Ci
HUS 225	CLINICAL INTERNSHIP II This course includes field experience in agencies, treatment centers, hospitals, institutions, outpatient clinics, etc. Emphasis is placed on implementing previously learned theory and techniques. The student will work under the supervision of the agency's professional staff. Upon completion of this course, the student will be able to apply theories and techniques to practice in the clinical setting. <i>Prerequisite:</i> Admission to Human Services Program and advisor approval	3 hours: 15Ci
HUS 226	CLINICAL INTERNSHIP III This course provides additional field experience in agencies, treatment centers, hospitals and other treatment facilities. Emphasis is placed on implementing previously learned theory and techniques under the supervision of the agency's professional staff. Upon completion of this course, the student will be able to apply theories and techniques to practice in the clinical setting. <i>Prerequisite:</i> Admission to Human Services Program and advisor approval	3 hours: 15Ci

COURSE #	COURSE DESCRIPTION	CREDITS
IDS 115	FORUM In this course, credit is given in recognition of attendance at academic lectures, concerts, and other events. IDS 115 requires attendance at designated events chosen from various lectures, cultural events, and other programs given at the college or in the community. Students may repeat this course for credit.	1 hour
IDS 200	COLLEGE SCHOLARS BOWL WORKSHOP This course offers the student preparation, practice, and participation in the College Scholars Bowl program and competition. Students may repeat this course for credit.	1 hour
INT 101	DC FUNDAMENTALS This course provides an in depth study of direct current (DC) electronic theory. Topics include atomic theory, magnetism, properties of conductors and insulators, and characteristics of series, parallel, and series-parallel circuits. Inductors and capacitors are introduced and their effects on DC circuits are examined. Students are prepared to analyze complex DC circuits, solve for unknown circuit variables and to use basic electronic test equipment. This course also provides hands on laboratory exercises to analyze, construct, test, and troubleshoot DC circuits. Emphasis is placed on the use of scientific calculator and the operation of common test equipment used to analyze and troubleshoot DC and to prove the theories taught during classroom instruction. Also taught as EET 103. <i>Prerequisite:</i> As required by College CORE	3 hours: 2T, 3L
INT 103	AC FUNDATMENTALS This course provides an in depth study of alternating current (AC) electronic theory. Students are prepared to analyze complex AC circuit configurations with resistors, capacitors, and inductors in series and parallel combinations. Topics include electrical safety and lockout procedures, specific AC theory functions such as RLC, impedance, phase relationships, and power factor. Students will be able to define terms, identify waveforms, solve complex mathematical problems, construct circuits, explain circuit characteristics, identify components, and make accurate circuit measurements using appropriate measurement instruments. They should also be able to perform fundamental tasks associated with troubleshooting, repairing, and maintaining industrial AC systems. Also taught as EET 104. <i>Prerequisite:</i> INT 101 CORE	3 hours: 2T, 3L
INT 104	PRINCIPLES OF TECHNOLOGY This course provides an introduction to the application of the principles of physics in technology. Topics include fundamentals of mechanics, properties of matter, heat and temperature, electricity and magnetism, optics, and modern physics. Also taught as AUT 132. <i>Prerequisite:</i> EET 100, CET 101, AUT 118 or math placement score for MTH 116	3 hours: 2T, 2L
INT 113	INDUSTRIAL MOTOR CONTROL I This course is a study of the construction, operating characteristics, and installation of different motor control circuits and devices. Emphasis is placed on the control of three phase AC motors. This course covers the use of motor control symbols, magnetic motor starters, running overload protection, pushbutton stations, multiple control stations, two wire control, three wire control, jogging control, sequence control, and ladder diagrams of motor control circuits. Upon completion, students should be able to understand the operation of motor starters, overload protection, interpret ladder diagrams using pushbutton stations and understand complex motor control diagrams. Also taught as AUT 234, ELT 209. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
INT 117	PRINCIPLES OF INDUSTRIAL MECHANICS This course provides instruction in basic physics concepts applicable to mechanics of industrial production equipment. Topics include the basic application of mechanical principles with emphasis on power transmission, specific mechanical components, alignment, and tension. Upon completion, students will be able to perform basic troubleshooting, repair, and maintenance functions on industrial production equipment. <i>Prerequisite:</i> As determined by College CORE	3 hours: 2T, 3L

COURSE #	COURSE DESCRIPTION	CREDITS
INT 118	FUNDAMENTALS OF INDUSTRIAL HYDRAULICS AND PNEUMATICS This course includes the fundamental concepts and theories for the safe operation of hydraulic and pneumatic systems used with industrial production equipment. Topics include the physical concepts, theories, laws, air flow characteristics, actuators, valves, accumulators, symbols, circuitry, filters, servicing safety, and preventive maintenance and the application of these concepts to perform work. Upon completion, students should be able to service and perform preventive maintenance functions on hydraulic and pneumatic systems. Also taught as AUT 130. <i>Prerequisite:</i> As determined by College CORE	3 hours: 2T, 3L
INT 126	PREVENTIVE MAINTENANCE This course focuses on the concepts and applications of preventive maintenance. Topics include the introduction of alignment equipment, job safety, tool safety, preventive maintenance concepts, procedures, tasks, and predictive maintenance concepts. Upon course completion, students will demonstrate the ability to apply proper preventive maintenance and explain predictive maintenance concepts. Also taught as AUT 230. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
INT 127	PRINCIPLES OF INDUSTRIAL PUMPS AND PIPING SYSTEMS This course provides instruction in the fundamental concepts of industrial pumps and piping systems. Topics include pump identification, operation, and installation; maintenance and troubleshooting; and piping systems and their installation. Upon course completion, students will be able to install, maintain, and troubleshoot industrial pumps and piping systems. <i>Prerequisite:</i> As determined by College	3 hours: 2T, 2L
INT 128	PRINCIPLES OF INDUSTRIAL ENVIRONMENTAL CONTROLS This course focuses on basic knowledge and skills to service and perform routine troubleshooting, maintenance, and adjustments of HVACR systems in an industrial environment. After completion, students will be able to perform routine, low-level maintenance on institutional environmental systems. Additionally, students receive instruction to complete the EPA 608 certification examination. <i>Prerequisite:</i> As determined by College	3 hours: 2T, 2L
INT 134	PRINCIPLES OF INDUSTRIAL MAINTENANCE WELDING & METAL CUTTING TECHNIQUES This course provides instruction in the fundamentals of acetylene cutting and the basics of welding needed for the maintenance and repair of industrial production equipment. Topics include oxy-fuel safety, choice of cutting equipment, proper cutting angles, equipment setup, cutting plate and pipe, hand tools, types of metal welding machines, rod and welding joints, and common welding passes and beads. Upon course completion, students will demonstrate the ability to perform metal welding and cutting techniques necessary for repairing and maintaining industrial equipment. <i>Prerequisite:</i> As required by College CORE	3 hours: 2T, 2L
INT 139	INTRODUCTION TO ROBOTIC PROGRAMMING This course provides an introduction to robotic programming. Emphasis is placed on but not limited to the following: Safety, motion programming, creating and editing programs, I/O instructions, macros, program and file storage. Upon completion the student will be able to safely perform basic functions in the work cell as well as program a robot to perform simple functions. Also taught as AUT 139. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
INT 153	PRECISION MACHINING FUNDAMENTALS I This course focuses on metal cutting machines used to make parts and tools. Topics include lathes, mills, drills, and presses. Upon course completion, students will have the ability to use precision measurement instruments and to read mechanical drawings. <i>Prerequisite:</i> As determined by College	3 hours: 2T, 2L
INT 158	INDUSTRIAL WIRING I This course focuses on principles and applications of commercial and industrial wiring. Topics include electrical safety practices, an overview of National Electric Code requirements as applied to commercial and industrial wiring, conduit bending, circuit design, pulling cables, transformers, switch gear, and generation principles. Also taught as AUT 142, ELT 118. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
INT 180	<p>SPECIAL TOPICS</p> <p>This course is designed to allow students an opportunity to study directly related topics of particular interest which require the application of technical knowledge and technical skills. Emphasis is placed on the application of skills and knowledge with practical experiences. Upon completion, students should be able to solve job-related problems using technical skills and knowledge. <i>Prerequisite:</i> As required by program</p>	2 hours: 4L
INT 184	<p>INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLERS</p> <p>This course provides an introduction to programmable logic controllers. Emphasis is placed on, but not limited to, the following: PLC hardware and software, numbering systems, installation, and programming. Upon completion, students must demonstrate their ability by developing, loading, debugging, and optimizing PLC programs. Also taught as AUT 114, ELT 231. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 3L
INT 206	<p>INDUSTRIAL MOTORS I</p> <p>This course focuses on basic information regarding industrial electrical motors. Upon completion students will be able to troubleshoot, remove, replace, and perform routine maintenance on various types of motors. Also taught as AUT 134. <i>Prerequisite:</i> As determined by College</p>	3 hours: 1T, 4L
INT 211	<p>INDUSTRIAL MOTORS II</p> <p>This course focuses on advanced information regarding industrial electrical motors. Upon completion students will be able to troubleshoot, remove, replace, and perform advanced maintenance on various types of motors. <i>Prerequisite:</i> As determined by College</p>	3 hours: 1T, 4L
INT 252	<p>VARIABLE SPEED MOTOR DRIVES</p> <p>This course provides instruction in the fundamentals of variable speed drives, industrial motors, and other applications of variable speed drives. Topics include fundamentals of variable speed control, AC frequency drives, DC variable speed drives, installation procedures, and ranges. Upon course completion, students will understand the principles of operation of variable speed drive systems, function of components of each system, set-up and installation and troubleshooting techniques for variable speed drives. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 2L
INT 253	<p>INDUSTRIAL ROBOTICS</p> <p>This course provides instruction in concepts and theories for the operation of robotic servo motors and power systems used with industrial robotic equipment. Emphasis is on the application of the computer to control power systems to perform work. Student competencies include understanding of the functions of hydraulic, pneumatic, and electrical power system components, ability to read and interpret circuitry for proper troubleshooting and ability to perform preventative maintenance. <i>Prerequisite:</i> As required by college</p>	3 hours: 2T, 2L
INT 254	<p>ROBOT MAINTENANCE AND TROUBLESHOOTING</p> <p>This course introduces principle concepts troubleshooting and maintenance of robots. Topics include Recognize and describe major robot component. Students will learn to diagnose robot mechanical problems to the component level, replacement of mechanical components and perform adjustments, troubleshooting class 1, 2, and 3 faults, to manipulate I/O for the robot, and periodic and preventive maintenance. Students will learn how to safely power up robots for complete shut-down and how to manipulate robots using the teach pendant. Upon completion students will be able to describe the various robot classifications, characteristics, explain system operations of simple robots, and maintain robotic systems. Also taught as ELT 254. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 2L
INT 280	<p>SPECIAL TOPICS IN INDUSTRIAL MAINTENANCE TECHNOLOGY</p> <p>This course provides specialized instruction in various areas related to industrial maintenance. Emphasis is placed on meeting students' needs. Also taught as ELT 183. <i>Prerequisite:</i> As required by program</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
INT 291	COOPERATIVE EDUCATION This course provides students work experience with a college-approved employer in an area directly related to the student's program of study. Emphasis is placed on integrating classroom experiences with work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> Permission of instructor	3 hours: 15i
INT 292	COOPERATIVE EDUCATION This course provides students work experience with a college-approved employer in an area directly related to the student's program of study. Emphasis is placed on integrating classroom experiences with work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> Permission of instructor	3 hours: 15i
INT 293	COOPERATIVE EDUCATION This course provides students work experience with a college-approved employer in an area directly related to the student's program of study. Emphasis is placed on integrating classroom experiences with work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. <i>Prerequisite:</i> Permission of instructor.	3 hours: 15i
JAP 101	INTRODUCTORY JAPANESE I This course provides an introduction to Japanese. Topics include the development of basic communication skills and the acquisition of basic knowledge of the cultures of Japanese-speaking areas	4 hours
JAP 102	INTRODUCTORY JAPANESE II This continuation course includes the development of basic communication skills and the acquisition of basic knowledge of the cultures of Japanese-speaking areas. <i>Prerequisite:</i> JAP 101 or equivalent	4 hours
MAH 101	INTRODUCTORY MATHEMATICS I This course is a comprehensive review of arithmetic with basic algebra designed to meet the needs of certificate and diploma programs. Topics include business- and industry-related arithmetic and geometric skills used in measurement, ratio and proportion, exponents and roots, applications of percent, linear equations, formulas, and statistics. Upon completion, students should be able to solve practical problems in their specific occupational areas of study. <i>Prerequisite:</i> Satisfactory placement score This course does not satisfy the general education components for a degree. NCA	3 hours: 2T, 2E
MDT 105	INTRODUCTION TO COMPUTER-AIDED DESIGN (CAD) This course teaches the basic techniques and concepts used in setting up a computer-aided software program on a personal computer to make technical drawings. Students use AutoCAD in application of drawing / design techniques. Students will be expected to draw proper basic multi-view drawings using AutoCAD by the completion of the course.	3 hours: 2T, 2L
MDT 111	MECHANICAL DRAWING This course covers the basic principles and practices in mechanical drafting / design, incorporating computer-aided drafting equipment. The use of proper lines, dimensions, and notations are covered in regard to multi-view orthographic drawings. Students will be expected to draw the proper views of objects using computer-aided drafting software.	3 hours: 2T, 2L
MDT 122	ARCHITECTURAL DRAWING This course covers the basics of architectural drawings related to residential and small commercial applications using computer-aided drafting equipment. Topics covered will be basic floor plans, light construction methods and materials, roofs, stair construction, layout, utilities, windows, doors, wall, and necessary detail drawings. The student will be expected to make basic architectural drawings using computer-aided software. <i>Prerequisite:</i> MDT 105	3 hours: 2T, 2L

COURSE #	COURSE DESCRIPTION	CREDITS
MDT 123	ARCHITECTURAL DRAWING II This course covers the basics of architectural drawings related to residential, small commercial and industrial applications using computer-aided drafting equipment. Topics covered will be basic floor plans, light construction methods and materials, roofs, stair construction, layout, utilities, windows, doors, wall, and necessary detail drawings. The student will be expected to make basic architectural drawings using computer-aided software. <i>Prerequisite:</i> MDT 105	3 hours: 2T, 2L
MDT 146	AutoCAD CADD This course covers the concepts and commands necessary to use AutoCAD software for computer-aided drafting/design purposes. Topics include basic screen features, equipment, software limitations, view presentations, plotting of drawings, and scaling as applied to basic drafting/design technical drawings. The students will be expected to use the AutoCAD software commands and the computer equipment to start and complete basic multi-view drawings. <i>Prerequisite:</i> MDT 105	3 hours: 2T, 2L
MDT 147	INVENTOR CADD In this course students will use the beginning and intermediate techniques of Inventor computer-aided drafting/design software to develop and render 3-D solids. Topics include Sketching, 3-modeling commands, specialized software applications development of 2-D drawings from the 3-D models, rendering and plotting. The student will be able to develop the sketches necessary to create 3-D solids and turn them into 2-D drawings for fabrication. <i>Prerequisite:</i> MDT 105	3 hours: 2T, 2L
MDT 187	ADVANCED INVENTOR CADD In this course students will use advanced techniques of Inventor computer-aided drafting/design software to develop and render 3-D solid model assemblies. Topics include advanced sketching and 3-modeling commands, animation software applications and stress analysis applications. The student will be able to develop the sketches necessary to create 3-D solids, assemblies, animation and perform stress analysis on parts and assemblies. <i>Prerequisite:</i> MDT 147	3 hours: 2T, 2L
MDT 202	SOLID WORKS CADD This course introduces the student to parametric, feature-based, solid modeling, using the 3-D concepts of SOLID WORKS computer-aided design software. Topics include the commands, concepts, views, dimensioning, and techniques to design solid-model parts quicker than 2-D software. The student will be able to use SOLID WORKS computer-aided design software to properly draw the views necessary to manufacture a part. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L
MDT 203	PRE-ENGINEERING CADD This course covers the use and application of Pro-Engineer computer-aided drafting/design software using parametric concepts of 3-D design for solid modeling on a high level computer work station. This course covers the commands, concepts, and applications of the Pro-Engineer software to develop 3-D parts, draw assemblies, working drawings, and rendering of design parts. The student will be able to use the Pro-Engineer software with competency to develop accurate technical drawings of parts. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L
MDT 211	ADVANCED MECHANICAL DRAWINGS This course focuses on the application of standards used in drafting / designing auxiliary, section, detail, and assembly views, using computer-aided drafting / design software. Topics include the proper use and techniques of computer-aided drafting / design, the arrangement of auxiliary, detail, and section views. The student will be expected to apply the skills and techniques to make technical drawings, using computer-aided drafting / design software. <i>Prerequisite:</i> MDT 105, MDT 111, MDT 146	3 hours: 2T, 2L
MDT 221	MACHINE DESIGN This course covers the design concepts necessary to develop the technical drawings and features to manufacture or fabricate a part or assembly using computer-aided drafting / design software. The topics covered are the concepts and design constraints of gears, drive systems, bearings, belts, shafts, chains, fasteners, and springs. The student will be expected to apply the concepts and design constraints to properly design machine components and systems. <i>Prerequisite:</i> MDT 105, MDT 111	3 hours: 2T, 2L

COURSE #	COURSE DESCRIPTION	CREDITS
MDT 252	<p>ADVANCED SOLID WORKS CADD</p> <p>This course broadens the student's concepts of parametric, feature-based, solid modeling using the 3-D concepts of SOLID WORKS computer-aided design software. This course covers the advanced applications needed to develop / design solid model parts. The student will be able to use SOLID WORKS computer-aided design software to draw properly the views necessary to manufacture advanced designed parts. <i>Prerequisite:</i> MDT 202</p>	3 hours: 2T, 2L
MDT 261	<p>HVAC AND PIPE SYSTEMS DESIGN</p> <p>This course covers topics and concepts related to the design of heating, ventilation, air-conditioning, and piping systems in residential, industrial, and commercial applications. The topics covered are the design considerations and constraints of HVAC and pipe systems, sizing, symbols, layout, restrictions, and single and double line pipe drawings using computer-aided drafting / design software. The student will be expected to use the design specifications to design and to draw HVAC and pipe systems. <i>Prerequisite:</i> MDT 105</p>	3 hours: 2T, 2L
MDT 271	<p>STRUCTURAL AND WELD DESIGN</p> <p>This course covers the design concepts of structural steel beams and welding techniques. The topics covered are the symbols, types of beams, sizing, joining, bill of materials, beam drawing techniques, scaling, beam details, welding concepts, welding symbols, and welding applications. The student will be able to design and to draw the necessary beam structural to support a load according to specifications and will be able to read and to design the weld type and size. <i>Prerequisite:</i> MDT 105</p>	3 hours: 2T, 2L
MDT 272	<p>ELECTRICAL AND ELECTRONIC DESIGN</p> <p>This course covers the design concepts related to electrical and electronic technical prints. The topics covered are the symbols, circuit analysis, drawing types, components, functions of components, schematics, programmable logic control circuits, ladder logic control circuits, motor control circuits, and specifications. The student will use computer-aided software to design and to draw the proper technical prints for electrical and/or electronic applications. <i>Prerequisite:</i> MDT 105</p>	3 hours: 2T, 2L
MDT 280	<p>3D STUDIO MAX</p> <p>This course covers the use of 3-D Studio Max computer-aided design software to make technical and pictorial animated drawings to design 3-D objects for presentations. This course covers the commands, application of equipment, concepts, views, dimensions, and techniques particular to this software for design of parts. Upon completion the student will make a 3-D animated presentation of their design. <i>Prerequisite:</i> As required by program.</p>	3 hours: 2T, 2L
MDT 293	<p>ADVANCED PRO-ENGINEER</p> <p>This course covers the use and application of Pro-Engineer computer-aided drafting/design software using parametric concepts of 3-D design for solid modeling on a high level computer work station. This course covers advanced concepts, and application of the Pro-Engineer software to develop 3-D parts, draw assemblies, working drawings, and rendering of design parts. The student will be able to use the Pro-Engineer software with competency to develop accurate technical drawings of complicated parts. <i>Prerequisite:</i> MDT 203 Pro-Engineering CADD</p>	3 hours: 2T, 2L
MDT 295	<p>COMPUTERIZED STRUCTURE ANALYSIS</p> <p>This course covers the use and application of Solid Works computer-aided drafting / design software application of COSMOS software to perform analysis of structures in regard to force load and/or heat transfer. The course covers the commands, concepts, and applications of the software that to develop 3-D analysis of structures. The student will be able to use the analysis software with competency to develop accurate technical analysis of design parameters. <i>Prerequisite:</i> MDT 146, MDT 202</p>	3 hours: 2T, 2L

COURSE #	COURSE DESCRIPTION	CREDITS
MKT 122	<p>VISUAL MERCHANDISING</p> <p>This course introduces basic layout design and commercial display in retail and service organizations. Topics include an analysis of display as a visual merchandising medium and an examination of the principles and applications of display and design. Upon completion, students should be able to plan, build, and evaluate designs and displays.</p>	3 hours
MKT 123	<p>FUNDAMENTALS OF SELLING</p> <p>This course is designed to emphasize the necessity of selling skills in a modern business environment. Emphasis is placed on sales techniques involved in various types of selling situations. Upon completion, students should be able to demonstrate an understanding of the techniques covered.</p>	3 hours
MKT 220	<p>ADVERTISING AND SALES PROMOTION</p> <p>This course covers the elements of advertising and sales promotion in the business environment. Topics include advertising and sales promotion appeals, selection of media, use of advertising and sales promotion as a marketing tool, and means of testing effectiveness. Upon completion, students should be able to demonstrate an understanding of the concepts covered through application.</p>	3 hours
MKT 221	<p>CONSUMER BEHAVIOR</p> <p>This course is designed to describe consumer behavior as applied to the exchange processes involved in acquiring, consuming, and disposing of goods and services. Topics include an analysis of basic and environmental determinants of consumer behavior with emphasis on the decision-making process. Upon completion, students should be able to analyze concepts relating to the study of the individual consumer.</p>	3 hours
MLT 100	<p>PHLEBOTOMY</p> <p>This course covers the basic techniques used in the collection of blood specimens. Presentation includes equipment and additives, basic anatomy, and techniques for safe and effective venipuncture. Upon completion, students should be able to perform venipuncture correctly. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	2 hours: 2T, 2CL
MLT 111	<p>URINALYSIS AND BODY FLUIDS</p> <p>This course focuses on the theory and techniques in the examination of urine and other body fluids. The student is introduced to the physical and chemical properties of these fluids as well as microscopic examination of sediment and the identification of cells and crystals. Upon completion, students should be able to perform basic urinalysis and correlate laboratory results to renal disorders and other disease states. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	4 hours: 2T, 2L
MLT 121	<p>MLT HEMATOLOGY</p> <p>In this course the theory and techniques of hematology are covered. The student is presented with blood components, normal and abnormal cell morphology, hemostasis, and selected automated methods. Upon completion, students should be able to perform various procedures, including preparation and examination of hematologic slides, and to relate results to specific disorders. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	5 hours: 3T, 2L
MLT 131	<p>LABORATORY TECHNIQUES</p> <p>This course covers the basic principles and techniques used in the clinical laboratory. Emphasis is placed on terminology, basic microscopy, safety, and computations. Upon completion, the students should be able to perform various basic laboratory analyses and to utilize basic theories of laboratory principles. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	4 hours: 3T, 1L

COURSE #	COURSE DESCRIPTION	CREDITS
MLT 141	MLT MICROBIOLOGY I The student is presented with the theories, techniques, and methods used in basic bacteriology. Focus is on bacterial isolation, identification, and susceptibility testing. Upon completion, students should be able to select media, isolate and identify microorganisms, and discuss modern concepts of epidemiology. <i>Prerequisite:</i> Admission to program and permission of instructor	5 hours: 3T, 2L
MLT 142	MLT MICROBIOLOGY II The student is presented with the theories, techniques, and methods used in basic parasitology, mycology, and virology. Emphasis is placed on special bacteria, identification, life cycles, culture growth, and pathological states of infection and infestation. Upon completion, students should be able to identify certain parasites, to demonstrate various staining and culture procedures, and to discuss the correlation of certain microorganisms to pathological conditions. <i>Prerequisite:</i> Admission to program and permission of instructor	4 hours: 3T, 1L
MLT 151	MLT CLINICAL CHEMISTRY This course emphasizes theories and techniques in basic and advanced clinical chemistry. Coverage includes various methods of performing biochemical analyses on clinical specimens. Upon completion, students should be able to apply the principles of medical chemistry, evaluate quality control, and associate abnormal test results to clinical significance. <i>Prerequisite:</i> Admission to program and permission of instructor	5 hours: 3T, 2L
MLT 161	INTEGRATED LABORATORY SIMULATION This course provides an opportunity for the student to perform medical laboratory procedures in all phases of laboratory testing as a review of previous laboratory courses. Emphasis is placed on organization of tasks, timing, accuracy, and simulation of routine operations in a medical laboratory. Upon completion, students should be able to organize tasks and perform various basic laboratory analyses with accuracy and precision. <i>Prerequisite:</i> Admission to program and permission of instructor	2 hours: 2L
MLT 181	MLT IMMUNOLOGY Theory and techniques in immunology are presented to the student. Emphasis is placed on the basic principles of the immune system, serologic testing, the production of specific antibodies and their use in the identification of infectious organisms. Upon completion, students should be able to relate basic principles of immunology, describe techniques for analytical methods utilizing immunological concepts, and correlate results of analyses to certain disease states. <i>Prerequisite:</i> Admission to program and permission of instructor	2 hours: 1T, 1L
MLT 191	MLT IMMUNOHEMATOLOGY Theory and techniques in immunohematology are presented to the student. The course covers antigen and antibody reactions including blood typing, antibody detection and identification, and compatibility testing. Upon completion, students should be able to apply theories and principles of immunohematology to procedures for transfusion and donor service, and correlate blood-banking practices to certain disease states and disorders. <i>Prerequisite:</i> Admission to program and permission of instructor	5 hours: 3T, 2L
MLT 286	SPECIAL TOPICS IN MLT This is a seminar course in which students work independently on a project related to medical lab technology. <i>Prerequisite:</i> Admission to program and permission of instructor	1 hour: 1T
MLT 293	MLT MEDICAL SEMINAR This course is a cumulative review of medical laboratory science theory. The seminar consists of an on-campus summation of previous classes emphasizing recall, application of theory, correlation, and evaluation of all areas of medical laboratory science. Upon completion, students should be able to apply theory of analytical methods, recognize normal, abnormal, and erroneous results, and relate laboratory results to pathological conditions. <i>Prerequisite:</i> Admission to program and permission of instructor	2 hours: 2T

COURSE #	COURSE DESCRIPTION	CREDITS
MLT 294	<p>MEDICAL LABORATORY PRACTICUM I</p> <p>This supervised practicum is within the medical lab setting and provides laboratory practice in hematology and urinalysis. Emphasis is placed on medical lab skills and performance in areas such as specimen preparation and examination, instrumentation, reporting of results, management of data and quality control. Upon completion, students should be able to process specimens, perform analyses utilizing various methods including instrumentation, report results, manage data and quality control using information systems. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	3 hours: 3CL
MLT 295	<p>MEDICAL LABORATORY PRACTICUM II</p> <p>This supervised practicum is within the medical lab setting and provides laboratory practice in microbiology. Emphasis is placed on medical lab skills and performance in areas such as recovery, isolation, culturing and identification of microorganisms. Upon completion, students should be able to isolate, culture, analyze microorganisms utilizing various methods, report results, manage data and quality control using information systems. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	5 hours: 3T, 2CL
MLT 296	<p>MEDICAL LABORATORY PRACTICUM III</p> <p>This supervised practicum is within the medical lab setting and provides laboratory practice in serology and immunohematology. Emphasis is placed on medical lab skills and performance in areas such as the detection and identification of antibodies, the typing of blood, and compatibility testing of blood and blood components. Upon completion, students should be able to perform the screening for and identification of antibodies, compatibility testing, record and manage data and quality control using information systems. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	3 hours: 3CL
MLT 297	<p>MEDICAL LABORATORY PRACTICUM IV</p> <p>This supervised practicum is within the medical lab setting and provides laboratory practice in medical chemistry. Emphasis is placed on medical lab skills and performance in areas such as computerized instrumentation and the ability to recognize technical problems. Upon completion, students should be able to perform biochemical analyses by various methods, including testing utilizing computer-oriented instrumentation, report test results, manage patient data and quality control statistics using information systems. <i>Prerequisite:</i> Admission to program and permission of instructor</p>	3 hours: 3CL
MSG 102	<p>THERAPEUTIC MASSAGE LAB I</p> <p>This course provides foundational information related to massage therapy. Students gain knowledge related to purposes, effects, applications, benefits, indications and contraindications for various types of massage therapy. Additionally, students learn procedures and precautions for various types of massage therapies. Specific topics include full body western (Swedish) massage, hot and cold therapies, stretching, and documentation guidelines. Special emphasis is placed on professional behaviors, proper draping, and body mechanics. At the conclusion of this course, students will be able to perform various types of full body therapeutic massage techniques and document their activities. <i>Prerequisite:</i> Admission into Program</p>	3 hours: 6E
MSG 103	<p>ANATOMY AND PHYSIOLOGY</p> <p>This course provides students with an overview of the basic anatomy and physiology of the human body. Emphasis is placed on the importance of maintaining homeostasis. At the conclusion of this course students will have a basic understanding of the various systems of the body and the effects of massage on these systems. Students will demonstrate this knowledge through cognitive and performance based measurement. <i>Prerequisite:</i> Admission into Program</p>	3 hours: 2T, 2E
MSG 104	<p>MUSCULO-SKELETAL AND KINESIOLOGY I</p> <p>This course introduces students to concepts related to the study of muscle movement. As part of this course students learn the interaction of muscles and various bony landmarks of the skeletal system. Students further learn how to position individuals in preparation for therapeutic massage of various muscle groups. Students will demonstrate this knowledge through cognitive and performance based measurement. <i>Prerequisite:</i> Admission into Program</p>	3 hours: 2T, 2E

COURSE #	COURSE DESCRIPTION	CREDITS
MSG 105	<p>THERAPEUTIC MASSAGE SUPERVISED CLINICAL I</p> <p>In this course, students are required to demonstrate competency in specific therapeutic massage techniques, including treatment preparation, use of proper techniques, client progress, and documentation. Students are required to perform a minimum 45 hours of hands-on client massages.</p> <p><i>Corequisite:</i> Successful enrollment of MSG 102, MSG 103, MSG 104 and MSG 108</p>	2 hours: 6C
MSG 108	<p>FOUNDATIONS OF THERAPEUTIC MASSAGE</p> <p>The purpose of this course is for students to comprehend foundational information related to the profession of therapeutic massage. Specific topics include: history of therapeutic massage, professional ethics and standards of practice, regulatory agencies and their requirements, client and therapist's professional relationships, communication skills, and an overview of types of therapeutic massage. Included in this course are opportunities for students to apply professional behaviors associated with massage therapy in a simulated environment. <i>Prerequisite:</i> Admission into Program</p>	2 hours: 1T, 2E
MSG 200	<p>BUSINESS AND MARKETING PLANS</p> <p>During this course, students are also taught ethical business management and professional development. This course is designed to help students to prepare for ethical decision making in professional practice while assisting in the development of their emerging identities as professional licensed massage therapists. Emphasis is placed on building and retaining clientele, communication skills, customer skills, customer services, continuing education, and setting goals. Upon completion, the student should be able to list the types of communication skills, state personal goals, and develop a business and marketing plan. <i>Prerequisite:</i> MSG 108</p>	1 hour: 1T
MSG 201	<p>THERAPEUTIC MASSAGE FOR SPECIAL POPULATIONS</p> <p>In this course, students learn to adapt massage sessions to the needs of special populations, such as pregnant women, infants, elderly, and the terminally ill. Topics include technique variations, length of session, contraindications, cautions, considerations for survivors of abuse, and possible benefits. Upon completion of this course, students will be able to discuss and demonstrate techniques for performing therapeutic massage for special populations. <i>Prerequisite:</i> Successful completion of MSG 102</p>	2 hours: 1T, 2E
MSG 202	<p>THERAPEUTIC MASSAGE LAB II</p> <p>Students learn advanced massage therapy techniques building upon previously gained knowledge and skills. Upon completion students will be able to apply specific therapeutic massage techniques to various regions of the body. <i>Prerequisite:</i> Successful completion of MSG 102</p>	3 hours: 6E
MSG 203	<p>PATHOLOGY</p> <p>This course presents baseline information on pathologies which massage therapists may encounter in clinical practice, including conditions of the musculoskeletal, neurological, cardiovascular, lymphatic, integumentary, digestive, endocrine, and immune systems. Content will include etiology, symptomatology, medical approaches to treatment, and the potential positive or negative impact of massage. <i>Prerequisite:</i> Successful completion of MSG 103</p>	3 hours: 3T
MSG 204	<p>MUSCULO-SKELETAL AND KINESIOLOGY II</p> <p>In this course, students learn advanced study of interaction of the muscular-skeletal system to include palpation techniques of the appendicular regions of the body. Students will demonstrate this knowledge through cognitive and performance based measurement. <i>Prerequisite:</i> Successful completion of MSG 104</p>	3 hours: 2T, 2E
MSG 205	<p>THERAPEUTIC MASSAGE SUPERVISED CLINICAL II</p> <p>In this course, students are required to demonstrate competency in specific advanced therapeutic techniques, including treatment preparation, use of proper techniques, client progress, and documentation. Students are required to perform a minimum of 45 hours of hands-on client massages.</p> <p><i>Prerequisite:</i> Successful completion of MSG 105</p>	2 hours: 6C

COURSE #	COURSE DESCRIPTION	CREDITS
MSG 206	<p>LICENSURE EXAM REVIEW</p> <p>This course provides a consolidated and intensive review of the basic areas of expertise needed by the entry-level massage therapist. Upon completion, the student should be able to pass a comprehensive exam on information covered in the therapeutic massage program. <i>Prerequisite:</i> MSG 102, 103, 104, 105, 108, 200 <i>Corequisite:</i> MSG 201, 202, 203, 204, 205</p>	1 hour: 1T
MST 209	<p>PHYSICAL SUPPLY AND DISTRIBUTION MANAGEMENT</p> <p>This course provides a comprehensive study of current logistics systems. Topics include organizing and analyzing logistics information, forecasting potential logistical problems, and making recommendations to coordinate actions to resolve problems.</p>	3 hours
MST 223	<p>SPECIAL STUDIES IN PERSONNEL ADMINISTRATION</p> <p>Under faculty supervision, this course provides a student the opportunity to develop a knowledge of current human resource management practices. Emphasis is placed on independent study of current publications approved by the instructor.</p>	3 hours
MST 225	<p>SPECIAL STUDIES IN BUSINESS MANAGEMENT</p> <p>Under faculty supervision, this course provides a student the opportunity to develop a knowledge of current business management practices. Emphasis is placed on independent study of current publications approved by the instructor.</p>	3 hours
MTH 090	<p>BASIC MATHEMATICS</p> <p>The purpose of this course is to provide students with skills in basic mathematics. Minimum content includes whole numbers, integers, fractions, decimals, ratio and proportions, percents, and an introduction to algebra. Additional topics may include systems of measurement and basic geometry. At the conclusion of this course students are expected to be able to perform basic mathematical operations. NCA</p> <p>NOTICE(S): This course produces institutional, non-transferable-credit only and will not satisfy the requirements for degrees, certificates, and diplomas. Additionally, the grade a student earns in a developmental course does not factor into the student's GPA (grade point average). Students must achieve a 70% or higher in this course to proceed to the next level Mathematics course.</p>	3 hours: 3T
MTH 098	<p>ELEMENTARY ALGEBRA</p> <p>This course provides a study of the fundamentals of algebra. Topics include the real number system, linear equations and inequalities, graphing linear equations in two variables, laws of exponents, polynomial operations, and factoring polynomials. NCA</p> <p>NOTICE(S): This course produces institutional, non-transferable-credit only and will not satisfy the requirements for degrees, certificates, and diplomas. Additionally, the grade a student earns in a developmental course does not factor into the student's GPA (grade point average). Students must achieve a 70% or higher in this course to proceed to the next level Mathematics course.</p> <p><i>Prerequisite:</i> A grade of "C" (70 or above required) in MTH 090 (Basic Mathematics) or appropriate mathematics placement score.</p>	3-4 hours: 3-4T
MTH 100	<p>INTERMEDIATE COLLEGE ALGEBRA</p> <p>This course provides a study of algebraic concepts such as linear equations and inequalities in two variables, quadratic equations, systems of equations, radical and rational expressions and equations. Functions and relations are introduced and graphed. This course does not apply toward the general core requirement for mathematics. <i>Prerequisite:</i> A grade of "C" (70 or above required with in the Division of Mathematics) in MTH 098 (Elementary Algebra) or appropriate mathematics placement score</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
MTH 110	<p>FINITE MATHEMATICS</p> <p>This course is tended to give an overview of topics in finite mathematics, together with their applications, and it is taken primarily by students who are not majoring in science, engineering, commerce, or mathematics (i.e., students who are not required to take Calculus). The course will draw on and significantly enhance the student's arithmetic and algebraic skills. It includes sets, counting, permutations, combinations, basic probability (including Baye's Theorem), an introduction to statistics (including work with Binomial Distributions and Normal Distributions), matrices and their applications to Markov chains, and decision theory. Additional topics may include symbolic logic, linear models, linear programming, the simplex method and applications. <i>Prerequisite:</i> All core mathematics courses in Alabama must have as a minimum prerequisite high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score. An alternative to this prerequisite is that the student should pass with a "C" or higher (S if taken as pass/fail) MTH 100 (Intermediate College Algebra).</p>	3 hours: 3T
MTH 112	<p>PRECALCULUS ALGEBRA</p> <p>This course emphasizes the algebra of functions, including polynomial, rational, exponential, and logarithmic functions. The course also covers systems of equations and inequalities, quadratic inequalities, and the binomial theorem. Additional topics may include matrices, Cramer's Rule, and mathematical induction. <i>Prerequisite:</i> All core mathematics courses in Alabama must have as a minimum prerequisite high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score. An alternative to this prerequisite is that the student should pass with a "C" or higher (S if taken as pass/fail) MTH 100 (Intermediate College Algebra).</p>	3 hours: 3T
MTH 113	<p>PRECALCULUS TRIGONOMETRY</p> <p>This course includes the study of trigonometric (circular functions) and inverse trigonometric functions, and it includes extensive work with trigonometric identities, and trigonometric equations. The course also covers vectors, complex numbers, DeMoivre's Theorem, and polar coordinates. Additional topics may include conic sections, sequences, and using matrices to solve linear systems. <i>Prerequisite:</i> A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this prerequisite is that the student should successfully pass with a "C" or higher (S if taken as pass/fail) MTH 112 (Precalculus Algebra).</p>	3 hours: 3T
MTH 116	<p>MATHEMATICAL APPLICATIONS</p> <p>This course provides practical applications of mathematics and includes selected topics from consumer math and algebra. Some topics included are integers, percent, interest, ratio and proportion, metric system, probability, linear equations, and problem solving. This is a terminal course designed for students seeking an A.A.S. degree and does not meet the general core requirement for mathematics. <i>Prerequisite:</i> A grade of "C" or higher (S if taken as pass/fail) in MTH 090 (Basic Mathematics) or appropriate mathematics placement score. *This class will not satisfy the STARS higher math requirement.</p>	3 hours: 3T
MTH 120	<p>CALCULUS AND ITS APPLICATIONS</p> <p>This course is intended to give a broad overview of calculus and is taken primarily by students majoring in Commerce and Business Administration. It includes differentiation and integration of algebraic, exponential, and logarithmic functions and applications to business and economics. The course should include functions of several variables, partial derivatives (including applications), Lagrange Multipliers, L'Hopital's Rule, and multiple integration (including applications). <i>Prerequisite:</i> A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a grade of "C" or higher MTH 112 (Precalculus Algebra)</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
MTH 125	<p>CALCULUS I</p> <p>This is the first of three courses in the basic calculus sequence taken primarily by students in science, engineering, and mathematics. Topics include the limit of a function; the derivative of algebraic, trigonometric, exponential, and logarithmic functions; and the definite integral and its basic application to area problems. Applications of the derivative are covered in detail, including approximations of error using differentials, maximum and minimum problems, and curve sketching using calculus. <i>Prerequisite:</i> A minimum of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a "C" or higher MTH 113 (Precalculus Trigonometry). This course is typically taught during the day every semester and only nights during the fall term.</p>	4 hours: 4T
MTH 126	<p>CALCULUS II</p> <p>This is the second of three courses in the basic calculus sequence. Topics include vectors in the plane and in space, lines and planes in space, applications of integration (such as volume, arc length, work, and average value), techniques of integration, infinite series, polar coordinates, and parametric equations. <i>Prerequisite:</i> A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score is required. An alternative to this is that the student should successfully pass with a "C" or higher MTH 125 (Calculus I). This course is typically taught during the spring term.</p>	4 hours: 4T
MTH 131	<p>MATHEMATICS IN GENERAL EDUCATION I</p> <p>This course is designed for general education and for all students in education programs except those who will concentrate on science or mathematics. Emphasis is on the structure of the number system from the integers to the real numbers, logic, numeration systems, prime numbers, basic concepts of algebra, elementary probability and statistics, graphs, informal geometry, and the metric system. This course does not apply toward the general core requirement for mathematics. <i>Prerequisite:</i> A grade of "C" or higher (S if taken as pass/fail) in MTH 090 (Basic Mathematics) or appropriate mathematics placement score.</p>	3 hours: 3T
MTH 132	<p>MATHEMATICS IN GENERAL EDUCATION II</p> <p>This course is a continuation of MTH 131. This course does not apply toward the general core requirement for mathematics. <i>Prerequisite:</i> A grade of "C" or higher (S if taken as pass/fail) in MTH 131 (Mathematics in General Education I) or appropriate mathematics placement score.</p>	3 hours: 3T
MTH 227	<p>CALCULUS III</p> <p>This is the third of three courses in the basic calculus sequence. Topics include vector functions, functions of two or more variables, partial derivatives (including applications), quadratic surfaces, multiple integration, and vector calculus (including Green's Theorem, Curl and Divergence, surface integrals, and Stokes' Theorem). This class is usually taught once a year during the summer term at night. <i>Prerequisite:</i> A grade of "C" or higher in MTH 126 (Calculus II)</p>	4 hours: 4T
MTH 237	<p>LINEAR ALGEBRA</p> <p>This course introduces the basic theory of linear equations and matrices, real vector spaces, bases and dimensions, linear transformations and matrices, determinants, eigenvalues and eigenvectors, inner product spaces, and the diagonalization of symmetric matrices. Additional topics may include quadratic forms and the use of matrix methods to solve systems of linear differential equations. <i>Prerequisite:</i> grade of "C" or higher in MTH 126 (Calculus II)</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
MTH 238	<p>APPLIED DIFFERENTIAL EQUATIONS I</p> <p>An introduction to numerical methods, qualitative behavior of first order differential equations, techniques for solving separable and linear equations analytically, and applications to various models (e.g., population, motion, chemical mixtures, etc.), techniques for solving higher order linear differential equations with constant coefficients (general theory, undetermined coefficients, reduction of order and the methods of variation of parameters), with emphasis on interpreting the behavior of the solutions, and applications to physical models whose governing equations are of higher order; the Laplace transform as a tool for the solution of initial value problems whose inhomogeneous terms are discontinuous. <i>Prerequisite:</i> A grade of "C" or higher in MTH 126 (Calculus II) <i>Corequisite:</i> MTH 227 (Calculus III)</p>	3 hours: 3T
MTH 265	<p>ELEMENTARY STATISTICS</p> <p>This course provides an introduction to methods of statistics, including the following topics: sampling, frequency distributions, measures of central tendency, graphic representation, reliability, hypothesis testing, confidence intervals, analysis, regression, estimation, and applications. Probability, permutations, combinations, binomial theorem, random variables, and distributions may be included. <i>Prerequisite:</i> A grade of "C" or higher (S if taken as pass/fail) in MTH 100 (Intermediate College Algebra)</p>	3 hours: 3T
MTT 107	<p>MACHINING CALCULATIONS I</p> <p>This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations. This course is aligned with NIMS certification standards. Also taught as AUT 118, CET 101, EET 100. <i>Prerequisite:</i> As required by College</p>	3 hours: 3T
MTT 108	<p>MACHINE HANDBOOK FUNCTIONS I</p> <p>This course covers the machinist's handbook. Emphasis is placed on formulas, tables, usage, and related information. Upon completion, students should be able to use the handbook in the calculation and set-up of machine tools. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College</p>	3 hours: 3T
MTT 109	<p>ORIENTATION TO COMPUTER ASSISTED MANUFACTURING</p> <p>This course serves as an overview and introduction to computer assisted manufacturing (CAM) and prepares students for more advanced CAM courses. Topics covered are basic concepts and terminology, CAM software environments, navigation commands and file management, 2-D geometry, construction modification, and toolpath generation for CAM machining processes. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College</p>	3 hours: 3T
MTT 121	<p>BASIC PRINT READING FOR MACHINISTS</p> <p>This course covers the basic principles of print reading and sketching. Topics include multi-view drawings; interpretation of conventional lines; and dimensions, notes and thread notations. Upon completion, students should be able to interpret basic drawings, visualize parts, and make pictorial sketches. Also taught as AUT 104, CET 100, DDT 114. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College CORE</p>	3 hours: 3T
MTT 123	<p>ENGINE LATHE LAB I</p> <p>The student learns to safely operate an engine lathe in calculating feeds and speeds and shaping a variety of cutting tools by grinding. The student will also safely operate an engine lathe in straight turning, facing, turning to the shoulder, and tapers. <i>Prerequisite:</i> As determined by college.</p>	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
MTT 124	ENGINE LATHE LAB II The student learns advanced operation of an engine lathe in calculating feeds and speeds and shaping a variety of cutting tools by grinding. The student will also safely operate an engine lathe in advanced straight turning, facing, turning to the shoulder, and tapers. <i>Prerequisite:</i> As determined by College	3 hours: 6L
MTT 127	METROLOGY This course covers the use of precision measuring instruments. Emphasis is placed on the inspection of machine parts and use of a wide variety of measuring instruments. Upon completion, students should be able to demonstrate correct use of measuring instruments. This course is aligned with NIMS certification standards. Also taught as AUT 155. <i>Prerequisite:</i> As determined by College CORE	3 hours: 2T, 2L
MTT 128	GEOMETRIC DIMENSIONING AND TOLERANCING I This course is designed to teach students how to interpret engineering drawings using modern conventions, symbols, datums, datum targets, and projected tolerance zones. Special emphasis is placed upon print reading skills, and industry specifications and standards. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College	3 hours: 3T
MTT 134	LATHE OPERATIONS I This course includes more advanced lathe practices such as set-up procedures, work planning, inner- and outer-diameter operations, and inspection and process improvement. Additional emphasis is placed on safety procedures. Upon completion, students will be able to apply advanced lathe techniques. MTT 134/135 are suitable substitutes for MTT 129. This course is aligned with NIMS standards. <i>Prerequisite:</i> As determined by college	3 hours: 2T, 2L
MTT 137	MILLING I This course covers manual milling operations. Emphasis is placed on related safety, types of milling machines and their uses, cutting speed, feed calculations, and set-up and operation procedures. Upon completion, students should be able to apply manual vertical milling techniques to produce machine tool projects. MTT 137/138 are suitable substitutes for MTT 136. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College	3 hours: 2T, 2L
MTT 138	MILLING I LAB This course provides basic knowledge of milling machines. Emphasis is placed on types of milling machines and their uses, cutting speed, feed calculations, and set-up procedures. Upon completion, students should be able to apply milling techniques to produce machine tool projects. This course is aligned with NIMS certification criteria. MTT 137 and MTT 138 are suitable substitutes for MTT 136. <i>Prerequisite:</i> As determined by College	3 hours: 6L
MTT 139	BASIC COMPUTER NUMERICAL CONTROL This course introduces the concepts and capabilities of computer numeric control (CNC) machine tools. Topics include setup, operation, and basic applications. Upon completion, students should be able to develop a basic CNC program to safely operate a lathe and milling machine. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College	3 hours: 2T, 2L
MTT 140	BASIC COMPUTER NUMERICAL CONTROL TURNING PROGRAMMING I This course covers concepts associated with basic programming of a computer numerical control (CNC) turning center. Topics include basic programming characteristics, motion types, tooling, workholding devices, setup documentation, tool compensations, and formatting. Upon completion, students should be able to write a basic CNC turning program that will be used to produce a part. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by college <i>Corequisite:</i> As determined by college	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
MTT 141	BASIC COMPUTER NUMERIC CONTROL MILLING PROGRAMMING I This course covers concepts associated with basic programming of a computer numerical control (CNC) milling center. Topics include basic programming characteristics, motion types, tooling, workholding devices, setup documentation, tool compensations, and formatting. Upon completion, students should be able to write a basic CNC milling program that will be used to produce a part. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by college <i>Corequisite:</i> As determined by college	3 hours: 1T, 4L
MTT 144	ELECTRICAL DISCHARGE MACHINING I This course introduces the student to the concepts of Electrical Discharge Machining (EDM) and the importance of EDM in an industrial setting. Emphasis is placed on safety procedures and machinist responsibility in the setup and operation of EDM machines and electrode selection. Upon completion, students should be able to produce basic machine products using both the wire-type and plunge-type EDM machines. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 147	INTRODUCTION TO MACHINE SHOP I This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, saws, milling machines, bench grinders, and layout instruments. Upon completion, students will be able to perform the basic operations of measuring, layout, drilling, sawing, turning, and milling. This is a CORE course. MTT 100 is a suitable substitute for MTT 147 and MTT 148. Also taught as AUT 150. <i>Prerequisite:</i> As determined by College CORE	3 hours: 2T, 2L
MTT 148	INTRODUCTION TO MACHINE SHOP I LAB This course provides practical application of the concepts and principles of machining operations learned in MTT 147. Topics include machine shop safety, measuring tools, lathes, saws, milling machines, bench grinders, and layout instruments. Upon completion, students will be able to perform the basic operations of measuring, layout, drilling, sawing, turning, and milling. This is a CORE course. MTT 100 is a suitable substitute for MTT 147/148. This course is aligned with NIMS certification standards. Also taught as AUT 151. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by college CORE	3 hours: 6L
MTT 149	INTRODUCTION TO MACHINE SHOP II This course provides additional instruction and practice in the use of measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection of work holding devices, speeds, feeds, cutting tools and coolants. Upon completion, students should be able to perform intermediate level procedures of precision grinding, measuring, layout, drilling, sawing, turning, and milling. This is a CORE course and is aligned with NIMS certification standards. MTT 149/150 are suitable substitutes for MTT 103. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by college CORE	3 hours: 2T, 2L
MTT 150	INTRODUCTION TO MACHINE SHOP II LAB This course provides additional instruction and practice in the use of measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection of work holding devices, speeds, feeds, cutting tools and coolants. Upon completion, students should be able to perform intermediate level procedures of precision grinding, measuring, layout, drilling, sawing, turning, and milling. This is a CORE course and is aligned with NIMS certification standards. MTT 149/150 are suitable substitutes for MTT 103. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by college CORE	3 hours: 6L
MTT 154	METALLURGY This course covers the production, properties, testing, classification, microstructure, and heat treating effects of ferrous and non-ferrous metals. Topics include the iron-carbon phase diagram, ITT diagram, ANSI code, quenching, senescing, and other processes concerning metallurgical transformations. Upon completion, students should be able to understand the iron-carbon phase diagram, ITT diagram, microstructure images, and other phenomena concerning the behavior of metals. <i>Prerequisite:</i> As required by program	3 hours: 2T, 2L

COURSE #	COURSE DESCRIPTION	CREDITS
MTT 181	SPECIAL TOPICS IN MACHINE TOOL TECHNOLOGY This course is a guided study of special projects in machine tool technology. Emphasis is placed on student needs. Upon completion, students should be able to demonstrate skills developed to meet specific needs. <i>Prerequisite:</i> As required by program	3 hours: 1T, 4L
MTT 182	SPECIAL TOPICS IN MACHINE TOOL TECHNOLOGY This course is a guided study of special projects in machine tool technology. Emphasis is placed on student needs. Upon completion, students should be able to demonstrate skills developed to meet specific needs. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 202	MACHINE MAINTENANCE AND REPAIR This course covers preventive maintenance, as well as repair of machine tools. Emphasis is placed on safety, disassembly and assembly of lathes, grinders, saws, and milling machines. Upon completion, students should be able to perform machine maintenance and repair of machine tools. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 219	COMPUTER NUMERICAL CONTROL GRAPHICS: TURNING This course covers techniques involved in writing a program for a multi-axis computerized numeric control (CNC) turning machine using computer assisted manufacturing (CAM) software. In addition, CNC turning machine setup, programming, and operation are detailed. Upon completion, the student should be able to set up, program, and operate a 3-axis CNC turning machine to produce a 2 1/2-axis part using CAM software. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 220	COMPUTER NUMERICAL CONTROL GRAPHICS: MILLING This course covers techniques involved in writing a program for a multi-axis computerized numeric control (CNC) milling machine using computer assisted manufacturing (CAM) software. In addition, CNC milling machine setup, programming, and operation are detailed. Upon completion, the student should be able to set up, program, and operate a 3-axis CNC milling machine to produce a 2 1/2-axis part using CAM software. This course is aligned with NIMS certification standards. <i>Prerequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 221	ADVANCED BLUEPRINT READING FOR MACHINISTS This course introduces complex industrial blueprints. Emphasis is placed on auxiliary views, section views, violations of true projection, special views, and interpretation of complex parts and assemblies. Upon completion, students should be able to read and interpret complex industrial blueprints. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College	3 hours: 3T
MTT 241	CNC MILLING LAB I This course covers basic (3-axis) computer numeric control (CNC) milling machine setup and operating procedures. Upon completion, the student should be able to load a CNC program and setup and operate a 3-axis CNC milling machine to produce a specified part. Related safety, inspection, and process adjustment are also covered. <i>Prerequisite:</i> As determined by College	3 hours: 6L
MTT 242	CNC MILLING LAB II This course covers advanced (including 4-axis) computer numeric control (CNC) milling machine setup and operating procedures. Upon completion, the student should be able to load a CNC program and setup and operate a CNC milling machine (including 4-axis) to produce a specified part. Related safety and inspection and process adjustment are also covered. <i>Prerequisite:</i> As determined by College	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
MTT 243	CNC TURNING LAB I This course covers basic computer numeric control (CNC) turning machine setup and operating procedures (inner diameter and outer diameter). Upon completion, the student should be able to load a CNC program and setup and operate a CNC turning machine to produce a simple part. Related safety and inspection and process adjustment are also covered. <i>Prerequisite:</i> As determined by College	3 hours: 6L
MTT 244	CNC TURNING LAB II This course covers advanced computer numeric control (CNC) turning machine setup and operating procedures. Upon completion, the student should be able to load a CNC program and setup and operate a CNC turning machine to produce a specified part. Related safety and inspection and process adjustment are also covered. <i>Prerequisite:</i> As determined by College	3 hours: 6L
MTT 270	MACHINING SKILLS APPLICATION This course is designed to provide students with a capstone experience incorporating the knowledge and skills learned in the Machine Tool program. Special emphasis is given to student skill attainment. <i>Prerequisite:</i> As determined by College	3 hours: 6L
MTT 281	SPECIAL TOPICS IN MACHINE TOOL TECHNOLOGY This course is a guided study of special projects in machine tool technology. Emphasis is placed on student needs. Upon completion, students should be able to demonstrate skills developed to meet specific needs. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 282	SPECIAL TOPICS IN MACHINE TOOL TECHNOLOGY This course is a guided study of special projects in machine tool technology. Emphasis is placed on student needs. Upon completion, students should be able to demonstrate skills developed to meet specific needs. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College	3 hours: 1T, 4L
MTT 291	COOPERATIVE EDUCATION IN MACHINE TOOL TECHNOLOGY Students work on a part-time basis in a job directly related to machine tool technology. The employer and supervising instructor evaluate students' progress. Upon course completion, students will be able to apply skills and knowledge in an employment setting. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College	3 hours: 15i
MTT 292	COOPERATIVE EDUCATION IN MACHINE TOOL TECHNOLOGY Students work on a part-time basis in a job directly related to machine tool technology. The employer and supervising instructor evaluate students' progress. Upon course completion, students will be able to apply skills and knowledge in an employment setting. <i>Prerequisite:</i> As determined by College <i>Corequisite:</i> As determined by College	3 hours: 15i
MUL 101	CLASS PIANO I Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 102	CLASS PIANO II Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUL 111	CLASS VOICE 1 Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 112	CLASS VOICE II Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 180	CHORUS I This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 181	CHORUS II This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 184	JAZZ / SHOW CHORUS I This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 185	JAZZ / SHOW CHORUS II This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 190A	CONCERT BAND I This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 191A	CONCERT BAND II This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUL 201	CLASS PIANO III Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 202	CLASS PIANO IV Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 211	CLASS VOICE III Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 212	CLASS VOICE IV Group instruction is available in voice, piano, strings, woodwinds, brass, percussion and fretted instruments for students with little or no previous training. Emphasis is placed on the rudiments of music, basic performance technique and general musicianship skills. Upon completion of one or a sequence of courses, students should be able to demonstrate a basic proficiency in singing or playing and a knowledge of music fundamentals.	1 hour each: 2 each
MUL 280	CHORUS III This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 281	CHORUS IV This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 284	JAZZ / SHOW CHORUS III This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble. .	1 hour each: 2 each
MUL 285	JAZZ / SHOW CHORUS IV This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUL 290A	CONCERT BAND III This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUL 291A	CONCERT BAND IV This course provides an opportunity for students to participate in a performing ensemble. Emphasis is placed on rehearsing and performing literature appropriate to the mission and goals of the group. Upon completion, students should be able to effectively participate in performances presented by the ensemble.	1 hour each: 2 each
MUP 101	PRIVATE PIANO I Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 102	PRIVATE PIANO II Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 103	PRIVATE ORGAN 1 Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 104	PRIVATE ORGAN II Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 111	PRIVATE VOICE Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUP 112	PRIVATE VOICE II Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 133	PRIVATE GUITAR I Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	1 hour each: 2 each
MUP 134	PRIVATE GUITAR II Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	1 hour each: 2 each
MUP 143	PRIVATE CLARINET I Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 144	PRIVATE CLARINET II Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 145	PRIVATE SAXOPHONE I Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each
MUP 146	PRIVATE SAXOPHONE II Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.	2 hours each: 4 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUP 161	<p>PRIVATE TRUMPET I</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 162	<p>PRIVATE TRUMPET II</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 171	<p>PRIVATE TROMBONE I</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 172	<p>PRIVATE TROMBONE II</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 181	<p>PRIVATE PERCUSSION I</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 182	<p>PRIVATE PERCUSSION II</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 201	<p>PRIVATE PIANO III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUP 202	<p>PRIVATE PIANO IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 203	<p>PRIVATE ORGAN III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 204	<p>PRIVATE ORGAN IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 211	<p>PRIVATE VOICE III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 212	<p>PRIVATE VOICE IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 233	<p>PRIVATE GUITAR III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	1 hour each: 2 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUP 234	<p>PRIVATE GUITAR IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	1 hour each: 2 each
MUP 243	<p>PRIVATE CLARINET III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 244	<p>PRIVATE CLARINET IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 245	<p>PRIVATE SAXOPHONE III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 246	<p>PRIVATE SAXOPHONE IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 261	<p>PRIVATE TRUMPET III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each

COURSE #	COURSE DESCRIPTION	CREDITS
MUP 262	<p>PRIVATE TRUMPET IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 271	<p>PRIVATE TROMBONE III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 272	<p>PRIVATE TROMBONE IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 281	<p>PRIVATE PERCUSSION III</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUP 282	<p>PRIVATE PERCUSSION IV</p> <p>Individual performance instruction is available in keyboard instruments, voice, strings, woodwinds, brass, percussion and fretted instruments. Emphasis is placed on developing technique, repertoire and performance skills commensurate with the student's educational goals. Students are required to practice a minimum of five hours per week for each credit hour. Upon completion, students should be able to effectively perform assigned repertoire and technical studies in an appropriate performance evaluation setting.</p>	2 hours each: 4 each
MUS 100	<p>CONVOCATION</p> <p>This course, required each semester for music majors and music minors, is designed to expose students to a variety of repertory styles and to give students an opportunity to practice individual performance skills. Emphasis is placed on exposure to performance and lectures by guest artists, faculty, or students, and on personal performance(s) in class each semester.</p>	1 hour: 1T
MUS 101	<p>MUSIC APPRECIATION</p> <p>This course is designed for non-music majors and requires no previous musical experience. It is a survey course that incorporates several modes of instruction including lecture, guided listening, and similar experiences involving music. The course covers a minimum of three (3) stylistic periods, provides a multi-cultural perspective, and includes both vocal and instrumental genres. Upon completion, students should be able to demonstrate a knowledge of music fundamentals, the aesthetic/stylistic characteristics of historical periods, and an aural perception of style and structure in music.</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
MUS 104	<p>JAZZ: AN INTRODUCTION AND HISTORY</p> <p>This course provides a study of the origins, development and existing styles of jazz. Topics include the blues, piano styles, Dixieland, swing, bebop, third stream, cool, free jazz and jazz/rock fusion. Upon completion, students should be able to demonstrate a knowledge, understanding and an aural perception of the different style characteristics of jazz music.</p>	2 hours: 2T
MUS 111	<p>MUSIC THEORY I</p> <p>This course introduces the student to the diatonic harmonic practices in the Common Practice Period. Topics include fundamental musical materials (rhythm, pitch, scales, intervals, diatonic harmonies) and an introduction to the principles of voice leading and harmonic progression. Upon completion, students should be able to demonstrate a basic competency using diatonic harmony through analysis, writing, sight singing, dictation, and keyboard skills. <i>Corequisite:</i> MUS 113</p>	3 hours: 2T, 2E
MUS 112	<p>MUSIC THEORY II</p> <p>This course completes the study of diatonic harmonic practices in the Common Practice Period and introduces simple musical forms. Topics include principles of voice leading used in three- and four-part triadic harmony and diatonic seventh chords, non-chord tones, cadences, phrases, and periods. Upon completion, students should be able to demonstrate competence using diatonic harmony through analysis, writing, sight singing, dictation, and keyboard skills. <i>Prerequisite:</i> MUS 111 <i>Corequisite:</i> MUS 114</p>	3 hours: 2T, 2E
MUS 113	<p>MUSIC THEORY LABORATORY I</p> <p>This course provides the practical application of basic musical materials through sight singing; melodic, harmonic, and rhythmic dictation; and keyboard harmony. Topics include intervals, simple triads, diatonic stepwise melodies, basic rhythmic patterns in simple and compound meter, and four-part triadic progressions in root position. Upon completion, students should be able to write, sing, and play intervals, scales, basic rhythmic patterns, diatonic stepwise melodies, simple triads, and short four-part progressions in root position. <i>Prerequisite:</i> Permission of the instructor <i>Corequisite:</i> MUS 111</p>	1 hour: 2E
MUS 114	<p>MUSIC THEORY LABORATORY II</p> <p>This course continues the practical application of diatonic musical materials through sight singing; melodic, harmonic, and rhythmic dictation; and keyboard harmony. Topics include intervals, scales, diatonic melodies with triadic arpeggiations, more complex rhythmic patterns in simple and compound meter, and four-part diatonic progressions in all inversions. Upon completion, students should be able to write, sing, and play all intermediate rhythmic patterns employing syncopations and beat divisions, diatonic melodies, and four-part diatonic progressions. <i>Prerequisite:</i> MUS 113 <i>Corequisite:</i> MUS 112</p>	1 hour: 2E
MUS 115	<p>FUNDAMENTALS OF MUSIC</p> <p>This course is designed to teach the fundamentals of music and to develop usable skills for the classroom teacher. Topics include rhythmic notation, simple and compound meters, pitch notation, correct singing techniques, phrases, keyboard awareness, key signatures, scales, intervals and harmony using I, IV, and V with a choral instrument. Upon completion, students should be able to sing a song, harmonize a simple tune, demonstrate rhythmic patterns, and identify musical concepts through written documentation</p>	3 hours: 3T

COURSE #	COURSE DESCRIPTION	CREDITS
MUS 211	<p>MUSIC THEORY III</p> <p>This course introduces the student to the chromatic harmonic practices in the Common Practice Period. Topics include secondary functions, modulatory techniques, and binary and tertiary forms. Upon completion, students should be able to demonstrate competence using chromatic harmony through analysis, writing, sight singing, dictation, and keyboard skills. <i>Prerequisite:</i> MUS 112</p> <p><i>Corequisite</i> If ear training laboratory is a separate course, the COREQUISITE for MUS 211 is MUS 213.</p>	3 hours: 2T, 2E
MUS 212	<p>MUSIC THEORY IV</p> <p>This course completes the study of chromatic harmonic practices in the Common Practice Period and introduces the student to twentieth-century practices. Topics include the Neapolitan and augmented sixth chords, sonata form, late nineteenth-century tonal harmony, and twentieth-century practices and forms. Upon completion, students should be able to demonstrate competence using chromatic harmony and basic twentieth-century techniques through analysis, writing, sight singing, dictation, and keyboard skills. <i>Prerequisite:</i> MUS 211 <i>Corequisite:</i> If ear training laboratory is a separate course, the COREQUISITE for MUS 212 is MUS 214.</p>	3 hours: 2T, 2E
MUS 213	<p>MUSIC THEORY LABORATORY III</p> <p>This course provides the practical application of chromatic musical materials through sight singing; melodic, harmonic, and rhythmic dictation; and keyboard harmony. Topics include melodies with simple modulations, complex rhythms in simple and compound meter, and secondary function chords. Upon completion, students should be able to write, sing, and play modulating melodies, rhythmic patterns with beat subdivisions and four-part chromatic harmony. <i>Prerequisite:</i> Permission of the instructor. <i>Corequisite:</i> If ear training is a separate course, the COREQUISITE for MUS 213 is MUS 211.</p>	1 hour: 2E
MUS 214	<p>MUSIC THEORY LABORATORY IV</p> <p>This course provides the practical application of chromatic musical materials and simple twentieth-century practices through sight singing; melodic, harmonic and rhythmic dictation; and keyboard harmony. Topics include chromatic and atonal melodies; complex rhythmic patterns in simple, compound and asymmetric meters; chromatic chords and twentieth-century harmony. Upon completion, students should be able to write, sing and play chromatic and atonal melodies, complex rhythms and meters, four-part chromatic harmony and simple twentieth-century chord structures.</p>	1 hour: 2E
NUR 112	<p>FUNDAMENTAL CONCEPTS OF NURSING</p> <p>This course teaches foundational knowledge of nursing concepts and clinical decision making to provide evidence-based nursing care. Content includes but is not limited to: healthcare delivery systems, professionalism, health promotion, psychosocial well-being, functional ability, gas exchange, safety, pharmacology, and coordinator/manager of care. <i>Prerequisite:</i> Admission to the program <i>Corequisite:</i> BIO 201 and MTH 100 or higher level Math</p>	7 hours: 4T, 6L, 3C
NUR 113	<p>NURSING CONCEPTS I</p> <p>This course teaches foundational knowledge of nursing concepts and clinical decision making to provide evidence-based nursing care. Content includes but is not limited to: coordinator/manager of care, perfusion, oxygenation, infection, inflammation, tissue integrity, nutrition, elimination, mobility/immobility, cellular regulation, acid/base balance, and fluid/electrolyte balance. <i>Prerequisite:</i> NUR 112, BIO 201 and MTH 100 or higher level math <i>Corequisite:</i> BIO 202, ENG 101 and PSY 210</p>	8 hours: 4T, 3L, 9C

COURSE #	COURSE DESCRIPTION	CREDITS
NUR 114	NURSING CONCEPTS II This course teaches foundational knowledge of nursing concepts and clinical decision making to provide evidence-based nursing care. Content includes but is not limited to: coordinator/manager of care, sexuality, reproduction and childbearing, infection, inflammation, sensory perception, perfusion, cellular regulation, mood disorders and affect, renal fluid/electrolyte balance, and medical emergencies. <i>Prerequisite:</i> NUR 113, ENG 101, BIO 202, PSY 210 <i>Corequisite:</i> NUR 115 and SPH 106 or 107	8 hours: 5T, 9C
NUR 115	EVIDENCE BASED CLINICAL REASONING This course provides students with opportunities to collaborate with various members of the health care team in a family and community context. Students utilize clinical reasoning to assimilate concepts within the individual, health, and nursing domains. <i>Prerequisite:</i> NUR 113, PSY 210, ENG 101 and BIO 202 <i>Corequisite:</i> NUR 114 and SPH 106 or 107	2 hours: 1T, 3C
NUR 209	CONCEPTS FOR THE HEALTHCARE TRANSITION STUDENTS This course focuses on application of nursing concepts to assist health care professionals to transition into the role of the registered nurse. Emphasis in this course is placed on evidenced based clinical decision making and nursing concepts provided in a family and community context for a variety of health alterations across the lifespan. <i>Prerequisites:</i> MTH 100 or higher level math, BIO 201, BIO 202, ENG 101, SPH 106 or 107, PSY 210 This course is a mobility course for LPNs, Paramedics	10 hours: 6T, 3L, 9C
NUR 211	ADVANCED NURSING CONCEPTS This course provides opportunities for students to integrate advanced nursing care concepts within a family and community context. Content includes but is not limited to: manager of care for advanced concepts in safety, fluid/electrolyte balance, cellular regulation, gas exchange, psychosocial well-being, growth and development, perfusion, and medical emergencies. <i>Prerequisites:</i> NUR 114, NUR 115 and SPH 106 or 107 <i>Corequisite:</i> BIO 220	7 hours: 4T, 9C
NUR 221	ADVANCED EVIDENCE BASED CLINICAL REASONING This course provides students with opportunities to demonstrate graduate competencies through didactic and preceptorship experiences necessary to transition to the profession of nursing. Content in nursing and health care domains includes management of care, professionalism, and healthcare delivery systems. <i>Prerequisite:</i> BIO 220 and NUR 211 <i>Corequisite:</i> HUM - Humanities elective (Ethics preferred)	7 hours: 3T, 12C
OAD 101	BEGINNING KEYBOARDING This course is designed to enable the student to use the touch method of keyboarding through classroom instruction and outside lab. Emphasis is on speed and accuracy in keying alphabetic, symbol, and numeric information using a keyboard. Upon completion, the student should be able to demonstrate proper technique and an acceptable rate of speed and accuracy, as defined by the course syllabus, in the production of basic business documents such as memoranda, letters, reports, etc.	3 hours
OAD 103	INTERMEDIATE KEYBOARDING This course is designed to assist the student in increasing speed and accuracy using the touch method of keyboarding through classroom instruction and lab exercises. Emphasis is on the production of business documents such as memoranda, letters, reports, tables, and outlines from unarranged rough draft to acceptable format. Upon completion, the student should be able to demonstrate proficiency and an acceptable rate of speed and accuracy, as defined by the course syllabus in the production of business documents. <i>Prerequisite:</i> OAD 101 or permission of instructor	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
OAD 104	ADVANCED KEYBOARDING This course is designed to assist the student in continuing to develop speed and accuracy using the touch method of keyboarding through classroom instruction and lab exercises. Emphasis is on the production of business documents using decision-making skills. Upon completion, the student should be able to demonstrate proficiency and an acceptable rate of speed and accuracy, as defined by the course syllabus, in the production of high-quality business documents. <i>Prerequisite:</i> OAD 103 or permission of instructor	3 hours
OAD 125	WORD PROCESSING This course is designed to provide the student with basic word processing skills through classroom instruction and outside lab. Emphasis is on the utilization of software features to create, edit and print common office documents. Upon completion, the student should be able to demonstrate the ability to use industry-standard software to generate appropriately formatted, accurate, and attractive business documents such as memoranda, letters and reports. <i>Prerequisite:</i> OAD 101 or permission of instructor	3 hours
OAD 126	ADVANCED WORD PROCESSING This course is designed to increase student proficiency in using advanced word processing functions. Emphasis is on the use of industry-standard software to maximize productivity. Upon completion, the student should be able to demonstrate the ability to generate complex documents such as forms, newsletters, and multi-page documents. <i>Prerequisite:</i> OAD 125 or permission of instructor	3 hours
OAD 130	ELECTRONIC CALCULATIONS This course is designed to give students a job-level competency in using the ten-key touch method and develop the student's ability to solve common business problems with an electronic display-printing calculator. Emphasis is placed on basic mathematical functions in a business context. Upon completion students will be able to perform basic electronic calculating at an acceptable rate of speed and accuracy.	3 hours
OAD 134	CAREER AND PROFESSIONAL DEVELOPMENT This course is designed to assist the student in preparing for employment. Emphasis is on developing resumes, improving interview techniques, participating in mock interviews, setting goals, conducting job searches, and improving personal and professional image. Upon completion, the student will be able to demonstrate confidence in seeking employment.	3 hours
OAD 138	RECORDS AND INFORMATION MANAGEMENT This course is designed to give the student knowledge about managing office records and information. Emphasis is on basic filing procedures, methods, systems, supplies, equipment, and modern technology used in the creation, protection, and disposition of records stored in a variety of forms. Upon completion, the student should be able to perform basic filing procedures.	3 hours
OAD 200	MACHINE TRANSCRIPTION This course is designed to develop marketable skills in transcribing various forms of dictated material through classroom instruction. Emphasis is on the use of microcomputers and a commercial word processing package. Upon completion, the student should be able to accurately transcribe documents from dictated recordings. <i>Prerequisite:</i> OAD 101	3 hours
OAD 202	LEGAL TRANSCRIPTION This course is designed to familiarize students with legal terms and provide transcription skill development in the production of legal correspondence, forms, and court documents through classroom instruction and lab exercises. Emphasis is on transcribing error-free legal documents using transcription equipment. Upon completion, students should be able to demonstrate the ability to accurately transcribe legal documents that are appropriately formatted. <i>Prerequisite:</i> OAD 103 or permission of instructor	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
OAD 212	MEDICAL TRANSCRIPTION This course is designed to orient students to standard medical reports, correspondence, and related documents transcribed in a medical environment through classroom instruction. Emphasis is on transcribing medical records from dictated recordings. Learn/maintain standards of ethical/professional conduct. Upon completion, the student should be able to accurately transcribe medical documents from dictated recordings. <i>Prerequisite:</i> OAD 103	3 hours
OAD 213	ADVANCED MEDICAL TRANSCRIPTION This course is designed to develop skills in medical transcription. Emphasis is on diagnostic studies, laboratory, radiology, and pathology reports. Upon completion, the student should be able to demonstrate proficiency in the preparation of a variety of reports and forms used in the medical environment. <i>Prerequisite:</i> OAD 212 or permission of the instructor	3 hours
OAD 215	HEALTH INFORMATION MANAGEMENT This course is designed to promote an understanding of the structure, analysis and management of medical records. Emphasis is on managing medical and insurance records, coding of diseases, operations and procedures, and the legal aspects of medical records. Upon completion, the student should be able to maintain medical records efficiently. <i>Prerequisite:</i> Permission of instructor	3 hours
OAD 217	OFFICE MANAGEMENT This course is designed to develop skills necessary for supervision of office functions. Emphasis is on issues relating to the combination of people and technology in achieving the goals of business in a culturally diverse workplace, including the importance of office organization, teamwork, workplace ethics, office politics, and conflict-resolution skills. Upon completion, the student should be able to demonstrate effective supervision in the modern office. <i>Prerequisite:</i> Permission of instructor	3 hours
OAD 218	OFFICE PROCEDURES This course is designed to develop an awareness of the responsibilities and opportunities of the office professional through classroom instruction. Emphasis is on current operating functions, practices, and procedures, work habits, attitudes, oral and written communications, and professionalism. Upon completion, the student should be able to demonstrate the ability to effectively function in an office support role. <i>Prerequisite:</i> OAD 101	3 hours
OAD 231	OFFICE APPLICATIONS This course is designed to provide the student with a foundation in the use of computerized equipment and application software as tools in the performance of a variety of office tasks through classroom instruction and lab exercises. Emphasis is on the role of the office professional in the selection and application of appropriate technology to the specific task or combination of tasks. Upon completion, the student should be able to demonstrate proficiency in the selection of appropriate computerized tools to complete designated tasks. <i>Prerequisite:</i> Permission of instructor	2 hours
OAD 241	OFFICE CO-OP This course is designed to provide the student with an opportunity to work in an office environment. Emphasis is on the integration of classroom learning with on-the-job experiences that relate meaningfully to office careers. Upon completion, the student should be able to demonstrate the ability to apply knowledge and skills gained in the classroom to an actual work situation. <i>Prerequisite:</i> Permission of instructor	3 hours: 15i
OAD 242	OFFICE INTERNSHIP This course is designed to provide the students with an opportunity to work in an office environment. Emphasis is on the efficient and accurate performance of job tasks. Upon completion, the student should be able to demonstrate successful performance of skills required in an office support position. <i>Prerequisite:</i> Permission of instructor	3 hours: 15i

COURSE #	COURSE DESCRIPTION	CREDITS
ORI 101	<p>ORIENTATION TO COLLEGE</p> <p>This course is a graduation requirement for all degree or certificate-seeking students, and it should be completed during a student's first semester enrolled at GADSDEN STATE. The course emphasizes personal responsibility through the exploration of GADSDEN STATE regulations, campus facilities, and student services. It is also designed to help students develop effective study skills, critical thinking, and career goals. Upon completion of this course, students should be prepared to successfully manage learning experiences to meet educational and career goals. This course aids new students in their transition to the institution; exposes new students to the broad educational opportunities of the institution; and integrates new students into the life of the institution.</p>	1 hour
ORT 100	<p>ORIENTATION FOR CAREER STUDENTS</p> <p>This course is a graduation requirement for all non-degree eligible students who are not allowed to enroll in any course creditable toward an associate degree, and it should be completed during a student's first semester enrolled at GADSDEN STATE. The course emphasizes personal responsibility through the exploration of GADSDEN STATE regulations, campus facilities, and student services. It is also designed to help students develop effective study skills, library skills, critical thinking, and career goals. Upon completion of this course, students should be prepared to successfully manage learning experiences to meet educational and career goals. This course is designed to introduce the beginning student to college. College policies and regulations are covered as well as stress management, resume preparation, job application procedures, and employment interviewing techniques.</p>	1 hour
PED 100	<p>FUNDAMENTALS OF FITNESS</p> <p>This lecture course includes the basic principles of physical education and physical fitness. It explores psychological and physiological effects of exercise and physical fitness, including effects on the human skeleton, muscle development, respiration, and coordination. It is viewed as an introduction to such laboratory courses as slimnastics, weight training, and conditioning. The course may also include fitness evaluation, development of individual fitness programs, and participation in fitness activities.</p>	3 hours: 3T
PED 109	<p>JOGGING</p> <p>This course covers the basic concepts involved in safely and effectively improving cardiovascular fitness. Emphasis is placed on walking, jogging, or running as a means of achieving fitness. Upon completion, students should be able to understand and appreciate the benefits derived from these activities.</p>	1 hour: 2M
PED 126	<p>RECREATIONAL GAMES</p> <p>This course is designed to give an overview of a variety of recreational games and activities. Emphasis is placed on the skills and rules necessary to participate in a variety of lifetime recreational games. Upon completion, students should be able to demonstrate an awareness of the importance of participating in lifetime recreational activities</p>	1 hour: 2M
PED 223	<p>METHODS OF INSTRUCTION</p> <p>This course provides instruction for the student on specialized teaching techniques in becoming a wellness instructor. The student will learn the basis on instruction in the area of aerobic types of exercise and weight training. This course will enable the student to instruct as well as supervise these types of programs. The student will learn basic anatomy and exercise physiology as it applies to movement of the body during exercise. This course will address and explain safety and teaching methods for the exercise instructor in the development of a comprehensive fitness program. <i>Prerequisite:</i> As required by program</p>	3 hours
PED 251	<p>VARSITY BASKETBALL IV</p> <p>This course covers advanced fundamentals of basketball. Emphasis is placed on skill development, knowledge of the rules, and basic game strategy. This course builds upon previous instruction and provides additional opportunities to develop skills. Upon completion, students should be able to participate in competitive basketball. <i>Prerequisite:</i> As required by program</p>	1 hour: 2M

COURSE #	COURSE DESCRIPTION	CREDITS
PED 255	VARSITY TENNIS I This course emphasizes the refinement of playing skills. Topics include continuing the development of fundamentals, learning advanced serves, and strokes and pace and strategy in singles and doubles play. Upon completion, students should be able to play competitive tennis. <i>Prerequisite:</i> As required by program.	1 hour: 2M
PED 258	VARSITY VOLLEYBALL I This course covers more advanced volleyball techniques. Emphasis is placed on refining skills and developing more advanced strategies and techniques. Upon completion, students should be able to participate in competitive volleyball. <i>Prerequisite:</i> As required by program	1 hour: 2M
PED 296	PRACTICUM IN ATHLETIC TRAINING I This course will allow students to achieve real world, hands-on experience while assigned to a healthcare professional at local orthopedic clinics and/or athletic facilities. Students will observe, report, and assist in the treatment of athletic injuries. <i>Prerequisite:</i> BIO 201, BIO 202, HED 231 (First Aid), HED 232 (Care and Prevention of Athletic Injuries), and permission of instructor	3 hours
PED 297	PRACTICUM IN ATHLETIC TRAINING II This course builds upon previous instruction and provides additional opportunities to develop competencies necessary to assess and intervene with athletic injuries while assigned to a healthcare professional at local orthopedic clinics and/or athletic facilities. <i>Prerequisite:</i> PED 296 and permission of instructor. <i>Prerequisite:</i> As required by program	3 hours
PHL 106	INTRODUCTION TO PHILOSOPHY This course is an introduction to the basic concepts of philosophy. The literary and conceptual approach of the course is balanced with emphasis on approaches to ethical decision making. The student should have an understanding of major philosophical ideas in an historical survey from the early Greeks to the modern era.	3 hours
PHL 206	ETHICS AND SOCIETY This course involves the study of ethical issues that confront individuals in the course of their daily lives. The focus is on the fundamental questions of right and wrong, of human rights, and of conflicting obligations. The student should be able to understand and be prepared to make decisions in life regarding ethical issues.	3 hours
PHS 111	PHYSICAL SCIENCE I This course provides the non-technical student with an introduction to the basic principles of geology, oceanography, meteorology, and astronomy.	4 hours: 3T, 2E
PHS 112	PHYSICAL SCIENCE II This course provides the non-technical student with an introduction to the basic principles of chemistry and physics.	4 hours: 3T, 2E
PHY 115	TECHNICAL PHYSICS Technical physics is an algebra based physics course designated to utilize modular concepts to include: motion, forces, torque, work energy, heat wave/sound, and electricity. Results of physics education research and physics applications in the workplace are used to improve the student's understanding of physics in technical areas. Upon completion, students will be able to: define motion and describe specific module concepts; utilize microcomputers to generate motion diagrams; understand the nature of contact forces and distinguish passive forces; work cooperatively to set-up laboratory exercises; and demonstrate applications of module-specific concepts. <i>Prerequisite:</i> Math 100	4 hours

COURSE #	COURSE DESCRIPTION	CREDITS
PHY 120	INTRODUCTION TO PHYSICS This course provides an introduction to general physics for non-science majors. Topics include fundamentals of mechanics, properties of matter, heat and temperature, simple harmonic motion, SHM, waves and sound, electricity and magnetism, optics and modern physics. <i>Prerequisite:</i> MTH 098 or higher.	4 hours: 3T, 2E
PHY 201	GENERAL PHYSICS I TRIG BASED This course is designed to cover general physics at a level that assures previous exposure to college algebra and basic trigonometry. Specific topics include mechanics, properties of matter and energy, thermodynamics, and periodic motion. <i>Prerequisite:</i> MTH 113 or equivalent	4 hours: 3T, 2E
PHY 202	GENERAL PHYSICS II TRIG BASED This course is designed to cover general physics using college algebra and basic trigonometry. Specific topics include wave motion, sound, light, optics, electrostatics, circuits, magnetism, and modern physics. <i>Prerequisite:</i> PHY 201	4 hours: 3T, 2E
PHY 213	GENERAL PHYSICS WITH CALCULUS I This course provides a calculus-based treatment of the principle subdivision of classical physics: mechanics and energy including thermodynamics. <i>Prerequisite:</i> MTH 125 <i>Corequisite:</i> MTH 125	4 hours: 3T, 2E
PHY 214	GENERAL PHYSICS WITH CALCULUS II This course provides a calculus-based study in classical physics. Topics include simple harmonic motion, waves, sound, light, optics, electricity, and magnetism. <i>Prerequisite:</i> PHY 213 (General Physics with Calculus I)	4 hours: 3T, 2E
POL 211	AMERICAN NATIONAL GOVERNMENT This course surveys the background, constitutional principles, organization, and operation of the American political system. Topics include the U. S. Constitution, federalism, civil liberties, civil rights, political parties, interest groups, political campaigns, voting behavior, elections, the presidency, bureaucracy, Congress, and the justice system. Upon completion, students should be able to identify and explain relationships among the basic elements of American government and function as more informed participants of the American political system.	3 hours
POL 220	STATE AND LOCAL GOVERNMENT This course is a study of the forms of organization, functions, institutions, and operation of American state and local governments. Emphasis is placed on the variety of forms and functions of state and local governments, with particular attention to those in Alabama, and to the interactions between state and local governments and the national government. Upon completion, students should be able to identify elements of and explain relationships among the state, local, and national governments of the U.S., and function as more informed participants of state and local political systems.	3 hours
POL 230	COMPARATIVE GOVERNMENT This course introduces comparative analysis of political systems. Emphasis is placed on institutions and processes of contemporary national political systems in selected democratic industrial nations. Upon completion, students should be able to compare and contrast the organization, institutions, and processes of major types of governmental systems of the world.	3 hours
POL 236	SURVEY OF INTERNATIONAL RELATIONS This course is a survey of the basic forces affecting international relations. Topics include bases of national power, balance of power, causes of war, the international political economy, international law, international organization, and possible futures of international relations. Upon completion, students should be able to identify and discuss relevant terms and concepts, and identify, analyze, evaluate, and discuss the primary factors influencing the international relations of selected states.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
POR 101	INTRODUCTORY PORTUGUESE I This course provides an introduction to Portuguese. Topics include the development of basic communication skills and the acquisition of basic knowledge of the cultures of Portuguese-speaking areas. <i>Prerequisite:</i> As required by program	4 hours
POR 102	INTRODUCTORY PORTUGUESE II This course is a continuation of POR 101 and includes the development of basic communication skills and the acquisition of basic knowledge of the cultures of Portuguese-speaking areas. <i>Prerequisite:</i> POR 101 or equivalent	4 hours
PRL 101	INTRODUCTION TO PARALEGAL STUDY This course presents the ethical and professional responsibilities of the paralegal, as well as the limitations placed on the paralegal. It is designed to orient the student to the role of the paralegal and the lawyer as a legal team and to provide an overview of various legal concepts, career opportunities, and other related topics. The student must take PRL 101 and PRL 102 before taking any other paralegal courses. <i>Corequisite:</i> PRL 102	3 hours
PRL 102	BASIC RESEARCH AND WRITING This course introduces the techniques of legal research and writing. Emphasis is placed on locating, analyzing, applying, and validating sources of law. Topics include legal research, legal writing, proper citation, and electronic research. The student will demonstrate the ability to perform legal research and writing assignments using techniques covered in this course. The student must take PRL 101 and PRL 102 before taking any other paralegal courses. <i>Corequisite:</i> PRL 101	3 hours
PRL 103	ADVANCED LEGAL RESEARCH AND WRITING This course requires the student to apply research, analysis, and writing techniques to substantive legal issues. Assignments include preparation of legal memoranda and other documents and the more efficient use of electronic research methods. <i>Prerequisite:</i> PRL 101 and PRL 102	3 hours
PRL 160	CRIMINAL LAW AND PROCEDURE This course introduces substantive and procedural criminal law including elements of state and federal crimes, defenses, constitutional issues, pre-trial process, and other related topics. Upon completion, students should be able to explain elements of specific crimes and assist an attorney in preparing a criminal case. <i>Prerequisite:</i> PRL 101 and PRL 102	3 hours
PRL 210	REAL PROPERTY LAW This course emphasizes the study of real property law. Topics include the distinction between real and personal property, various estates and interest in property, and the mechanics of conveyance, encumbrances, and closing procedures. Upon completion, the student will demonstrate the ability to identify estates, forms of deeds, recording requirements, and procedures used to enforce rights to real property. <i>Prerequisite:</i> PRL 101 and PRL 102	3 hours
PRL 230	DOMESTIC LAW This course covers laws governing domestic relations. Topics include marriage, separation, divorce, child custody, support, property division, adoption, domestic violence, and other related topics. The student will demonstrate the ability to draft divorce and support pleadings, separation agreements, and calculate child support according to the guidelines adopted by the state. <i>Prerequisite:</i> PRL 101 and PRL 102	3 hours
PRL 240	WILLS, TRUSTS AND ESTATES This course covers wills, trusts, and inheritance. Topics include types of wills, the law of intestacy (inheritance), probating estates, and alternatives to probate. The course also covers trusts, medical directives, and associated litigation. Upon completion, the student will demonstrate the ability to draft simple wills, prepare estate forms, understand administration of estates, and understand terms regarding trusts. <i>Prerequisite:</i> PRL 101 and PRL 102	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
PRL 262	CIVIL LAW AND PROCEDURE This course examines the Federal Rules of Civil Procedure, the Alabama Rules of Civil Procedure, and trial procedure. The student will demonstrate the ability to prepare a trial notebook for litigation purposes. <i>Prerequisite:</i> PRL 101 and PRL 102	3 hours
PRL 291	INTERNSHIP IN PARALEGALISM This course provides students opportunities to work in paid or unpaid positions in which they apply paralegal skills and knowledge. This course requires six hours of class room instruction and a minimum of one hundred and thirty (130) hours of practical experience in the legal field, including work in law offices, municipal courts, banks, insurance companies, and governmental agencies, and with district and circuit court judges. Upon course completion, students will be able to apply in real-work settings competencies obtained in the PRL curriculum. <i>Prerequisite:</i> PRL 101, PRL 102, and PRL 262	3 hours: 15i
PSY 200	GENERAL PSYCHOLOGY This course is a survey of behavior, with emphasis upon psychological processes. This course includes the biological bases for behavior, thinking, emotion, motivation, and the nature and development of personality.	3 hours
PSY 210	HUMAN GROWTH AND DEVELOPMENT This course is the study of the psychological, social, and physical factors that affect human behavior from conception to death. <i>Prerequisite:</i> PSY 200	3 hours
PSY 230	ABNORMAL PSYCHOLOGY This course is a survey of abnormal behavior and its social and biological origins. The anxiety-related disorders, psychoses, personality disorders, and mental deficiencies will be covered. <i>Prerequisite:</i> PSY 200	3 hours
RAD 111	INTRODUCTION TO RADIOGRAPHY This course provides students with an overview of radiography and its role in health care delivery. Topics include the history of radiology, professional organizations, legal and ethical issues, health care delivery systems, introduction to radiation protection, and medical terminology. Upon completion students will demonstrate foundational knowledge of radiologic sciences.	2 hours: 2T
RAD 112	RADIOGRAPHIC PROCEDURES I This course provides the student with instruction in anatomy and positioning of the Chest and Thorax, Upper and Lower Extremities, and Abdomen. Theory and laboratory exercises will cover radiographic positions and procedures. Upon completion of the course the student will demonstrate knowledge of anatomy and positioning skills, oral communication and critical thinking in both the didactic and laboratory settings.	4 hours: 3T, 1I
RAD 113	PATIENT CARE This course provides the student with concepts of patient care and pharmacology and cultural diversity. Emphasis in theory and lab is placed on assessment and considerations of physical and psychological conditions, routine and emergency. Upon completion, students will demonstrate/explain patient care procedures appropriate to routine and emergency situations.	2 hours: 1T, 1I
RAD 114	CLINICAL EDUCATION I This course provides students with the opportunity to correlate instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Emphasis is on clinical orientation, equipment, procedures, and department policies. Upon completion of the course, the student will demonstrate practical applications of specific radiographic procedures identified in RAD 112.	2 hours: 2C

COURSE #	COURSE DESCRIPTION	CREDITS
RAD 122	<p>RADIOGRAPHIC PROCEDURES II</p> <p>This course provides students with instruction in anatomy and positioning of spine, cranium, body systems and special procedures. Theory and laboratory exercises will cover radiographic positions and procedures with applicable contrast media administration. Upon completion of the course students will demonstrate knowledge of anatomy and positioning skills, oral communication and critical thinking in both the didactic and laboratory settings.</p>	4 hours: 3T, 1I
RAD 124	<p>CLINICAL EDUCATION II</p> <p>This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting will enable the student to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Upon completion of the course, the student will demonstrate practical applications of radiographic procedures presented in current and previous courses.</p>	5 hours: 5C
RAD 125	<p>IMAGING EQUIPMENT</p> <p>This course provides students with knowledge of basic physics and the fundamentals of imaging equipment. Topics include information on x-ray production, beam characteristics, units of measurements, and imaging equipment components. Upon completion, students will be able to identify imaging equipment as well as provide a basic explanation of the principles associated with image production.</p>	3 hours: 3T
RAD 134	<p>CLINICAL EDUCATION III</p> <p>This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses.</p>	5 hours: 5C
RAD 135	<p>EXPOSURE PRINCIPLES</p> <p>This course provides students with the knowledge of factors that govern and influence the production of radiographic images and assuring consistency in the production of quality images. Topics include factors that influence density, contrast and radiographic quality as well as quality assurance, image receptors, intensifying screens, processing procedures, artifacts, and state and federal regulations. Upon completion students will demonstrate knowledge of radiographic imaging, processing, quality assurance, and explain factors that influence the production of radiographic images.</p>	3 hours: 2T, 1I
RAD 136	<p>RADIATION PROTECTION AND BIOLOGY</p> <p>This course provides students with principles of radiation protection and biology. Topics include radiation protection responsibility of the radiographer to patients, personnel and the public, principles of cell radiation interaction, radiation effects on cells and factors affecting cell response. Upon completion the student will demonstrate knowledge of radiation protection practices and fundamentals of radiation biology.</p>	2 hours: 2T
RAD 212	<p>IMAGE EVALUATION AND PATHOLOGY</p> <p>This course provides a basic understanding of the concepts of disease and provides the knowledge to evaluate image quality. Topics include evaluation criteria, anatomy demonstration and image quality with emphasis placed on a body system approach to pathology. Upon completion students will identify radiographic manifestations of disease and the disease process. Students will evaluate images in the classroom, laboratory and clinical settings.</p>	2 hours: 1T, 1I

COURSE #	COURSE DESCRIPTION	CREDITS
RAD 214	CLINICAL EDUCATION IV This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Principles of computed tomography and cross-sectional anatomy will be presented. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses.	8 hours: 8C
RAD 224	CLINICAL EDUCATION V This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Principles of various imaging modalities will be presented. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses.	8 hours: 8C
RAD 227	REVIEW SEMINAR This course provides a consolidated and intensive review of the basic areas of expertise needed by the entry level technologist. Topics include basic review of all content areas, radiographic management, test taking techniques and job seeking skills. Upon completion students will be able to pass comprehensive tests of topics covered in the Radiologic Technology Program.	2 hours: 2T
RDG 084	DEVELOPMENTAL READING II This course is designed to assist students whose placement test scores indicate serious difficulty with decoding skills, comprehension, vocabulary, and study skills.	3 hours
RDG 085	DEVELOPMENTAL READING III This course is designed to assist students whose placement test scores indicate serious difficulty with decoding skills, comprehension, vocabulary, and study skills. <i>Prerequisite:</i> RDG 084, recommendation by reading instructor, or a reading placement score of 51-69.	3 hours
REL 100	HISTORY OF WORLD RELIGIONS This course is designed to acquaint the student with the beliefs and practices of the major contemporary religions of the world. This includes the religions of Africa, the Orient, and the western world. The student should have an understanding of the history and origins of the various religions in the world. <i>Prerequisite:</i> As required by program.	3 hours
REL 151	SURVEY OF THE OLD TESTAMENT This course is an introduction to the content of the Old Testament with emphasis on the historical context and the contemporary theological and cultural significance of the Old Testament. The student should have an understanding of the significance of the Old Testament writings upon completion of this course	3 hours
REL 152	SURVEY OF THE NEW TESTAMENT This course is a survey of the New Testament with special attention focused on the historical and geographical setting. The student should have an understanding of the books of the New Testament and the cultural and historical events associated with these writings.	3 hours
RTR 110	REALTIME REPORTING I / LABORATORY This course includes the study of computer-compatible, machine-stenographic theory principles, with an emphasis on clear, consistent, conflict-free writing; an introduction to the alphabetic and Arabic systems of writing numbers; the mastery of basic abbreviations; and speed development of 40-60 net word per minute (nwpm) on familiar material of higher-than-average syllabic density.	5 hours: 3T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
RTR 115	REALTIME REPORTING TECHNOLOGY This course is designed to provide students with competency in litigation support and computer-aided transcription of machine shorthand notes on several CAT systems. Attention will also be given to the word-processing functions of revising and editing, document storage and retrieval, merging texts, and printing documents. <i>Prerequisite:</i> RTR 130	3 hours: 2T, 2L
RTR 130	REALTIME REPORTING II / LABORATORY This course completes the study of computer-compatible, machine-stenographic theory principles and introduces computer-compatible Realtime Reporting abbreviations and phrases. Emphasis continues on speed development of 60-80 WPM on familiar material of higher-than-average syllabic density. Also included are machine-stenographic reporting and transcription of literary, jury charge, and testimony material. <i>Prerequisite:</i> RTR 110	5 hours: 3T, 4L
RTR 131	CIVIL AND CRIMINAL LAW AND TERMINOLOGY FOR REAL TIME REPORTERS This course includes substantive law, torts, contracts, personal property and agency, wills and estates, real property, family law, negotiable instruments, business organization, civil and criminal procedure (discovery, trial, and appellate processes), hearings and arbitrations, the legislative process, and legal and Latin terminologies attendant thereto. <i>Prerequisite:</i> RTR 130	3 hours: 3T
RTR 150	REALTIME REPORTING III / LABORATORY This course includes the machine-stenographic reporting and transcription of two-voice testimony, jury charge, and literary material, with an emphasis on speed development in each of the three timing categories; a continuation of the study of computer-compatible abbreviations, phrases, and number drills. <i>Prerequisite:</i> RTR 130	5 hours: 3T, 4L
RTR 170	REALTIME CLOSED CAPTIONING TECHNOLOGIES This course is designed to instruct the student in utilizing Eclipse NT/Accucap software for captioning. Upon completion of the course, the student understands the basic setup of a captioning studio, equipment care and maintenance, implementation of functions and commands of software program, and troubleshooting skills. <i>Prerequisite:</i> RTR 130 or approval of program advisor	3 hours: 2T, 2L
RTR 171	BROADCAST CAPTIONING I / LABORATORY This course includes the machine-stenographic reporting and transcription of two-voice testimony, Alabama criminal and civil jury instructions, and an introduction to multi-voice proceedings. Speed development in each of the three timing categories continues. Endurance reporting workshops begin in this course. <i>Prerequisite:</i> RTR 150	5 hours: 3T, 4L
RTR 172	BROADCAST CAPTIONING II / LABORATORY This course is designed to enable the student to operate a realtime translation system in the computer-integrated courtroom environment, deposition environment, classroom environment, broadcast environment, and in seminar, conference, and convention environments. This course includes the machine-stenographic reporting and transcription of two-voice testimony, Alabama criminal and civil jury instructions, and an introduction to multi-voice proceedings. Speed development in each of the three timing categories continues. Endurance-reporting workshops begin in this course. <i>Prerequisite:</i> RTR 171	5 hours: 3T, 4L
RTR 173	BROADCAST CAPTIONING III / LABORATORY This course continues skill building in the realtime translation environments, with a focus on increasing speed and accuracy in the three timing categories. <i>Prerequisite:</i> RTR 172	5 hours: 3T, 4L
RTR 175	REALTIME CLOSED CAPTIONING TECHNOLOGY II This course is a continuation of RTR 170. Emphasis is placed on the advanced features of Eclipse NT/Accucap software for captioning, dictionary development, and Internet research techniques.	2 hours: 2T

COURSE #	COURSE DESCRIPTION	CREDITS
RTR 184	REALTIME LAB I This course is designed to enable judicial and captioning students to enhance realtime skills through additional usage of software and equipment in perfecting theory principles and speed development skills in categories of Literacy, Jury Charge, and Q&A.	2 hours: 4L
RTR 185	REALTIME LAB II This course is designed to enable judicial and captioning students to enhance realtime skills through additional usage of software and equipment in perfecting theory principles and speed development skills in categories of Literacy, Jury Charge, and Q&A.	2 hours: 4L
RTR 186	REALTIME LAB III This course is designed to enable judicial and captioning students to enhance realtime skills through additional usage of software and equipment in perfecting theory principles and speed development skills in categories of Literacy, Jury Charge, and Q&A.	2 hours: 4L
RTR 187	REALTIME LAB IV This course is designed to enable judicial and captioning students to enhance realtime skills through additional usage of software and equipment in perfecting theory principles and speed development skills in categories of Literacy, Jury Charge, and Q&A.	2 hours: 4L
RTR 188	REALTIME LAB V This course is designed to enable judicial and captioning students to enhance realtime skills through additional usage of software and equipment in perfecting theory principles and speed development skills in categories of Literacy, Jury Charge, and Q&A.	2 hours: 4L
RTR 189	REALTIME LAB VI This course is designed to enable judicial and captioning students to enhance realtime skills through additional usage of software and equipment in perfecting theory principles and speed development skills in categories of Literacy, Jury Charge, and Q&A.	2 hours: 4L
RTR 210	REALTIME REPORTING IV / LABORATORY This course includes the machine-stenographic reporting and transcription of two-voice testimony, jury charge, and literary material, with an increased emphasis on speed development in each of the three timing categories; a review of computer-compatible abbreviations and phrases; and a continuation of advanced number drills. <i>Prerequisite:</i> RTR 150	5 hours: 3T, 4L
RTR 220	REALTIME REPORTING V / LABORATORY This course includes the machine-stenographic reporting and transcription of two-voice testimony, Alabama criminal and civil jury instructions, and an introduction to multi-voice proceedings. Speed development in each of the three timing categories continues. Endurance-reporting workshops begin in this course. <i>Prerequisite:</i> RTR 210	5 hours: 3T, 4L
RTR 226	JUDICIAL PROCEDURES This course will instruct the student in the proper use of library and reference materials, including how to research citations. Additional emphasis is placed on correct procedures for the reading of notes and duties of note readers and scopists. The use of computer-aided transcription (CAT) and videotape technology is explained. Requirements for reporters, such as bonding, serving as a notary public, certifying documents, proper filing of records, and other official duties are discussed. <i>Prerequisite:</i> RTR 131 and RTR 150	3 hours: 3T
RTR 227	MOOT COURT PRACTICUM I This course is designed to simulate deposition situations, utilizing actual transcripts. Speaker identification symbols are introduced. Speed and clarity are emphasized during read back of selected portions of notes. Emphasis is placed also on reporting techniques and punctuation essential to reflect accurately in machine-stenographic notes and transcript thereof various speech patterns, colloquial language, unreported events, and physical actions. This course and RTR 257 are taught in sequence. <i>Prerequisite:</i> RTR 115 and minimum speed of 150 wam or advisement	5 hours: 3T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
RTR 230	REALTIME APPLICATION Realtime Application is a capstone course which re-presents cumulative educational experiences with opportunities to integrate knowledge of realtime practices and implement skills through mock testing modules, written practice materials, conducting research and using various reference tools that will enable student to build a reference portfolio. Prerequisite: RTR 150 Co-requisites: As required by college.	2 hours: 1T, 2L
RTR 257	MOOT COURT PRACTICUM II This course is a continuation of RTR 227, with the course now designed to simulate civil and criminal trial situations, utilizing actual transcripts. <i>Prerequisite:</i> RTR 227	5 hours: 3T, 4L
RTR 270	REALTIME REPORTING VI / LABORATORY This course includes the continuation of accuracy and speed development in three timing categories. Lectures on expanded professional ethics and other situations are continued. <i>Prerequisite:</i> RTR 220	5 hours: 3T, 4L
RTR 275	REALTIME REPORTING INTERNSHIP Students are assigned to college-approved internships where, under the guidance and supervision of official and/or general NCRA Registered Professional Reporters, they undergo extensive indoctrination in the duties and responsibilities of the profession. <i>Prerequisite:</i> RTR 210 and/or as required by program	2 hours: 10i
RTR 292	BROADCAST CAPTIONING INTERNSHIP This course is designed to enable the student to spend a minimum of 40 hours of captioning in an approved freelance, official, and/or realtime captioning setting and produce a salable transcript of proceedings. The student will observe procedures, caption realtime material, receive on-the-job training under the guidance of experienced reporters and broadcast captioners, and participate in classroom activities related to the internship experience. <i>Prerequisite:</i> RTR 173	3 hours: 15i
RTR 295	SELECTED TOPICS IN REALTIME REPORTING This course will be offered to students who fail to achieve the speed requirements by the end of the current semester. Each course emphasizes speed building in the three timing categories.	5 hours each: 3T, 4L each
RTR 296	SELECTED TOPICS IN REALTIME REPORTING This course will be offered to students who fail to achieve the speed requirements by the end of the current semester. Each course emphasizes speed building in the three timing categories.	5 hours each: 3T, 4L each
RTR 297	SELECTED TOPICS IN REALTIME REPORTING This course will be offered to students who fail to achieve the speed requirements by the end of the current semester. Each course emphasizes speed building in the three timing categories.	5 hours each: 3T, 4L each
RTR 298	SELECTED TOPICS IN REALTIME REPORTING This course will be offered to students who fail to achieve the speed requirements by the end of the current semester. Each course emphasizes speed building in the three timing categories.	5 hours each: 3T, 4L each
RTR 299	SELECTED TOPICS IN REALTIME REPORTING This course will be offered to students who fail to achieve the speed requirements by the end of the current semester. Each course emphasizes speed building in the three timing categories.	5 hours each: 3T, 4L each
SAL 133	SALON MANAGEMENT TECHNOLOGY This course is designed to develop entry-level management skills for the beauty industry. Topics include job-seeking, leader and entrepreneurship development, business principles, business laws, insurance, marketing, and technology issues in the workplace. Upon completion, the student should be able to list job-seeking and management skills and the technology that is available for use in the salon. <i>Prerequisite:</i> As required by program.	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
SAL 201	ENTREPRENEURSHIP FOR SALON / SPA This course covers the important issues and critical steps involved in starting a new business from scratch. Topics covered include developing a business plan, creating a successful marketing strategy, setting up the legal basis for business, raising start-up funds, attracting and managing human resources, managing costs, and developing a customer base. <i>Prerequisite:</i> As required by program.	3 hours: 3T
SOC 200	INTRODUCTION TO SOCIOLOGY This course is an introduction to vocabulary, concepts, and theory of sociological perspectives of human behavior.	3 hours
SOC 208	INTRODUCTION TO CRIMINOLOGY This course delves into the nature and extent of crime in the United States, as well as criminal delinquent behavior and theories of causation. The study includes criminal personalities, principles of prevention, control, and treatment.	3 hours
SOC 209	JUVENILE DELINQUENCY This course examines the causes of delinquency. It also reviews programs of prevention and control of juvenile delinquency, as well as the role of the courts.	3 hours
SOC 210	SOCIAL PROBLEMS This course examines the social and cultural aspects, influences, incidences, and characteristics of current social problems in light of sociological theory and research. <i>Prerequisite:</i> SOC 200	3 hours
SOC 217	CRIMINAL AND DEVIANT BEHAVIOR This course is an analysis of criminal and deviant behavior with emphasis on sociological and psychological theories of crimes causation. <i>Prerequisite:</i> CRJ / SOC 208 or SOC 200	3 hours
SOC 247	MARRIAGE AND THE FAMILY This course is a study of family structures and families in a modern society. It covers preparation for marriage, as well as sociological, psychological, biological, and financial factors relevant to success in marriage and family life. <i>Prerequisite:</i> SOC 200	3 hours
SPA 101	INTRODUCTORY SPANISH This course provides an introduction to Spanish. Topics include the development of basic communication skills and the acquisition of basic knowledge of the cultures of Spanish-speaking areas.	4 hours
SPA 102	INTERMEDIATE SPANISH II This course, a continuation of SPA 101, includes the development of basic communication skills and the acquisition of basic knowledge of the cultures of Spanish-speaking areas. <i>Prerequisite:</i> SPA 101 or equivalent	4 hours
SPA 201	INTERMEDIATE SPANISH I This course includes a review and further development of communication skills. Topics include readings of literary, historical, and/or cultural texts. <i>Prerequisite:</i> SPA 102 or equivalent	3 hours
SPA 202	INTERMEDIATE SPANISH II This course, a continuation of SPA 201, includes a review and further development of communication skills. Topics include reading of literary, historical, and/or cultural texts. <i>Prerequisite:</i> SPA 201 or equivalent.	3 hours

COURSE #	COURSE DESCRIPTION	CREDITS
SPC 103	ORAL COMMUNICATION SKILLS This course introduces the basic concepts of interpersonal communication and the oral communication skills necessary to interact with co-workers and customers, and to work effectively in teams. Topics include overcoming barriers to effective communication, effective listening, applying the principles of persuasion, utilizing basic dynamics of group discussion, conflict resolution, and positive communication patterns in the business setting. Upon completion, students should be able to demonstrate interpersonal communication skills, to apply basic principles of group discussion, to develop a business-like personality, and to present themselves effectively before co-workers and the public. This course does not satisfy the general education component for a degree.	3 hours
SPH 106	FUNDAMENTALS OF ORAL COMMUNICATION This is a performance course that includes the principles of human communication: intrapersonal, interpersonal, and public. It surveys current communication theory and provides practical application.	3 hours
SPH 107	FUNDAMENTALS OF PUBLIC SPEAKING This course explores principles of audience and environment analysis as well as the actual planning, rehearsing, and presenting of formal speeches to specific audiences. Historical foundations, communication theories, and student performances are emphasized.	3 hours
SUR 101	INTRODUCTION TO SURGICAL TECHNOLOGY This course introduces the student to the surgical environment. Emphasis is placed on principles of microbiology, identification of surgical instruments, equipment, and supplies, proper patient positioning for surgical procedures, and professional, ethical, and legal responsibilities of the surgical team. Upon completion of this course, the student should be able to name and select basic surgical instruments, supplies, and equipment, describe methods to maintain a sterile environment, and recognize members of the operating room team according to their roles.	3 hours: 3T
SUR 102	APPLIED SURGICAL TECHNIQUES This course is the application of principles of asepsis and the role of the surgical technologist. Emphasis is placed on creating and maintaining a sterile environment, and applying skills of interoperative procedures. Upon completion of this course, the student should be able to participate in mock surgical procedures.	4 hours: 2T, 6L
SUR 103	SURGICAL PROCEDURES This course is a study of surgical procedures as they relate to anatomy, pathology, specialty equipment, and team responsibility. Patient safety is emphasized and medications used in surgery are discussed. Upon completion of the course, the student should be able to participate in surgical procedures in the operating room. <i>Corequisite:</i> SUR 104	5 hours: 3T, 6S
SUR 104	SURGICAL PRACTICUM I This course is the application of perioperative principles in the perioperative setting. Emphasis is placed on application of the surgical technologist. Upon completion of the course, the student should be able to participate in the surgical technologist role. <i>Corequisite:</i> SUR 103	4 hours: 12C
THR 113	THEATER WORKSHOP I This course will provide practical experience in the production and performance of a dramatic presentation with assignments in scenery, lighting, props, choreography, sound, costumes, make up, publicity, acting, directing, and other aspects of theater production.	2 hours each
THR 114	THEATER WORKSHOP II This course will provide practical experience in the production and performance of a dramatic presentation with assignments in scenery, lighting, props, choreography, sound, costumes, make up, publicity, acting, directing, and other aspects of theater production.	2 hours each

COURSE #	COURSE DESCRIPTION	CREDITS
THR 115	THEATER WORKSHOP III This course will provide practical experience in the production and performance of a dramatic presentation with assignments in scenery, lighting, props, choreography, sound, costumes, make up, publicity, acting, directing, and other aspects of theater production.	2 hours each
THR 120	THEATER APPRECIATION This course is designed to increase appreciation of contemporary theater. Emphasis is given to the theater as an art form through the study of the history and theory of drama and the contributions of playwright, actor, director, designer, and technician to modern media. Attendance at theater productions may be required.	3 hours
THR 126	INTRODUCTION TO THEATER This course is designed to teach the history of the theater and the principles of drama. It also covers the development of theater production and the study of selected plays as theatrical presentations.	3 hours
THR 131	ACTING TECHNIQUES I This is the first course of a two-course sequence in which the student will focus on the development of the body and voice as the performing instruments in acting. Emphasis is placed on pantomime, improvisation, acting exercises, and building characterizations in short acting scenes.	3 hours
THR 132	ACTING TECHNIQUES II This course is a continuation of THR 131. <i>Prerequisite:</i> THR 131	3 hours
THR 213	THEATER WORKSHOP IV THR 213, 214, 215 are continuations of THR 113, THR 114, and THR 115	2 hours each
THR 214	THEATER WORKSHOP V THR 213, 214, 215 are continuations of THR 113, THR 114, and THR 115	2 hours each
THR 215	THEATER WORKSHOP VI THR 213, 214, 215 are continuations of THR 113, THR 114, and THR 115	2 hours each
THR 281	STAGE MOVEMENT I This course will enable the student to understand the importance of body language in communication on and off the stage. It also offers theatrical training of classical pantomime techniques, stunt and stage fencing techniques, and physical choreographical memory training.	3 hours each
THR 282	STAGE MOVEMENT II This course will enable the student to understand the importance of body language in communication on and off the stage. It also offers theatrical training of classical pantomime techniques, stunt and stage fencing techniques, and physical choreographical memory training.	3 hours each
WDT 108	SMAW FILLET / OFC This course provides the student with instruction on safety practices and terminology in the Shielded Metal Arc Welding (SMAW) process. Emphasis is placed on safety, welding terminology, equipment identification, set-up and operation, and related information in the SMAW process. This course also covers the rules of basic safety and identification of shop equipment and provides the student with the skills and knowledge necessary for the safe operation of oxy-fuel cutting. <i>Prerequisite:</i> As required by College	3 hours: 2T, 3L

COURSE #	COURSE DESCRIPTION	CREDITS
WDT 109	<p>SMAW FILLET / PAC / CAC</p> <p>This course provides the student with instruction on safety practices and terminology in the Shielded Metal Arc Welding (SMAW) process. Emphasis is placed on safety, welding terminology, equipment identification, set-up and operation, and related information in the SMAW process. This course also covers the rules of basic safety and identification of shop equipment and provides the student with the skills and knowledge necessary for the safe operation of carbon arc cutting and plasma arc cutting. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 3L
WDT 110	<p>INDUSTRIAL BLUEPRINT READING</p> <p>This course provides students with the understanding and fundamentals of industrial blueprint reading. Emphasis is placed on reading and interpreting lines, views, dimensions, weld joint configurations and weld symbols. Upon completion, students should be able to interpret welding symbols and blueprints as they apply to welding and fabrication. <i>Prerequisite:</i> As required by College</p>	3 hours: 3T
WDT 115	<p>GTAW CARBON PIPE</p> <p>This course is designed to provide the student with the practices and procedures of welding carbon pipe using the gas tungsten arc weld (GTAW) process. Emphasis is placed on pipe positions, filler metal selection, purging gasses, joint geometry joint preparation and fit-up. Upon completion, students should be able to identify pipe positions, filler metals, purging gas, proper joint geometry, joint preparation and fit-up to the applicable code. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 4L
WDT 116	<p>GTAW STAINLESS PIPE</p> <p>This course is designed to provide the student with the practices and procedures of welding stainless steel pipe using the gas tungsten arc weld (GTAW) process. Emphasis is placed on pipe positions, filler metal selection, purging gasses, joint geometry, joint preparation and fit-up. Upon completion, students should be able to identify pipe positions, filler metals, purging gas, proper joint geometry, joint preparation, and fit-up to the applicable code. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 4L
WDT 119	<p>GAS METAL ARC / FLUX CORED ARC WELDING</p> <p>This course introduces the student to the gas metal arc and flux cored arc welding process. Emphasis is placed on safe operating practices, handling and storage of compressed gasses, process principles, component identification, various welding techniques and base and filler metal identification. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 3L
WDT 120	<p>SHIELDED METAL ARC WELDING GROOVE</p> <p>This course provides the student with instruction on joint design, joint preparation, and fit-up of groove welds in accordance with applicable welding codes. Emphasis is placed on safe operation, joint design, joint preparation, and fit-up. Upon completion, students should be able to identify the proper joint design, joint preparation and fit-up of groove welds in accordance with applicable welding codes. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 3L
WDT 122	<p>SMAW FILLET / OFC LAB</p> <p>This course is designed to introduce the student to the proper set-up and operation of the shielded metal arc welding equipment. Emphasis is placed on striking and controlling the arc, and proper fit up of fillet joints. This course is also designed to instruct students in the safe operation of oxy-fuel cutting. Upon completion, students should be able to make fillet welds in all positions using electrodes in the F-3 groups in accordance with applicable welding code and be able to safely operate oxy-fuel equipment and perform those operations as per the applicable welding code. <i>Prerequisite:</i> As required by College</p>	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
WDT 123	<p>SMAW FILLET / PAC / CAC LAB</p> <p>This course is designed to introduce the student to the proper set-up and operation of the shielded metal arc welding equipment. Emphasis is placed on striking and controlling the arc, and proper fit up of fillet joints. This course is also designed to instruct students in the safe operation of plasma arc and carbon arc cutting. Upon completion, students should be able to make fillet welds in all positions using electrodes in the F-4 groups in accordance with applicable welding code and be able to safely operate plasma arc and carbon arc equipment and perform those operations as per applicable welding code. <i>Prerequisite:</i> As required by College</p>	3 hours: 6L
WDT 124	<p>GAS METAL ARC/FLUX CORED ARC WELDING LAB</p> <p>This course provides instruction and demonstration using the various transfer methods and techniques to gas metal arc and flux cored arc welds. Topics included are safety, equipment set-up, joint design and preparation, and gases. <i>Prerequisite:</i> As required by College</p>	3 hours: 9L
WDT 125	<p>SHIELDED METAL ARC WELDING GROOVE LAB</p> <p>This course provides instruction and demonstrations in the shielded metal arc welding process on carbon steel plate with various F3 and F4 group electrodes in all positions. Emphasis is placed on welding groove joints and using various F3 and F4 group electrodes in all positions. Upon completion, the student should be able to make visually acceptable groove weld joints in accordance with applicable welding codes. <i>Prerequisite:</i> As required by College</p>	3 hours: 9L
WDT 155	<p>GTAW CARBON PIPE LAB</p> <p>This course is designed to provide the student with the skills in welding carbon steel pipe with gas tungsten arc welding techniques in various pipe weld positions. Upon completion, students should be able to perform gas tungsten arc welding on carbon steel pipe with the prescribed filler metals in various positions in accordance with the applicable code. <i>Prerequisite:</i> As required by College</p>	3 hours: 9L
WDT 156	<p>GTAW STAINLESS PIPE LAB</p> <p>This course is designed to provide the student with the skills in welding stainless steel pipe with gas tungsten arc welding techniques in various pipe weld positions. Upon completion, students should be able to perform gas tungsten arc welding on stainless steel pipe with the prescribed filler metals in various positions in accordance with the applicable code. <i>Prerequisite:</i> As required by College</p>	3 hours: 9L
WDT 157	<p>CONSUMABLE WELDING PROCESSES</p> <p>This course provides instruction and demonstration with the consumable welding processes to produce groove and fillet welds in all positions, according to applicable welding codes. Topics include safe operating practices, equipment identification, equipment set-up, correct selection of electrode, current/polarity, shielding gas, and base metals. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 4L
WDT 158	<p>CONSUMABLE WELDING PROCESS LAB</p> <p>This course provides instruction and demonstration with the consumable welding processes to produce groove and fillet welds in all positions, according to applicable welding codes. Topics include safe operating practices, equipment identification, equipment set-up, correct selection of electrode, current/polarity, shielding gas and base metals. Upon completion, the student should be able to produce groove and fillet welds, using consumable welding processes according to AWS Codes and Standards. <i>Prerequisite:</i> As required by College</p>	3 hours: 6L
WDT 160	<p>ROBOTIC PROGRAMMING AND WELDING</p> <p>This program introduces students to the safety and programming associated with robotic welding technology. Topics include robotic weld station familiarity, safety, robotic motions, programming, and welding inspection. Upon completion, the student should be able to setup and program a robot to weld parts in an efficient and safe manner. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
WDT 162	<p>CONSUMABLE WELDING APPLICATIONS</p> <p>This course provides instruction and demonstration with consumable welding processes for ferrous and non-ferrous materials to produce groove and fillet welds in various positions, according to applicable welding codes. Topics may include safe operating practices for pulse and tubular applications equipment identification, equipment set-up, correct selection of electrodes, current/polarity, shielding gas and base metals. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 4L
WDT 163	<p>CONSUMABLE WELDING APPLICATIONS LAB</p> <p>This course provides instruction and demonstration with consumable welding processes for ferrous and non-ferrous materials to produce groove and fillet welds in various positions, according to applicable welding codes. Topics may include safe operating practices for pulse and tubular applications, equipment identification, equipment set-up, correct selection of electrodes, current/polarity, shielding gas and base metals. Upon completion, the student should be able to produce groove and fillet welds using consumable welding processes according to AWS Codes and standards. <i>Prerequisite:</i> As required by College</p>	3 hours: 9L
WDT 166	<p>FLUX CORE ARC WELDING (FCAW)</p> <p>This course provides instruction and demonstration with the flux core arc welding process to produce groove and fillet welds in all positions, according to applicable welding codes. Topics include safe operating practices, equipment identification, equipment set-up, correct selection of filler metals, current/polarity, shielding gas, and base metals. Upon completion, the student should be able to produce groove and fillet welds, using the FCAW welding process, according to AWS Codes and Standards. <i>Prerequisite:</i> As required by College</p>	3 hours: 2T, 3L
WDT 167	<p>FLUX CORE ARC WELDING LAB</p> <p>This course provides instruction and demonstration with the flux core arc welding process to produce groove and fillet welds in all positions, according to applicable welding codes. Topics include safe operating practices, equipment identification, equipment set-up, correct selection of filler metals, current/polarity, shielding gas, and base metals. Upon completion, the student should be able to produce groove and fillet welds using the FCAW welding process, according to AWS Codes and Standards. <i>Prerequisite:</i> As required by College</p>	3 hours: 6L
WDT 180	<p>SPECIAL TOPICS</p> <p>This course allows the student to plan, execute, and present results of individual projects in welding. Emphasis is placed on enhancing skill attainment in the welding field. The student will be able to demonstrate and apply competencies identified and agreed upon between the student and instructor. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 6L
WDT 181	<p>SPECIAL TOPICS LAB</p> <p>This course provides specialized instruction in various areas related to the welding industry. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by College</p>	3 hours: 6L
WDT 182	<p>SPECIAL TOPICS</p> <p>This course allows the student to plan, execute, and present results of individual projects in welding. Emphasis is placed on enhancing skill attainment in the welding field. The student will be able to demonstrate and apply competencies identified and agreed upon between the student and instructor. <i>Prerequisite:</i> As required by College</p>	3 hours: 1T, 6L
WDT 183	<p>SPECIAL TOPICS</p> <p>This course allows the student to plan, execute, and present results of individual projects in welding. Emphasis is placed on enhancing skill attainment in the welding field. The student will be able to demonstrate and apply competencies identified and agreed upon between the student and instructor. <i>Prerequisite:</i> As required by college.</p>	2 hours: 1T, 2L

COURSE #	COURSE DESCRIPTION	CREDITS
WDT 183M	SPECIAL TOPICS LAB This course provides specialized instruction in various areas related to the welding industry. Emphasis is placed on meeting students' needs in the safe operation of basic metal machining processes using; lathe, milling machine, and drill presses for preparation of welding coupons. <i>Prerequisite:</i> As required by College.	3 hours: 6L
WDT 184	SPECIAL TOPICS This course allows the student to plan, execute, and present results of individual projects in welding. Emphasis is placed on enhancing skill attainment in the welding field. The student will be able to demonstrate and apply competencies identified and agreed upon between the student and instructor. <i>Prerequisite:</i> As required by college	1 hours: 2L
WDT 185	SPECIAL TOPICS LAB This course provides specialized instruction in various areas related to the welding industry. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by college	3 hours: 3T
WDT 193	CO-OP These courses constitute a series wherein the student works on a part-time basis in a job directly related to welding. In these courses the employer evaluates the student's productivity, and the student submits a descriptive report of his work experiences. Upon completion, the student will demonstrate skills learned in an employment setting. <i>Prerequisite:</i> As required by college	3 hours: 15i
WDT 217	SMAW CABON PIPE This course introduces the student to the practices and procedures of welding carbon steel pipe using the shielded metal arc weld (SMAW) process. Emphasis is placed on pipe positions, electrode selection, joint geometry, joint preparation, and fit-up. Upon completion, students should be able to identify pipe positions, electrodes, proper joint geometry, joint preparation, and fit-up in accordance with applicable code. <i>Prerequisite:</i> As required by college	3 hours: 1T, 4L
WDT 218	CERTIFICATION This course is designed to provide the student with the knowledge needed to perform welds using the prescribed welding process. Emphasis is placed on the welding test joints in accordance with the prescribed welding code. Upon completion, students should be able to pass an industry standard welding test in accordance with various applicable welding code requirements. <i>Prerequisite:</i> As required by college	3 hours: 1T, 4L
WDT 219	WELDING INSPECTION AND TESTING This course provides the student with inspection skills and knowledge necessary to evaluate welded joints and apply quality control measures as needed. Emphasis is placed on interpreting welding codes, welding procedures, and visual inspection methods. Upon completion, students should be able to visually identify visual acceptable weldments as prescribed by the code or welding specification report. <i>Prerequisite:</i> As required by college	3 hours: 3T
WDT 221	PIPEFITTING AND FABRICATION This course provides the student with skills and practices necessary for fabricating pipe plans using pipe and fittings. Emphasis is placed on various pipe fittings to include various degree angles. Upon completion, students should be able to fit various pipe fittings, and cut and fabricate tees, and assorted angles. <i>Prerequisite:</i> As required by college	3 hours: 1T, 4L

COURSE #	COURSE DESCRIPTION	CREDITS
WDT 223	<p>BLUEPRINT READING FOR FABRICATION</p> <p>This course provides a student with advanced skills in identifying and interpreting lines, views, dimensions, notes, bill of materials, and the use of tools of the trade. Emphasis is placed on figuring dimensional tolerances, layout, and fitting of different component parts. Upon course completion, a student should be able to interpret, layout, and fabricate from blueprints to given tolerances. <i>Prerequisite:</i> As required by college</p>	3 hours: 1T, 4L
WDT 228	<p>GAS TUNGSTEN ARC WELDING</p> <p>This course provides students with knowledge needed to perform gas tungsten arc welds using ferrous and/or non-ferrous metals, according to applicable welding codes. Topics include safe operating practices, equipment identification and set-up, correct selection of tungsten type, polarity, shielding gas, and filler metals. Upon completion, a student should be able to identify safe operating practices, equipment identification and setup, correct selection of tungsten type, polarity, shielding gas, filler metals, and various welds on ferrous and/or non-ferrous metals, using the gas tungsten arc welding process according to applicable welding codes. <i>Prerequisite:</i> As required by college</p>	3 hours: 2T, 3L
WDT 229	<p>BOILER TUBE</p> <p>This course is designed to provide the student with the practices and procedures of welding boiler tubes using the gas tungsten arc and shielded metal arc welding process to the applicable code. Emphasis is placed on tube fit-up, tube welding technique, and code requirements. Upon completion, students should be able to identify code requirements and tube welding technique. <i>Prerequisite:</i> As required by college</p>	3 hours: 1T, 4L
WDT 230	<p>ORBITAL GAS TUNGSTEN ARC WELDING</p> <p>This course provides student with skills needed to perform orbital gas tungsten arc pipe welds using ferrous and/or non-ferrous metals according to applicable welding codes. Topics include safe operating practices, equipment identification and set-up, correct selection of tungsten type, polarity, shielding gas and filler metals. <i>Prerequisite:</i> As required by college</p>	3 hours: 1T, 4L
WDT 240	<p>ORBITAL GAS TUNGSTEN ARC WELDING LAB</p> <p>This course is designed to provide the student with the practices and procedures of welding carbon pipe using the orbital gas tungsten arc welding process (GTAW). Emphasis is placed on welding pipe using the orbital GTAW process in the 2G, 5G and 6G positions to code requirements. <i>Prerequisite:</i> As required by college</p>	3 hours: 6L
WDT 250	<p>PIPE PREPARATION FOR ORBITAL WELDING LAB</p> <p>This course provides practical application of the concepts and principles of machining conventional and narrow groove pipe end bevels using hydraulic and pneumatic equipment for precision orbital welding applications. <i>Prerequisite:</i> As required by college</p>	3 hours: 6L
WDT 257	<p>SMAW CARBON PIPE LAB</p> <p>This course is designed to provide the student with the skills in welding carbon steel pipe with shielded metal arc welding techniques in various pipe welding positions. Upon completion, students should be able to perform shielded metal arc welding on carbon steel pipe with the prescribed electrodes in various positions in accordance with the applicable code.</p>	3 hours: 6L
WDT 258	<p>CERTIFICATION LAB</p> <p>This course is designed to provide the student with the skills needed to perform welds using the prescribed welding process. Emphasis is placed on the welding test joints in accordance with the prescribed welding code. Upon completion, students should be able to pass an industry standard welding test in accordance with various welding code requirements. <i>Prerequisite:</i> As required by college</p>	3 hours: 6L

COURSE #	COURSE DESCRIPTION	CREDITS
WDT 268	GAS TUNGSTEN ARC LAB This course provides student with skills needed to perform gas tungsten arc welds, using ferrous and/or non-ferrous metals, according to applicable welding codes. Topics include safe operating practices, equipment identification and set-up, correct selection of tungsten type, polarity, shielding gas, and filler metals. Upon completion, a student should be able to identify safe operating practices, equipment identification and setup, correct selection of tungsten type, polarity, shielding gas, filler metals, and various welds on ferrous and/or non-ferrous metals, using the gas tungsten arc welding process according to applicable welding codes. <i>Prerequisite:</i> As required by college	3 hours: 9L
WDT 269	BOILER TUBE LAB This course is designed to provide the student with the skills in welding boiler tubes using the gas tungsten arc and shielded metal arc welding process using filler metals in the F6 and F4 groups to applicable code. Emphasis is placed on welding boiler tubes using the gas tungsten arc and shielded metal arc welding process in the 2G and 6G positions in accordance with the applicable code. Upon completion, students should be able to perform gas tungsten arc and shielded metal arc welding on boiler tubes with the prescribed filler metals in the 2G and 6G positions to the applicable code. <i>Prerequisite:</i> As required by college	3 hours: 6L
WDT 281	SPECIAL TOPICS IN WELDING TECHNOLOGY This course provides specialized instruction in various areas related to the welding industry. Emphasis is placed on meeting students' needs. <i>Prerequisite:</i> As required by College	3 hours: 9L
WDT 291	CO-OP These courses constitute a series wherein the student works on a part-time basis in a job directly related to welding. In these courses the employer evaluates the student's productivity, and the student submits a descriptive report of his work experiences. Upon completion, the student will demonstrate skills learned in an employment setting. <i>Prerequisite:</i> As required by College	3 hours: 15i
WDT 292	CO-OP These courses constitute a series wherein the student works on a part-time basis in a job directly related to welding. In these courses the employer evaluates the student's productivity, and the student submits a descriptive report of his work experiences. Upon completion, the student will demonstrate skills learned in an employment setting. <i>Prerequisite:</i> As required by College	3 hours: 15 i
WKO 106	WORKPLACE SKILLS This course is an overview of issues relevant to the general workforce. The course is designed to enhance students' communication, lifelong learning, interpersonal, and decision-making skills in preparation for employment. <i>Prerequisite:</i> As required by College	3 hours: 3t