

## Course Descriptions

### ADVANCED MANUFACTURING (ADM)

#### ADM 100 INDUSTRIAL SAFETY (3T)

3 credits

**PREREQUISITE:** Permission of instructor

This course is an introduction to general issues, concepts, procedures, hazards, and safety standards found in an industrial environment. This safety course is to make technicians aware of safety issues associated with their changing work environment and attempt to eliminate industrial accidents. This supports CIP code 15.0613. This is a CORE course.

#### ADM 101 PRECISION MEASUREMENT (2T,2E)

3 credits

**PREREQUISITE:** Permission of instructor

This course covers the use of precision measuring instruments and an introduction to basic geometric dimensioning and tolerancing (GD&T) concepts. 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 supports CIP code 15.0613. This is a CORE course and is aligned with NIMS certification standards.

#### ADM 102 COMPUTER AIDED DESIGN (1T,4E)

3 credits

**PREREQUISITE:** Permission of instructor

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. This is a CORE course. This course supports CIP code 15.0613.

#### ADM 103 INTRODUCTION TO COMPUTER INTEGRATED MANUFACTURING (CIM)/MATERIALS & PROCESSES (2T,2E)

3 credits

**PREREQUISITE:** Permission of instructor

This course is a basic introduction to concepts related to the computer integrated manufacturing (CIM) process and provides a basic overview of the materials and processes used in the industrial manufacturing of products. In addition, this course covers basic computer numeric control (CNC) principles including fundamental CNC programming concepts and the components and capabilities of machines commonly used for CNC applications. Emphasis is placed on process evaluation techniques that can be extrapolated to other system areas such as new products and new technology. Students cover the design requirements associated with a CIM 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. This is a CORE course.

#### ADM 104 INTRODUCTION TO THERMAL/ELECTRICAL PRINCIPLES (1T,4E)

3 credits

**PREREQUISITE:** Permission of instructor

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. In addition, this course covers electrical/electronic fundamentals and principles. Emphasis is placed on electrical theory and science, semiconductor devices, motors, transformers, digital concepts, programmable logic controllers, and circuit analysis of resistive, capacitive, resonant, and tuned circuits. Upon completion, students will have knowledge of basic electricity and electronics and be able to 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. This supports CIP code 15.0613. This is a CORE course.

#### ADM 105 FLUID SYSTEMS (1T,4E)

3 credits

**PREREQUISITE:** Permission of instructor

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. This is a CORE course. This course supports CIP code 15.0613.

#### ADM 106 QUALITY CONTROL CONCEPTS (3T)

3 credits

**PREREQUISITE:** Permission of instructor

This course covers quality assurance principles including the history of the quality movement, group problem solving, data collection, control charts, and statistical methods such as statistical process control (SPC), process capability studies, and the concepts associated with lean manufacturing. This supports CIP code 15.0613. This is a CORE course.

#### ADM 150 TECHNICAL CO-OPERATIVE EDUCATION (1I) 1 credit (each)

**-155 PREREQUISITE:** Permission of instructor

Students work on a part-time basis in a job directly related to applied technologies. The employer and supervising instructor evaluate students' progress. Upon course completion, students will be able to apply skills and knowledge in an employment setting.

#### ADM 250 INTRODUCTION TO FLEXIBLE MANUFACTURING CELLS (2T,2E)

4 credits

**PREREQUISITE:** Permission of instructor

This course covers techniques involved when grouping related machines for the purpose of completing a series of manufacturing processes in a flexible manufacturing cell. The student will be involved with the computerized integration of programmable control systems such as robotics, machine tools, and other peripheral equipment to emulate real-world manufacturing concepts employed in flexible manufacturing cells.

**AIR CONDITIONING AND REFRIGERATION (ACR)**

**ACR 111 PRINCIPLES OF REFRIGERATION (1T, 6M) 3 credits**

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. **(Taught on Demand)**

**ACR 112 HVAC SERVICE PROCEDURES 3 credits**  
**PREREQUISITE: Permission of instructor**

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

**ACR 113 REFRIGERATION PIPING PRACTICES (1T, 4E) 3 credits**

The 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.

**ACR 119 FUNDAMENTALS OF GAS HEATING SYSTEMS 3 credits**  
**FORMERLY ACR 115 (1T,4E)**

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 wide range of applications.

**ACR 120 FUNDAMENTALS OF ELECTRIC HEATING SYSTEMS 3 credits**  
**FORMERLY ACR 115 (1T,4E)**

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.

**ACR 121 PRINCIPLES OF ELECTRICITY FOR HVACR (1T, 4E) 3 credits**

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.

**ACR 122 HVACR ELECTRICAL CIRCUITS (1T, 4E) 3 credits**

This course introduces the student to electrical circuits and diagrams. Electrical symbols and basic wiring diagrams are constructed in this course. Upon completion, students should understand standard wiring diagrams and symbols.

**ACR 123 HVACR ELECTRICAL COMPONENTS (1T, 4E) 3 credits**  
**PREREQUISITE: ACR 121**

This course introduces students to electrical components and controls. Emphasis is placed on the operations of motors, relays, contractors, starters, and other HVAC controls. Upon completion, students should be able to understand motor theory and control functions in HVACR equipment.

**ACR 126 COMMERCIAL HEATING SYSTEMS (1T, 4E) 3 credits**  
**PREREQUISITES: ACR 119, ACR 120**

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, students should be able to troubleshoot and perform general maintenance on commercial heating systems.

**ACR 128 HEAT LOAD CALCULATIONS (3T) 3 credits**  
**PREREQUISITE: Permission of instructor**

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.

**ACR 130 COMPUTER ASSISTED HVAC TROUBLESHOOTING (2E) 1 credit**  
**PREREQUISITE: Permission of instructor**

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

**ACR 132 RESIDENTIAL AIR CONDITIONING (1T, 4E) 3 credits**  
**PREREQUISITE: ACR 111**

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

**ACR 135 MECHANICAL GAS SAFETY CODES (3T) 3 credits**  
**PREREQUISITE: Permission of instructor**

This course is to enhance the student knowledge of the Southern Mechanical and Gas 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.

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- ACR 138 CUSTOMER RELATIONS IN HVAC (3T) 3 credits**  
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.
- ACR 139 AUTOMOTIVE AIR CONDITIONING (1T, 6E) 3 credits**  
This course focuses on commercial refrigeration systems. Emphasis is placed on overall operation, troubleshooting and maintenance of commercial refrigeration systems. Upon completion students should be able to service and repair commercial refrigeration systems. **(Taught on Demand)**
- ACR 141 ENVIRONMENTAL SYSTEMS (2T,4E) 4 credits**  
**PREREQUISITE: Permission of instructor**  
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.
- ACR 144 BASIC DRAWING & BLUEPRINT READING IN HVAC (3T) 3 credits**  
**PREREQUISITE: Permission of instructor**  
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.
- ACR 147 REFRIGERATION TRANSITION AND RECOVERY (3T) 3 credits**  
This course is EPA-approved and covers material relating to the requirements necessary for types I, II, III and universal certification. Upon completion, students should be able to take the EPA/608 refrigerant certification exam. **(Taught on Demand)**
- ACR 148 HEAT PUMP SYSTEMS I (1T, 4E) 3 credits**  
**FORMERLY ACR 125**  
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.
- ACR 149 HEAT PUMP SYSTEMS II (1T,4E) 3 credits**  
**FORMERLY ACR 125**  
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, students should be able to install and service heat pumps.
- ACR 151 DUCT DESIGN & FABRICATION (2T,8E) 6 credits**  
**PREREQUISITE: Permission of instructor**  
This course provides instruction related to blueprints, layouts, and design ducts. Topics include all aspects of fabrication including straight duct, offsets and various other fittings needed to perform a certain task.
- ACR 181 SPECIAL TOPICS IN AIR CONDITIONING AND REFRIGERATION (3T) 3 credits**  
This course provides specialized instruction in various areas related to the air conditioning and refrigeration industry. Emphasis is placed on meeting the students' needs.
- ACR 187 SPECIAL TOPICS IN ACR (2T, 4E) 5 credits**  
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. **(Taught on Demand)**
- ACR 200 REVIEW FOR CONTRACTORS EXAM (3T) 3 credits**  
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. **(Taught on Demand)**
- ACR 202 SPECIAL REFRIGERATION SYSTEMS (3T) 3 credits**  
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. **(Taught on Demand)**
- ACR 203 COMMERCIAL REFRIGERATION (1T, 4E) 3 credits**  
**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, students should be able to service and repair commercial refrigeration systems.
- ACR 205 SYSTEM SIZING AND AIR DISTRIBUTION (1T, 4E) 3 credits**  
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.
- ACR 209 COMMERCIAL AIR CONDITIONING SYSTEMS (1T, 4E) 3 credits**  
This course focuses on servicing and maintaining commercial and residential HVAC/R systems. Topics include system component installation and removal and service tech-

niques. Upon completion, the student should be able to troubleshoot and perform general maintenance on commercial and residential HVAC/R systems.

**ACR 210 TROUBLESHOOTING HVACR SYSTEMS (1T, 4E) 3 credits**

**PREREQUISITE: Permission of instructor**  
This course provides instruction in the use of various meters and gauges used in the HVAC/R 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 HVAC/R systems.

**AEROSPACE TECHNOLOGY (ARS)**

**ARS 101 FUNDAMENTALS OF AEROSPACE MANUFACTURING (3T) 3 credits**

This course provides an overview of the materials and processes used in manufacturing high performance, light weight, and reliable structures for aerospace products. Emphasis is placed on process evaluation techniques that can be extrapolated to other system areas such as new products and new technology. (This course should be taken during the first or second semester of enrollment in the program.)

**ARS 151 WELDING PRINCIPLES, THEORY AND SYMBOLS (1T, 4E) 3 credits**

**PREREQUISITE: ARS 101**  
This is a theory and skill-based course in basic welding (gas and arc), plasma arc, brazing, soldering, and cutting processes used in maintenance and manufacturing. Other theory topics include forge, submerged arc, electroslag, stud arc, resistance, ultrasonic, electron beam, and laser beam welding. Students use welding symbols, joint designs, and weld positions to prepare specimens. The course also covers terminology, standards for welding acceptable and unacceptable welds, safety, and qualification tests.

**ARS 153 GAS TUNGSTEN ARC AND PLASMA ARC WELDING (2T, 2E) 3 credits**

**PREREQUISITE: ARS 151**  
This course describes processes, methods, and skills required to produce acceptable welds with gas tungsten arc welding (GTAW) and plasma arc welding (PAW) equipment for aerospace hardware; the standard of acceptability is AWS D17.1:2001 (or latest revision). Topics include equipment, tooling, shielding gases, arc characteristics, welding techniques, non-consumable electrodes, filler metals, base materials, and related safety. Instruction covers manual, semi-automatic, and automatic welding procedures.

**ARS 176 ELECTRICAL/ELECTRONIC ASSEMBLY (2T, 2E) 3 credits**

This mechanics of electrical/electronics assembly course covers materials and wire configurations, tools for wire preparation and assembly, wire stripping, connection requirements, terminal assembly, solder connections,

crimp connections, solder splices, shield terminations, tying and lacing, hardware installation, inspection, testing, safety, and industry specifications/standards. Worker proficiency certification in IPC/WHMA-A-620, "Requirements for Acceptance for Cable and Wire Harness Assemblies," is covered but certification testing is not a requirement to receive credit for the class.

**ARS 178 MECHANICAL ASSEMBLY AND TUBE WELDING (2T, 2E) 3 credits**

**PREREQUISITE: ARS 101**  
This course is a study of mechanical assembly and orbital tube welding processes applied in aerospace and related manufacturing industries. Topics include drilling techniques, torquing techniques, fastener installation, related attachments, welding setup methods, programming methods, tube preparation methods, and safety.

**ARS 251 SPECIALIZED WELDING PROCESSES (2T, 2E) 3 credits**

**PREREQUISITE: ARS 153**  
This course is an overview of the basics of metals joining using processes other than electric arc. Topics include safety; brazing; soldering; diffusion bonding; and welding processes such as resistance, laser, electron beam, ultrasonic, friction, inertia, explosion, upset, thermite, and forge.

**ARS 253 WELDING CERTIFICATION PREPARATION (1T, 4E) 3 credits**

**COREQUISITE: ARS 251**  
This course details the requirements for welder/welding operator certification in the aerospace industry. Training includes gas tungsten arc welding (GTAW) and plasma arc welding (PAW) processes and equipment and related safety. Emphasis is on materials in Groups I, II, III, and IV as defined in AWS D17.1:2001.

**ARS 276 INSTRUMENTATION ATTACHMENTS AND ADHESIVE BONDING PROCEDURES (2T, 2E) 3 credits**

This course covers the use and installation techniques of instruments such as thermocouples, temperature sensors, and strain gages on different types of aircraft and structures. Topics include bonding materials, soldering techniques, electrical testing of temperature sensors and strain gages, mixing and applying adhesives for pressure, the effects of corrosion and weather, fuel tank sealing, adhesive selection, and safety.

**ARS 278 COMPOSITE MATERIALS FABRICATION AND ASSEMBLY (2T, 2E) 3 credits**

**PREREQUISITE: ARS 178**  
This is a course in composite materials manufacturing. Topics include design and manufacturing techniques such as wet layups, prepregs, vacuum bagging, and filament winding. The course also covers the history of composite manufacturing, types of materials used in composite component fabrication, drilling and repair techniques, and related safety.

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**ARS 280 SURFACE PREPARATION AND COATINGS (2T, 2E) 3 credits**  
This course is a study of component surface preparation for various coating and painting applications. The content includes color development, paint booth operation (electrical and air system), wet and dry coating thickness measurement, manual and automated coating techniques, and general and hazardous material handling safety.

**ARS 284 SPECIALIZED COATING PROCESSES (2T, 2E) 3 credits**  
**PREREQUISITE: ARS 280**  
This course is a study in special coatings for aerospace structures. Topics include mixing, applying, and curing of coating materials, environmental effects on coating materials, and general and hazardous material handling safety. The course also covers equipment used in these processes.

## ANTHROPOLOGY (ANT)

**ANT 200 INTRODUCTION TO ANTHROPOLOGY (3T) 3 credits**  
This course is a survey of physical, social, and cultural development and behavior of human beings.

**ANT 210 PHYSICAL ANTHROPOLOGY (3T) 3 credits**  
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 (3T) 3 credits**  
**PREREQUISITE: ANT 200**  
This course is the application of the concept of culture to the study of both primitive and modern society.

**ANT 226 CULTURE AND PERSONALITY (3T) 3 credits**  
**PREREQUISITE: ANT 200**  
This course explores the relationship between personality development and culture from a cross cultural perspective.

**ANT 230 INTRODUCTION TO ARCHAEOLOGY (3T) 3 credits**  
This course is an introduction to archaeological excavation techniques and post-excavation laboratory procedures.

**ANT 236 FIELD SURVEY IN ARCHAEOLOGY (6E) 3 credits**  
**PREREQUISITE: ANT 230**  
This course permits students to apply archaeological techniques to field research projects.

**ANT 237 ARCHAEOLOGICAL LAB PROCEDURES (6E) 3 credits**  
**PREREQUISITE: ANT 230**  
This course specializes in artifact conservation, cataloging, sorting, storage, and general post-excavation cultural material administration. Learning methodology and understanding the deterioration-susceptibility of objects.

**ANT 246 PRESERVATION LAB PROCEDURES (6E) 3 credits**  
**PREREQUISITE: ANT 230**  
This course is primarily intended for students interested in pursuing museum science and archaeological laboratory procedures. It reviews technical information on curation, preservation, and conservation of physical and cultural objects.

**ANT 260 INDIANS OF NORTH AMERICA (3T) 3 credits**  
**PREREQUISITE: ANT 200**  
This course surveys the history, development, and culture of North American Indian tribes in Alabama.

## ART (ART)

**ART 100 ART APPRECIATION (3T) 3 credits**  
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 artwork. Upon completion, students should understand the fundamentals of art, the materials used and have a basic overview of the history of art.

**ART 101 ART WORKSHOP I (6E) 3 credits**  
**PREREQUISITE: Permission of instructor**  
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, students should be able to present visual evidence of the activities involved and explain how the experience advanced their artistic skills.

**ART 102 ART WORKSHOP II (6E) 3 credits**  
**PREREQUISITE: Art Workshop I, Permission of instructor**  
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, students 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 (3T) 3 credits**  
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 artwork experienced that demonstrates an understanding of aesthetics.

**ART 113 DRAWING I (6E) 3 credits**  
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, students should demonstrate and apply the fundamentals of art to various creative-drawing projects.

**ART 114 DRAWING II (6E) 3 credits**  
**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, students 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**

**(6E) 3 credits**

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, students should demonstrate an effective use of these elements and principles of design in creating two-dimensional compositions.

**ART 122 TWO-DIMENSIONAL COMPOSITION II**

**(6E) 3 credits**

**PREREQUISITE: ART 121**

This course covers the theory 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, students should, through personal expression, demonstrate an effective use of these elements and principles of design in creating two-dimensional compositions.

**ART 126 COLOR (6E)**

**3 credits**

This course introduces the student to fundamentals of color and color uses. Topics include various color theories, technical skills in mixing color, types of pigment and the expressive uses of color. Upon completion, students should be able to explain and demonstrate a fundamental understanding of color as it is used in the development of assigned color problems.

**ART 127 THREE-DIMENSIONAL COMPOSITION (6E)**

**3 credits**

**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 artworks. Upon completion, students should demonstrate basic technical skills and a personal awareness of the creative potential inherent in three-dimensional art forms.

**ART 133 CERAMICS I (6E)**

**3 credits**

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, students should demonstrate through their work a knowledge of their methods, as well as an understanding of the craftsmanship and aesthetics involved in ceramics.

**ART 134 CERAMICS II (6E)**

**3 credits**

**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, students should demonstrate improved craftsmanship and aesthetic quality in the production of pottery.

**ART 173 PHOTOGRAPHY I (6E)**

**3 credits**

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 tech-

niques. Upon completion, students 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 (6E)**

**3 credits**

**PREREQUISITE: Permission of instructor**

This is a sequence to Photography I and serves as an introductory photography course. Emphasis is placed on aesthetic as well as technical aspects of photography. Upon completion, the student will be able to produce well composed photographs.

**ART 176 FILMMAKING (6E)**

**3 credits**

This course provides a knowledge of the basics of filmmaking. Emphasis is placed on procedure, equipment, editing and sound. Upon completion, students should demonstrate a basic knowledge of filmmaking through critical analysis and film projects.

**ART 177 COLOR PHOTOGRAPHY (6E)**

**3 credits**

**PREREQUISITE: ART 173 or ART 176 or Permission of instructor**

This course covers the primary materials and processes of color photography. Emphasis is placed on the correct exposure, processing, creative color usage, and printing of both positive/negative color materials through exploration of films, filters, processes, and color temperature. Upon completion, students should be able to correctly execute the technical controls of color materials and explore the creative possibilities of color photography.

**ART 178 AUDIO-VISUAL TECHNIQUES (6E)**

**3 credits**

This course is an exploration of the area of linkage between the visual and auditory senses. Work with sound and recording equipment, projected images and multimedia hardware and software is included. Students will produce finished multimedia pieces.

**ART 187 PHOTOGRAPHY, FILM, AND MEDIA I (6E)**

**3 credits**

**PREREQUISITE: ART 173 or PFC 177 or Permission of instructor**

This course is designed to help the student explore creative approaches to photography, film, and related media. Problems in darkroom techniques, laboratory techniques, and special effects are included. Upon completion, the student should be able to apply these techniques to professional quality finished pieces.

**ART 188 PHOTOGRAPHY, FILM, AND MEDIA II (6E)**

**3 credits**

**PREREQUISITE: PFC 187 or Permission of instructor**

This course is designed to help the student explore creative approaches to photography, film, and related media in greater depth. Problems in darkroom techniques, laboratory techniques, and special effects are included. Upon completion, the student should be able to apply these techniques to professional quality finished pieces.

**ART 190 ART: LEGAL AND FINANCIAL MANAGEMENT (3T)**

**3 credits**

This course is designed to acquaint the student with funding sources, business procedures, and project planning for the visual artist. Topics may include grants, budgeting, legal

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contracts, and self-promotion. Upon completion, students should demonstrate a knowledge of the basics of managing an art related business.

### ART 203 ART HISTORY I (3T) 3 credits

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, students 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 (3T) 3 credits

This course covers 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 period and chronological sequence including a knowledge of themes, styles and of the impact of society on the arts.

### ART 216 PRINTMAKING I (6E) 3 credits

This course introduces various printmaking processes. Topics include relief, intaglio, serigraphy, or lithography and the creative process. Upon completion, students should have a basic understanding of the creative and technical problems associated with printmaking.

### ART 217 PRINTMAKING II (6E) 3 credits

**PREREQUISITE: ART 216 or Permission of instructor**  
This course provides the opportunity for the student to study a printmaking process beyond the introductory level. Emphasis is placed on creativity, composition, and technique in the communication of ideas through printmaking. Upon completion, students should demonstrate an understanding of the printmaking process as a creative tool for the expression of ideas.

### ART 221 COMPUTER GRAPHICS I (6E) 3 credits

This course is designed to enhance the student's ability to produce computer generated graphics. Emphasis is on the application of original design to practical problems using a variety of hardware and software. Upon completion, students should have an understanding of professional computer graphics.

### ART 231 WATERCOLOR PAINTING I (6E) 3 credits

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.

### ART 232 WATERCOLOR II (6E) 3 credits

**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, students should demonstrate and compile a body of original paintings that reflects a personal awareness of the media's potential.

### ART 233 PAINTING I (6E) 3 credits

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 discuss various approaches to the media and the creative processes associated with painting.

### ART 234 PAINTING II (6E) 3 credits

#### **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, students 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 (6E) 3 credits

This course provides a study of three-dimensional form by familiarizing students with sculpting media and techniques. Topics include the fundamentals of art and sculpting media with emphasis on the creative process. Upon completion, students 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 (6E) 3 credits

#### **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, students should be able to apply the fundamentals of art, their knowledge of form, and the sculptural processes to communicating ideas.

### ART 253 GRAPHIC DESIGN I (6E) 3 credits

#### **PREREQUISITE: VCM 180 or Permission of instructor**

This course is designed to introduce the study 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 understanding of the relationship between materials, tools and visual communication.

### ART 254 GRAPHIC DESIGN II (6E) 3 credits

#### **PREREQUISITE: VCM 180 or ART 253**

This course further explores 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 be able to apply the knowledge of the fundamentals of art, material and tools to the communication of ideas.

### ART 258 PHOTOGRAPHIC AND MEDIA PROBLEMS (6E) 3 credits

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.

**ART 263 MUSEUM PRACTICE I (2-8E) 1-4 credits**

**PREREQUISITE: Permission of instructor**

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.

**ART 264 MUSEUM PRACTICE II (2-8E) 1-4 credits**

**PREREQUISITE: ART 263 or Permission of instructor**

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.

**ART 273 STUDIO PHOTOGRAPHY I (6E) 3 credits**

This course stresses image-making problems requiring studio or other controlled environment solutions. Lights, props, and related equipment and techniques are utilized. The student will produce quality photographs using studio techniques.

**ART 274 STUDIO PHOTOGRAPHY II (6E) 3 credits**

**PREREQUISITE: PFC 273 or Permission of instructor**

This course deals with advanced problems requiring studio or other controlled environment solutions. Lights, props, and related equipment and techniques are utilized. The student will produce quality photographs using studio techniques.

**ART 283 GRAPHIC ANIMATION I (6E) 3 credits**

**PREREQUISITE: ART 221**

This course is designed to teach the art of animation as a continuation of the study of visual communication. Topics include story development, drawing, layout story boarding, directing, motion control, sound synchronization, lighting and camera operation. Upon completion, students should understand the creative process as it relates to animation and demonstrate this knowledge through various projects.

**ART 284 GRAPHIC ANIMATION II (6E) 3 credits**

**PREREQUISITE: ART 283**

This course advances the students' technical and aesthetic knowledge of animation beyond the introductory level. Topics include story development, drawing, layout, story boarding, directing, motion control, sound synchronizing, lighting and camera operation. Upon completion, students should advance his or her understanding of the creative process as it relates to animation and demonstrate this knowledge through various projects.

**ART 291 SUPERVISED STUDY IN STUDIO ART I (2-8E) 1-4 credits**

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 (2-8E) 1-4 credits**

This course is designed to enable the student to continue studio experiences in greater depth. Topics are chosen by the student with the approval of the instructor. Upon completion, the student should have greater expertise in a particular area of art.

**ART 293 DIRECTED READINGS IN ART I (3T) 3 credits**

This course offers supervised readings in the literature of visual art. Emphasis is placed on in-depth analysis of the chosen area of study. Upon completion, students should have an extensive knowledge of an advanced area in art and evidence of their work in the form of research.

**ART 294 DIRECTED READINGS IN ART II (3T) 3 credits**

**PREREQUISITE: ART 293**

This course offers supervised readings in the literature of visual art. Emphasis is placed on an in-depth analysis of the chosen area of study. Upon completion, students should have an extensive knowledge of an advanced area in art and evidence of their work in the form of research.

**ART 299 ART PORTFOLIO (2-8E) 1-4 credits**

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.

**ASTRONOMY (AST)**

**AST 220 INTRODUCTION TO ASTRONOMY (3T, 2E) 4 credits**

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.

**BARBERING (BAR)**

**BAR 110 ORIENTATION TO BARBERING (3T) 3 credits**

This course provides an orientation to professional barber-styling. Topics include professional image, basic fundamentals, and the history of barber-styling. Upon completion, the student should be able to identify the core concepts of the profession.

**BAR 111 SCIENCE OF BARBERING (1T, 2E, 3M) 3 credits**

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

## Course Descriptions

should be familiar with the anatomical structures, as well as disorders and treatments of the skin, scalp, and hair.

**BAR 112 BACTERIOLOGY AND SANITATION (3T) 3 credits**

This course provides the theory of bacteriology and sanitation. Topics include the types of bacteria and sanitation procedures. Upon completion, the student should be able to identify types of bacteria and methods of sanitation.

**BAR 113 BARBER-STYLING LAB (9M) 3 credits**

This course provides practical application of barber-styling fundamentals. Emphasis is placed on the care of implements, shampooing, and haircutting. Upon completion, the student should be able to care for his/her implements properly and demonstrate the basic techniques of shampooing and haircutting with only minimal supervision.

**BAR 114 ADVANCED BARBER-STYLING LAB (9M) 3 credits**

This course provides the student with practical experience in haircutting and facial massage. Emphasis is placed on hands-on experience. Upon completion, the student should be able to demonstrate on a model the correct procedures for a facial massage and basic haircut.

**BAR 120 PROPERTIES OF CHEMISTRY (3T) 3 credits**

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.

**BAR 121 CHEMICAL HAIR PROCESSING (9M) 3 credits**

This course provides the student with knowledge and hands-on experience using 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, the student should be competent in the use of chemicals to produce desired structure changes to the hair.

**BAR 122 HAIR COLORING CHEMISTRY (3T) 3 credits**

This course provides the student with a basic knowledge of hair color alteration. Topics include temporary, semi-permanent, and permanent changes. Upon completion, the student should be able to identify and explain the procedures for each classification of hair color alteration.

**BAR 124 HAIR COLORING METHODOLOGY LAB (9M) 3 credits**

This course provides the student an opportunity for practical application of all classifications of chemical hair coloring and processing products in a supervised environment. Emphasis is placed on experience in all classifications of hair coloring and processing procedures.

**BAR 130 MARKETING AND BUSINESS MANAGEMENT (3T) 3 credits**

This course provides the student with marketing and management skills that are essential for successful salon management. Topics include first aid, job search, bookkeeping, selling techniques, shop floor plans, shop locations, and legal regulations. Upon completion, the student should be aware of marketing and business management requirements for a successful salon.

**BAR 131 STRUCTURE AND DISORDERS OF NAILS (1.5T, 4.5M) 3 credits**

This course provides the student with the knowledge of nail structure and experience in identifying nail disorders. Emphasis is placed on identifying disorders and on using the correct implements and supplies for healthy nail care and manicures. Upon completion, the student should be capable of providing professional nail care.

**BAR 132 HAIR STYLING AND DESIGN (3T) 3 credits**

This course introduces the student to the art of hair style and design. Topics include the selection of styles to create a mood or complement facial features as well as hair replacement and hair pieces. Upon completion, the student should know the principles of style and design.

**BAR 133 HAIR STYLING AND MANAGEMENT LAB (9M) 3 credits**

This course includes hair styling and management procedures. Emphasis is placed on styling, management, marketing, and legal regulations. Upon completion, the student should be able to integrate a variety of skills and be ready to begin an internship in a salon setting.

**BAR 140 PRACTICUM (10M) 2 credits**

This course provides the student an opportunity to combine knowledge and skill covering all aspects of barber-styling in a professional setting or school lab with minimal supervision. Emphasis is placed on utilization of the knowledge and technical skills covered in the barbering/styling curriculum. Upon completion, the student should be able to function in a professional setting with very little assistance.

**BAR 141 PRACTICUM (10M) 2 credits**

This course provides the student an additional opportunity to combine knowledge and skill covering all aspects of barber-styling in a professional setting or school lab with minimal supervision. Emphasis is placed on utilization of the knowledge and technical skills covered in the barbering-styling curriculum. Upon completion, the student should function in a professional setting as a productive employee or manager.

## BIOLOGY (BIO)

**BIO 101 INTRODUCTION TO BIOLOGY I (3T, 2E) 4 credits**

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, Mendelian and molecular genetics and a survey of human organ systems. Special attention is paid to biological information that will allow each student to live a healthier life and be better prepared to understand human activity. Laboratory is required.

**BIO 102 INTRODUCTION TO BIOLOGY II (3T, 2E) 4 credits**  
**PREREQUISITE: BIO 101**

Introduction to Biology II is the second of a two-course sequence for non-science majors. It covers the theory of evolution, evolutionary principles and relationships, environmental and ecological topics, classification, and a survey of biodiversity. Each student will be prepared to make

informed decisions on environmental and ecological issues. Laboratory is required.

balance; and the endocrine, respiratory, digestive, excretory, cardiovascular, lymphatic and reproductive systems. Dissection, histological studies, gross anatomy, and physiology are featured in the laboratory experience. Laboratory is required.

**BIO 103 PRINCIPLES OF BIOLOGY I (3T, 2E) 4 credits**  
**COREQUISITE: ENG 093; or equivalent ACT, SAT score, or BSR placement score of 67 or higher.**

This is an introductory course for both 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 protists. Laboratory is required.

**BIO 203 TECHNIQUES IN MOLECULAR BIOLOGY 4 credits**  
**(2T, 4E)**

**PREREQUISITE: BIO 105**

This course is an introduction to the major topics in biochemistry and molecular biology. Topics include the major classes of biological molecules, an overview of the major metabolic pathways, advancing technologies, and bioethical issues. The laboratory will provide experience in the isolation and manipulation of DNA and RNA, DNA and protein electrophoresis, and enzymatic and immunological assays.

**BIO 104 PRINCIPLES OF BIOLOGY II (3T, 2E) 4 credits**  
**PREREQUISITE: BIO 103**

This course is an introduction to basic ecological and evolutionary relationships of plants and animals and a survey of plant and animal diversity including classification, morphology, physiology, and reproduction. Laboratory is required.

**BIO 220 GENERAL MICROBIOLOGY (2T, 4E) 4 credits**

This course includes historical perspectives, cell structure and function, microbial genetics, infectious diseases, immunology, distribution, physiology, culture, identification, classification, and control of microorganisms. The laboratory experience includes micro-techniques, distribution, culture, identification, and control. Laboratories are required.

**BIO 105 INTRODUCTION TO BIOTECHNOLOGY (3T, 2E) 4 credits**  
**CO-REQUISITE: BIO 103**

This course is an introduction to biotechnology, including career exploration, historical development and current applications in the areas of medicine, forensics, agriculture, and the environment. Students will learn laboratory safety and documentation while acquiring skills in the maintenance and calibration of basic lab equipment, calculation, and preparation of lab solutions and media.

**BIO 240 FIELD BIOLOGY (3T, 2E) 4 credits**  
**PREREQUISITE: BIO 103**

This course covers basic principles of taxonomy, classification, and selected ecological concepts. Animal and plant diversity is emphasized through collection, identification, and museum preparation of local flora and fauna. Laboratory is required.

**BIO 107 CELL CULTURE (2T, 4E) 4 credits**  
**PREREQUISITE: BIO 103 and BIO 105**

The overall objective of this course is to provide a basic understanding of the growth requirements and methodologies associated with the propagation of organisms important to the field of biotechnology. Instruction will focus on growing techniques and long-term maintenance of various cell cultures, including both attached and suspension cell lines. Microbial life cycle and cell culture will be emphasized, including discussion of pathogenic aspects and utilization of microbial transformation and protein production for use in biotechnological processes.

**BIO 250 DIRECTED STUDIES IN BIOLOGY (2-8E) 1-4 credits**  
**PREREQUISITE: Permission of instructor**

This course is designed for independent study in specific areas of biology chosen by the student in consultation with a faculty member and carried out under faculty supervision.

**BIO 251 DIRECTED STUDIES IN BIOLOGY (2-8E) 1-4 credits**  
**PREREQUISITE: BIO 250 and Permission of instructor**

This course is designed for independent study in specific areas of biology chosen by the student in consultation with a faculty member and carried out under faculty supervision.

**BIO 201 HUMAN ANATOMY AND PHYSIOLOGY I (3T, 2E) 4 credits**

Human Anatomy and Physiology I 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, and nervous systems; and the senses. Dissection, histological studies, gross anatomy, and physiology are featured in the laboratory experience. Laboratory is required.

**BIO 252 DIRECTED STUDIES IN BIOTECHNOLOGY (1T, 2E) 2 credits**  
**PREREQUISITE/CO-REQUISITE: BIO 203**

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. Typical projects will expose the student to the industry and provide practical application of laboratory procedures. Upon completion, the student will be able to demonstrate knowledge of the topics as specified by the instructor.

**BIO 202 HUMAN ANATOMY AND PHYSIOLOGY II (3T, 2E) 4 credits**  
**PREREQUISITE: BIO 201**

Human Anatomy and Physiology II covers the structure and function of the human body. Included is a study of basic nutrition; basic principles of water; electrolyte; acid-base

**BIO 254 ADVANCED TOPICS IN BIOTECHNOLOGY (1T, 2E) 2-3 credits**  
**PREREQUISITE: BIO 252**

In this advanced course, the student will design and implement an independent study that utilizes biotechnological

## Course Descriptions

methods relevant to local industry or to expand the scope of previous laboratory experience. The projects will include an expansion of previous experiences to design and implement an application as found in local biotechnology industries.

**BIO 256 BIOTECHNOLOGY INTERNSHIP (10E) 2 credits**  
**PREREQUISITE/CO-REQUISITE: BIO 254**

The internship will provide advanced students the opportunity to develop job and career-related skills while in a work setting. Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The work will be developed cooperatively with academic, industrial, and private institutional biotechnology laboratories.

**BIO 286, 287 FIELD STUDIES IN PLANT ECOLOGY I and II (1-2T, 2-4E) 2-4 credits each**  
**PREREQUISITE: Permission of instructor**

These courses introduce a strong field component into our Biology program and expose students to unique ecosystems like the Great Smoky Mountains National Park and the Chihuahuan Desert of Big Bend National Park in western Texas. These laboratory intensive courses introduce plants in selected communities and emphasize identification, sampling and collecting techniques in the field.

**BIO 288, 289 FIELD STUDIES IN MARINE BIOLOGY I and II (1-2T, 2-4E) 2-4 credits each**  
**PREREQUISITE: Permission of instructor**

These laboratory intensive courses introduce salt water and marsh environments with emphasis on vertebrates. Pertinent ecological concepts are introduced using sampling, collecting, preserving, and identification techniques. These courses are offered for students to obtain first hand field experience in marine ecosystems especially on the Gulf Coast. In the past, students have studied Marine Biology at the Dauphin Island Sea Lab, the Florida State University Marine Laboratory, Dog Island Sound, St. George Island, taken sampling excursions in the Gulf of Mexico aboard research vessels, and studied ornithology and salt water marshes on the Mississippi Sound coastline.

## BASIC SKILLS READING (RDG)

**RDG 085 DEVELOPMENTAL READING (3T) 3 credits**

This course is designed to improve reading and critical thinking skills. Topics include vocabulary enhancement; extracting implied meaning; analyzing author's purpose, tone, and style; and drawing conclusions and responding to written material. Upon completion, students should be able to comprehend and analyze college-level material.

NOTE: Students who score at or below 66 on the Compass Reading Test will be required to take RDG 085 during their first or second semester at Calhoun.

## BASIC STUDY SKILLS (BSS)

**BSS 100 STUDY SKILLS (1T) 1 credit**

This course is intended for those who placed into credit-level course work but who are not maintaining satisfactory academic progress toward meeting program goals. Topics include study skills, note taking, learning styles and strategies, test taking, goal setting, and self-assessment skills. Upon completion, students should be able to manage their learning experiences to successfully meet educational goals.

**BSS 118 STUDY SKILLS (1T) 1 credit**

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.

## BUSINESS (BUS)

**BUS 100 INTRODUCTION TO BUSINESS (3T) 3 credits**

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 147 INTRODUCTION TO FINANCE (3T) 3 credits**

This course is a survey of monetary and credit systems. Topics include the role of the Federal Reserve System, sources of capital including forms of long-term corporate financing, and consumer credit in the financial structure of our economy.

**BUS 150 BUSINESS MATH (3T) 3 credits**

This course is a study of practical business mathematics. Topics include fundamental processes of arithmetic with emphasis on decimals and percentages, markup, discounts, bank reconciliation, simple and compound interest, discounting notes, depreciation methods, and present value.

**BUS 190 MANAGEMENT WORKSHOP (1-3T) 1 - 3 credits**

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 to the needs of individuals, business and industry.

**BUS 190B PROBLEM SOLVING (1T) 1 credit**

The goal of this course is to help students improve problem-solving skills. Emphasis is placed on developing the five-step process for problem solving: Defining the Situation, Stating the Goal, Identifying a Solution, Preparing a Plan, and Taking Action.

**BUS 190C TEAMBUILDING (1T) 1 credit**

The goal of this course is to help students identify fac-

tors and develop the skills necessary for becoming part of a successful team. Emphasis is placed on developing skills in communication, shared leadership, and conflict resolution.

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|-----------------|--|-----------------|-----------------|---|-----------------|
| <b>BUS 190D</b> | <b>SELF-MANAGEMENT (1T)</b><br>The goal of this course is to help students build skills necessary to take responsibility and adjust to the changing demands of the workplace. Emphasis is placed on developing abilities to adjust to new technologies or processes, upgrading skills, career planning, and personal transitions.                            | <b>1 credit</b> | <b>BUS 190L</b> | <b>DEVELOPING A BUSINESS PLAN (1T)</b><br>This course is designed to give students the opportunity to develop a personal business plan. The course focuses on the following areas: purpose of a business plan, mechanics of writing a business plan, components of a business plan, and research techniques.  | <b>1 credit</b> |
| <b>BUS 190E</b> | <b>EMPLOYABILITY SKILLS (1T)</b><br>The goal of this course is to help students develop skills to make them more employable. Emphasis is placed on developing a professional resume and cover letter, organizing a job search campaign, interviewing, resigning from a position, and accepting new positions.  | <b>1 credit</b> | <b>BUS 190M</b> | <b>EVALUATING THE ENTREPRENEURIAL PERSONALITY (1T)</b><br>This course is designed to allow students to identify in themselves and others characteristics that are favorable for the successful entrepreneur. Self-analysis and a study of entrepreneurial traits are included.  | <b>1 credit</b> |
| <b>BUS 190F</b> | <b>ORGANIZATIONAL COMMUNICATIONS (1T)</b><br>The goal of this course is to help students build personal skills that allow them to communicate effectively in the workplace. Emphasis is placed on verbal, nonverbal, and written communications as they relate to professional work habits.  | <b>1 credit</b> | <b>BUS 190N</b> | <b>FINANCING AN ENTREPRENEURIAL ENTERPRISE (1T)</b><br>This course is designed to inform students about the options available for financing an entrepreneurial enterprise. The course allows students to investigate possible sources of financing and to study topics such as break-even analysis, fixed and variable costs, and financial statements. | <b>1 credit</b> |
| <b>BUS 190G</b> | <b>INTERPERSONAL RELATIONS FOR MANAGEMENT (1T)</b><br>The goal of this course is to help students achieve better interpersonal relationships on the job. Emphasis is placed on the concepts of professional treatment of customers, managing diversity, commitment to quality, managing office politics, developing positive attitudes, and self-discipline. | <b>1 credit</b> | <b>BUS 190P</b> | <b>PLANNING FOR SUPERVISING HUMAN RESOURCES (1T)</b><br>This course is designed to offer insight into the employee relation side of conducting business. Emphasis is placed on identifying employment needs, training, supervising, and motivating employees.   | <b>1 credit</b> |
| <b>BUS 190H</b> | <b>TIME/PROJECT MANAGEMENT (1T)</b><br>The goal of this course is to assist students in developing effective time management skills. Emphasis is placed on learning to set priorities, making decisions, delegating, concentrating on specific tasks, and increasing personal productivity.  | <b>1 credit</b> | <b>BUS 190Q</b> | <b>PLANNING MARKET STRATEGY (1T)</b><br>This course is designed to allow owners of businesses to develop a market strategy. Included is a discussion of market analysis, competition, sales and distribution, and pricing strategies.   | <b>1 credit</b> |
| <b>BUS 190I</b> | <b>DIRECTED READINGS IN MANAGEMENT (1T)</b><br>The goal of this course is to allow students to research a current topic of interest. Topics chosen should benefit the student's professional development or allow for gathering beneficial research for the student's place of work.   | <b>1 credit</b> | <b>BUS 190R</b> | <b>PROMOTIONAL STRATEGIES (1T)</b><br>This course allows students to look specifically at two kinds of promotional strategies: Advertising and Public Relations. Students explore how each of these strategies strongly affects the success of a business.  | <b>1 credit</b> |
| <b>BUS 190J</b> | <b>ETHICS IN THE WORKPLACE (1T)</b><br>The goal of this course is to allow students to explore the arena of ethics in the workplace. Emphasis is placed on ethics case studies.  | <b>1 credit</b> | <b>BUS 190S</b> | <b>CHOOSING A LOCATION FOR A BUSINESS (1T)</b><br>This course is designed to help students planning to start their own business to choose a suitable location and facility. Course content focuses on site location, purchasing or leasing an existing facility, and arranging layout.  | <b>1 credit</b> |
| <b>BUS 190K</b> | <b>STRESS MANAGEMENT (1T)</b><br>This course is designed to help students develop skills in managing stress associated with careers in business. Emphasis is placed on developing coping skills such as conflict resolution, delegation, and identifying problems early to avoid unnecessary stress.   | <b>1 credit</b> | <b>BUS 190T</b> | <b>STATISTICAL PROCESS CONTROL (SPC) - VARIABLE DATA (1T)</b><br>This course covers descriptive statistics, types of data, and how to calculate, plot, and analyze various variable charts such as average and range, median and range, and standard deviations. Variable charts are used with measurable data.   | <b>1 credit</b> |
|                 |  |                 | <b>BUS 190U</b> | <b>STATISTICAL PROCESS CONTROL (SPC) - ATTRIBUTE DATA (1T)</b><br>This course addresses the development of non-measur-  | <b>1 credit</b> |

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able data into attribute charts for analysis of a process capability. Type of charts covered are P, NP, C and U with emphasis given to development of P-type charts.

**BUS 190V MANAGEMENT FOR ENTREPRENEURS (1T) 1 credit**  
This course is an overview of the principles of management as they relate to small and self-owned businesses. Emphasis is placed on planning, organizing, and controlling.

**BUS 190W CUSTOMER SERVICE STRATEGIES (1T) 1 credit**  
This course is an overview of the principles of customer service. Emphasis is placed on determining elements of customer satisfaction, creating a customer-focused culture, soliciting and using customer feedback, and building a "relationship" with the customer.

**BUS 190X WORKPLACE READINESS (1-3T) 1-3 credits**  
This course is designed to assess students' workplace skills and help them identify areas of weakness. Skills assessment tools such as WorkKeys will be utilized. Other components of workplace readiness will be included as needed.

**BUS 190Y LEADERSHIP SKILLS (1T) 1 credit**  
This course is an overview of the characteristics of leadership. Emphasis is placed on what effective leaders do, leadership styles, and the differences between leadership and management.

**BUS 193 BUSINESS CO-OP I (1T) 1 credit**  
**PREREQUISITE: Successful completion of two (2) business courses**  
This course is part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to business and related practices in the working environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**BUS 194 BUSINESS CO-OP II (1T) 1 credit**  
**PREREQUISITE: BUS 193**  
This course is a part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to business and related practices in the working environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**BUS 195 BUSINESS CO-OP III (1T) 1 credit**  
**PREREQUISITE: BUS 194**  
This course is a part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to business and related practices in the working environment. The grade is based on the employer's

evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**BUS 196 BUSINESS CO-OP IV (1T) 1 credit**  
**PREREQUISITE: BUS 195**

This course is a part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to business and related practices in the working environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**BUS 197 BUSINESS CO-OP V (1T) 1 credit**  
**PREREQUISITE: BUS 196**

This course is a part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to business and related practices in the working environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**BUS 215 BUSINESS COMMUNICATIONS (3T) 3 credits**  
**PREREQUISITE: ENG 101**

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 (3T) 3 credits**

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 and analysis.

**BUS 242 PRINCIPLES OF ACCOUNTING II (3T) 3 credits**  
**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 246 ACCOUNTING ON THE MICROCOMPUTER (3T) 3 credits**  
**PREREQUISITE: BUS 241**

This course utilizes the microcomputer in a study of accounting principles and practices. Emphasis is on the preparation and analysis of financial statements, measuring business activity, and making rational business decisions.

<b>BUS 248</b>	<b>MANAGERIAL ACCOUNTING (3T)</b> <b>PREREQUISITE: BUS 241</b> <b>(Course offered only in Spring and Summer Semesters)</b> This course is designed to familiarize the student with management concepts and techniques of industrial accounting procedures. Emphasis is placed on cost behavior, contribution approach to decision-making, budgeting, overhead analysis, cost-volume-profit analysis, and cost accounting systems.	<b>3 credits</b>
<b>BUS 253</b>	<b>INDIVIDUAL INCOME TAX (3T)</b> This course is intended to familiarize the student with the fundamentals of the federal income tax laws with primary emphasis on those affecting the individual. Emphasis is placed on gross income determination, adjustments to income, business expenses, itemized deductions, exemptions, 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. Course offered on Decatur Campus Spring Semester.	<b>3 credits</b>
<b>BUS 261</b>	<b>BUSINESS LAW I (3T)</b> This course provides an overview of legal principles affecting businesses. Topics include contracts, agency and employment, negotiable instruments, bailments, and sale of goods.	<b>3 credits</b>
<b>BUS 262</b>	<b>BUSINESS LAW II (3T)</b> This course is a continuation of BUS 261. Topics include legal principles related to partnerships, corporations, real property and leases, insurance, security devices, bankruptcy, trust and estates; government regulations of business and labor; civil and criminal liability; and business security.	<b>3 credits</b>
<b>BUS 263</b>	<b>THE LEGAL AND SOCIAL ENVIRONMENT OF BUSINESS (3T)</b> 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.	<b>3 credits</b>
<b>BUS 271</b>	<b>BUSINESS STATISTICS I (3T)</b> <b>PREREQUISITE: MTH 110 or MTH 112 or appropriate score on math placement test</b> 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, estimating and introduction to hypothesis testing.	<b>3 credits</b>
<b>BUS 272</b>	<b>BUSINESS STATISTICS II (3T)</b> <b>PREREQUISITE: BUS 271</b> This course is a continuation of BUS 271. Topics include sampling theory, statistical inference, regression	<b>3 credits</b>

and correlation, chi square, analysis of variance, time series index numbers, and decision theory.

<b>BUS 275</b>	<b>PRINCIPLES OF MANAGEMENT (3T)</b> 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.	<b>3 credits</b>
<b>BUS 279</b>	<b>SMALL BUSINESS MANAGEMENT (3M)</b> 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.	<b>3 credits</b>
<b>BUS 280</b>	<b>INDUSTRIAL MANAGEMENT (3T)</b> This course provides an overview of management in an industrial setting. Topics include operations analysis, research and development, physical facilities, production planning, productivity improvement, product flow, quality control, jobs and wages, and employee motivation.	<b>3 credits</b>
<b>BUS 285</b>	<b>PRINCIPLES OF MARKETING (3T)</b> This course provides a general overview of the field of marketing. Topics include marketing strategies, channels of distribution, marketing research, and consumer behavior.	<b>3 credits</b>
<b>BUS 291</b>	<b>ALTERNATING BUSINESS CO-OP I (1-3T)</b> <b>PREREQUISITE: Permission of instructor</b> This two-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.	<b>1-3 credits</b>
<b>BUS 292</b>	<b>ALTERNATING BUSINESS CO-OP II (1-3T)</b> <b>PREREQUISITE: Permission of instructor</b> This two-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.	<b>1-3 credits</b>
<b>BUS 296</b>	<b>BUSINESS INTERNSHIP I (3T)</b> <b>PREREQUISITE: Minimum 6 semester hours completed. Minimum GPA 2.0 (C)</b>	<b>3 credits</b>

## Course Descriptions

This two-course sequence allows the student to work part-time on a job closely related to his or her 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.

**BUS 297**

**BUSINESS INTERNSHIP II (3T)**

**3 credits**

**PREREQUISITE: Minimum 6 semester hours completed. Minimum GPA 2.0 (C)**

This two-course sequence allows the student to work part-time on a job closely related to his or her 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.