### AIR CONDITIONING (ACR)

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<th>Hours</th>
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<td>ACR 112</td>
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<td>ACR 130</td>
<td>COMPUTER ASSISTED HVAC TROUBLESHOOTING</td>
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<td>ACR 144</td>
<td>BASIC DRAWING AND BLUEPRINT READING IN HVAC</td>
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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 system components, common, and specialty tools for HVACR, an 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 HVACR tools, and maintain components of a basic compression refrigeration system.

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, the student should be able to properly recover/recycle refrigerants and demonstrate safe, correct service procedures which comply with the no-venting laws.

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, the student should understand related terminology, be able to identify ACR pipe and tubing, and various fittings.

This course provides instruction on general service and installation for common gas furnace systems components. Upon completion, students will be able to install and service gas furnaces in a wide range of applications.

This course covers the fundamentals of electric heating systems. Emphasis is placed on components, general service procedures, and basic installation. Upon completion, students should be able to install and service electric heating systems and heat pumps.

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, the student should understand and be able to apply the basic principles of HVACR circuits and circuit components.

This course provides students with advanced applications of electrical circuits and diagrams. Students construct a variety of wiring diagrams commonly found in HVAC electrical systems. Upon completion, students should understand standard wiring diagrams and symbols and be able to construct various types of electrical circuits.

This course provides students with advanced applications of electrical circuits and diagrams. Students construct a variety of wiring diagrams commonly found in HVAC electrical systems. Upon completion, students should be able to install various electrical components and determine their proper operation.

This course covers the theory and application of larger heating systems. Emphasizing commercial applications such as gas heaters, boilers, unit heaters, duct heaters, and hydronic systems. Upon completion, students will be able to troubleshoot and perform general maintenance on commercial heating systems.

This course covers the basic maintenance of electric motors used in HVACR systems. Topics include types, operation, installation, and troubleshooting motors and related components. Upon completion, students should be able to install and service various types of HVACR electric motors and related components.

This course focuses on troubleshooting procedures. Emphasis is placed on the proper use of test equipment and machine/electrical malfunctions. Upon completion, the student should be able to diagnose and repair service problems in HVAC equipment.

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, the student should be able to service and repair residential air conditioning systems.

This course introduces students to ice machine types and their operation emphasizing function, installation, maintenance, and troubleshooting. Upon completion, students will be able to perform installation and maintenance procedures.

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.

This course covers basic drawing and blueprint reading as applied to the HVAC industry. Emphasis is placed on three-view drawings, basic duct systems, and isometric piping. Upon completion, the student should be able to perform basic drawings related to HVAC systems and read pertinent blueprints.
ACR 147 REFRIGERATION TRANSITION AND RECOVERY 3 Hrs.
PREREQUISITE: None.
This course is EPA-approved and covers material relating to the requirements necessary for type I, II, III and universal certification. Upon completion, students should be prepared to take the EPA 608 certification exam.

ACR 148 HEAT PUMP SYSTEMS I 3 Hrs.
PREREQUISITE: None
This course provides basic instruction on the operation and servicing of heat pump systems. Additional emphasis is placed on basic theory and application of refrigerants for heat pump systems and on basic service of components. Upon completion, students will be able to install and service heat pumps.

ACR 149 HEAT PUMP SYSTEMS II 3 Hrs.
PREREQUISITE: None
This is a continuation course of the basic theory and application of heat pump systems. Emphasis is placed on electrical components of heat pumps and their function. Students should possess a strong foundation of electrical principles and theory. Upon completion, students should be able to install and service heat pumps.

ACR 181/182 SPECIAL TOPICS IN AIR CONDITIONING AND REFRIGERATION 3 Hrs.
PREREQUISITE: None.
These courses provide specialized instruction in various areas related to the air conditioning and refrigeration industry. Emphasis is placed on meeting the student’s needs.

ACR 192 HVAC APPRENTICESHIP/INTERNSHIP 3 Hrs.
PREREQUISITE: None.
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 completion, the student should be able to work independently and apply related skills and knowledge. This course requires a minimum of 15 work hours per week.

ACR 203 COMMERCIAL REFRIGERATION 3 Hrs.
PREREQUISITE: ACR 111.
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, the student should be able to service and repair commercial refrigeration systems.

ACR 204 COMMERCIAL AIR CONDITIONING 3 Hrs.
PREREQUISITE: ACR 111.
This course focuses on commercial air conditioning systems. Topics include maintenance, repair, and troubleshooting. Upon completion, the student should be able to service and repair commercial air conditioning systems.

ACR 205 SYSTEM SIZING AND AIR DISTRIBUTION 3 Hrs.
PREREQUISITE: None.
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 completion, the student should be able to calculate system requirements.

ACR 209 COMMERCIAL AIR CONDITIONING SYSTEMS 3 Hrs.
PREREQUISITE: None.
This course focuses on servicing and maintaining HVACR systems commonly found in various types of commercial applications. Topics include system component installation and removal and service techniques. Upon completion, students should be able to troubleshoot and perform general maintenance on commercial HVACR systems.

ACR 210 TROUBLESHOOTING HVACR SYSTEMS 3 Hrs.
PREREQUISITE: None
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 mechanical and electrical components of HVACR systems.

AIR FORCE STUDIES (AFS)

AFS 101 AIR FORCE TODAY I 1 Hr.
PREREQUISITE: None.
This course is a survey course of topics relating to the Air Force and national defense. It includes a discussion of purpose, structure, and career opportunities in the United States Air Force and as introduction to effective written communication. The AFS 101 Leadership Laboratory is a co-curricular activity that includes a study of Air Force customs and courtesies, drill and ceremonies, and military commands.

AFS 102 AIR FORCE TODAY II 1 Hr.
PREREQUISITE: None.
This course is an introduction to interpersonal communications. Seminars focus on effective listening techniques, verbal and nonverbal communications. Practical exercises and group projects are designed to demonstrate barriers to effective communications and techniques to overcome barriers, development and presentation of oral communications, strategy, technique, and delivery of effective oral presentations. Student practicum is required. The AFS 102 Leadership Laboratory is a co-curricular activity that includes a study of Air Force customs and courtesies, drill and ceremonies, and military commands.

AFS 201 THE AIR FORCE WAY I 1 Hr.
PREREQUISITE: None.
This course is an historical survey of technological innovation in warfare. Focus is on the emergence of air power and its significance in war and national security policy implementation. The FAS 201 Leadership Laboratory is a co-curricular activity that includes a study of Air Force customs and courtesies, drill and ceremonies, and military commands.

AFS 202 THE AIR FORCE WAY II 1 Hr.
PREREQUISITE: None.
This course is an analysis of leadership and follower-ship traits in the context of a modern military force. Course includes discussions of ethical standards of military officers and Air Force core values and an introduction to total quality management as advanced practical application of oral communication skills, including organization, research, delivery and audience analysis for briefing and presentations. Group leadership problems are designed to enhance interpersonal communications. The AFS 202 Leadership Laboratory is a co-curricular activity that includes a study of Air Force customs and courtesies, drill and ceremonies, and military commands.
**ANTHROPOLOGY (ANT)**

**ANT 200  INTRODUCTION TO ANTHROPOLOGY  3 Hrs.**  
PREREQUISITE: ENG 093 or equivalent placement in ENG 101  
This course is a survey of physical, social, and cultural development and behavior of human beings.

**ANT 210  PHYSICAL ANTHROPOLOGY  3 Hrs.**  
PREREQUISITE: ENG 093 or equivalent placement in ENG 101  
This course is a study of the human evolution based upon fossil and archaeological records as well as analysis of the variation and distribution of contemporary human populations.

**ANT 220  CULTURAL ANTHROPOLOGY  3 Hrs.**  
PREREQUISITE: ANT 200.  
This course is the application of the concept of culture to study of both primitive and modern society.

**ANT 230  INTRODUCTION TO ARCHAEOLOGY  3 Hrs.**  
PREREQUISITE: ENG 093 or equivalent placement in ENG 101  
This course is an introduction to archaeological excavation techniques and post-excavation laboratory procedures.

**ART (ART)**

**ART 100  ART APPRECIATION  3 Hrs.**  
PREREQUISITE: None.  
This course is designed to help the student find personal meaning in works of art and develop a better understanding of the nature and validity of art. Emphasis is on the diversity of form and content in original art work. Upon completion, the student should understand the fundamentals of art, the materials used, and have a basic overview of the history of art.

**ART 101  ART WORKSHOP I  3 Hrs.**  
PREREQUISITE: None.  
The course provides an art experience for both non-art and art majors who are interested in a variety of art projects concerned with community or college related activities. Emphasis is placed on the organization of ideas in advancing their creative process. Upon completion, the student should be able to present visual evidence of the activities involved and explain how the experience advanced his or her artistic skills.

**ART 102  ART WORKSHOP II  3 Hrs.**  
PREREQUISITE: Art Workshop I and/or None.  
This course provides an art experience for both non-art and art majors who are interested in a variety of art projects concerned with community or college related activities. Emphasis is placed on the organization of ideas in advancing their creative process. Upon completion, the student should be able to present visual evidence of the activities involved and explain how the experience advanced their artistic skills.

**ART 109  ART MUSEUM SURVEY  3 Hrs.**  
PREREQUISITE: None.  
This course covers the art experienced through supervised visits to museums and art galleries. Emphasis is placed on learning through critical study. Upon completion, the student should be able to write a critical analysis of the art work experienced that demonstrates an understanding of aesthetics.

**ART 113  DRAWING I  3 Hrs.**  
PREREQUISITE: None.  
This course provides the opportunity to develop perceptual and technical skills in a variety of media. Emphasis is placed on communication through experimenting with composition, subject matter, and technique. Upon completion, the student should demonstrate and apply the fundamentals of art to various creative drawing projects.

**ART 114  DRAWING II  3 Hrs.**  
PREREQUISITE: ART 113.  
This course advances the student’s drawing skills in various art media. Emphasis is placed on communication through experimentation, composition, technique, and personal expression. Upon completion, the student should demonstrate creative drawing skills, the application of the fundamentals of art, and the communication of personal thoughts and feelings.

**ART 121  TWO DIMENSIONAL COMPOSITION I  3 Hrs.**  
PREREQUISITE: None.  
This course introduces the basic concepts of two-dimensional design. Topics include the elements and principles of design with emphasis on the arrangements and relationships among them. Upon completion, the student should demonstrate an effective use of these elements and principles of design in creating two-dimensional compositions.

**ART 122  TWO DIMENSIONAL COMPOSITION II  3 Hrs.**  
PREREQUISITE: ART 113 or ART 121.  
This course covers the theories and practice of composing two-dimensional images. Emphasis is placed on the relation between the basic elements and principles of design and their impact on the visual message. Upon completion, the student should, through personal expression, demonstrate an effective use of these elements and principles of design in creating two-dimensional compositions.

**ART 127  THREE DIMENSIONAL COMPOSITION  3 Hrs.**  
PREREQUISITE: ART 113 or ART 121.  
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, the student should demonstrate basic technical skills and a personal awareness of the creative potential inherent in three-dimensional art forms.

**ART 133  CERAMICS I  3 Hrs.**  
PREREQUISITE: None.  
This course introduces methods of clay forming as a means of expression. Topics may include hand building, wheel throwing, glazing, construction, design, and the functional and aesthetic aspects of pottery. Upon completion, the student should demonstrate through his or her work, a knowledge of the methods, as well as an understanding of the craftsmanship and aesthetics involved in ceramics.

**ART 134  CERAMICS II  3 Hrs.**  
PREREQUISITE: ART 133.  
This course develops the methods of clay forming as a means of expression. Topics may include hand building, glazing, design and the functional and aesthetic aspects of pottery, although emphasis will be placed on the wheel throwing method. Upon completion, the student should demonstrate improved craftsmanship and aesthetic quality in the production of pottery.

**ART 143  CRAFTS II  3 Hrs.**  
PREREQUISITE: None.  
This course is an introduction to various creative crafts, which may include work with fibers, metal, glass, or other media. Emphasis is placed on processes, techniques, materials, and creative expression.
Upon completion, the student should be able to demonstrate creative uses of materials, a knowledge of the fundamentals of art, and an understanding of craftsmanship, and aesthetic quality.

ART 173 PHOTOGRAPHY I 3 Hrs. PREREQUISITE: None.
NOTE: A 35mm single-lens reflex camera is required. This course is an introduction to the art of photography. Emphasis is placed on the technical and aesthetic aspects of photography with detailed instruction in darkroom techniques. Upon completion, the student should understand the camera as a creative tool, understand the films, chemicals and papers, and have a knowledge of composition and history.

ART 174 PHOTOGRAPHY II 3 Hrs. PREREQUISITE: ART 173.
NOTE: A 35mm single-lens reflex camera is required. This course advances the students' technical and aesthetic knowledge of photography beyond the introductory level. Emphasis is placed on photographic composition and darkroom techniques as a means of communication. Upon completion, the student should demonstrate through the photographic process his/her creative and communication skills.

ART 180 INTRODUCTION TO GRAPHIC DESIGN 3 Hrs. PREREQUISITE: None.
This course is a general introduction to graphic design. Topics include history, processes, and production design. Upon completion, the student should understand the concepts used to create media graphics.

ART 203 ART HISTORY I 3 Hrs. PREREQUISITE: None.
COREQUISITE: ENG 093 and RDG 085 or equivalent placement score.
This course covers 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, the student should be able to communicate a knowledge of time period and chronological sequence including a knowledge of themes, styles, and of the impact of society on the arts.

ART 204 ART HISTORY II 3 Hrs. PREREQUISITE: None.
COREQUISITE: ENG 093 and RDG 085 or equivalent placement score.
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, the student should be able to communicate a knowledge of time period and chronological sequence including a knowledge of themes, styles, and of the impact of society on the arts.

ART 231 WATERCOLOR PAINTING I 3 Hrs. PREREQUISITE: ART 113 or ART 121.
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, the student should be able to demonstrate a basic proficiency in handling the techniques of watercolor and how it can be used for personal expression.

ART 232 WATERCOLOR PAINTING II 3 Hrs. PREREQUISITE: ART 231.
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, the student should demonstrate and compile a body of original paintings that reflect a personal awareness of the media’s potential.

ART 233 PAINTING I 3 Hrs. PREREQUISITE: ART 113 or ART 121.
This course is designed to introduce the student to fundamental painting processes and materials. Topics include art fundamentals, color theory, and composition. Upon completion, the student should be able to demonstrate the fundamentals of art and discuss various approaches to the media and the creative processes associated with painting.

ART 234 PAINTING II 3 Hrs. PREREQUISITE: ART 233.
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, the student should be able to demonstrate the application of the fundamentals of painting and the creative process to the communication of ideas.

ART 243 SCULPTURE I 3 Hrs. PREREQUISITE: ART 127.
This course provides a study of three-dimensional form by familiarizing students with sculpting media and techniques. Topics include the fundamentals of art sculpting media with emphasis on the creative process. Upon completion, the student should understand the fundamentals of art and three-dimensional form, as well as the various media and processes associated with sculpture.

ART 244 SCULPTURE II 3 Hrs. PREREQUISITE: ART 243.
This course is designed to sharpen skills in the media and processes of sculpture. Emphasis is placed on personal expression through three-dimensional form. Upon completion, the student should be able to apply the fundamentals of art, his her knowledge of form, and the sculptural processes to communicating ideas.

ART 291 SUPERVISED STUDY IN STUDIO ART I 1-4 Hrs. PREREQUISITE: Permission of instructor.
This course is designed to enable the student to continue studio experiences in greater depth. Topics are to be chosen by the student with the approval of the instructor. Upon completion, the student should have a greater expertise in a particular area of art.

ART 292 SUPERVISED STUDY IN STUDIO ART II 3 Hrs. PREREQUISITE: ART 291.
This course is designed to enable the student to continue studio experiences in greater depth. Topics are to be chosen by the student with the approval of the instructor. Upon completion, the student should have greater expertise in a particular area of art.

ASTRONOMY (AST)

AST 220 INTRODUCTION TO ASTRONOMY 4 Hrs. PREREQUISITE: None.
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.
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**AUTO BODY REPAIR (ABR)**

**ABR 111 NON-STRUCTURAL REPAIR**

PREREQUISITE: None.

Students are introduced to basic principles of non-structural panel repairs. Topics include shop safety, identification and use of hand/power tools, sheet-metal repairs, and materials. Upon completion, the student should be able to perform basic sheet-metal repairs.

**ABR 114 NON-STRUCTURAL PANEL REPLACEMENT**

PREREQUISITE: None

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.

**ABR 122 SURFACE PREPARATION**

PREREQUISITE: None

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.

**ABR 123 PAINT APPLICATION AND EQUIPMENT**

PREREQUISITE: None

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.

**ABR 151 SAFETY AND ENVIRONMENTAL PRACTICES**

PREREQUISITE: None.

This course is designed to instruct the student in safe work practices. Topics include OSHA requirements, EPA regulations, as well as state and local laws. Upon completion, the student should be knowledgeable in shop safety and environmental regulations.

**ABR 154 AUTO GLASS AND TRIM**

PREREQUISITE: None.

This course is a study of automotive glass and trim. Emphasis is placed on removal and replacement of structural glass, non-structural glass and auto trim. Upon completion, the student should be able to remove and replace automotive trim and glass.

**ABR 156 AUTO CUTTING AND WELDING**

PREREQUISITE: None.

Students are introduced to the various automotive cutting and welding processes. Emphasis is placed on safety, plasma arc and oxy-acetylene cutting, resistance type spot welding, and Metal Inert Gas (MIG) welding. Upon completion, the student should be able to safely perform automotive cutting and welding procedures.

**ABR 157 AUTOMOTIVE PLASTIC REPAIRS**

PREREQUISITE: None

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.

**ABR 213 AUTOMOTIVE STRUCTURAL ANALYSIS**

PREREQUISITE: None

Students learn methods of determining structural misalignment. Topics include methods of inspection, types of measuring equipment, data sheets, and identifying types of structural damage.

**ABR 214 AUTOMOTIVE STRUCTURAL REPAIR**

PREREQUISITE: None

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.

**ABR 223 AUTOMOTIVE MECHANICAL COMPONENTS**

PREREQUISITE: None

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.

**ABR 255 STEERING AND SUSPENSION**

PREREQUISITE: None.

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. Upon completion, the student should be able to repair and/or replace damaged components and prepare the vehicle for alignment.

**ABR 281 SPECIAL TOPICS IN AUTO BODY**

PREREQUISITE: None.

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.

**ABR 291 AUTO BODY REPAIR CO-OP**

PREREQUISITE: None.

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, the student should have gained skills necessary for entry level employment.

**ABR 292 AUTO BODY REPAIR CO-OP**

PREREQUISITE: Instructor approval.

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, the student should have gained skills necessary for entry level employment.

**ABR 293 AUTO BODY REPAIR CO-OP**

PREREQUISITE: Instructor approval.

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, the student should have gained skills necessary for entry level employment.

**AUTOMOTIVE TECHNOLOGY (AUM)**

**AUM 101 FUNDAMENTALS OF AUTOMOTIVE TECHNOLOGY**

PREREQUISITE: None.

This course provides basic instruction in Fundamentals of Automotive Technology.

**AUM 110 ELECTRICAL AND ELECTRONIC SYSTEMS I**

PREREQUISITE: None.

This is an introductory course in automotive electrical and electronic systems. Emphasis is placed on troubleshooting and repair of systems, subsystems, and components.
AUM 112 STARTING, CHARGING SYSTEMS AND ACCESSORIES 3 Hrs.
PREREQUISITE: None.
This course is designed to provide the basic knowledge of troubleshooting, maintenance, and repair of automotive electrical accessories. This includes the use of special tools when servicing batteries, starting systems, charging systems, and lighting systems. All troubleshooting and maintenance procedures must be in accordance with manufacturer’s specifications.

AUM 121 BRAKING SYSTEMS 3 Hrs.
PREREQUISITE: None
This course provides instruction in automotive technology or auto mechanics. Emphasis is placed on the practical application of brakes.

AUM 122 STEERING AND SUSPENSION 3 Hrs.
PREREQUISITE: None.
This course provides instruction in automotive technology or auto mechanics. Emphasis is placed on the practical application of steering and suspension.

AUM 124 ENGINE REPAIR I 3 Hrs.
PREREQUISITE: AUM 101 or COREQUISITE AUM 101
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.

AUM 130 DRIVE TRAIN AND AXLES 3 Hrs.
PREREQUISITE: AUM 101 or COREQUISITE: AUM 101
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.

AUM 133 MOTOR VEHICLE AIR CONDITIONING 3 Hrs.
PREREQUISITE: None.
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.

AUM 181/182/281 SPECIAL TOPICS 1-3 Hrs.
PREREQUISITE: As required by project choice
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 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 or her choice.

AUM 191/291 CO-OP 2-3 Hrs.
PREREQUISITE: None.
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.

AUM 210 ELECTRICAL AND ELECTRONIC SYSTEMS II 3 Hrs.
PREREQUISITE: AUM 110
This course provides instruction in advanced automotive electrical and electronic systems. Emphasis is placed on advanced troubleshooting and repair of electrical systems, subsystems, and components.

AUM 211 AUTOMOTIVE ELECTRONICS 3 Hrs.
PREREQUISITE: None.
This course builds on the principles of laws of electricity. Emphasis is placed on series, parallel, and series-parallel circuits. Upon completion, the student should be able to calculate, build, and measure circuits.

AUM 220 ENGINE REPAIR II 3 Hrs.
PREREQUISITE: AUM 124
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.

AUM 224 MANUAL TRANSMISSION AND TRANSLXLE 3 Hrs.
PREREQUISITE: AUM 130
This course covers basic instruction in manual transmission and transaxles. Emphasis is placed on the understanding and application of basic internal and external operation relating to proper operation and drivability.

AUM 230 AUTO TRANSMISSION AND TRANSLXLE 3 Hrs.
PREREQUISITE: AUM 130
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.

AUM 239 ENGINE PERFORMANCE II 3 Hrs.
PREREQUISITE: AUM 239
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.

AUM 244 ENGINE PERFORMANCE II 3 Hrs.
PREREQUISITE: AUM 239
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.

AUM 246 AUTOMOTIVE EMISSIONS 3 Hrs.
PREREQUISITE: AUM 110, AUM 210, and AUM 244
This is an introductory course in automotive emission systems. Emphasis is placed on troubleshooting and repair of systems, subsystems, and components.

BASIC STUDY SKILLS/PERSONAL DEVELOPMENT (BSS)

BSS 090 BASIC STUDY SKILLS 1-3 Hrs.
PREREQUISITE: None.
This course is designed to introduce students to the basic skills of “how to study”. The course includes activities such as an assessment through testing of academic/study strengths and weaknesses, general information about effective study techniques, and applications of study techniques for specific courses. May be repeated for credit.
BSS 118  COLLEGE STUDY SKILLS  1 Hr.
PREREQUISITE: None
This course covers skills and strategies designed to improve study behaviors. Topics include time management, note taking, test taking, memory techniques, active reading strategies, critical thinking, communication skills, learning styles, and other strategies for effective learning. Upon completion, students should be able to apply appropriate study strategies and techniques to the development of an effective study plan.

BIOLOGY (BIO)

BIO 101  INTRODUCTION TO BIOLOGY I  4 Hrs.
CREDIT TOWARD GRADUATION WILL NOT BE GIVEN FOR BOTH BIO 101 AND 103.
PREREQUISITE: None.
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. (Internet Only) A 120 minute laboratory is required.

BIO 102  INTRODUCTION TO BIOLOGY II  4 Hrs.
PREREQUISITE: BIO 101.
Introduction to Biology II is the second of a two-course sequence for non-science majors. It covers evolutionary principles and relationships, environmental and ecological topics, classification, and a survey of biodiversity. (Internet Only) A 120 minute laboratory is required.

BIO 103  PRINCIPLES OF BIOLOGY I  4 Hrs.
CREDIT TOWARD GRADUATION WILL NOT BE GIVEN FOR BOTH BIO 101 AND 103.
PREREQUISITE: None.
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.

BIO 104  PRINCIPLES OF BIOLOGY II  4 Hrs.
PREREQUISITE: BIO 103.
This course 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. A 180 minute laboratory is required.

BIO 120  MEDICAL TERMINOLOGY  3 Hrs.
PREREQUISITE: None.
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. No laboratory is required.

BIO 150  HUMAN BIOLOGY  3 Hrs.
PREREQUISITE: None.
This course introduces the human body with emphasis on structure, function, and pathology. No laboratory is required.

BIO 201  HUMAN ANATOMY and PHYSIOLOGY I  4 Hrs.
PREREQUISITE: BIO 103*
*Students with a strong background in biology should talk with a counselor to determine if they may be exempt from this prerequisite or to discuss the validated system-wide biology placement exam. This is subject to change based on state wide policies.

BIO 202  HUMAN ANATOMY and PHYSIOLOGY II  4 Hrs.
PREREQUISITE: BIO 103* and BIO 201**
*Students with a strong background in biology should talk with a counselor to determine if they may be exempt from this prerequisite or to discuss the validated system-wide biology placement exam. This is subject to change based on state wide policies.
** A grade of C or better in BIO 201

BUSINESS (BUS)

BUS 100  INTRODUCTION TO BUSINESS  3 Hrs.
PREREQUISITE: None.
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.

BUS 146  PERSONAL FINANCE  3 Hrs.
PREREQUISITE: None.
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.

BUS 186  ELEMENTS OF SUPERVISION  3 Hrs.
PREREQUISITE: None.
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.
BUS 189 HUMAN RELATIONSHIPS 1-3 Hrs.
PREREQUISITE: None.
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.

BUS 190 MANAGEMENT WORKSHOP I 1-3 Hrs.
PREREQUISITE: None.
This course is a part of a series of workshops wherein current topics of interest are presented. They are offered upon demand and can be tailored for the needs of individuals, business, and industry.

BUS 191 MANAGEMENT WORKSHOP II 1-3 Hrs.
PREREQUISITE: None.
This course is a part of a series of workshops wherein current topics of interest are presented. They are offered upon demand and can be tailored for the needs of individuals, business and industry.

BUS 215 BUSINESS COMMUNICATION 3 Hrs.
PREREQUISITE: None.
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.

BUS 241 PRINCIPLES OF ACCOUNTING I 3 Hrs.
PREREQUISITE: MTH 100 placement.
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.

BUS 242 PRINCIPLES OF ACCOUNTING II 3 Hrs.
PREREQUISITE: BUS 241.
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.

BUS 260 STATISTICAL DATA ANALYSIS 3 Hrs.
PREREQUISITE: CIS 146 and MTH 112 or equivalent placement score.
Introduction to the use of basic statistical concepts in business applications. Descriptive statistics, index numbers, measures of central tendency and variation, probability, random variables, discrete and continuous probability distributions, sampling distributions, and point and interval estimation are covered. Computer software applications are utilized.

BUS 263 THE LEGAL AND SOCIAL ENVIRONMENT OF BUSINESS 3 Hrs.
PREREQUISITE: None.
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.

BUS 275 PRINCIPLES OF MANAGEMENT 3 Hrs.
PREREQUISITE: None.
This course provides a basic study of the principles of management. Topics include planning, organizing, staffing, directing, and controlling with emphasis on practical business applications.

BUS 276 HUMAN RESOURCE MANAGEMENT 3 Hrs.
PREREQUISITE: None.
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.

BUS 279 SMALL BUSINESS MANAGEMENT 3 Hrs.
PREREQUISITE: None.
This course provides an overview of the creation and operation of a small business. Topics include buying a franchise, starting a business, identifying capital resources, understanding markets, managing customer credit, managing accounting systems, budgeting systems, inventory systems, purchasing insurance, and the importance of appropriate legal counsel.

BUS 285 PRINCIPLES OF MARKETING 3 Hrs.
PREREQUISITE: None.
This course provides a general overview of the field of marketing. Topics include marketing strategies, channels of distribution, marketing research, and consumer behavior.

BUS 291 ALTERNATING BUSINESS CO-OP 1-3 Hrs.
PREREQUISITE: None.
This three-course sequence allows students to alternate semesters of full-time work in a job closely related to the student’s academic major with semesters of full-time academic work. 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 the employer’s evaluation of student productivity, evaluative reports submitted by the student, and the development and assessment by the student of a learning contract.

CARPENTRY (CAR)

CAR 111 CONSTRUCTION BASICS 3 Hrs.
PREREQUISITE: None.
This course introduces students to the opportunities in and requirements of the construction industry. Topics include economic outlook for construction, employment outlook, job opportunities, training, apprenticeship, entrepreneurship, construction tools, materials, and equipment, and job safety. Upon completion, the student should be able to identify the job market, types of training, knowledge of apprenticeship opportunities, construction tools, materials, equipment, and safety procedures.

CAR 112 FLOORS, WALLS, SITE PREP 3 Hrs.
COREQUISITE: CAR 113.
This course introduces the student to floor and wall layout and construction. Topics include methods of house framing, components of floor framing, layouts, sub-flooring, connectors and fasteners, and site preparation. Upon completion, the student will be able to identify various types of floor framing systems, select the sizes of floor joists, identify types of house framing, list types of fasteners, and identify property lines, set backs, and demonstrate a working knowledge of terrain and batter boards.

CAR 113 FLOORS, WALLS, SITE PREP LAB 3 Hrs.
COREQUISITE: CAR 112.
The student will engage in applications of floor and wall construction, application of required tools, use of the builder transit, level rod, tape measure, and grade stakes. Emphasis is placed on cutting sill plates, floor joists, girders, header bridging, sub-flooring, stud wall partitions, door and window headers, wall bracing, leveling instruments, and batter boards.
Upon completion, the student should be able to lay-out and construct a floor, including the sill, joist bridging and openings, install sub-flooring, construct interior and exterior walls, and layout property stakes of site plans.

**CAR 114 CONSTRUCTION BASICS LAB**  
**COREQUISITE:** CAR 111.  
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 completion, the student should be able to identify hand, power, stationary and pneumatic tools and demonstrate their safe use; identify and properly select wood and non-wood building products, and properly use nails, fasteners and adhesives.

**CAR 121 INTRODUCTION TO BLUEPRINT READING**  
**PREREQUISITE:** None.  
This course introduces the student to the basic concepts of blueprint reading. Topics include scales, symbols, site plans, and notations. Upon completion, the student should be able to identify drawings, scale various drawings, and identify different types of lines, symbols, and notations.

**CAR 122 CONCRETE AND FORMING**  
**COREQUISITE:** CAR 123.  
This course introduces the student to the properties and uses of concrete and to the procedures for designing concrete forms. Topics include making and pouring concrete, constructing concrete forms, reinforcement methods, finishing concrete, and job safety. Upon completion, the student should be able to list safety rules for the job site, identify components of concrete, describe how concrete forms are built, and how concrete is poured, reinforced, and finished.

**CAR 123 CONCRETE AND FORMING LAB**  
**COREQUISITE:** CAR 122.  
This course provides students with practical experience in concrete applications. Emphasis is placed on job site safety, concrete forming, mixing, pouring, finishing, and reinforcing. Upon completion, the student should be able to safely set forms, reinforce, mix, pour, and finish concrete.

**CAR 131 ROOF AND CEILING SYSTEMS**  
**PREREQUISITE:** CAR 111.  
This course focuses on the design and installation of roof and ceiling systems. Emphasis is placed on rafters, trusses, ceiling joists, roof decking, and roofing materials. Upon completion, the student should be able to design a roof and ceiling system, identify proper installation methods of roofing materials, and describe applicable safety rules.

**CAR 132 INTERIOR AND EXTERIOR FINISHING**  
**PREREQUISITE:** CAR 111.  
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 student should be able to identify different types of doors, windows and moldings and describe the uses of each, identify types of exterior sidings and trim, and describe the different types of paint and their proper application.

**CAR 133 ROOF and CEILING SYSTEMS LAB**  
**COREQUISITE:** CAR 131.  
The course provides students with practical experience in building and installing roof and ceiling systems. Emphasis is placed on job site safety, layout and cutting of rafters and joists, cutting and building trusses, installing roof decking, and roofing materials. Upon completion, the student should be able to cut and install rafters, joists and trusses, cut and apply roof decking and roofing materials, and apply safety rules for job site.

**CAR 193 INTERNSHIP IN CARPENTRY**  
**PREREQUISITE:** CAR 111.  
This course is designed to provide exposure to carpentry practices in non-employment situations. Emphasis is placed on techniques used in the carpentry profession. This course allows students to refine their skills necessary for entry-level employment.

**CHEMISTRY (CHM)**

**CHM 104 INTRODUCTION TO INORGANIC CHEMISTRY**  
**PREREQUISITE:** MTH 098 (Developmental Algebra II) or equivalent mathematics placement score.  
This is a survey course of general chemistry for students who do not intend to major in science or engineering and 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.

**CHM 105 INTRODUCTION TO ORGANIC CHEMISTRY**  
**PREREQUISITE:** CHM 104 (Introduction to Inorganic Chemistry) or CHM 111 (College Chemistry I)  
This is a survey course of organic chemistry and biochemistry for students who do not intend to major in science or engineering. Topics will 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.

**CHM 109 INTRODUCTORY CHEMISTRY FOR NONMAJORS I**  
**PREREQUISITE or COREQUISITE:** MTH 100. Three lectures and one three-hour laboratory. This is a survey course to teach basic scientific literacy and chemical principles. Includes environmental chemistry, household chemicals, and other subjects pertinent to non-majors. Not open to students that have earned credits in CHM 104 or CHM 111.

**CHM 110 INTRODUCTORY CHEMISTRY FOR NONMAJORS II**  
**PREREQUISITE:** CHM 109.  
This is a survey course to teach basic scientific literacy and chemical principles. Includes environmental chemistry, household chemicals, nutrition, genetic
CHD 100 INTRODUCTION TO EARLY CARE AND EDUCATION OF CHILDREN 3 Hrs. 
PREREQUISITE: ENG 092 or equivalent placement in ENG 093 
This course introduces the child care profession including 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, the student should be able to create and modify children’s environments to meet individual needs, use positive guidance to develop positive relationships with children, and promote children’s self-esteem, self-control, and self-motivation.

CHD 201 CHILD GROWTH AND DEVELOPMENT PRINCIPLES 3 Hrs. 
PREREQUISITE: ENG 092 or equivalent placement in ENG 093 
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, the student 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.

CHD 202 CHILDREN’S CREATIVE EXPERIENCES 3 Hrs. 
PREREQUISITE: ENG 092 or equivalent placement in ENG 093 
This course focuses on fostering creativity in preschool children and developing a creative attitude in teachers. Topics include selecting and developing creative experiences in language arts, music, art, science, math, and movement with observation and participation with young children required. Upon completion, the student should be able to select and implement creative and age-appropriate experiences for young children.

CHD 203 CHILDREN’S LITERATURE AND LANGUAGE DEVELOPMENT 3 Hrs. 
PREREQUISITE: ENG 092 or equivalent placement in ENG 093 
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, the student should be able to create, evaluate, and demonstrate activities which support a language-rich environment for young children.

CHD 204 METHODS AND MATERIALS FOR TEACHING CHILDREN 3 Hrs. 
PREREQUISITE: ENG 092 or equivalent placement in ENG 093 
This course introduces basic methods and materials used in teaching young children. Emphasis is placed on the student compiling a professional resource file of activities used for teaching math, language arts, science, and social studies concepts. Upon completion, the student should be able to demonstrate basic methods of creating learning experiences using appropriate techniques, materials, and realistic expectations.

CHD 205 PROGRAM PLANNING FOR EDUCATING YOUNG CHILDREN 3 Hrs. 
PREREQUISITE: ENG 092 or equivalent placement in ENG 093 
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, the student 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.
COMMERCIAL ART (CAT)

CAT 118 DESIGN DRAWING 3 Hrs.
PREREQUISITE: None.
This course introduces students to five basic drawing component skills. Topics include the perception of edges, space, relationships, shadow, and light. Upon completion, the student should be able to apply the fundamentals of drawing and be able to use different mediums and techniques.

CAT 126 TYPESETTING FUNDAMENTALS 3 Hrs.
PREREQUISITE: None.
This course introduces students to type and text production. Emphasis is placed on development of the typographic form from historic pictography representation to modern-type styles and high-resolution electronic image setting. Upon completion, the student should be able to demonstrate basic keyboarding skills for computer typesetting systems and applications, text/type specifications, measurement, and text proofing.

CAT 130 PRINCIPLES OF DESIGN 3 Hrs.
PREREQUISITE: None.
This course introduces students to the basic principles and elements of design. Emphasis is placed on design concepts including asymmetrical, symmetrical, and radial design, as well as line, shape, texture, value, and color in design. Upon completion, the student should be able to apply design concepts.

CAT 132 BASIC ADVERTISING DESIGN 3 Hrs.
PREREQUISITE: None.
This course focuses on design assignments related to the commercial art field and introduces students to graphic design techniques and camera-ready art. Emphasis is placed on creating and producing advertising design pieces. Upon completion, the student should be able to apply creative thinking in design communications and should be able to produce advertising design from concept to the printed pieces.

CAT 140 PHOTOGRAPHY 3 Hrs.
PREREQUISITE: None.
This course is an introduction to black and white 35mm photography. Emphasis is placed on photographic composition and aesthetic and technical aspects of photography. Upon completion, the student should be able to operate a single reflex camera, and be able to apply techniques of technical camera applications, film processing, and darkroom printing.

CAT 142 INTERMEDIATE ADVERTISING DESIGN 3 Hrs.
PREREQUISITE: CAT 132.
This course includes advance design concepts and assignments. Emphasis is placed on various design elements including artistic rendering, photo illustrations, typography, and computer layout as applied to advertising campaigns. Upon completion, the student should be able to use his or her graphic arts skills to produce professional art work.

CAT 144 BASIC AIRBRUSH ARTISTRY 3 Hrs.
PREREQUISITE: None.
This course introduces students to the fundamentals of airbrush art using basic control and modeling exercises. Topics include airbrush maintenance, the rendering of a cube, cylinder, circle, and graduated wash. Upon completion, the student should be able to produce a finished illustration.

CAT 146 INTERMEDIATE AIRBRUSH ARTISTRY 3 Hrs.
PREREQUISITE: CAT 144.
This course focuses on intermediate level airbrush techniques. Topics include the rendering of textures...
and surfaces such as chrome, glass, wood, and reflections used in technical illustrations. Upon completion, the student should be able to create portfolio quality work.

**CAT 148 ADVANCED AIRBRUSH ARTISTRY** 3 Hrs.  
PREREQUISITE: CAT 146.  
This course is an advanced study for students proficient in airbrush techniques. Topics include technical illustrations such as editorials, advertising, and self-promotional pieces. Upon completion, the student should be able to develop strong design concepts.

**CAT 150 ADVANCED ADVERTISING DESIGN** 3 Hrs.  
PREREQUISITE: CAT 142.  
This course allows students to create, design, and produce a corporate image project. Emphasis is placed on the development of the repetitive grids, using photographs as clip art, scanned images, and page layout software. Upon completion, the student should be able to apply manual and computer skills to advertising design projects.

**CAT 152 DIGITAL PHOTOGRAPHY** 3 Hrs.  
PREREQUISITE: CAT 140.  
This course introduces the student to digital imaging techniques. Emphasis is placed on the technical application of the camera and on digital photographic lighting methods. Upon completion, the student should be able to determine the need for digital photography versus reproduction quality advertising photography and understand both concepts.

**CAT 160 PORTFOLIO** 3 Hrs.  
PREREQUISITE: CAT 150.  
This course provides the advanced student an opportunity to use previous commercial art training to design and produce a professional and marketable portfolio for final presentation. Emphasis is placed on a complete portfolio, resume, cover letter, and self-promotional piece. Upon completion, the student should be able to formulate portfolio quality work for job interviews.

**CAT 175 ILLUSTRATION I** 3 Hrs.  
PREREQUISITE: None.  
This course introduces the student to the fundamentals of illustration using assorted media including pencil, watercolor, gouche, colored pencil, pastels, etc. Emphasis is placed on drawing and illustrating perception, color, and execution. Dynamic illustrations are pursued through layouts for print advertisements, articles, and books.

**CAT 176 ILLUSTRATION II** 3 Hrs.  
PREREQUISITE: CAT 175.  
This course develops the student’s ability to illustrate and apply those illustrations to practical projects incorporating advertising and page illustrations for articles, books and assorted applications. Realistic and stylized illustration concepts will be explored along with different media.

**CAT 180 CURRENT TOPICS IN COMMERCIAL ART** 3 Hrs.  
PREREQUISITE: None.  
This course is a survey of current trends in the commercial art industry. Emphasis is placed on perspective drawing, watercolor and medical illustration, typography design and font management, comic art and computer animation, digital graphics, and advanced computer graphics. Upon completion, the student should be able to perform skills in graphic illustration and should be able to use current technology in the industry.

**CAT 182 3D GRAPHICS AND ANIMATION** 3 Hrs.  
PREREQUISITE: CAT 111.  
This course is designed to tap the imagination of the student in a three dimensional problem solving environment. Topics include a basic introduction to the concepts of 3D design and animation as applied to a design project. Upon completion, the student should be able to create and animate objects in a three-dimensional environment.

**CAT 183/184 SPECIAL TOPICS IN COMMERCIAL ART** 3 Hrs.  
PREREQUISITE: None.  
These courses provide specialized instruction in various areas related to the commercial art industry. Emphasis is placed on meeting students’ needs.

**CAT 185 IMAGING I** 3 Hrs.  
PREREQUISITE: None.  
Introduction to Illustrator and Photoshop software on the Macintosh computer. Emphasis is placed on using the tools in both software programs and advancing to practical advertising and page layouts using stock photos, images, and basic design principles. Comprehending and applying commands and procedures is the objective.

**CAT 186 IMAGING II** 3 Hrs.  
PREREQUISITE: CAT 185.  
This course develops the student’s techniques with scanned images, stock photos, and images in combination with graphic design. Projects for page layouts to article and booklet layout will be introduced and emphasis placed on total execution from concept to printed piece.

**CAT 191 COOPERATIVE WORK EXPERIENCE IN COMMERCIAL ART** 1 Hr.  
PREREQUISITE: CAT 142.  
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, the student should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

**CAT 194 PUBLISHING II** 3 Hrs.  
PREREQUISITE: None.  
This course is designed to continue developing the student’s techniques for effective layouts through more complex graphic design projects. Use of color and preparation of work for four color printing are introduced. The student is guided through complex imaging challenges to develop a professional imaging portfolio representing his/her own unique style.

**CAT 202 ADVERTISING** 3 Hrs.  
PREREQUISITE: None.  
Through a variety of projects simulating various real world advertising media, this course guides students to apply design in persuasive commercial communications. Students study understanding the target audience, psychology of persuasive communication, types of advertising approaches, and working with the advertising client. Emphasis is on learning to think from the customers’ point of view in order to identify the types of visual communication most likely to enhance sales.
COMMERCIAL FOOD SERVICES (CFS)

CFS 101 ORIENTATION TO THE FOOD SERVICE INDUSTRY 1 Hr.
PREREQUISITE: None.
This course is an introduction to the food service industry and employment opportunities. This course focuses on the different types of food service/hospitality outlets. Upon completion, the student will be knowledgeable of business and career opportunities within the food service industry.

CFS 102 CATERING 2 Hrs.
PREREQUISITE: None.
This course includes the theory and practice of operating a catering business. Topics include food production and management related to catering and other special services. Upon completion, the student will have a working knowledge of the principles involved in operating a catering business.

CFS 110 BASIC FOOD PREPARATION 3 Hrs.
PREREQUISITE: CFS 101, CFS 111, and CFS 114.
This course introduces the fundamental concepts, skills, and techniques involved in basic cookery. Topics include scientific principles of food preparation and the relationship of food composition and structure to food preparation. The student will develop competencies in food preparation as it relates to the food service industry.

CFS 111 FOUNDATIONS IN NUTRITION 3 Hrs.
PREREQUISITE: None.
This course focuses on nutrition and meal planning in relation to the food preparation industry. Topics include the science of food and nutrition, essential nutrients, and their relation to the growth, maintenance, and functioning of the body, nutritional requirements of different age levels, and economic and cultural influences on food selection. Upon completion, the student will be able to apply the basic principles of meal planning.

CFS 112 SANITATION, SAFETY, AND FOOD SERVICE 2 Hrs.
PREREQUISITE: None.
This course introduces the basic principles of sanitation and safety to food handling including purchasing, storing, preparing, and serving. Topics include the scientific principles of food sanitation, food spoilage, food-borne disease, personal health and hygiene, and the sanitary care of the physical plant and equipment. Upon completion, the student will be able to demonstrate an understanding of sanitation and safety procedures related to H.A.C.C.P. regulations and the implementation of H.A.C.C.P. systems.

CFS 113 TABLE SERVICE 2 Hrs.
PREREQUISITE: None.
This course is a guide for the modern wait staff. Topics include laying the cover, taking the order, surveying of different styles of table service from the casual to the very formal, tabulating and presenting the bill, and busing and turning the table. Upon completion, the student should be able to demonstrate proficiency in the art of table service.

CFS 114 MEAL MANAGEMENT 3 Hrs.
PREREQUISITE: CFS 101, CFS 110, CFS 111, and CFS 112.
This course covers the principles of meal management. Topics include menu planning, food selection, recipe standardization, food preparation, and meal service for all phases of food service. Upon completion, the student will be able to apply efficient work habits, sanitation and safety in the kitchen.

CFS 141 FOOD PRODUCTION FOR SPECIAL OPERATIONS 2 Hrs.
PREREQUISITE: None.
This course covers menu planning principles, food preparation, food procurement, and food management skills needed to provide appealing and profitable food service in special operations. Topics include fast food cookery, convenience-store food service, supermarkets, delicatessens, and take-out venue. Upon completion, the student should be able to plan, organize, and prepare food service items for special operations.

CFS 199 HEALTHY COOKING 1 Hr.
PREREQUISITE: None.
The student will become educated in the principles of sound nutrition for the prevention of disease through a lecture/lab course. Basic principles of nutrition will be discussed along with practical aspects of nutrition which will be applied through cooking demonstrations by the instructor.

CFS 201 MEAT PREPARATION AND PROCESSING 2 Hrs.
PREREQUISITE: None.
This course focuses on meat preparation and processing. The student will be responsible for the preparing of meats including beef, pork, poultry, fish, and seafood so they can be used for final preparations in the other stations of the kitchens. Upon completion, the student will be able to demonstrate an understanding of the principles in meat preparation and processing.

CFS 204 FOUNDATIONS OF BAKING 3 Hrs.
PREREQUISITE: None.
This course covers basic ingredients, weights and measures, baking terminology, and formula calculations. Topics include yeast-raised products, quick breads, pastry dough, various cakes and cookies, and appropriate filling and finishing techniques. Upon completion, the student should be able to prepare and evaluate baked products.

CFS 213 FOOD PURCHASING AND COST CONTROL 3 Hrs.
PREREQUISITE: None.
Emphasis is placed on procurement, yield tests, inventory control, specification, planning, forecasting, market trends, terminology, cost controls, pricing, and food service ethics. Upon completion, the student should be able to apply effective purchasing techniques based on the end-use of the product.

CFS 251 MENU DESIGN 2 Hrs.
PREREQUISITE: None.
This course introduces menu design. Topics include development of standardized recipes, layout, nutritional concerns, product utilization, demographics, and customer needs. Upon completion, the student should be able to write, lay out, and produce effective menus for a variety of hospitality settings.

CFS 260 INTERNSHIP FOR COMMERCIAL FOOD SERVICE 3 Hrs.
PREREQUISITE: Permission of instructor.
This course is designed to give students practical, on-the-job experiences in all phases of food service operations under the supervision of a qualified foodservice professional.

CFS 299 SPECIAL TOPICS IN COMMERCIAL FOOD PREPARATION 3 Hrs.
PREREQUISITE: Permission of instructor.
This course provides instruction in special topics in commercial food preparation. Emphasis is placed on timely topics related to commercial food preparation.