

and service and may be repeated as subject matter varies. Upon completion, the student will have an understanding of timely topics relative to the commercial food preparation industry.

COMPUTERIZED NUMERICAL CONTROL (CNC)

- CNC 101 INTRODUCTION TO CNC 6 Hrs.**
PREREQUISITE: None.
This is an introductory course with emphasis placed on the basic concepts and terminology of numerical control. Topics include Cartesian coordinate system, CNC principles, and machine capabilities. Student will gain an understanding of CNC machine tools and their usage.
- CNC 102 CNC TURNING OPERATIONS 6 Hrs.**
PREREQUISITE: None.
This course is a study introducing the student to two-axis part programming. Applications of graphics programming and lathe set-up are also included. Students will learn to write CNC Turning programs, set-up, and operate the CNC lathe.
- CNC 103 MANUAL PROGRAMMING 6 Hrs.**
PREREQUISITE: None.
This course will emphasize calculations for CNC machine tools. Topics will include G and M codes, radius programming, and cutter compensations. Student will learn to write a variety of CNC programs which can be used on the job as reference programs.
- CNC 104 CNC MILLING OPERATIONS 6 Hrs.**
PREREQUISITE: None.
This is a course in programming and operation of the CNC Milling Machines. Applications include maintenance, safety, and production of machine parts through programming, set-up, and operation. Student will learn to produce finished parts on the CNC milling machines.
- CNC 142 APPLIED GEOMETRY FOR CNC MACHINE 3 Hrs.**
PREREQUISITE: None.
This course introduces applied geometry as it relates to CNC. Emphasis is placed on geometry applied to problem solving used to make calculations for machining parts for CNC from engineering drawings. Upon completion, the student should be able to solve problems required for planning, making, and checking of machined parts.
- CNC 143 APPLIED TRIGONOMETRY FOR CNC MACHINING 3 Hrs.**
PREREQUISITE: None.
This course introduces the concepts of applied trigonometry for CNC machining. Topics include computing unknown sides, angles, projection of auxiliary lines to solve two or more right triangles as it relates to CNC programming and precision machining. Upon completion, the student should be able to analyze and make computations in orderly steps to make and inspect parts.
- CNC 181/281 SPECIAL TOPICS IN COMPUTERIZED NUMERICAL CONTROL 3 Hrs.**
PREREQUISITE: None.
These courses provide specialized instruction in various areas related to CNC. Emphasis is placed on meeting student's needs.
- CNC 215 QUALITY CONTROL AND ASSURANCE 3 Hrs.**
PREREQUISITE: None.
This is an advanced course in parts inspection using Geometric Dimensioning and Tolerancing, and familiarization of the Coordinate Measuring Machine.
- Topics include part set-up, tolerance applications, maximum material and least material conditions, perpendicularity and point of intersection. Upon completion, the student should be able to inspect machined parts demonstrating an understanding of G.D.T. and C.M.M.
- CNC 216 QUALITY CONTROL II 3 Hrs.**
PREREQUISITE: None.
This course is a continuation of CNC 215. Topics include set-up, and operation of a CNC coordinate measuring machine. Students will learn to program and set up a complex part for inspection.
- CNC 217 TOOLING AND MACHINING DATA 3 Hrs.**
PREREQUISITE: None.
This course focuses on technical applications in cutting tool technologies. Emphasis is placed on machining data for material removal parameters on turning and milling machines. Students will learn tool selection, tool terminology, and material removal calculations.
- CNC 218 PROGRAMMING AND SET-UP FOR ELECTRICAL DISCHARGE MACHINING 6 Hrs.**
PREREQUISITE: None.
This course introduces the student to the concept of EDM (Electrical Discharge Machining). Topics include principles, programming techniques, set-up, and operation. Students will learn to product basic machine parts.
- CNC 222 COMPUTER NUMERICAL CONTROL GRAPHICS: TURNING 3 Hrs.**
PREREQUISITE: None.
This course introduces Computer Numerical Control graphics programming and concepts for turning center applications. Emphasis is placed on the interaction of menus to develop a shape file in a graphics CAM system and to develop tool path geometry and part geometry. Upon completion, the student should be able to develop a job plan using CAM software, include machine selection, tool selection, operational sequence, speed, feed, and cutting depth.
- CNC 223 COMPUTER NUMERICAL CONTROL GRAPHICS PROGRAMMING: MILLING 3 Hrs.**
PREREQUISITE: None.
This course introduces Computer Numerical Control graphics programming and concepts for machining center applications. Emphasis is placed on developing a shape file in a graphics CAM system and transferring coded information from CAM graphics to the CNC milling center. Upon completion, the student should be able to develop a complete job plan using CAM software to create a multi-axis CNC program.
- CNC 227 INTRODUCTION TO STATISTICAL PROCESS CONTROL 3 Hrs.**
PREREQUISITE: None.
This is an introductory course in statistical process control of manufacturing processes. Topics include control charts, pareto diagrams, and cause - effect diagrams. Upon completion, the student is expected to perform basic functions in analysis and control of manufacturing processes.
- CNC 229 TOTAL QUALITY MANAGEMENT 3 Hrs.**
PREREQUISITE: None.
This is an introductory course designed to cover Total Quality Management (TQM) concepts. Topics include common direction, team building, statistical analysis, and problem solving skills and techniques. Upon completion, the student will acquire a knowledge in TQM as it relates to the industrial setting.

CNC 230 COMPUTER NUMERICAL CONTROL SPECIAL PROJECTS 3 Hrs.
PREREQUISITE: None.

This course is designed to allow the student to work in the lab with limited supervision. The student is to enhance his or her proficiency levels on various CNC machine tools. Upon completion, the student is expected to plan, execute, and present results of advanced CNC products.

CNC 234 PRECISION MACHINING PRACTICES 5 Hrs.
PREREQUISITE: None.

This course is designed to teach construction, operation, and safety precautions of the JIG-BORE and hardinge chucker lathe. Topics include precision boring, facing head, and rotary table. Upon completion, the student should be able to manufacture parts with extreme close tolerance.

COMPUTER SCIENCE (CIS)

CIS 117 DATABASE MANAGEMENT SOFTWARE APPLICATIONS 3 Hrs.
PREREQUISITE: MTH 098 or MTH 100 or equivalent placement score.

This course provides students with hands-on experience using database management software. Students will develop skills common to most database management software by developing a wide variety of databases. Emphasis is on planning, developing, and editing functions associated with database management.

CIS 146 MICROCOMPUTER APPLICATIONS 3 Hrs.
PREREQUISITE: None.

This course is an introduction to the most common software applications of microcomputers and includes "hands-on" use of microcomputers and some of the major commercial software. These software packages should include typical features of office suites, such as word processing, spreadsheets, database systems, and other features found in current software packages. Upon completion, the student will understand common applications and be able to utilize selected features of these packages.

CIS 191 INTRO TO COMPUTER SCIENCE 3 Hrs.
PREREQUISITE: MTH 100 or equivalent math placement score.

This course introduces fundamental concepts, including an algorithmic approach to problem-solving via the design and implementation of programs in selected language such as Pascal, C, Ada, Visual Basic, or other appropriate languages. Structured programming techniques involving input/output, conditional statements, loops, files, arrays, and structures, and simple data structures are introduced. Upon completion, the student will be able to demonstrate knowledge of the subject through the completion of programming assignments and testing.

CIS 193 INTRO TO COMPUTER PROGRAMMING LAB 1 Hr.
COREQUISITE: CIS 191.

In the Programming laboratory, students develop and apply the basic programming skills taught in CIS 191.

CIS 196A WORD PROCESSING 3 Hrs.
PREREQUISITE: OAD 101

This course is designed to provide the student with basic word processing skills through classroom instruction and outside lab. Emphasis is placed on the utilization of software features to create, edit, and print common office documents. Upon completion, the student should be able to demonstrate the ability to use industry standard software and generate appropriately

formatted, accurate, and attractive business documents such as memos, letters, tables, and reports.

CIS 196B ADVANCED WORD PROCESSING 3 Hrs.
PREREQUISITE: OAD 125/CIS 196A

This course is designed to increase student proficiency in using the advanced word processing functions through classroom instruction and outside lab. Emphasis is on the use of software to maximize productivity. Upon completion, the student should be able to demonstrate the ability to generate complex documents such as forms, newsletters, and multi-page documents.

CIS 196C WORDPERFECT 3 Hrs.
PREREQUISITE: OAD 101

This course is designed to provide the student with basic word processing skills through classroom instruction and outside lab. Emphasis is placed on the utilization of software features to create, edit, and print common office documents. Upon completion, the student should be able to demonstrate the ability to use industry-standard software and generate appropriately formatted, accurate, and attractive business documents such as memos, letters, tables, and reports. The State Department of Education refers to this course as Office Applications.

CIS 196D THE ELECTRONIC OFFICE 3 Hrs.
PREREQUISITE: OAD 125/CIS 196A or OAD 231/CIS 196C or CIS 146.

Electronic Office is designed to work with each of the four Microsoft Office program: Word, Excel, PowerPoint, and Access to create meaningful projects and perform business tasks. Students will learn how to streamline specific applications by integrating two or more of the Office programs, and how to use the World Wide Web to gather information. Upon completion, the student should be able to demonstrate the ability to use industry-standard software and generate appropriately formatted, accurate, and attractive business documents.

CIS 196E MICROSOFT EXCEL 3 Hrs.
PREREQUISITE: OAD 101

This course is designed to provide the student with a firm foundation in the use of computerized equipment and appropriate software in performing spreadsheet tasks through classroom instruction and outside lab. Emphasis is on spreadsheet terminology and design, common formulas, proper file and disk management procedures. Upon completion, the student should be able to use spreadsheet features to design, format, and graph effective spreadsheets. The State Department of Education refers to this course as Spreadsheet Applications

CIS 196F ELECTRONIC PUBLISHING 3 Hrs.
PREREQUISITE: OAD 101

This course is designed to introduce the student to the elements and techniques of page design, layout, and typography through classroom instruction and outside lab. Emphasis is on the use of current commercial desktop publishing software, graphic tools, and electronic input/output devices to design and print high quality publications such as newsletters, brochures, catalogs, forms, and flyers. Upon completion, the student should be able to utilize proper layout and design concepts in the production of attractive desktop published documents.

CIS 196G MICROSOFT ACCESS AND POWERPOINT 3 Hrs.
PREREQUISITE: OAD 101

Access is a computer program used to enter, maintain, and retrieve related data in a format known as a data-

base. Upon completion, the student should be able to create a database, organize and update the data, prepare queries to find the needed information, and choose attractive and functional methods for viewing the information on screen and in printed reports.

PowerPoint is a presentation graphics program that is used to organize and present information directly from a computer or printed for distribution. Upon completion, the student should be able to prepare a PowerPoint presentation, modify a presentation, format slides, add visual appeal and animation to presentations, share and connect data, link and embed objects and files, and save a presentation as a Website. The State Department of Education refers to this course as Database Applications.

CIS 196H QUICKBOOKS I COMMERCIAL SOFTWARE APPLICATIONS 3 Hrs.

PREREQUISITE: OAD 137, BUS 241 and BUS 242
This is a "hands-on" introduction of the Quickbooks program, with the emphasis being primarily on use of an existing ledgers and accounts.

CIS 197A QUICKBOOKS II ADVANCED COMMERCIAL SOFTWARE APPLICATIONS 3 Hrs.

PREREQUISITE: CIS 196H
This is a "hands-on" introduction to the Quickbooks program, with the emphasis being construction of ledgers and financial management systems using advanced features of this program.

CIS 203 INTRODUCTION TO THE INFORMATION HIGHWAY 3 Hrs.

PREREQUISITE: CIS 146.
This course introduces the student to the basic principles of the information highway. Students will be exposed to different network information tools such as electronic mail, network news, gophers, the World Wide Web, browsers, commercial information services and the use of appropriate editors or software to introduce construction of Web environments.

CIS 212 VISUAL BASIC 3 Hrs.

PREREQUISITE: None.
This course is a continuation of CIS 211, with emphasis being on BASIC programming using a graphical user interface. The course will emphasize graphical user interfaces with additional topics such as advanced file handling techniques, simulation, and other selected areas. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 251 C PROGRAMMING 3 Hrs.

PREREQUISITE: None.
This course is an introduction to the C programming language. Included in this course are topics in an algorithmic approach to problem solving, structured programming techniques and constructs, using functions and macros, simple data structures, and using files for input and output. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.

CIS 273 NETWORKING AND DATA COMMUNICATIONS 3 Hrs.

PREREQUISITE: Any programming course
This course is an introduction to computer networks and data communications technology. Topics included in this course are networking and communications hardware, software, topologies, models, and protocols. Upon completion, the student will be able to demonstrate knowledge on the topics through completion of assignments and appropriate tests.

CIS 286 COMPUTERIZED MANAGEMENT INFO SYSTEMS 3 Hrs.

PREREQUISITES: MTH 100 placement and one of the following: CIS 146 or CIS 231 or CIS 191.
This course covers the nature of computerized management information systems, problems created by the computer relative to personnel, components of computer systems, programming, and application of computers to business problems.

CIS 294 SPECIAL TOPICS 3 Hrs.

PREREQUISITE: Permission of instructor
This course allows study of currently relevant computer science topics, with the course being able to be repeated for credit for each different topic covered. Course content will be determined by the instructor and will vary according to the topic being covered. Upon completion, the student will be able to demonstrate knowledge of the course topic through completion of assignments and appropriate tests.

CIS 299 DIRECTED STUDIES IN COMPUTER SCIENCE 1-3 Hrs.

PREREQUISITE: Permission of instructor
This course allows independent study under the direction of an instructor. Topics to be included in the course material will be approved by the instructor prior to or at the beginning of the class. Upon completion, the student will be able to demonstrate knowledge of the topics as specified by the instructor.

COSMETOLOGY (COS)

COS 111 COSMETOLOGY SCIENCE AND ART 3 Hrs.

PREREQUISITE: None.
COREQUISITE: COS 112, COS 125 and COS 143
In this course, students are provided a study of personal and professional image, ethical conduct, sanitation, hair styling, and nail care. Topics include personal and professional development, bacteriology, decontamination, infection control, draping, shampooing, conditioning, hair shaping, and hair styling. Upon completion, the student should be able to apply safety rules and regulations and write procedures for skills identified in this course.

COS 112 COSMETOLOGY SCIENCE and ART LAB 3 Hrs.

PREREQUISITE: None.
COREQUISITE: COS 111, COS 125, and COS 143
In this course, students are provided the practical experience for sanitation, shampooing, hair shaping, hairstyling, and nail care. Emphasis is placed on sterilization, shampooing, hair shaping, hairstyling, manicuring, and pedicuring. Upon completion, the student should be able to perform safety and sanitary precautions, shampooing, hair shaping, hairstyling, and nail care procedures.

COS 114 CHEMICAL METHODOLOGY LAB 3 Hrs.

PREREQUISITE: COS 111, COS 112, COS 125 and COS 143
COREQUISITE: COS 121, COS 122, and COS 141
In this course, students are provided the practical experience of permanent waving, chemical relaxing, and hair analysis. Topics include permanent waving, chemical relaxing, soft curl, and scalp and hair analysis. Upon completion, the student should be able to analyze the scalp and hair and perform these chemical services using safety and sanitary precautions.

COS 121 COLORIMETRY 3 Hrs.

PREREQUISITE: COS 111, COS 112, COS 125, and COS 143
COREQUISITE: COS 114, COS 122, and COS 141
In this course, students learn the techniques of hair

coloring and hair lightening. Emphasis is placed on color application, laws, levels and classifications of color, and problem solving. Upon completion, the student should be able to identify all phases of hair coloring and the effects on the hair.

- COS 122 COLOR APPLICATIONS 3 Hrs.**
 PREREQUISITE: None.
 In this course, students apply hair coloring and hair lightening techniques. Topics include consultation, hair analysis, skin test, and procedures and applications of all phases of hair coloring and lightening. Upon completion, the student should be able to perform procedures for hair coloring and hair lightening.
- COS 125 CAREER AND PERSONAL DEVELOPMENT 3 Hrs.**
 PREREQUISITE: None.
 COREQUISITE: COS 111, COS 112, and COS 143
 This course provides the study and practice of personal development and career building. Emphasis is placed on building and retaining clientele, communication skills, customer service, continuing education, and goal setting. Upon completion, the student should be able to communicate effectively and practice methods for building and retaining clientele.
- COS 131 AESTHETICS 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 141, and COS 143
 COREQUISITE: COS 132, COS 144, and COS 158
 This course is the study of cosmetic products, massage, skin care, and hair removal, as well as identifying the structure and function of various systems of the body. Topics include massage skin analysis, skin structure, disease and disorder, light therapy, facials, facial cosmetics, anatomy, and hair removal. Upon completion, the student should be able to state procedures for analysis, light therapy, facials, hair removal, and identify the structures, functions, and disorders of the skin.
- COS 132 AESTHETICS APPLICATIONS 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 141, and COS 143
 COREQUISITE: COS 131, COS 144, and COS 158
 This course provides practical applications related to the care of the skin and related structure. Emphasis is placed on facial treatments, product application, skin analysis, massage techniques, facial make-up, and hair removal. Upon completion, the student should be able to prepare clients, assemble sanitized materials, follow procedures for product application, recognize skin disorders, demonstrate facial massage movement, cosmetic application, and hair removal using safety and sanitary precautions.
- COS 133 SALON MANAGEMENT TECHNOLOGY 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 131, COS 132, COS 141, COS 143, COS 144, and COS 158
 COREQUISITE: COS 167, COS 182, and COS 191
 This course is designed to develop entry-level management skills for the beauty industry. Topics include job-seeking, leader and entrepreneurship development, business principles, business laws, insurance, marketing, and technology issues in the workplace. Upon completion, the student should be able to list job-seeking and management skills and the technology that is available for use in the salon.
- COS 141 APPLIED CHEMISTRY FOR COSMETOLOGY 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 125, and COS 143
 COREQUISITE: COS 114, COS 121, and COS 122
 This course focuses on chemistry relevant to professional hair and skin care products, hair and its related structures, permanent waving, chemical hair relaxing, and hair coloring. Topics include knowledge of basic chemistry, pH scale measurements, water, shampooing and cosmetic chemistry, physical and chemical changes in hair structure. Upon completion, the student should be able to define chemistry, types of matter, and describe chemical and cosmetic reactions as related to the hair and skin structure.
- COS 143 HAIR DESIGNS 3 Hrs.**
 PREREQUISITE: None.
 COREQUISITE: COS 111, COS 112, and COS 125
 This course focuses on the theory and practice of hair designing. Topics include creating styles using basic and advanced techniques of back combing, up sweeps, and braiding. Upon completion, the student should be able to demonstrate the techniques and procedures for hair designing.
- COS 144 HAIR SHAPING AND DESIGN 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 141, and COS 143
 COREQUISITE: COS 131, COS 132, and COS 158
 In this course, students learn the art and techniques of hair shaping. Topics include hair sectioning, correct use of hair shaping implements, and elevations used to create design lines. Upon completion, the student should be able to demonstrate the techniques and procedures for creating hair designs.
- COS 151 NAIL CARE 3 Hrs.**
 PREREQUISITE: None.
 COREQUISITE: COS 152 and COS 156
 This course focuses on all aspects of nail care. Topics include salon conduct, professional ethics, sanitation, nail structure, manicuring, pedicuring, nail disorders, and anatomy and physiology of the arm and hand. Upon completion, the student should be able to demonstrate professional conduct, recognize nail disorders and diseases, and identify the procedures for sanitation and nail care services.
- COS 152 NAIL CARE APPLICATIONS 3 Hrs.**
 PREREQUISITE: None.
 COREQUISITE: COS 151 and COS 156
 This course provides practice in all aspects of nail care. Topics include salon conduct, professional ethics, bacteriology, sanitation and safety, manicuring and pedicuring. Upon completion, the student should be able to perform nail care procedures.
- COS 153 NAIL ART 3 Hrs.**
 PREREQUISITE: COS 151, COS 152, and COS 156
 COREQUISITE: COS 154, COS 162, and COS 191
 This course focuses on advanced nail techniques. Topics include acrylic, gel, fiberglass nails, and nail art. Upon completion, the student should be able to identify the different types of sculptured nails and recognize the different techniques of nail art.
- COS 154 NAIL ART APPLICATIONS 3 Hrs.**
 PREREQUISITE: COS 151, COS 152, and COS 156
 COREQUISITE: COS 153, COS 162, and COS 191
 This course provides practice in advanced nail techniques. Topics include acrylic, gel, fiberglass nails, and nail art. Upon completion, the student should be able to perform the procedures for nail sculpturing and nail art.
- COS 156 CAREER AND PERSONAL DEVELOPMENT 3 Hrs.**
 PREREQUISITE: None.
 COREQUISITE: COS 151 and COS 152
 This course is designed to focus on personal development and career building. Emphasis is placed on

building and retaining clientele, communication skills, customer service, continuing education, and setting goals. Upon completion, the student should be able to list types of communication skills, state personal goals, and develop a continuing education plan.

- COS 158 EMPLOYABILITY SKILLS 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 141, and COS 143
 COREQUISITE: COS 131, COS 132, and COS 144
 This course provides the study of marketable skills to prepare the student to enter the workforce. Emphasis is placed on resumes, interviews, client and business relations, personality, computer literacy, and attitude. Upon completion, students should be prepared to obtain employment in the field for which they have been trained.
- COS 160 IMAGE PROJECTION 3 Hrs.**
 PREREQUISITE: COS 131, COS 132, and COS 168
 COREQUISITE: COS 164 and COS 169
 This course includes the study of professionalism, personal development, and ethics related to skin care. Topics include practical applications for hygiene, care of the feet and nails, and human relations. Upon completion, the student will be able to project visual poise and demonstrate professionalism needed in customer service.
- COS 162 SPECIAL TOPICS IN COSMETOLOGY 3 Hrs.**
 PREREQUISITE: COS 151, COS 152, and COS 156
 COREQUISITE: COS 153, COS 154, and COS 191
 This course is designed to survey current trends and developing technology for the cosmetology profession. Emphasis is placed on, but is not limited to, dependability, attitude, professional judgment, emerging trends, new styling techniques, and practical cosmetology skills. Upon completion, the student should have developed new skills in areas of specialization for the cosmetology profession.
- COS 164 FACIAL MACHINE 3 Hrs.**
 PREREQUISITE: COS 131, COS 132, and COS 168
 COREQUISITE: COS 160 and COS 169
 This is a course designed to provide practical experience using the vapor and facial machine with hydraulic chair. Topics include the uses of electricity and safety practices, machine and apparatus, use of the magnifying lamp, and light therapy. Upon completion, the student will be able to demonstrate an understanding of electrical safety and skills in the use of facial machines.
- COS 165 RELATED SUBJECTS AESTHETICIANS 3 Hrs.**
 PREREQUISITE: COS 131, COS 132, COS 160, COS 164, COS 168, and COS 169
 COREQUISITE: COS 125 and COS 166
 This course includes subjects related to the methods for removing unwanted hair. This course includes such topics as electrolysis information and definitions, safety methods of permanent hair removal, the practice of removal of superfluous hair, and the use of depilatories. Upon completion, the student will be able to apply depilatories and practice all safety precautions.
- COS 166 COLOR PSYCHOLOGY-COORDINATION 3 Hrs.**
 PREREQUISITE: COS 131, COS 132, COS 160, COS 164, COS 168, and COS 169
 COREQUISITE: COS 125 and COS 165
 This skin care course is designed for the make-up artistry requirements to be a professional make-up artist. Topics this course includes are make-up techniques for all skin types, sanitation of application tools and color tonality as it relates to make-up. Upon completion, the student will be able to apply make-up

after determining correct skin tones, skin types and facial shapes, and design personalized make-up techniques for clients.

- COS 167 STATE BOARD REVIEW 1-3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 131, COS 132, COS 141, COS 143, COS 144, and COS 158
 COREQUISITE: COS 133, COS 182, and COS 191
 The student is provided a complete review of all procedures and practical skills pertaining to his or her training in the program. Upon completion, the student should be able to demonstrate the practical skills necessary to successfully complete the required State Board of Cosmetology examination and entry-level employment.
- COS 168 BACTERIOLOGY AND SANITATION 3 Hrs.**
 PREREQUISITE: None.
 COREQUISITE: COS 131 and COS 132
 In this skin care course, emphasis is placed on the decontamination, infection control, and safety practiced in the esthetics facility. Topics covered include demonstration of sanitation, sterilization methods, and bacterial prevention. Upon completion, the student will be able to properly sanitize facial implements and identify non-reusable items.
- COS 169 SKIN FUNCTIONS 3 Hrs.**
 PREREQUISITE: COS 131, COS 132, and COS 168
 COREQUISITE: COS 160 and COS 164
 This course introduces skin functions and disorders. Topics include practical application for skin disorder treatments, dermabrasion, and skin refining. Upon completion, the student will be able to demonstrate procedures for acne, facials, and masks for deeper layers and wrinkles.
- COS 181 SPECIAL TOPICS 3 Hrs.**
 PREREQUISITE: COS 125, COS 131, COS 132, COS 160, COS 164, COS 165, COS 166, COS 168, and COS 169
 COREQUISITE: COS 190
 These courses provide for instruction unique to various areas of the cosmetology industry. Emphasis is on meeting individual student needs.
- COS 182 SPECIAL TOPICS 3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 131, COS 132, COS 143, COS 144, and COS 158
 COREQUISITE: COS 133, COS 167, and COS 191
 These courses provide for instruction unique to various areas of the cosmetology industry. Emphasis is on meeting individual student needs.
- COS 190 INTERNSHIP IN COSMETOLOGY 1-3 Hrs.**
 PREREQUISITE: COS 125, COS 131, COS 132, COS 160, COS 164, COS 165, COS 166, COS 168, and COS 169
 COREQUISITE: COS 181
 This course is designed to provide exposure to cosmetology practices in non-employment situations. Emphasis is on dependability, attitude, professional judgment, and practical cosmetology skills. Upon completion, the student should have gained skills necessary for entry-level employment.
- COS 191 CO-OP 1-3 Hrs.**
 PREREQUISITE: COS 111, COS 112, COS 114, COS 121, COS 122, COS 125, COS 131, COS 132, COS 141, COS 143, COS 144, and COS 158
 COREQUISITE: COS 133, COS 167, and COS 182
 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.

COSMETOLOGY INSTRUCTOR TRAINING (CIT)

CIT 211 TEACHING AND CURRICULUM DEVELOPMENT 3 Hrs.

PREREQUISITE: None

COREQUISITE: CIT 212 and CIT 213

This course focuses on principles of teaching, teaching maturity, personality conduct, and the development of cosmetology curriculum. Emphasis is placed on teacher roles, teaching styles, teacher challenges, aspects of curriculum development, and designing individual courses. Upon completion, the student should be able to describe the role of teacher, identify means of motivating students, develop a course outline, and develop lesson plans.

CIT 212 TEACHER MENTORSHIP 3 Hrs.

PREREQUISITE: None

COREQUISITE: CIT 211 and CIT 213

This course is designed to provide the practice through working with a cosmetology instructor in a mentoring relationship. Emphasis is placed on communication, student assessment, and assisting students in the lab. Upon completion, the student should be able to communicate with students, develop a course of study, and apply appropriate teaching methods.

CIT 213 LESSON PLAN DEVELOPMENT 3 Hrs.

PREREQUISITE: None

COREQUISITE: CIT 211 and CIT 212

The course introduces students to methods for developing lesson plans. Emphasis is placed on writing lesson plans and on the four-step teaching plan. Upon completion, the student should be able to write daily lesson plans and demonstrate the four-step teaching method.

CIT 221 LESSON PLAN IMPLEMENTATION 3 Hrs.

PREREQUISITE: CIT 211, CIT 212, and CIT 213

COREQUISITE: CIT 222 and CIT 223

This course is designed to provide practice in preparing and using lesson plans. Emphasis is placed on organizing, writing, and presenting lesson plans using the four-step teaching method. Upon completion, the student should be able to prepare and present a lesson using the four step teaching method.

CIT 222 INSTRUCTIONAL MATERIALS AND METHODS 3 Hrs.

PREREQUISITE: CIT 211, CIT 212, and CIT 213

COREQUISITE: CIT 221 and CIT 223

This course focuses on visual and audio aids and materials. Emphasis is placed on the use and characteristics of instructional aids. Upon completion, the student should be able to prepare teaching aids and determine their most effective use.

CIT 223 INSTRUCTIONAL MATERIALS AND METHODS APPLICATIONS 3 Hrs.

PREREQUISITE: CIT 211, CIT 212, and CIT 213

COREQUISITE: CIT 221 and CIT 222

This course is designed to provide practice in preparing and using visual and audio aids and materials. Emphasis is placed on the preparation and use of different categories of instructional aids. Upon completion, the student should be able to prepare and effectively present different types of aids for use with a four step lesson plan.

CRIMINAL JUSTICE (CRJ)

CRJ 100 INTRODUCTION TO CRIMINAL JUSTICE 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course surveys the entire criminal justice process from law enforcement to the administration of justice through corrections. It discusses the history and philosophy of the system and introduces various career opportunities.

CRJ 110 INTRODUCTION TO LAW ENFORCEMENT 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course examines the history and philosophy of law enforcement, as well as the organization and jurisdiction of local, state, and federal agencies. It includes the duties and functions of law enforcement officers.

CRJ 140 CRIMINAL LAW AND PROCEDURE 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course examines both substantive and procedural law. The legal elements of various crimes are discussed, with emphasis placed on the contents of the Alabama Code. Areas of criminal procedure essential to the criminal justice profession are also covered.

CRJ 147 CONSTITUTIONAL LAW 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course involves constitutional law as it applies to criminal justice. It includes recent Supreme Court decisions affecting criminal justice professionals, such as right to counsel, search and seizure, due process, and civil rights.

CRJ 177 CRIMINAL AND DEVIANT BEHAVIOR 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course analyzes criminal and deviant behavior systems. An emphasis is placed on sociological and psychological theories of crime causation.

CRJ 178 NARCOTICS/DANGEROUS DRUGS 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course surveys the history and development of drug abuse in society. Theories of drug abuse, identification and classification of drugs are covered. Strategies for combating the drug problem are discussed.

CRJ 216 POLICE ORGANIZATION AND ADMINISTRATION 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course examines the principles of organization and administration of law enforcement agencies. Theories of management, budgeting, and various personnel issues are covered.

CRJ 220 CRIMINAL INVESTIGATION 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course explores the theory and scope of criminal investigation. The duties and responsibilities of the investigator are included. The techniques and strategies used in investigation are emphasized.

CRJ 226 FINGERPRINT SCIENCE 3 Hrs. PREREQUISITE: ENG 092 or equivalent placement in ENG 093

This course involves the history, classification, and current procedures of handling latent fingerprints.

- Latent print examination, filing, and courtroom presentations are considered.
- CRJ 227 HOMICIDE INVESTIGATION 3 Hrs.**
PREREQUISITE: ENG 092 or equivalent placement in ENG 093
This course covers the principles, techniques, and strategies of homicide investigation. Topics emphasized include ballistics, pathology, toxicology, immunology, jurisprudence, and psychiatry.
- CRJ 230 CRIMINALISTICS 3 Hrs.**
PREREQUISITE: ENG 092 or equivalent placement in ENG 093
This course surveys the different techniques of scientific investigation. Emphasis is given to ballistics, photography, fingerprints, DNA, trace evidence, body fluids, casts, and the like.
- CRJ 236 ADVANCED CRIMINALISTICS 3 Hrs.**
PREREQUISITE: ENG 092 or equivalent placement in ENG 093
This course covers the collection, handling, and analysis of evidence from crime scene to laboratory to courtroom. Topics include hair, fibers, body fluids, firearms, glass, paint, drugs, documents, etc. Laboratory experience may be utilized.
- CRJ 238 CRIME SCENE INVESTIGATION 3 Hrs.**
PREREQUISITE: ENG 092 or equivalent placement in ENG 093
This course examines the fundamentals of crime scene investigation. Measuring and sketching the scene, photography, evidence collection and preservation, and courtroom procedures are considered.
- CRJ 280 INTERNSHIP IN CRIMINAL JUSTICE 1-3 Hrs.**
PREREQUISITE: CRJ 230.
This course involves practical experience with a criminal justice agency under faculty supervision. Permission of the instructor is required. This course may be repeated with the approval of the department head.
- CRJ 290 SELECTED TOPICS: SEMINAR IN CRIMINAL JUSTICE 1-3 Hrs.**
PREREQUISITE: ENG 092 or equivalent placement in ENG 093
This course involves reading, research, writing, and discussion of selected subjects relating to criminal justice. Various contemporary problems in criminal justice are analyzed. This course may be repeated with approval from the department head.
- CULINARY ARTS/CHEF TRAINING (CUA)**
- CUA 100 ORIENTATION TO THE CULINARY ARTS 1 Hr.**
PREREQUISITE: None.
This course is an introduction to the culinary arts. Emphasis is placed on identifying and designing basic layout and flow charts for effective kitchen use. Upon completion, the student will be able to identify, operate, and clean commercial equipment.
- CUA 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 of this course, the student will be knowledgeable of business and career opportunities within the food service industry.
- CUA 102 CATERING 3 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.
- CUA 110 BASIC FOOD PREPARATION 3 Hrs.**
PREREQUISITE: CUA 100, 111, or 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.
- CUA 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.
- CUA 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.
- CUA 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 bussing and turning the table. Upon completion, the student should be able to demonstrate proficiency in the art of table service.
- CUA 114 MEAL MANAGEMENT 3 Hrs.**
PREREQUISITE: CUA 100 or 110, 111, and 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.
- CUA 115 ADVANCED FOOD PREPARATION 3 Hrs.**
PREREQUISITE: CUA 100 or 110, 111, 112, 114, and 206
In this course, students apply food preparation and meal management skills in all areas of food service. Emphasis is placed on management and technical skills needed to operate a restaurant. Upon completion, the student will develop advanced skills in food preparation and meal management.
- CUA 122 FUNDAMENTALS OF QUANTITY COOKING 3 Hrs.**
PREREQUISITE: CUA 100, 111, and 114
This course covers the principles and methods of quality cooking. Topics include weights and meas-

ures, costing and converting of recipes, vocabulary and standard abbreviations, health department regulations and inspection, and food production forms and records. Upon completion, the student will have a basic knowledge of the principles of quantity food production.

- CUA 132 FUNDAMENTALS OF RESTAURANT OPERATIONS** 3 Hrs.
PREREQUISITE: None.
This course covers ordering, receiving, storing and issuing food stores, keeping records, and producing financial statements. Emphasis is placed on entry-level management skills. Upon completion, the student should be able to apply effective purchasing, inventory, and issuing techniques.
- CUA 134 CULINARY FRENCH** 2 Hrs.
PREREQUISITE: None.
This course covers classical French vocabulary and culinary terms. Emphasis is placed on basic French menu terms describing techniques and equipment. Upon completion, the student will have a basic understanding of French terminology as it relates to the food industry.
- CUA 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.
- CUA 181/182 SPECIAL TOPICS IN CULINARY ARTS** 3 Hrs.
PREREQUISITE: None.
These courses provide specialized instruction in various areas related to the culinary arts industry. Emphasis is placed on meeting the student's needs.
- CUA 183 CULINARY ART SCULPTURE** 3 Hrs.
PREREQUISITE: None.
This course includes the notion of fantasies that accompany the sculpturing motion with food. Work on centerpieces for all occasions will be included. The student will be exposed to a variety of three-dimensional edible mediums from walking cakes to salt dough.
- CUA 201 MEAT PREPARATION AND PROCESSING** 2 Hrs.
PREREQUISITE: None.
This course focuses on meat preparation and processing. Students will be responsible for the preparing of meats including beef, pork, poultry, fish, and seafood so they can be used for final preparations in other stations of the kitchens. Upon completion, the student will be able to demonstrate an understanding of the principles in meat preparation and processing.
- CUA 202 AROMATIC AND FLAVORING COMBINATIONS** 3 Hrs.
PREREQUISITE: None.
The student will learn the difference between spices and herbs. The student will further learn the categories of herbs and spices which enable them to create his or her finest dishes. The student will learn the world renowned spice blends, and dry seasonings rubs. A strong emphasis will be placed on the huge variety of chili peppers.
- CUA 203 STOCKS AND SAUCES** 3 Hrs.
PREREQUISITE: None.
This course challenges the student to the greatest tests of a chef's skills. Whether they are classic or contemporary, good sauces demand the highest technical expertise. The student will learn why or why not a particular sauce will go with a particular dish. The student will focus on brown and white stocks; consommé's, fumets and essences; glazes and roux's. The student will further develop mother sauces and compound sauces.
- CUA 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.
- CUA 205 INTRO TO GARDE MANGER** 3 Hrs.
PREREQUISITE: CUA 110, 111, and 114
This course is designed to develop skills in the art of Garde Manger. Topics include pates, terrines, galantines, ice and tallow carving, chaud-froid/aspic work, charcuterie, smoking, canapés, hor d'oeuvres, and related food items. Upon completion, the student should be able to design, set up, and evaluate a catering function to include a classical cold buffet with appropriate show pieces.
- CUA 206 ADVANCED GARDE MANGER** 2 Hrs.
PREREQUISITE: CUA 110, 111, 114 and 205
This course is a continuation of skill development in the art of Garde Manger. Major topics to be covered include preparation of gourmet foods, application of cold food fabrications and display, sausage making, ice carving, and carving decorative substances to produce buffets. Upon completion, the student should be able to lay out a basic cold food display and exhibit an understanding of the cold kitchen and its related terminology.
- CUA 208 ADVANCED BAKING** 2 Hrs.
PREREQUISITE: CUA 204.
This course is a continuation of CUA 204. Topics include specialty breads, pastillage, marzipan, chocolate, pulled-sugar, confections, classic desserts, pastries, and cake decorating. Upon completion, the student should be able to demonstrate pastry preparation and plating, cake decorating, and show-piece production skills.
- CUA 210 BEVERAGE MANAGEMENT** 2 Hrs.
PREREQUISITE: None.
This is a survey course of basic alcoholic and non-alcoholic beverages as they relate to food service. Topics include wine and food appreciation and laws related to alcohol services. Upon completion, students should be able to determine what beverages compliment various cuisines and particular tastes.
- CUA 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.

- CUA 214 INTERNATIONAL CUISINE** 3 Hrs.
PREREQUISITE: CUA 111 and 112.
This course focuses on various cuisines from countries and regions throughout the world. Students will prepare complete menus reflective of the culture and goods of these countries and regions with emphasis on ingredients and authentic preparation methods. Upon completion, students should be able to research and execute international menus.
- CUA 215 REGIONAL CUISINES OF THE AMERICAS** 3 Hrs.
PREREQUISITE: CUA 114.
This course provides a brief history of the ancient American foods that enhanced the world's cuisines. Emphasis is placed on how these foods influenced the "American Cuisines" of today. Upon completion, the student will be able to research and execute regional American cuisines.
- CUA 220 INTRODUCTION TO PATISSERIE** 2-3 Hrs.
PREREQUISITE: None.
This is an introductory course to patisserie. Emphasis is placed on individual desserts, blown sugars, pulled sugar, pastillage gum paste, nougat. Upon completion, the student should be able to plan, execute, and evaluate dessert platters, individual plated desserts, and show pieces.
- CUA 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.
- CUA 260 INTERNSHIP FOR CULINARY APPRENTICE** 3 Hrs.
PREREQUISITE: CUA Majors
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 chef and coordinated with the college instructor. This course may be repeated for credit.
- DANCE (DNC)**
- DNC 110 INTRODUCTION TO DANCE STYLES** 2 Hrs.
PREREQUISITE: None.
This course is an introduction to dance styles.
- DNC 121 ELEMENTARY BALLET** 2 Hrs.
PREREQUISITE: None.
This course is a studio course in classical ballet at the elementary level. Offered in the fall semester.
- DNC 143/144 BALLET I and II** 3 Hrs.
PREREQUISITE: Previous training is essential before taking these courses.
These courses offer intensive training in classical ballet for students intending to major in dance. Intermediate level technique is studied, emphasizing posture and placement. The student is evaluated on his or her ability to perform the work to the required standard.
- DNC 160 DANCE WORKSHOP I** 1-2 Hrs.
PREREQUISITE: None.
This course provides practical experience in the production and performance of a dance presentation, including sound, lighting, choreography, rehearsal, costuming, make-up, and other aspects of dance presentation.
- DNC 161 DANCE WORKSHOP II** 1-2 Hrs.
PREREQUISITE: DNC 160
This course is a continuation of DNC 160.
- DNC 243/244 BALLET III and IV** 3 Hrs.
PREREQUISITE: DNC 144 or permission of instructor.
This course covers ballet technique at advanced level emphasizing performance quality, musicality, and classical style.
- DIESEL MECHANICS (DEM)**
- DEM 104 BASIC ENGINES** 3 Hrs.
PREREQUISITE: None.
This course is designed to give the student knowledge of the diesel engine components and auxiliary systems, the proper way to maintain them, and the proper procedures for testing and rebuilding components. Emphasis is placed on safety, theory of operation, inspection, and measuring and rebuilding diesel engines according to factory specifications. Upon completion, the student should be able to measure, diagnose problems, and repair diesel engines.
- DEM 105 PREVENTIVE MAINTENANCE** 3 Hrs.
PREREQUISITE: None.
This course provides instruction on how to plan, develop and install equipment surveillance and reliability strategies. Descriptions of various maintenance techniques for specialized preventive programs are discussed and computerized parts and equipment inventories and fleet management systems software are emphasized. Upon completion, the student should be able to set up and follow a preventive maintenance schedule as directed by manufacturers.
- DEM 106 HEAVY EQUIPMENT OPERATIONS** 3 Hrs.
PREREQUISITE: None.
This course provides instruction in heavy equipment operation. Emphasis is placed on the operation of graders, dozers, packers, pans, cranes, draglines, and other equipment. Upon completion, the student should be able to diagnose, adjust, or repair new or used heavy equipment.
- DEM 110 DIESEL POWERED AUXILIARY EQUIPMENT** 3 Hrs.
PREREQUISITE: None.
This course provides instruction in diesel powered auxiliary equipment. Topics covered include the application of diesel engines to generators, pumps, refrigeration, drilling, boring machines, and marine power units. Upon completion, the student should be able to test, troubleshoot, diagnose, and repair diesel powered auxiliary equipment.
- DEM 111 EQUIPMENT SAFETY/MECHANICAL FUNDAMENTALS** 3 Hrs.
PREREQUISITE: None.
This course provides instruction in the fundamentals of vehicle operation and safety when basic service work is to be performed in the shop. Topics include service manuals, mechanical fundamentals, preventive maintenance and component adjustment. Upon completion, students should be able to demonstrate knowledge of the fundamentals of vehicle operation and safety in the shop.
- DEM 114 FLUID POWER COMPONENTS** 3 Hrs.
PREREQUISITE: None.
This course is designed to provide the fundamental knowledge of hydraulic and pneumatic components currently in use on mobile as well as stationary equipment. Instruction is provided in the identification and repair of various pumps, motor, valves, heat exchangers, and cylinders. Upon completion, the student should be able to diagnose, service, and repair hydraulic and pneumatic components.

- DEM 115 HEAVY VEHICLE COLLISION REPAIR 3 Hrs.**
 PREREQUISITE: None.
 This course provides instruction in heavy vehicle collision repair. Topics include estimating damage, removal, repair, or replacement of components, and the refinishing of medium and heavy duty cabs and chassis. Upon completion, the student should be able to analyze and perform repairs to a vehicle which has received structural damage.
- DEM 116 TRACK VEHICLE DRIVE TRAINS 3 Hrs.**
 PREREQUISITE: None.
 This course provides instruction in track vehicles and drive trains. Emphasis is placed on track frame roller, rail, steering clutch, axle, and driveline building and repair. Upon completion, the student should be able to identify, research specifications, repair, and adjust drive train components.
- DEM 117 DIESEL AND GAS TUNE-UP 3 Hrs.**
 PREREQUISITE: None.
 This course introduces tune-up and troubleshooting according to manufacturers' specifications. Topics include troubleshooting engine systems, tune-up procedures, and use and care of special test tools and equipment. Upon completion, the student should be able to troubleshoot, diagnose, and repair engines and components using appropriate diagnostic equipment.
- DEM 118 INDUSTRIAL AND AGRICULTURAL EQUIPMENT 3 Hrs.**
 PREREQUISITE: None.
 This course provides instruction in the fundamentals of agricultural and industrial tractor repair, maintenance, and basic service procedures. Emphasis is placed on operating and troubleshooting, combines, hoes, bailers, loaders, and other equipment. Upon completion, the student should be able to diagnose, adjust, and repair new or used industrial and agricultural equipment.
- DEM 119 BEARINGS AND LUBRICANTS 3 Hrs.**
 PREREQUISITE: None.
 This course focuses on roller, ball and shell bearing design and application. Topics include vehicle and industrial bearings and lubrication requirements. Upon completion, the student should be able to diagnose related problems and service and replace bearings.
- DEM 122 HEAVY VEHICLE BRAKES 3 Hrs.**
 PREREQUISITE: None.
 This course covers the theory and repair of braking systems used in medium and heavy duty vehicles. Topics include air, hydraulic, and ABS system diagnosis, and repair. Upon completion, the student should be able to troubleshoot, adjust, and repair braking systems on medium and heavy duty vehicles.
- DEM 123 PNEUMATICS AND HYDRAULICS 3 Hrs.**
 PREREQUISITE: None.
 This course provides instruction in the identification and repair of components found in hydraulic systems. Topics include schematics, circuits, and symbols used in fluid power transmission and the troubleshooting of components in these systems. Upon completion, the student should be able to diagnose, adjust, and repair hydraulic system components.
- DEM 124 ELECTRONIC ENGINE SYSTEMS 3 Hrs.**
 PREREQUISITE: None.
 This course introduces the principles of electronically controlled diesel engines. Emphasis is placed on testing and adjusting diesel engines in accordance with manufacturers' specifications. Upon completion, the student should be able to diagnose, test, and calibrate electronically controlled diesel engines.
- DEM 125 HEAVY VEHICLE DRIVE TRAINS 3 Hrs.**
 PREREQUISITE: None.
 This course introduces the operating principles of mechanical medium and heavy duty truck transmissions. Topics include multiple counter shafts, power take-offs, slider idler clutches, friction clutches, mechanical transmission power components, and hydraulics. Upon completion, the student should be able to diagnose, inspect, and repair mechanical transmissions.
- DEM 126 ADVANCED ENGINE ANALYSIS 3 Hrs.**
 PREREQUISITE: None.
 This course provides instruction in the disassembly, inspection, and rebuilding of diesel and heavy-duty gas engines. Emphasis is placed on the manufacturer's standards and factory recommended service tools and equipment. Upon completion, the student should be able to disassemble, inspect, and rebuild engines according to the manufacturer's specifications.
- DEM 127 FUEL SYSTEMS 3 Hrs.**
 PREREQUISITE: None.
 This course is designed to provide practice in troubleshooting, fault code diagnosis, information retrieval, calibration, repair, and replacement of fuel injectors, nozzles, and pumps. Emphasis is placed on test equipment, component functions, and theory. Upon completion, the student should be able to diagnose, service, and repair fuel systems and governors.
- DEM 128 POWER TRAIN LAB 3 Hrs.**
 PREREQUISITE: None.
 This lab provides reinforcement of material covered in DEM 116, DEM 125, and DEM 127.
- DEM 129 DIESEL ENGINE LAB 3 Hrs.**
 PREREQUISITE: None.
 This lab allows the student to refine the skills required to repair diesel engines.
- DEM 130 ELECTRICAL / ELECTRONIC FUNDAMENTALS 3 Hrs.**
 PREREQUISITE: None.
 This course introduces the student to basic Electrical / Electronic concepts and fundamentals.
- DEM 131 COMPUTER APPLICATIONS FOR DIESEL MECHANICS 2 Hrs.**
 PREREQUISITE: None.
 This course introduces the student to the use of microcomputers. It includes keyboarding exercises, disk operating systems, formatting, and diagnostic applications for internal combustion engines. Upon completion, the student should be able to perform simple operations on the microcomputer, such as use of DOS, Windows 95, and word processing operations, and use the microcomputer with diesel engine diagnostic software to identify and correct engine malfunctions.
- DEM 134 COMPUTER CONTROLLED ENGINE AND POWER TRAIN SYSTEMS 3 Hrs.**
 PREREQUISITE: None.
 This course introduces the student to the fundamentals of operation of computer controlled engine and power train systems.
- DEM 135 HEAVY VEHICLE STEERING AND SUSPENSION 3 Hrs.**
 PREREQUISITE: None.
 This course introduces the theory and principles of medium and heavy duty steering and suspension systems. Topics include wheel and tire problems, frame members, fifth wheel, bearings, and coupling

systems. Upon completion, the student should be able to troubleshoot, adjust, and repair suspension and steering components on medium and heavy duty vehicles.

DEM 137 HEATING AND A/C SYSTEMS 3 Hrs.
PREREQUISITE: DEM 136.

This course provides instruction in fundamentals, diagnosis, and repair of cab and cargo heating and refrigeration systems. Topics include operation theory, safety, maintenance, recycling and recovery procedures, recharging procedures, troubleshooting procedures, refrigerant leaks, and system repairs.

DEM 154 VEHICLE MAINTENANCE AND SAFE OPERATING PRACTICES 3 Hrs.
PREREQUISITE: None.

This course provides instruction in basic entry level driving skills relating to the maintenance and safe operation of a commercial motor vehicle. Topics include preventive maintenance and safe vehicle operations. Upon completion, the student will have the skill and knowledge to safely operate a commercial motor vehicle.

DEM 156 CDL LICENSE TEST PREPARATION 3 Hrs.
PREREQUISITE: None.

This is a course designed to prepare students for the Alabama Commercial Driver's License written examination. The course includes a review of major topics, sample tests, as well as basic CDL information and test-taking procedures.

DEM 158 PNEUMATICS AND HYDRAULICS II 3 Hrs.
PREREQUISITE: None

This course provides instruction in the identification and repair of components found in hydraulic systems. Topics include schematics, circuits, and symbols used in fluid power transmission and the troubleshooting of components in these systems. Upon completion, the student should be able to diagnose, adjust, and repair hydraulic system components.

DEM 159 HEAVY VEHICLE DRIVE TRAINS II 3 Hrs.
PREREQUISITE: None

This course introduces the operating principles of mechanical medium and heavy duty truck transmissions. Topics include multiple counter shafts, power take-offs, slider idler clutches, friction clutches, mechanical transmission power components, and hydraulics. Upon completion, the student should be able to diagnose, inspect, and repair mechanical transmissions.

DEM 181/182 SPECIAL TOPICS IN DIESEL MECHANICS 3 Hrs.
PREREQUISITE: None.

These courses provide specialized instruction in various areas related to the diesel mechanics industry. Emphasis is placed on meeting student's needs.

DEM 190 SELECTED TOPICS 3 Hrs.
PREREQUISITE: None.

This course covers selected topics in the diesel mechanics field. Emphasis is placed on topics which keep the student informed about the latest changes in diesel technology.

DEM 191 SPECIAL PROJECTS IN DIESEL MECHANICS 2-3 Hrs.
PREREQUISITE: None.

This course provides information on current trends in diesel mechanics as they relate to employment responsibilities. Topics may vary by term to reflect relevant training needs by the industry.

DEM 192 CO-OP ELECTIVE 1-3 Hrs.
PREREQUISITE: None.

This course allows the student to work parallel in a job closely related to the student's major while attending college. The grade is based on the employer's evaluation of the student's productivity, an evaluation work report submitted by the student, and the student's learning contract.

DEM 193 PRACTICUM 3 Hrs.
PREREQUISITE: None.

This course provides work experience in selected areas to enhance the student's manipulative skills.

DRAFTING (DDT)

DDT 104 BASIC COMPUTER -AIDED DRAFTING 3 Hrs.
PREREQUISITE: None

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.

DDT 111 FUNDAMENTALS OF DRAFTING AND DESIGN TECHNOLOGY 3 Hrs.
PREREQUISITE: None.

This course serves as an introduction to the field of drafting and design and provides a foundation for the entire curriculum. Topics include safety, lettering, tools and equipment, geometric constructions, and orthographic sketching. Upon completion, the student should develop and use safe work habits, identify and properly use common drafting tools and equipment, construct geometric figures, and sketch basic orthographic views of objects.

DDT 115 BLUEPRINT READING FOR MACHINISTS 3 Hrs.
PREREQUISITE: None.

This course provides the students with terms and definitions, theory of orthographic projection, and other information required to interpret drawings used in the machine trades. Topics include multi-view projection, pictorial drawings, dimensions and notes, lines and symbols, and sketching. Upon completion, the student should be able to interpret blueprint drawings used in the machine trades.

DDT 116 BLUEPRINT READING FOR CONSTRUCTION 3 Hrs.
PREREQUISITE: None.

This course provides the students with terms and definitions, theory of orthographic projection, and other information required to interpret drawings used in the construction trades. Topics include multi view projection, dimensions and notes, lines and symbols, sketching, foundations plans, site plans, floor plans, elevations, sections, details, schedules, electrical plans and specifications. Upon completion, the student should be able to interpret blueprint drawings used in the construction trades.

DDT 118 BASIC ELECTRICAL DRAFTING 3 Hrs.
PREREQUISITE: DDT 104, DDT 111, and DDT 124

This course covers the universal language of electrical drafting, including electrical lines, symbols, abbreviations, and notation. Emphasis is placed on typical components such as generators, controls, transmission networks, and lighting, heating, and cooling devices. Upon completion, the student should be able to draw basic diagrams of electrical and electronic circuits using universally accepted lines and symbols.

- DDT 122 ADVANCED TECHNICAL DRAWING 3 Hrs.**
PREREQUISITE: DDT 128
 This course covers the methods of providing size description and manufacturing information for production drawings. Emphasis will be placed on accepted dimensioning and tolerancing practices including Geometric Dimensioning and Tolerancing for both the Customary English System and the ISO System. Upon completion, the student should be able to apply dimensions, tolerances, and notes to drawings to acceptable standards, including Geometric Dimensioning and Tolerancing, and produce drawings using and specifying common threads and various fasteners, including welding methods.
- DDT 124 BASIC TECHNICAL DRAWING 3 Hrs.**
PREREQUISITE: None
 This course covers sections, auxiliary views, and basic space geometry. Emphasis will be placed on the theory as well as the mechanics of applying sections, basic dimensioning, auxiliary views and basic space geometry. Upon completion, students should have an understanding of orthographic projection and be able to identify orthographic planes, produce orthographic views of objects, apply various sectioning techniques and methods, and reproduce drawings.
- DDT 125 SURFACE DEVELOPMENT 3 Hrs.**
PREREQUISITE: DDT 111, DDT 124
 This course covers surface intersections and developments. Emphasis is placed on the basic types of intersections using simple geometric forms. Upon completion, the student should be able to draw common types of surface intersection and handle them simply as applications of the concepts learned in this class.
- DDT 126 SECTIONS AND CONVENTIONAL PRACTICE 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course provides techniques for representing more or less complicated interiors of parts that cannot be shown clearly by means of hidden lines. Topics include visualization and development of all standard sectional views, section lining, and associated conventional practices used by the drafter. Upon completion, the student should be able to select appropriate sectional views to represent more or less complex interior detail and execute detailed drawings as selected using orthographic multi view projection and conventional practices.
- DDT 127 INTERMEDIATE COMPUTER AIDED DRAFTING AND DESIGN 3 Hrs.**
PREREQUISITE: DDT 104
 This course covers intermediate-level concepts and applications of CADD. Emphasis will be placed on intermediate-level features, commands, and applications of CADD software.
- DDT 128 INTERMEDIATE TECHNICAL DRAWING 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course is designed to develop a strong foundation in common drafting and design practices and procedures. Topics include dimensioning concepts and pictorial drawings, auxiliary view, basic space geometry, and pictorial drawings. Upon completion, students should be able to project and develop auxiliary views, locate and specify points, lines and planes in space, develop axonometric, oblique, and perspective drawings.
- DDT 130 FUNDAMENTALS OF DRAFTING FOR RELATED TRADES 3 Hrs.**
PREREQUISITE: None.
 This course provides an overview of related technical trades drafting. Theory is covered within a broad range
- of drafting specialties including civil, structural, electrical, mechanical, and electronic drawing. Emphasis is placed on a basic understanding of what each of these fields require for graphic communication.
- DDT 131 MACHINE DRAFTING BASICS 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course in machine drafting and design provides instruction in the largest specialty area of drafting in the United States, in terms of scope and job opportunities. Emphasis will be placed on the applications of multi-view drawings, including drawing organization and content, title blocks and parts lists, assembly drawings, detail drawings, dimensioning and application of engineering controls in producing industrial-type working drawings. Upon completion, the student should be able to organize, layout, and produce industrial-type working drawings, including the application of title blocks, parts lists, assemblies, details, dimensions, and engineering controls.
- DDT 132 ARCHITECTURAL DRAFTING 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course in architectural design and drafting introduces basic terminology, concepts, and principles of architectural design and drawing. Topics include design considerations, lettering, terminology, site plans, and construction drawings. Upon completion, the student should be able to draw, dimension, and specify basic residential architectural construction drawings.
- DDT 133 BASIC SURVEYING 3 Hrs.**
PREREQUISITE: None.
 This course covers the use of surveying instruments, mathematical calculations, and the theory of land surveying. Topics include USGS benchmarks, measuring horizontal and vertical angles and distances, terms, and recording, and interpreting field notes. Upon completion, the student should be able to recognize benchmarks and measure, specify, and record field notes.
- DDT 134 DESCRIPTIVE GEOMETRY 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course is designed to teach the fundamental concepts of descriptive geometry through an emphasis on logical reasoning, visualization, and practical applications. Topics include orthographic projection, points and lines in space, auxiliary views, plane representation, intersecting and non-intersecting lines, piercing and intersecting planes, plane development, and calculations. Upon completion, the student should be able to project and intersect points, lines, and planes, with their relationships in space, as well as develop surfaces of an object for fabrication purposes.
- DDT 150 THEORY OF RESIDENTIAL DRAWING AND DESIGN 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course provides the theory of residential drawing and design. Topics include architectural styles, house design, site and space planning, climate, drawing requirements, construction materials and process, terminology, and specific types of drawings required to complete a full set of construction documents. Introductory, intermediate, and advanced topics are covered. Emphasis is placed on an understanding of the issues.
- DDT 181/182 SPECIAL TOPICS IN DRAFTING AND DESIGN TECHNOLOGY 3 Hrs.**
PREREQUISITE: None.
 These courses provide specialized instruction in various areas related to the drafting industry. Emphasis is placed on meeting students' needs.

- DDT 191 DRAFTING INTERNSHIP 1 Hr.**
PREREQUISITE: Completed a minimum of 12 credit hours of DDT
 This course is designed for those who are involved in a structured employment situation that is directly related to the field of drafting and design and is coordinated with the drafting instructor. The student must spend at least 5 hours per week in an activity planned and coordinated jointly by the instructor and the employer. Upon completion, the student will have gained valuable work experience in a well-planned, coordinated training/work situation.
- DDT 192 DRAFTING INTERNSHIP 2 Hrs.**
PREREQUISITE: Completed a minimum of 12 credit hours of DDT
 This course is limited to those who are involved in a structured employment situation that is directly related to the field of drafting and design and is coordinated with the drafting instructor. The student must spend at least 10 hours per week in an activity planned and coordinated jointly by the instructor and the employer. Upon completion, the student will have gained valuable work experience in a well-planned, coordinated training/work situation
- DDT 193 DRAFTING INTERNSHIP 3 Hrs.**
PREREQUISITE: Completed a minimum of 12 credit hours of DDT
 This course is limited to those who are involved in a structured employment situation that is directly related to the field of drafting and design and is coordinated with the drafting instructor. The student must spend at least 15 hours per week in an activity planned and coordinated jointly by the instructor and the employer. Upon completion, the student will have gained valuable work experience in a well-planned, coordinated training/work situation.
- DDT 211 INTERMEDIATE MACHINE DRAFTING 3 Hrs.**
PREREQUISITE: DDT 131
 This second course in machine drafting and design provides more advanced instruction in the largest specialty area of drafting. Topics include applications of previously developed skills in the organization and development of more complex working drawings, use of vendor catalogs and the Machinery's Handbook for developing specifications, and use of standardized abbreviations in working drawings.
- DDT 212 INTERMEDIATE ARCHITECTURAL DRAFTING 3 Hrs.**
PREREQUISITE: DDT 132 and DDT 150
 This second course in architectural design and drafting continues with more advanced and detailed architectural plans. Topics include floor construction and detailing, foundation, wall, and roof construction and detailing, use of standards manuals, perspective drawings, electrical plans, plumbing plans, and building materials, with emphasis on residential and some light commercial applications. Upon completion, the student should be able to draw and specify advanced-level plans including various architectural details.
- DDT 213 CIVIL DRAFTING, PLAT MAPS 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course introduces the drafting practices, symbols, conventions, and standards utilized in civil engineering contract documents. Topics include site planning, land surveying, topographic surveys, along with civil terminology. Upon completion, the student should be able to draw accurate plat maps giving legal descriptions of land parcels, draw simple site plans, and identify and use proper symbols and conventions on civil engineering drawings.
- DDT 214 PIPE DRAFTING 3-4 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course covers the theory and practical application needed to understand piping fundamentals as used in refineries and petrochemical plants. Topics include process and mechanical flow diagrams, plant equipment, isometric drawings, instrumentation symbols, pipe symbols, flanges, fittings, and applications of basic math and trigonometry. Upon completion, the student should be able to demonstrate pipe drafting techniques and fundamentals in order to prepare working drawings used in refineries and the petrochemical industrial environment.
- DDT 215 GEOMETRIC DIMENSIONING AND TOLERANCING 3 Hrs.**
PREREQUISITE: None.
 This course is designed to teach fundamental concepts of size description by geometric methods, including appropriate engineering controls. Emphasis is placed on the drawing and application of common geometric dimensioning and tolerancing symbols to engineering drawings as designated by the latest ANSI/ASME Standards. Upon completion, the student should be able to use geometric dimensioning and tolerancing symbols in applying size information and manufacturing controls to working drawings.
- DDT 221 ADVANCED MACHINE DRAFTING 3 Hrs.**
PREREQUISITE: DDT131
 This third course in machine drafting and design covers the development of complex, advanced working drawings by applying previously developed skills. Topics include application of previously developed skills in the organization and development of complex, advanced-level working drawings, including sub-assemblies and a basic design problem. Upon completion, the student should be able to organize, layout, and produce complex, advanced-level working drawings, including sub-assemblies and a basic design problem.
- DDT 222 ADVANCED ARCHITECTURAL DRAFTING 3 Hrs.**
PREREQUISITE: DDT 104, DDT 132
 This third course in architectural design and drafting continues with advanced architectural plans, including a slant toward light commercial construction. Topics include climate control plans, application of building codes, building materials, and finish specifications, cost estimating, and bid specifications. Upon completion, the student should be able to apply current techniques in producing advanced-level architectural plans, including residential and light commercial applications.
- DDT 225 STRUCTURAL STEEL DRAFTING 3 Hrs.**
PREREQUISITE: DDT 111 and DDT 124
 This course covers the theory and practical applications necessary to understand the basic design and terminology of structural steel components used in light commercial buildings. Emphasis is placed on structural steel drafting techniques, bolted and welded connections, framing plans, sections, fabrication and connection details, and bills of material. Upon completion, the student should be able to produce engineering and shop drawings incorporating standard shapes, sizes, and details using the A.I.S.C. Manual and incorporating safety practices.
- DDT 226 TECHNICAL ILLUSTRATION 3 Hrs.**
PREREQUISITE: None.
 This course provides the student with various methods of illustrating structures and machine parts. Topics include axonometric drawings, exploded assembly drawings, one point, two point, and three

point perspectives, surface textures, and renderings. Upon completion, the student should be able to produce drawings and illustrations using the previously described methods.

DDT 231 ADVANCED COMPUTER AIDED DRAFTING (CAD) 3-4 Hrs.
PREREQUISITE: DDT 127

This course covers the advanced applications of CAD software to engineering projects in various applications, including architectural, civil, mechanical, and environmental engineering, with consideration for advanced principle of CAD. These principles will be applied toward CAD customization and programming principles, for the expressed purpose of increasing productivity and improving the performance of the CAD operator, thereby, making CAD much more productive in an engineering environment. Emphasis will be placed on using intelligent CAD techniques to increase the quality of output and 3D modeling and rendering will be introduced. Upon completion, the student should be able to apply advanced CAD techniques in solving complex problems related to all engineering applications.

DDT 233 THREE DIMENSIONAL MODELING 4 Hrs.
PREREQUISITE: DDT 231

This course provides instruction in 3D Design Modeling utilizing the 3D capabilities of CAD software. Emphasis is placed on 3D wire-frame, surface and solids modeling along with the development of 2D detail drawings from 3D models. Upon completion, the student should be able to generate 3D surface and solid models and 2D orthographic production drawings from created solid models.

DDT 237 CURRENT TOPICS IN CAD 3 Hrs.
PREREQUISITE: None.

This course serves to introduce changing technology and current CAD subjects and software and the computing hardware needed to utilize new products. Topics include current trends in how industries use CAD applications, new developments, improvements and progressions within specific CAD applications as well as the necessary hardware. Upon completion, the student should be able to use more updated software in a specific CAD application and be more aware of improvements in CAD software and how to apply advancing technology in improving his or her CAD proficiency.

DDT 238 SPECIAL TOPICS IN COMPUTER AIDED DRAFTING (CAD) 3 Hrs.
PREREQUISITE: DDT 231

This course in special CAD and multimedia topics covers special capabilities possible with CAD software, especially in conjunction with other graphical software, such as virtual "walk-throughs" or multimedia presentations. Topics include but are not limited to combining CAD software, imaging editing software, authoring software, and 3D software into one harmonious relationship to produce multimedia presentations. Upon completion, the student should be aware of and understand how to utilize several software packages to produce multimedia presentations.

DDT 239 INDEPENDENT STUDIES 1-4 Hrs.
PREREQUISITE: None.

This course provides practical application of prior attained skills and experiences as selected by the instructor for the individual student. Emphasis is placed on applying knowledge from prior courses toward the solution of individual drafting and design problems. Upon completion, the student will demonstrate the application of previously attained skills and

knowledge in the solution of typical drafting applications and problems.

DDT 249 ADVANCED CAD APPLICATIONS 2-3 Hrs.
PREREQUISITE: None.

This course is a direct applications lab. Emphasis is placed on extensive CAD usage, finished product hard copy, speed and accuracy.

ECONOMICS (ECO)

ECO 231 PRINCIPLES OF MACROECONOMICS 3 Hrs.
PREREQUISITE: None.

This course is an introduction to macroeconomic theory, analysis, and policy applications. Topics include the following: scarcity, demand and supply, national income analysis, major economic theories concerning monetary and fiscal policies as stabilization measures, the banking system, and other economic issues or problems including international trade.

ECO 232 PRINCIPLES OF MICROECONOMICS 3 Hrs.
PREREQUISITE: None.

This course is an introduction of the microeconomic theory, analysis, and applications. Topics include scarcity, the theories of consumer behavior, production and cost, markets, output and resource pricing, and international aspects of Microeconomics.

ELECTRICAL TECHNOLOGY (ELT)

ELT 104 DISTRIBUTION SYSTEMS 3 Hrs.
PREREQUISITE: ELT 106 and ELT 109

This course involves the theory, applications, calculations, and connections associated with transformers and power distribution systems commonly used in the electrical field.

ELT 106 AC PRINCIPLES OF ELECTRICITY II 3 Hrs.
PREREQUISITE: ELT 107 and ELT 108
COREQUISITE: ELT 109

This course is a study of AC magnetic devices including single phase and three phase transformers, basic motor principles of electromagnetism, AC relay principles, and testing these components. Topics covered include AC transformer, AC motor, and AC relay principles and their applications. Upon completion, the student should be able to explain, wire, troubleshoot and test these basic components in various real world circuits.

ELT 107 DC PRINCIPLES OF ELECTRICITY II 3 Hrs.
PREREQUISITE: None
COREQUISITE: ELT 108

This course is a study of energy sources, and measurements, batteries, conductor sizes and ratings electric magnetic fields, and electrical safety. Emphasis is on energy transfer, electric heating, battery supplies, conductor ratings, and protection, magnetic fields and safety. Upon completion, the student should be able to explain types of energy, batteries, different types of conductors and wire batteries, magnetic coils, and power circuits and troubleshoot them.

ELT 108 DC FUNDAMENTALS 3 Hrs.
PREREQUISITE: None
COREQUISITE: ELT 107

This course provides a study of atomic theory, direct current (DC), properties of conductors and insulators, direct current characteristics of series, parallel, and series parallel circuits. Inductors and capacitors are introduced and their effects of DC circuits are examined. Students are prepared to analyze complex DC circuits, solve for unknown circuits variables with the use of Ohm's Law and to use basic electronic test equipment.

- ELT 109 AC FUNDAMENTALS 3 Hrs.**
 PREREQUISITE: ELT 107 and ELT 108
 COREQUISITE: ELT 106
 This course provides a study of the theory of alternating current (AC). Students are prepared to analyze complex AC circuit configurations with resistor, capacitors, and inductors in series and parallel combinations. Upon completion, students should be able to design AC circuits and explain the function of alternating circuits such as RLC, impedance, phase relationships and power factor.
- ELT 110 WIRING METHODS 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course is a study of various tasks, wiring methods, materials, and associated NEC requirements that students will be required to work with in residential and commercial wiring courses.
- ELT 114 RESIDENTIAL WIRING METHODS 3 Hrs.**
 PREREQUISITE: None
 This course is a study of residential wiring practices and methods, the NEC requirements and residential blueprint interpretations.
- ELT 115 RESIDENTIAL WIRING METHODS II 3 Hrs.**
 PREREQUISITE: ELT 114
 This course is a study of residential wiring practices and methods, the NEC requirements and residential blueprint interpretations.
- ELT 117 AD/DC MACHINES 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course covers the theory and operation of DC motors single and three phase AC motors and the labs will reinforce this knowledge. Emphasis is placed on the various types of single and three phase motors, wiring diagrams, starting devices, and practical application in the lab.
- ELT 118 COMMERCIAL/INDUSTRIAL WIRING I 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course focuses on principles and applications of commercial and industrial wiring. Topics include, electrical safety practices, an overview of National Electric Code requirements as applied to commercial and industrial wiring, conduit bending, circuit design, pulling cables, transformers, switch gear, and generation principles.
- ELT 122 ADVANCED AC/DC MACHINES 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course focuses on single and three-phase motors and also introduces students to DC motors. Emphasis is placed on field wiring, various types of AC and DC motors, troubleshooting procedures, and utilization of test equipment. Upon completion, the student should be able to explain, wire, troubleshoot, and test all types of AC and DC electric motors.
- ELT 132 COMMERCIAL/INDUSTRIAL WIRING II 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course is a continuation of ELT 131 and is all inclusive, including the study of branch circuits, installation requirements for services, feeders and special equipment considerations, including the NEC code requirements. Emphasis is placed on load calculations, conductors, service sizing, installation requirements, NEC code requirements, transformers, lighting, HVAC, and special equipment considerations. Upon completion, the student should be able to know how to size complete electrical commercial/industrial systems and know the NEC requirements for each system.
- ELT 181 SPECIAL TOPICS IN ELT TECHNOLOGY 3 Hrs.**
 PREREQUISITE: None
 This course provides specialized instruction in various areas related to electrical technology. Emphasis is placed on meeting students' needs.
- ELT 192 PRACTICUM/INTERN/CO-OP 1 Hr.**
 PREREQUISITE: Complete at least 15 hours in electrical classes
 This course provides practical experience in the field early in the student's training as an electrician's helper on the job, working a special project or conducting research/study in a directed area of the field. Emphasis is placed on gaining hands-on experience with tools of the trade as well as a better understanding of NEC directives. Upon completion, the student should possess a higher state of proficiency in the basic skills of connecting electrical wiring and conduit; this course may be repeated with the instructor's permission.
- ELT 193 PRACTICUM/INTERN/CO-OP 2 Hrs.**
 PREREQUISITE: Complete at least 15 hours in electrical classes
 This course provides practical experience in the electrical craft as an electrician's helper on the job, working a special project or conducting research/study in a directed area of the field. Emphasis is placed on gaining hands-on experience with tools of the trade as well as a better understanding of NEC directives. Upon completion, the student should possess a higher state of proficiency in the basic skills of connecting electrical wiring and conduit; this course may be repeated with the instructor's permission.
- ELT 194 PRACTICUM/INTERN/CO-OP 3 Hrs.**
 PREREQUISITE: Complete at least 15 hours in electrical classes
 This course provides practical experience in the electrical craft as an electrician's helper or higher level working more advanced special projects or conducting more advanced research/study in a directed area of the field. Emphasis is placed on gaining hands-on experience with tools of the trade as well as a better understanding of NEC directives while studying in the classroom one hour per week. Upon completion, the student should possess a higher state of proficiency in the basic skills and a better knowledge of testing for the Electrical Journeyman's Block Test.
- ELT 195 PRACTICUM/INTERN/CO-OP 4 Hrs.**
 PREREQUISITE: Complete at least 15 hours in electrical classes
 This course provides additional practical experience in the electrical craft as an apprentice electrician or higher level working advanced projects or research/study in a directed area of the field. Emphasis is placed on gaining more hands-on experience with tools of the trade as well as NEC directives while studying in the classroom two hour per week. Upon completion, the student should possess a higher state of proficiency in all electrician skills and a better knowledge of testing for the Electrical Journeyman's Block Test.
- ELT 200 SPECIAL PROJECTS TBA**
 PREREQUISITE: Complete at least 15 hours in electrical classes
 This course provides additional time and/or practice for the electrical technology major on a project which will enhance his/her abilities to perform required tasks. Emphasis is placed on the upgrading of the students skills and abilities. Upon completion, the student should be able to perform at a higher ability within his/her chosen field of study.

- ELT 206 OSHA SAFETY STANDARDS 3 Hrs.**
 PREREQUISITE: None.
 This course provides the student with the knowledge of OSHA safety standards as required by this organization, and as it relates to the job site. Emphasis is placed on overall safety practices, construction site safety practices, and safety procedures required by Federal/State laws. Upon completion, the student should be able to understand the requirements of OSHA as it relates to general and specific construction sites.
- ELT 209 MOTOR CONTROLS I 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course covers the use of motor control symbols, magnetic motor starters, running overload protection, push button stations, sizing of magnetic motor starters and overload protection, and complex ladder diagrams of motor control circuits. Topics include sizing magnetic starters and overload protection, the use of push-button stations, ladder diagrams, and magnetic motor starters in control of electric motors, wye-delta starting, part start winding, resistor starting and electric starting devices. Upon completion, students should be able to understand the operation of motor starters, overload protection, interpret ladder diagrams using push-button stations and understand complex motor control diagrams.
- ELT 212 MOTOR CONTROL II 3 Hrs.**
 PREREQUISITE: ELT 106, ELT 109, and ELT 209
 This course covers complex ladder diagrams of motor control circuits and the uses of different motor starting techniques. Topics include wye-delta starting, part start winding, resistor starting, and electronic starting devices. Upon completion, the student should be able to understand and interpret the more complex motor control diagrams and understand the different starting techniques of electrical motors.
- ELT 221 ELECTRONICS FOR ELECTRICIANS 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course introduces the basic principles of solid state electronic equipment as found in many electrical and motor control circuits. Emphasis is placed on fundamental concepts of diodes, transistors, FETs and MOSFETs as they are used in electrical control circuits. Upon completion, the student should be able to explain the basic operation of these solid state components and be able to perform basic troubleshooting tasks.
- ELT 224 SECURITY AND ALARM SYSTEMS 3 Hrs.**
 PREREQUISITE: ELT 107 and ELT 108
 This course introduces the basic operation and installation of home and business security and fire alarm systems as well as low voltage (under 30v) systems such as lighting, door chimes and intercom systems. Emphasis is placed on installation of home and business security and fire alarm systems. Upon completion, students should be able to install residential and commercial security systems in accordance with code and directives.
- ELT 231 PROGRAMMABLE CONTROLS I 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 COREQUISITE: None
 This state-of-the art course includes the fundamental principals of programmable logic controls (PLCs) including hardware and programming. Emphasis is placed on but not limited to the following: hardwiring associated with the PLC, different options available with most PLCs, and basic ladder logic programming. Upon completion, the student must demonstrate his or her ability by developing programs, loading programs into real world PLCs, and troubleshooting the system if necessary.
- ELT 232 PROGRAMMABLE CONTROLS II 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 COREQUISITE: ELT 231.
 This state-of-the-art course includes the principals of PLC's, including hardware, programming, and program design. Emphasis is placed on, but not limited to the following: developing working programs, timers, counters, different special functions, and designing programs from existing hardwired systems. Upon completion, the student must demonstrate his or her ability by developing programs, loading programs into real world PLCs, and troubleshooting the system if necessary.
- ELT 233 APPLIED PROGRAMMABLE CONTROLS 3 Hrs.**
 PREREQUISITE: ELT 232
 This state-of-the-art course covers the more advanced topics of PLC's. Emphasis is placed on, but not limited to the following: high-speed devices, analog programming, designing complete working systems, start-up and troubleshooting techniques, and special projects. Upon completion, the student must demonstrate his or her ability by developing programs, loading programs into PLC's, and troubleshooting the system if necessary.
- ELT 241 NATIONAL ELECTRIC CODE 3 Hrs.**
 PREREQUISITE: None.
 This course introduces the students to the National Electric Code and text and teaches the student how to find needed information within this manual. Emphasis is placed on locating and interpreting needed information within the NEC code manual. Upon completion, the student should be able to locate the NEC code requirements for a specific electrical installation.
- ELT 242 JOURNEYMAN-MASTER PREP EXAM 3 Hrs.**
 PREREQUISITE: None.
 This course is designed to help prepare a student to take either the Journeyman or Master Certification Exam. Emphasis is placed on review of electrical concepts and/or principals, practice tests, and test taking procedures. Upon completion, the student should be able to pass the Journeyman/Masters Certifying Exam.
- ELT 243 ELECTRICAL COST ESTIMATING 3 Hrs.**
 PREREQUISITE: ELT 110 and ELT 114
 This course provides an in-depth study of calculating wiring materials required and labor needed by man hours to complete a job. Emphasis is placed on how to document cope of work required, sue various take-off sheets, and correct means by which to arrive at total job costs. Upon completion, students should be able to perform actual calculations of sample jobs including overhead and operating costs.
- ELT 244 CONDUIT BENDING AND INSTALLATION 3 Hrs.**
 PREREQUISITE: None.
 This course provides the student the knowledge to properly bend electrical metallic tubing, rigid galvanized and intermediate metal conduit, and PVC conduit. Emphasis is placed on the theory and practical application of conduit bending methods. Upon completion, the student should be able to get measurements, layout, and successfully bend conduit using hand type, mechanical, and hydraulic benders.
- ELT 245 ELECTRICAL GROUNDING SYSTEMS 3 Hrs.**
 PREREQUISITE: ELT 106 and ELT 109
 This course provides the knowledge to understand how to properly ground an electrical system.

Emphasis is placed on, but not limited to the following residential installations, commercial installations, and the function of independent grounding elements. Upon completion, the students should be able to explain and design a simple grounding system.

ENGINEERING (EGR)

EGR 125 MODERN GRAPHICS FOR ENGINEERS 3 Hrs.
PREREQUISITE: None.

This course provides an introduction to manual and computer-assisted techniques of graphic communication employed by professional engineers. Topics include: lettering; instrumental and computer-aided drafting, technical sketching, orthographic projection, pictorial, sectional, and auxiliary views and dimensioning.

EGR 156 COMPUTER METHODS FOR ENGINEERS 3 Hrs.
PREREQUISITE: MTH 115.

This course consists of engineering applications using the FORTRAN IV computer programming language.

ENGLISH (ENG)

ENG 080 ENGLISH LABORATORY 1-2 Hrs.
PREREQUISITE: None.

This course, which may be repeated as needed, provides students with a laboratory environment where they can receive help from qualified instructors on English assignments at the developmental level. Emphasis is placed on one-to-one guidance to supplement instruction in English courses. A student's success in this course is measured by success in those other English courses in which the student is enrolled.

ENG 092 BASIC ENGLISH I 3-4 Hrs.
PREREQUISITE: None

This course is a review of basic writing skills and basic grammar. Emphasis is placed on the composing process of sentences and paragraphs in standard American written English. The student will demonstrate these skills chiefly through the writing of well-developed, multi-sentence paragraphs.

ENG 093 BASIC ENGLISH II 3-4 Hrs.
PREREQUISITE: ENG 092 or equivalent placement score

This course is a review of composition skills and grammar. Emphasis is placed on coherence and the use of a variety of sentence structures in the composing process and on standard American written English usage. The student will demonstrate these skills chiefly through the writing of paragraph blocks and short essays.

ENG 097 PHONICS 1-2 Hrs.
PREREQUISITE: None.

This course provides help to students who are experiencing English-language difficulties associated with sound. Emphasis is placed on the sounds of English words, intonation, differentiating accents, pronunciation, and listening skills. The student's grade will reflect the degree of improvement demonstrated by that student from the beginning to the end of the semester.

COM 100 INTRODUCTORY TECHNICAL ENGLISH I 3 Hrs.
PREREQUISITE: ENG 092 or equivalent placement score.

This course is designed to enhance reading and writing skills for the workplace. Emphasis is placed on technical reading, job-related vocabulary, sentence writing, punctuation, and spelling with substantial focus on occupational performance requirements. Upon com-

pletion, the student should be able to identify main ideas with supporting details and produce mechanically correct short writings appropriate to the workplace.

ENG 101 ENGLISH COMPOSITION I 3 Hrs.
PREREQUISITE: ENG 093 or equivalent placement score.

English Composition I provides instruction and practice in the writing of at least six (6) extended compositions and the development of analytical and critical reading skills and basic reference and documentation skills in the composition process. English Composition I may include instruction and practice in library usage.

ENG 102 ENGLISH COMPOSITION II 3 Hrs.
PREREQUISITE: A grade of C or better in ENG 101.

English Composition II provides instruction and practice in the writing of six (6) formal, analytical essays, at least one of which is a research project using outside sources and/or references effectively and legally. Additionally, English Composition II provides instruction in the development of analytical and critical reading skills in the composition process. English Composition II may include instruction and practice in library usage.

ENG 130 TECHNICAL REPORT WRITING 3 Hrs.
PREREQUISITE: ENG 101.

This course provides instruction in the production of technical and/or scientific reports. Emphasis is placed on research, objectivity, organization, composition, documentation, and presentation of the report. The student will demonstrate the ability to produce a written technical or scientific report by following the prescribed process and format.

ENG 225 EARLY ENGLISH LITERATURE 3 Hrs.
PREREQUISITE: A grade of C or better in ENG 102.

This course begins with the Anglo-Saxon period and ends with the publication of *Paradise Lost* and includes extensive treatment of Chaucer, Shakespeare, and Milton, as well as other important early authors including a significant number of early American writers. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate these works to their historical and literary contexts, and understand relevant criticism and research.

ENG 226 MODERN LITERATURE IN ENGLISH 3 Hrs.
PREREQUISITE: A grade of C or better in ENG 102.

This is a survey course of eighteenth- and nineteenth-century literature written in English. It includes roughly equal treatment of Enlightenment, Romantic, and Victorian literature in both England and America. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate these works to their historical and literary contexts, and understand relevant criticism and research.

ENG 227 TWENTIETH CENTURY LITERATURE IN ENGLISH 3 Hrs.
PREREQUISITE: A grade of C or better in ENG 102.

Coverage of this course starts with the beginning of the 20th century and ends with the present. This course will cover standard literary texts from both England and America, with an inclusion of literature, which reflects the globalization of English in the 20th Century. Upon completion and in written compositions, students will be able to interpret the aesthetic and thematic aspects of these works, relate these works to their historical and literary contexts, and understand relevant criticism and research.