

# COURSE DESCRIPTIONS

In this section of the catalog, all courses taught at Arkansas Tech University - Ozark Campus are listed alphabetically by subject area. For departmental write-ups and detailed curricula of programs of study, see the appropriate division of the preceding section.

## **Air Conditioning/ Refrigeration**

### **ACR 1203 Fundamentals of Electricity**

The characteristics of alternating current, waves, phase relations, transfer action, electrical circuits, and its use with controls, motors, relays, resistors, including legends and symbols are taught. In addition, the student will study the wide variety of motors, single and three phase, used in the air conditioning and refrigeration field.

### **ACR 1205 Tubing and Piping**

This course covers the process of identifying tubing and pipe with practical applications in sizing and fitting to different configurations using mechanical fittings and soldering. The history and development of air conditioning is also covered. Silver branding and aluminum soldering is also taught. Practical application is provided in the laboratory. Safety is emphasized.

### **ACR 1222 Industrial Controls**

Designed to teach the student how to set up a control system for different types of control requirements. Different types of control methods are studied, such as PLC, digital and microprocessor systems.

### **ACR 1301 Industrial Safety in Air Conditioning**

The hazards associated with the different refrigerants, electricity, the oxy-acetylene torch, radon, carbon monoxide, extreme heat and extreme cold will be addressed

### **ACR 1302 Basic Compression and Refrigeration**

A comprehensive study of mechanical refrigeration systems emphasizing proper service techniques through analysis of the problem. Testing

procedures, parts removal and installation are covered in depth. Also included is a study of the computation of temperature - pressure relationship and related problems.

### **ACR 1503 Electronic Components**

The student will study the wide variety of motors used in the air conditioning and refrigeration field. In addition, various system controls, relays, resistors, contactors, and timers are concepts that will be taught as they relate to motors and their operation

### **ACR 1602 Schematics**

The student will learn to read, draw, and interpret writing diagrams and to place the circuitry in operative arrangements with electrical and electronic symbols. System diagrams will be developed by the student for a wide variety of A/C equipment.

### **ACR 2102 Residential Systems**

Pre-requisite: ACR 1203 and ACR 1302. This course is a study of the major components and control devices for gas and oil furnaces, hydronic systems, heat pumps, and cooling systems.

### **ACR 2104 Heat Gain and Loss**

Pre-requisite: ACR 1302. A study of air properties and the instrumentation to meet the environmental needs of structures, residential and commercial, and the factors involved in the calculation of heating and cooling loads. Also included, is a study of the distribution mediums such as duct design and sizing.

### **ACR 2112 Air Conditioning Service**

This course includes a comprehensive study of air conditioning systems which emphasizes proper service techniques through analysis of the problem. Testing procedures, parts removal, and installation are covered in depth. A study of the computation of temperature pressure relation

and related problems is included. Environmental impacts and safety are emphasized, including Environmental Protection Agency certification.

### **ACR 2204 Industrial Refrigeration**

Covers all aspects of using ammonia as a refrigerant. Describes both single-stage and two-stage ammonia systems. Explains the importance of accumulators and intercoolers in ammonia systems. Concludes with coverage of liquid recirculation system operation.

### **ACR 2304 Sheet Metal**

Provides an introduction to safety, tools, machinery, materials, and fasteners used in the sheet metal trade.

### **ACR 2125 Boiler Operations**

Will cover the basic theory, operation and construction of a high pressure boiler.

### **ACR 2904 Internship**

Provides students with the experience of a job in a business. Students will participate in internship during the final phase of program completion. Contracts will be signed between the school, students, and training site stating the rules and objectives of internship.

## **Automotive Service Technology**

### **AST 1103 Automotive Brake Systems**

Concentrates on the theory and operation of disc and drum brake systems. Basic hydraulic principles as well as the operation and components of the brake foundation systems are taught. The course includes an in-depth study of various power brake systems, including vacuum assisted systems, hydraulically boosted systems, and several types of anti-lock braking systems.

**AST 1105 Gasoline Engine Theory**

Provides the student with an introduction to automotive engines. Students learn the proper use and care of hand tools, precision tools, special tools, and equipment. Theory of operation with attention to components is included. Cooling systems, lubrication systems, intake systems, exhaust systems, vehicle maintenance, as well as PC based automotive schematics and flow charts are taught. Safety is emphasized.

**AST 1202 Introduction to Automotive Drivetrains**

Designed to cover the entire drivetrain on a late model vehicle with a standard transmission. Beginning with the flywheel, to the transmission, through the differential assembly and ending at the wheel and hub. Includes the principles of gear reduction as it applies to the theory, operation, and repair of manual transmission, differential, and transaxles. Several types of four-wheel drive systems will be taught.

**AST 1203 Automotive Climate Control**

Begins with a study of refrigeration, the refrigeration cycle, and basic components of a typical automotive refrigeration system. The function and construction of compressors, lines, expansion valves, expansion tubes, condensers, evaporators, blower motors, and air distribution systems is covered. Automatic temperature control systems including the latest computer monitored systems, and heating and ventilation will also be covered. Service and maintenance procedures as well as shop safety are emphasized.

**AST 1206 Engine Performance**

Provides students with an understanding of fuel, ignition, drivability, and emissions systems. Theory of operation as well as relevant electronic components and computing systems diagnosis is included.

**AST 1212 Advanced Automotive Drivetrains**

Pre-requisite: AST 1202. A continuation

of AST 1202. A study of theory and operation of the entire drivetrain of automotive automatic transmissions and transaxles.

**AST 1213 Automotive Chassis and Steering**

Designed to introduce the student to the theory and operation of modern suspension and steering systems. The study of the suspension system includes wheels, tires, hubs, bearings, seals, springs, and vehicle forms. Various designs and construction of each of these components will be covered. Steering and suspension systems start with the basic theory of steering geometry and the related factors. Wheel alignment, construction and operation of the various manual, and power steering components is included.

**AST 1904 Internship I**

Provides student with the experience of a job in a business. Students will participate in internship during the final phase of program completion. Contracts will be signed between the school, students, and training site stating the rules and objectives of internship.

**AST 2103 Automotive Electricity/Electronics**

Prerequisites: AST 1105 and ELT 1222. This course applies the fundamentals of electronics, including Ohm's Law, basic electrical circuits, wiring diagrams, and common electrical symbols to the automobile. Diagnosis and troubleshooting of electrical circuits is emphasized, including familiarizations with most common types of testing equipment. It includes an in-depth study of the theory and operation of automobile electronic control systems.

**AST 2203 Advanced Engine Performance**

Prerequisites: AST 1105, AST 1206, and ELT 1222. This course covers advanced theory and testing of engine related fuel and computerized systems. The student should have a basic understanding of basic computer, fuel, and ignition systems. Students will use more advanced equipment for testing.

**AST 2904 Internship II**

Provides student with the experience of a job in a business. Students will participate in internship during the final phase of program completion. Contracts will be signed between the school, students, and training site stating the rules and objectives of internship.

## Biology

**BIOL (PHSC) 1004 Principles of Environmental Science**

This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions. Lecture three hours, Lab three hours. \$10 laboratory fee.

**BIOL 1014 Introduction to Biological Science**

Each semester. An introduction to the major concepts of biological science, with an emphasis on the development of this scientific perspective and how it applies to humans. Duplicate credit for BIOL 1014 and BIOL 1114 will not be allowed. May not be taken for credit after completion of BIOL 1114, 2124, or 2134. Lecture three hours. Laboratory two hours. \$10 laboratory fee.

## Business Technology

**BUS 0903 Keyboarding w/Lab**

Acquaints the student with the alphabetic keyboard through usage of the computer. The course emphasizes basic skill development through drills for speed and control, methods used in centering and tabulations, letter style, business reports, and production measurement. (May be required if

Student's skill level is not adequate for other coursework.)

### **BUS 1003 Business English**

Designed to develop the student's vocabulary skills, dictionary usage, proofreading, listening, and English grammar as needed for current business usage enabling the student to write and communicate effectively.

### **BUS 1013 Word Processing I**

Pre-requisite: BUS 0903 or permission of instructor. Provides instruction in basic word processing machine operations and word processing skills. The student will learn to produce documents through keyboarding, editing, storing, retrieving, and printing. The student will also learn basic maintenance of word processing software and equipment in the modern business office.

### **BUS 1023 Business Mathematics**

A comprehensive study of mathematics as applied to business. Banking, payroll, business statistics, and other selected topics will be covered.

### **BUS 1033 Administrative Support Procedures**

Prerequisite: BUS 0903 or permission of instructor. Emphasizes the practices and procedures acceptable in a business office. Topics include interpersonal relations, telephone usage, mail handling, records management, job application procedures, travel arrangements, reprographics, and financial statements.

### **BUS 1043 Professional Communication**

Designed to review and/or learn the basics in punctuation and to further develop spelling skills. The course covers the principles of effective communication in the modern business office. Topics include writing skills, reading skills, and psychological principles involved in effective business letter writing as well as oral communication.

### **BUS 1053 Spreadsheets**

Students will develop comprehensive skills using Microsoft Excel. These skills will include toolbar usage,

cell and worksheet formatting, cell functions, worksheet organization and printing. The user will become adept at advanced features such as charts, linking worksheets and workbooks, customizing templates and toolbars, and other features.

### **BUS 1063 Legal Environment of Business**

Provides an introduction to characteristics of the American system of free enterprise and the obligations and rights of an individual. Topics include torts, rights of private property, contracts, bailment, insurance and risk, labor, and dignity and worth of an individual.

### **BUS 1073 Accounting**

The study of fundamental accounting concepts and procedures. The course emphasizes the accounting cycle, and includes journalizing and posting transactions, preparing trial balances, worksheets, and financial statements. Emphasis is also given to cash, banking, payroll procedures, sales, purchases, and accounts receivable/payable.

### **BUS 1083 Introduction to Economics**

An overview of macroeconomics with continued emphasis on microeconomic theory as it applies to business technology students

### **BUS 1303 Introduction to Computers**

Designed to introduce students to computer hardware, software, procedures, systems, and human resources as applied to business. It focuses on computer literacy, the concepts of the data processing cycle, and an introduction to commercially available software.

### **BUS 2113 Word Processing II**

Pre-requisite: BUS 1013. Provides students an opportunity for more in-depth practical application of word processing skills. Emphasis is given to design, format, merging, and advanced editing techniques.

### **BUS 2123 Computer Applications for Accounting**

Prerequisite: BUS 1073. Designed to acquaint students with major areas of computerized accounting. Application areas covered will include general ledger, accounts payable, accounts receivable, and payroll.

### **BUS 2133 Multimedia**

Focuses on a variety of software as well as technology-based equipment used in advanced office settings. Projects will emphasize the use of the following: digital camera, video equipment, desktop publishing, graphics production, electronic slide show presentations, E-mail, and Internet.

### **BUS 2143 Introduction to Management**

Provides insight into the characteristics, organization, and operation of a business. Studies include international business, factors of business operations, and business decision-making. Management skills, the legal environment, and types of business ownership are included in this course.

### **BUS 2153 Database Management**

This course includes elementary database design, record layouts, simple selection operations, and basic report generation.

### **BUS 2163 Desktop Publishing**

Prerequisites: COMS 1003 or BUS 1303 and/or BUS 1013. Utilizes a desktop publishing software program in order to provide practical experience in the development of marketing and informative correspondence. Activities include creating newsletters, menus, posters, fact sheets, advertisements, business reports, brochures, comprehensive indexes, and planning a web page.

### **BUS 2173 Special Topics for Business Technology**

This course covers new developments in business environments, such as technologies, laws, and organizational structures. The instructor selects a pertinent and current topic as the focus of the course. Topics will change with semesters. May be repeated for credit for total of 6 hours.

### **BUS 2213 Introduction to Human Anatomy**

This course is designed for the student desiring knowledge relative to the human structure and basic functioning of the human body. This course meets the basic requirement of in-breadth, but not in-depth study of the human body.

### **BUS 2223 Medical Transcription I**

Pre-requisite: BUS 0903. Introduces the student to the skills needed to properly format medical documentation such as history and physical reports, operative reports, discharge summaries, etc. Provides training in the transcribing of documents from recordings using a microcomputer and transcription machine.

### **BUS 2233 Medical Terminology**

Study of terms that relate to body systems, anatomical structures, medical processes and procedures, drugs and a variety of diseases that afflict humans. This course includes medical word construction, definitions, spellings, and the use of terms in the medical field.

### **BUS 2243 Disease Processes**

Pre-requisites: BUS 2213 and BUS 2233. Coverage of the nature of diseases and human conditions. Includes symptoms, signs, etiological factors, diagnostic studies, and treatments.

### **BUS 2253 Medical Coding I**

Pre-requisites: BUS 2213 and BUS 2233. Introduces the student to the concepts of coding medical conditions and procedures. The student will gain entry-level proficiency in the techniques of coding using the ICD-9-CM (International Classification of Diseases, 9<sup>th</sup> revision, Clinical Modification) system.

### **BUS 2263 Medical Coding II**

Pre-requisite: BUS 2253. Introduces the student to the concepts of coding medical procedures in the physician office. The student will become familiar with entry-level proficiency in the techniques of coding using the

Current Procedural Terminology (CPT) system.

### **BUS 2273 Medical Transcription II**

Pre-requisite: BUS 2223. Includes advanced word and information processing concepts and advanced applications.

### **BUS 2303 Money and Banking**

Addresses the various financial markets as well as economic factors and their impact on the banking industry.

### **BUS 2313 Branch Support**

Covers customer services, teller functions, new accounts, accounts payable, trusts, estates, branch security, general ledger banking, e-banking and online banking, call support, confidentiality, and research in banking.

### **BUS 2323 Item Processing**

Addresses statement rendering, document archiving, processing non-sufficient funds activity, balancing, and applied accounting.

### **BUS 2333 Credit Administration**

All aspects of consumer and commercial lending as well as financial and insurance statements. Other topics that will be addressed include managing loan files, assessing risk in lending, understanding issues of regulation and compliance, bankruptcy, credit reports, and appraisals.

### **BUS 2903 Internship**

Provides students with experience in a business setting. Students will participate in internship during the final phase of program completion. There will be contracts signed between the school, students, and training site stating the rules and objectives of the internship.

## **Chemistry**

### **CHEM 2124 General Chemistry I**

Each semester. Prerequisites: scores of 21 or higher on the math and the English portions of the ACTE exam, a "C" or better in CHEM 1114, or approval by the department chair of Physical Sciences. The first of a two semester sequence designed for science and engineering majors. Topics include qualitative and quantitative, applied and

theoretical analyses of the interactions of matter; atoms, molecules, ions, the mole concept, chemical equations, gases, solutions, intermolecular forces, thermochemistry, quantum theory, periodic law, ionic and covalent bonding, molecular geometry. Lecture three hours, laboratory three hours. \$10 laboratory fee.

## **Collision Repair Technology**

### **CRT 1106 Basic Metal Repair**

The straightening, alignment, and fitting of major panels are taught. Procedures necessary to weld, heat, cut, and shape are taught. Emphasis in this course is on theory and practical application.

### **CRT 1202 Industrial Safety in Collision Repair**

Safety in regard to working with paint and collision repair will be studied.

### **CRT 1206 Body and Frame Alignment I**

Pre-requisite: CRT 1106. Students will receive instruction in the use of frame equipment and construction, as well as sectioning, and straightening. Experience working with unitized construction using frame alignment equipment will be provided.

### **CRT 1302 Body and Frame Alignment II**

Pre-requisite: CRT 1206. A continuation of CRT 1208 with emphasis on practical application. Safety is emphasized.

### **CRT 1403 Painting**

This course includes skills and technical knowledge in the preparation of metal for paint; chemical stripping of old finishes; use and maintenance of spray painting equipment; mixing and spraying of all types of automotive finishes; and identification of common materials used.

### **CRT 1505 Color Matching**

Pre-requisite: CRT 1403. A continuation of painting with emphasis on spraying techniques and tinting of paints to achieve color match.

### **CRT 2904 Internship**

Provides students with the experience

of a job in a business. Students will participate in internship during the final phase of program completion. There will be contracts signed between the school, students, and training site stating the rules and objectives of internship.

## Computer and Information Science

### COMS 1003 Introduction to Computer Based Systems

Provides students with both computer concepts and hands-on applications. Although little or no prior computer experience is required for this course, keyboarding proficiency is assumed. Topics include PC basics, file maintenance, and hardware and software components. Students will also gain experience in the use of several popular software applications including Windows, e-mail, Internet, word processing, spreadsheets, databases, presentation packages, and integration of these applications. May not be taken for credit after completion of COMS 2003 or BUAD 2003. Advanced placement and credit by examination are available to students who have previously studied Computer Science. Students may sit for the exam a maximum of three times.

### COMS 2003 Microcomputer Applications

Prerequisite: COMS 1003 or pass entrance exam. This course provides hands-on experience with several software applications. Topics include intermediate and advanced word processing and desktop publishing features; spreadsheet design, formulas, and charts; database design principles and implementation; presentation design and techniques; and integration among these applications. Students will be required to apply each package on a semester project relation to their major.

## Computer Information Systems

### CIS 1103 Programming I

This course is designed to give the student an understanding of established and evolving methodologies for the development of business oriented

computer programming. Emphasis is placed on developing logical thinking skills.

### CIS 1113 Operating Systems I

Students will learn about and apply the operating systems functions and commands that are valuable or necessary in a working environment. Students will be exposed to the relationship between the disk operating systems.

### CIS 1123 Networking I

Designed as a foundation course that provides the theory and basic understanding of the hardware and software that comes together to build local area and wide area networks.

### CIS 1132 Microcomputer Applications

This class is an introduction to using microcomputer application software. It uses business software in a hands-on lecture approach. Topics include the use of microcomputers for word processing, spreadsheet, database, electronic publishing and presentation functions.

### CIS 1203 Programming II

A continuation of Programming I. This course introduces the programming power of Microsoft Visual Basic 6.0.

### CIS 1213 Operating Systems II

Pre-requisite: CIS 1113. Expands on the foundation that was built in Operating Systems I. Topics will include file management, multi-tasking, graphics, peer-to-peer networking, and accessories. Specific tasks of networking such as E-mail and scheduler will be covered.

### CIS 1223 Networking II

Pre-requisite: CIS 1123. Builds upon the skills and concepts learned in Networking I. Emphasis will be on the hands-on aspects of personal computer networks using Microsoft and Linux based networking products, including installations and/or expanding a networking system and troubleshooting problems.

### CIS 1233 Systems Analysis and Design

This course is an introduction to basic

concepts regarding the system life cycle, analytical tools and methods, file and record layouts, and elements of the design phase.

### CIS 1243 HTML Programming

Pre-requisite: CIS 1103. This class provides training in coding simple to complex web pages using HTML code. Common programming practices as well as distinct HTML skills are taught. Repetition, variable usage, and decision structures are covered, as well as some basic javascript routines.

### CIS 1303 PC Maintenance

This course is designed to prepare individuals to troubleshoot, build, and repair personal computers, workstations, printers, and other computer peripherals. The student will also learn to install, debug, diagnose, and repair software problems associated with PCs.

### CIS 2133 Web Page Design

This course introduces the student to design and development of web pages. HTML, images, multimedia, and other topics will be covered so that students learn how to publish and maintain a web site to a server.

### CIS 2143 Help Desk Support

This course is designed to teach individuals to troubleshoot the Microsoft Office Application Suite. It focuses on customer service and communication with the end user.

### CIS 2153 Microsoft Programming

This course is designed to teach individuals to use the Microsoft Visual Basic for applications. It focuses on macro creation and integration of a programming language into a business application suite.

### CIS 2903 Internship

Provides students with the experience of a job in a business. Students will participate in internship during the final phase of program completion. There will be contracts signed between the school, students, and training site stating the rules and objectives of internship.

## Cosmetology

### **COS 1101 Hygiene and Sanitation I**

This course provides you with the necessary information to master this National Industry skill Standard for entry level Cosmetologist. Students will conduct services in a safe environment and take measures to prevent the spread of infectious and contagious disease. Students will safely use a variety of salon products while providing client safety.

### **COS 1110 Hairdressing I w/Lab**

A basic study of the properties of the hair and scalp. Basic hair care, shampooing, rinsing, conditioning, braiding, the care and styling of wigs and hair enhancements, wet styling, thermal straightening (hair pressing), and the principles of hair design with labs.

### **COS 1121 Related Science I**

A study of cell growth, metabolism, tissues, organs, skeletal and muscular systems, basics of electricity, and basics of chemistry.

### **COS 1131 Manicuring I**

A study of skin and nails, which includes manicuring, pedicuring, and massage.

### **COS 1141 Cosmetic Therapy I**

A study of histology of the skin, hair removal, skin care facial, electrotherapy and light therapy, facial makeup, and eyebrow arching.

### **COS 1151 Salesmanship, Shop Management, and Shop Department I**

A study of the principles of selling and practice of applying knowledge to give the client full service through management and shop department.

### **COS 1201 Hygiene and Sanitation II**

Pre-requisite: COS 1101. A continuation of COS 1101, This course provides you with the necessary information to master this National Industry skill Standard for entry level Cosmetologist. Students will conduct services in a safe environment and taking measures to prevent the spread of infectious and contagious disease. Students will safely use a variety of salon products while providing client safety.

### **COS 1210 Hairdressing II w/Lab**

Pre-requisite: COS 1110. A continuation of COS 1110, this course is a basic study of the properties of the hair and scalp. Basic hair care, shampooing, rinsing, conditioning, braiding, the care and styling of wigs and hair enhancements, wet styling, thermal straightening (hair pressing), and the principles of hair design with labs.

### **COS 1221 Related Science II**

Pre-requisite: COS 1121. A continuation of COS 1121, a study of cell growth, metabolism, tissues, organs, skeletal and muscular systems, basics of electricity, and basics of chemistry.

### **COS 1231 Manicuring II**

Pre-requisite: COS 1131. A continuation of COS 1131, a study of skin and nails, which includes manicuring, pedicuring, and massage.

### **COS 1241 Cosmetic Therapy II**

Pre-requisite: COS 1141. A continuation of COS 1141, a study of histology of the skin, hair removal, skin care facial, electrotherapy and light therapy, facial makeup, and eyebrow arching.

### **COS 1251 Salesmanship, Shop Management, and Shop Department II**

Pre-requisite: COS 1151. A continuation of COS 1151, a study of the principles of selling and practice of applying knowledge to give the client full service through management and shop department.

### **COS 2301 Hygiene and Sanitation III**

Pre-requisites: COS 1101 and COS 1201. A continuation of COS 1201, This course provides you with the necessary information to master this National Industry skill Standard for entry level Cosmetologist. Students will conduct services in a safe environment and taking measures to prevent the spread of infectious and contagious disease. Students will safely use a variety of salon products while providing client safety.

### **COS 2310 Hairdressing III w/Lab**

Pre-requisites: COS 1110 and COS

1210. A continuation of COS 1210, this course is a basic study of the properties of the hair and scalp. Basic hair care, shampooing, rinsing, conditioning, braiding, the care and styling of wigs and hair enhancements, wet styling, thermal straightening (hair pressing), and the principles of hair design with labs.

### **COS 2321 Related Science III**

Pre-requisites: COS 1121 and COS 1221. A continuation of COS 1221, a study of cell growth, metabolism, tissues, organs, skeletal and muscular systems, basics of electricity, and basics of chemistry.

### **COS 2331 Manicuring III**

Pre-requisites: COS 1131 and COS 1231. A continuation of COS 1231, a study of skin and nails, which includes manicuring, pedicuring, and massage.

### **COS 2341 Cosmetic Therapy III**

Pre-requisites: COS 1141 and COS 1241. A continuation of COS 1241, a study of histology of the skin, hair removal, skin care facial, electrotherapy and light therapy, facial makeup, and eyebrow arching.

### **COS 2351 Salesmanship, Shop Management, and Shop Department III**

Pre-requisites: COS 1151 and COS 1251. A continuation of COS 1251, a study of the principles of selling and practice of applying knowledge to give the client full service through management and shop department.

### **COS 2405 Theory and Practical Application**

A course covering all faces of Cosmetology. Theory and practical applications are stressed.

## English

*(A grade of "C" or better must be earned in the course used to satisfy the English general education requirement.)*

### **ENGL 0303 Foundational Composition**

A course in basic grammar and writing to prepare students for the required six-hour composition sequence. The grade in the course will be computed in semester and cumulative grade

point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who is placed in ENGL 0303 must earn a grade of "C" or better in the course before enrolling in ENGL 1013. A student who makes a "D" or "F" in ENGL 0303 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better.

### **ENGL 1013 Composition I**

Prerequisite: Score of 19 or above on English section of the Enhanced ACT, 460 or above on the quantitative portion of the SAT, 40 or above on the TSWE, 75 or above on the COMPASS writing section, or a grade of "C" or better in ENGL 0203 or 0303. A review of grammar, introduction to research methods, and practice in writing exposition using reading to provide ideas and patterns. May not be taken for credit after successful completion of ENGL 1043.

### **ENGL 1023 Composition II**

Prerequisite: Minimum grade of "C" in ENGL 1013 or 1043. A continuation of ENGL 1013 with readings in poetry, fiction, and drama. May not be taken for credit after successful completion of ENGL 1053.

## **Facilities Maintenance/ Management**

### **FAC 2202 Carpentry**

Students will learn basic carpentry skills, power and hand tool safety, the proper use of power and hand tools, framing, trim, and hanging doors and windows. Also covered will be dry wall basics, painting, and basic masonry. Some cabinet making and architectural blueprint reading will be discussed.

### **FAC 2203 Facilities Analysis and Troubleshooting**

Students will analyze configuration of facility structures such as roof pitches and metal beam structure support ratings using geometric figures. Students will also troubleshoot structural design flaws, facilities fixture design calculations, and load calculations of the facility units.

### **FAC 2212 Plumbing**

Basic plumbing skills will be taught and will include: fixture repair and replacement; piping (water and gas piping); piping drops, angles, and sizes; and basic plumbing codes for commercial and residential facilities.

### **FAC 2222 Grounds Maintenance**

Landscape management, chemical usage and storage, MSDS file care, ADA compliance, and safety and reliability topics will be covered.

### **FAC 2903 Internship**

This course provides students with the experience of a job in the facilities management business. Students will participate in internship during the final phase of program completion. There will be contracts signed between the university, student, and training site stating the rules and objectives of the internship.

## **History**

### **HIST 1503 World Civilization I**

The political, economic, and social development of man from the earliest times to the modern period. May not be taken for credit after completion of HIST 1403.

### **HIST 1513 World Civilization II**

Continuation of HIST 1503. May not be taken for credit after completion of HIST 1413.

## **Industrial Control Systems**

### **ELT 1102 Basic Programming**

This course is a study of the basic programming language, using Visual Basic 6.0. The student is taught how to write basic programs using different programming techniques. Most of the programs that are written apply directly to the study of electronics, both D.C. fundamentals and digital principles.

### **ELT 1104 Fundamentals of Electricity**

This course is an overall study of the fundamental principles of D.C. and A.C. circuits. A basic study of Ohm's Law, series, parallel and series parallel resistor circuits. The

fundamental concepts form the basis for the study of advanced applications of electronic systems. It is necessary for the electronic technician to be able to understand the basic concepts to function as an Electronic Technician.

### **ELT 1113 Introduction to Digital Logic**

This is an introductory course in the study of Digital Logic Systems. Basic digital logic gates, truth tables, numbering systems, and different types of TTL integrated circuits are studied.

### **ELT 1123 Semiconductors I**

This course introduces semiconductors or solid-state components. Topics covered include the diode and applications, transistors, and amplifiers. Lecture: 5 hours, Laboratory 4 hours.

### **ELT 1222 Basic Electronics for Trades and Industry**

This course is an overall study of the fundamental principles of DC and AC electricity, Ohm's Law, series, parallel, and series parallel circuits as related to the automotive field.

### **ELT 2107 Basics of Industrial Automation**

An illustrated study of circuit configurations used in industry. Topics to be covered are: solid-state systems used to control DC and AC motors, electro-mechanical devices, three phase power, open and closed loop motor control, robotic input and output transducers, various instrumentation and process control classes. Lecture: 9 hours, Laboratory: 5 hours.

### **ELT 2115 Programmable Controllers**

Deals with the subject of programmable controllers (PCs). The PC is a microprocessor-based programmable device used in controlling mechanical machinery, energy management systems, computer integrated manufacturing, and other applications. Lecture: 3 hours, laboratory: 6 hours.

### **ELT 2123 Industrial Fluid Power**

This course is designed to provide the basic knowledge and application of physical principles involving pumps, cylinders, valves, motors,

design, assembly, graphic symbols, and the operation of hydraulic and pneumatic control circuits based on logic principles. Lecture: 4 hours, laboratory: 1 hour.

### **ELT 2202 Semiconductors II**

A continuation of ELT 1123 Semiconductors I, this course is a study of field effect transistors, thyristors, and linear integrated circuits. Lecture 5 hours, Laboratory 4 hours.

### **ELT 2204 Computer System Components**

This course is a study of the internal structure of the microprocessor. The full computer system is analyzed from both aspects of hardware and software. Many of the principles studied apply to computer troubleshooting and computer interfacing. Many of the computer support circuits are studied. Many of the skills learned from Basic Programming, operating systems, and Digital Logic are brought together and enhanced.

### **ELT 2214 Computer Interfacing and Networks**

This course is a study of the different types of networks systems. The student is taught how to set up the hardware and software for a complete network system.

### **ELT 2215 Computer Troubleshooting**

This course is a study of the concepts of computer repair on IBM compatible computer systems. The student is taught how to troubleshoot hardware and software problems on these systems. Different types of configurations are studied, and upgrade methods are also considered. The student will learn to put a system together from the basic hardware components of a system. The student will troubleshoot a system that has both hardware and software problems.

### **ELT 2903 Internship**

Provides students with experience in a business setting. Students will participate in internship during the final phase of program completion. There will be contracts signed between the school, students, and training site

stating the rules and objectives of the internship.

## **Mathematics**

*(A grade of "C" or better must be earned in the course used to satisfy the Mathematic general education requirement.)*

### **MATH 0803 Beginning Algebra**

Content of this course is as follows: the language of algebra, fundamental operations, signed numbers, equations and problem solving. The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who makes a "D" or "F" in MATH 0803 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better. Students who make a grade of "C" or better in MATH 0803 must enroll in MATH 0903 the following semester.

### **MATH 0903 Intermediate Algebra**

Prerequisites: One unit of high school algebra, grade of 'C' or better in MATH 0803, or consent of the Mathematics Department. The purpose of this course is to prepare for college-level mathematics those students whose mathematics background is inadequate. Content of the course is fundamental operations, linear equations, special products and factoring, fractions, functions, graphs, and systems of linear equations. The grade in the course will be computed in semester and cumulative grade point averages, but the course may not be used to satisfy general education requirements nor provide credit toward any degree. A student who make a "D" or "F" in MATH 0903 must repeat the course in each subsequent semester until he or she earns a grade of "C" or better.

### **MATH 1113 College Algebra**

Prerequisite: Score of 19 or above on the mathematics portion of the ACTE exam, or score of 460 or above on the quantitative portion of SAT, or score of 41 or above on the COMPASS mathematics section, or grade of "C" or better in MATH 0903. Students scoring 19 or 20 on the mathematics portion of

the ACTE exam (or comparable test scores) must concurrently enroll in MATH 1111. Exponents and radicals, introduction to quadratic equations, systems of equations involving quadratics, ratio, proportion, variation, progressions, the binomial theorem, inequalities, logarithms, and partial fractions. May not be taken for credit after completion of MATH 2703 or any higher level mathematics course.

## **Paramedic/Emergency Medical Services**

### **EMTP 1103 Life Span Development**

Designed to prepare the student for the psychological development of infancy to geriatrics. The course of study will emphasize on normal and abnormal physiological changes in people, both during their growth and development.

### **EMTP 1007 Basic Emergency Medical Technology Training**

This course is designed to train students to perform in pre-hospital of acutely ill or injured patients. EMTs perform such measures as cardiopulmonary resuscitation, extrication, initial patient assessment and triage, stabilization and transport of any emergency, to include routine transport of non-emergent patient to allied health care facility.

### **EMTP 1107 Intermediate Emergency Medical Technology Training**

This course is designed to train students to perform in pre-hospital of acutely ill or injured patients. EMTs perform such measures as cardiopulmonary resuscitation, IV access, extrication, initial patient assessment and triage, stabilization and transport of any emergency, to include routine transport of non-emergent patient to allied health care facility.

### **EMTP 1113 Pharmacology I**

Pharmacology I is an introduction to the history of drugs, use of drug references, principles of drug actions and interaction, principles of drug administration, and their legal implications for the paramedic.

### **EMTP 1123 Pre-hospital**

#### **Environment**

The role of the advanced pre-hospital provider in the EMS system is emphasized along with the legal responsibilities and liabilities of the EMS environment. The course will include the utilization of medical direction and use of EMS protocol, ethics and the well being of EMS personnel is emphasized with emphasis on illness and injury prevention. Students will also learn rescue, stress management, and triage. Hazardous materials will be taught as well as violence, with emphasis on pre-hospital provider safety.

### **EMTP 1133 Anatomy and Physiology**

This course is the basic study of human anatomy and physiology. Students will study body systems and functions of human organisms. Students will learn basic biological chemistry and have an understanding of all systems and how homeostasis in human bodies is achieved.

### **EMTP 1201 Patient Assessment/ Pathophysiology of Shock**

Will learn an advanced and comprehensive approach to patient assessment and history taking. Students will apply current patient status and will continue to gather pertinent patient data. Review of anatomy and physiology with a more direct approach and emphasis on particular age groups. Students will use patient data with head to toe examinations and the use of mnemonics such as SAMPLE. An empathic approach will be discussed in this section. Introduction to the phases of shock with emphasis of physiological changes at the cellular level. The student will have an understanding of disease process and fluid and acid-base balance. Students will gain the knowledge of assessment and management of patients with hypoperfusion including various forms of shock, multiple organ dysfunction syndrome, and cellular metabolism impairment. Students will have the knowledge of assessment and treatment of various shock conditions.

### **EMTP 1221 Pharmacology II**

Utilizing the EMT 1102 Introduction to Pharmacology course objectives to help the student gain a greater understanding of more advanced drug therapy. This section of pharmacology will focus on cardiac medications and administration to pediatric, adult and geriatric patients in the clinical and pre-hospital setting. A basic knowledge of cardiac complaints and medications that are required for proper treatment and stabilization will be covered into this portion. Additional medications taught will include thrombolytic and respiratory medications.

### **EMTP 1223 Clinical Practicum I**

The student will receive supervised/preceptor clinical experience in the emergency department, respiratory therapy, and operating room. Students will perform patient procedures under the guidance of a professional health care preceptor with expertise in the patient care area. Students will observe care of critical and non-critical patients. Students will be required to assess and document on specific age and diverse complaint based patients while in the clinical area. Students will earn a team approach in the clinical area while performing basic and advanced patient skills check-off in Lab I.

### **EMTP 1231 Lab I**

Review and successfully perform EMT Basic skills. Advanced skill demonstration and proficient performance evaluations that will prepare the student for practical use in clinical and field internship. Advanced airway, intravenous therapy, intramuscular injections, and IV medication administration. Emphasis on patient rights in the area of health care.

### **EMTP 1302 Rhythm Recognition**

Students will gain knowledge of EKG monitoring of leads I, II, and III. Students will learn the basic electrophysiology of cardiac conduction through the heart. Emphasis is on the study of arrhythmia etiologies and irregular waveforms and arrhythmia recognition. The knowledge and ability to perform cardioversion, noninvasive TCP pacing and 12-Lead Interpretation

and application will be presented in this section.

### **EMTP 1304 Medical Emergencies I**

This section teaches a systematic approach to assessment of cardiac patients with pathological disease processes and acute coronary symptoms. Students will learn to manage patients with cardiac pharmacological and electrical interventions. Designed to teach a comprehensive approach to cardiac patients with cardiovascular compromise. Students will study pulmonary disease and common acute reactions with review of pulmonary anatomy and treatment. Students will understand a comprehensive approach and clinical assessment and treatment for medical emergencies. Behavioral emergencies, neurology, anaphylaxis, renal, toxicology, hematology, and endocrinology with gastroenterology will be included in this section with an emphasis on assessment and field treatment.

### **EMTP 1305 Clinical Practicum II**

The student will apply basic and advanced assessment and procedures in the emergency department, Intensive Care Unit, and Operating Room while under supervision of preceptor and/or clinical coordinator. The student will have specific age and patient conditions to evaluate and assist in management of care in the ER department.

### **EMTP 1331 Lab II**

Will be re-evaluated in basic skills learned in Lab I. Students will learn the application of EKG monitors, pacing, synchronized cardioversion, pacing and the practical use of pulmonary oximeters. Students will apply the knowledge of advanced patient assessment to clinical scenarios.

### **EMTP 1401 Lab III**

Will demonstrate all skills learned in Labs I and II. Students will learn pediatric skills such as airway management, invasive therapy, and advanced trauma skills. Students will also demonstrate competency in advanced cardiac life support, pediatric life support, and pre-hospital trauma life.

## **EMTP 1402 Pre-hospital**

### **Environment II**

The role of the advanced pre-hospital provider in the EMS system is emphasized along with the legal responsibilities and liabilities of the EMS environment. The course will include the utilization of medical direction and use of EMS protocol, ethics and the well being of EMS personnel is emphasized with emphasis on illness and injury prevention. Students will also learn rescue, stress management, and triage. Hazardous materials will be taught as well as violence, with emphasis on pre-hospital provider safety.

### **EMTP 1412 Medical Emergencies II**

Designed to train students the understanding of pathophysiology, assessment and management of infectious disease, geriatrics, pediatric/neonatology, and OB/GYN. Medical Emergencies II will emphasize assessment based management of present illness and focused patient complaints. Student will also be prepared for pre-hospital trauma in this session.

### **EMTP 1413 Clinical Practicum III**

Designated preceptors and/or clinical coordinator in the following areas will supervise students: Intensive Care Unit, Surgical Recovery, and Operating Room, and Labor & Delivery. Students will apply knowledge of core information learned and perform procedures that are appropriate for these areas of hospital. Students will have patient condition and age specific criteria to evaluate in this session that is mandatory to course completion.

### **EMTP 1424 Paramedic Internship I**

Preceptors in the field will supervise patient assessment and management skills during the student's pre-hospital rotation. Students will have a greater understanding of EMS systems and dispatching or emergencies with a higher level of competency in patient report transmission to the ED's and patient report documentation. Students must successfully complete ACLS, the program's skill and critical thinking competency, to be scheduled

for an interview with the program medical director prior to scheduling their internship rotation.

### **EMTP 1431 Advanced Cardiac Life Support**

Designed to offer health care professionals a high-density course of advanced cardiac knowledge and treatment. The course offers extensive EKG dysrhythmia treatment guidelines and a strong emergency cardiac pharmacological background. This course is for those individuals who are employed for an agency that requires knowledge and training in emergency cardiac care, such as RN's, paramedics, physicians, and other health care professionals who seek advanced level training. The course will train an individual in a systematic approach to treatment of life-threatening cardiac and medical emergencies.

### **EMTP 1451 Pre-hospital Trauma Life Support**

Designed to expand pre-hospital care provider's knowledge of trauma care. The course emphasizes that critically injured patients must be assessed and treated in a rapid systematic approach with aggressive care given en route to the receiving emergency department. Pre-hospital care providers are trained to operate within the Golden Hour, in order to offer a greater chance of patient survival. The course reviews and expands on anatomy and physiology, kinematics of trauma, pediatric and geriatric trauma, and shock treatment. The course can include RN's, paramedics, EMT's, physicians, and other health care providers who seek greater knowledge of trauma care.

### **EMTP 1461 Pediatric Advanced Life Support**

Designed to provide health care professionals a greater knowledge of emergency care for the pediatric age group. This course is advanced level guidelines for medically ill, traumatically ill infants and children. The course stresses critical thinking of the health care provider in life-threatening situations involving this age group. Resuscitation and management, as well as, anatomy

and physiology review, pharmacologic lectures and skills check-offs, including a written exam is offered within this course. The course teaches current health care provider level pediatric emergency care.

### **EMTP 1504 Paramedic Internship II**

Continuation of Internship I with evaluation by designated preceptors in the pre-hospital environment. Students must achieve a level of understanding, professionalism and clinical knowledge of pre-hospital emergency care to be recommended by the medical director and program director to enter this phase of the paramedic program. Students must perform patient assessment and management skills while under supervision of experienced preceptors including the ability to perform as a team leader in the pre-hospital setting during this phase of the program. A closer evaluation of student's character and professionalism will be emphasized. This course will be the student's final step in pre-hospital field evaluation.

### **EMTP 1512 Assessment Based Management**

The student will learn the final aspects of pre-hospital care and management in this session of the paramedic program. The student will learn effective scene and patient management, critical thinking and clinical decision-making. This session will serve as a final analysis of the student's ability to analyze patient information and provide the treatment necessary for the best outcome of the patient's condition. The student must have an understanding of all tasks required of the paramedic provider in the pre-hospital setting prior to the final exit of the paramedic program.

## **Physical Science**

### **PHSC(BIOL) 1004 Principles of Environmental Science**

This course is designed to bring the student to a basic but informed awareness of and responsible behavior toward our environment and the role of the human race therein. The content will include a study of the philosophical and scientific basis for the study of ecosystems

and the environment, the nature of ecosystems, the techniques used to study the environment, the origin and development of current environmental problems, the interdisciplinary nature of environmental studies, the processes of critical thinking and problem solving, and the moral and ethical implications of environmentally-mandated decisions. Lecture three hours, Lab three hours. \$10 laboratory fee.

## Practical Nursing

### LPN 1101 Vocational, Legal, and Ethical Concepts

Teaches vocational responsibilities of the Practical Nurse to the patient, family community, and coworkers. Nursing organizations, local, state and national health resources, and concepts of delegation appropriate to the level of practice are also covered.

### LPN 1103 Body Structure and Function

This course is the study of anatomy and physiology of the human body and all of its systems. Medical terminology is integrated and an introduction to disease processes is included with each unit.

### LPN 1111 Nursing of the Geriatric Patient

This course covers the normal aging processes, characteristics of aging, special problems associated with aging and caring for the aging adult.

### LPN 1113 Pharmacology I

Pharmacology I is an introduction to the history of drugs, use of drug references, principles of drug actions and interaction, principles of drug administration, and their legal implications for the nurse.

### LPN 1114 Basic Nursing Principles and Skills I

Co-requisite: LPN 1115. This course covers the fundamental principles, skills, and attitudes needed to give nursing care and prevent the spread of disease. Procedures used in the care of the sick and the ability to adapt them to various situations are discussed. Students will learn to document their observations and interventions.

### LPN 1115 Clinical I

Co-requisite: LPN 1114. Clinical skills will be practiced, observed, and evaluated by the instructors in the lab and clinical settings.

### LPN 1121 Nutrition in Health and Illness

The importance of nutrition and its relation to proper growth and functioning and the maintenance of health are covered.

### LPN 1202 Nursing of Adults with Medical/Surgical Conditions I

Students will study common conditions of illness and the nursing care of patients in acute, sub-acute, or convalescent stages of illness. This course includes aspects and principles of Nutrition; Basic Nursing; Pharmacology; Vocational, Legal, and Ethical concepts with attention to cultural diversity.

### LPN 1203 Nursing of Mothers and Infants

Nutrition for the mother and the developing fetus and the basic nursing skills to care for the mother during antepartum, intrapartum, and postpartum periods are studied.

### LPN 1210 Clinical II

Prerequisite: LPN 1115. This course focuses on the skills needed by the nurse to provide the care in a safe and comforting manner.

### LPN 1211 Basic Nursing Principles and Skills II

Prerequisite: LPN 1114. This course covers the advanced skills and procedures concerned with administering safe patient care. Skills related to the maternal-child and pediatric patients are included.

### LPN 1221 Pharmacology II

Prerequisite: LPN/EMTP 1102. A continuation of LPN/EMTP 1102. The preparation of drugs by enteral, parenteral, and percutaneous administration is continued. Intravenous medications, delivery systems, and techniques for administration are included in this course.

### LPN 1302 Nursing of Children

Principles of growth and development, nursing of the infant through adolescence and the behavior of well and sick children are studied in this course. Differences in the functioning of the child's body systems are contrasted with that of the adult patient as well as differences in the child's response to illness.

### LPN 1303 Nursing of Adults with Medical/Surgical Conditions II

Prerequisite: LPN 1202. This course covers the body system disorders, their diagnostic methods, treatment or surgical procedures, therapeutic nutrition, and pharmacological modalities.

### LPN 1312 Clinical III

Prerequisite: LPN 1115. Includes clinical areas in the mental health, pediatric, and specialty areas of the clinical facilities. The opportunity to practice advanced basic nursing and pediatric procedures will be offered during these rotations.

### LPN 1322 Mental Health

This course presents topics such as personality development patterns, developmental task throughout the life-cycle, mental disease, and emotional problems as well as chemical dependency. Geriatric, maternal, and pediatric problems are included. Therapeutic communication techniques are stressed.

## Psychology

### PSY 2003 General Psychology

An introduction to basic concepts in the study of behavior and to elementary principles of genetics, individual differences, motivation, emotion, personality, sensation, and perception.

## Welding Technology

### WLD 1103 Introduction to Thermal Cutting

Students will learn the principles and procedures for oxyfuel cutting, plasma cutting, and carbon arc gouging. Safe shop practices will be emphasized.

**WLD 1202 Blueprint Reading**

Students will learn to read and interpret various kinds of blueprints and working drawings. AWS welding symbols and their meanings will be taught.

**WLD 1212 Industrial Safety in Welding**

The study of safe and industry accepted practices and equipment necessary for the safe use of all existing manual methods of welding. Student will learn to identify common industrial and occupational hazards and means to avoid accidents.

**WLD 1224 Introduction to Arc Welding**

This course is intended to teach theory and application of basic Astick@ welding (SMAW). It will cover safety, correct selection of electrodes, practicing beds and the application of correct welds on actual structures.

**WLD 1302 Metallurgy**

An elementary and practical approach to the structure, marking classifications, machinability and identification of metals and their properties. This will require the use of various manufacturer catalogs, bulletins and charts. Basic heat treatment and how metals are affected will be discussed.

**WLD 1402 Welding for Trade and Industry**

This course is intended to teach theory and application of Welding for trade and industry. This course will be specific to the needs and applicable to each area of interest. It will cover basic welding safety, correct cutting torch handling, basic Gas Metal Arc Welding, Gas Tungsten Arc Welding and Shielded Metal Arc Welding. Specific applications will be deemed by the appropriate advisor.

**WLD 1405 Position Welding**

Pre-requisite: WLD 1224 or permission of instructor. A continuation of the study of Arc welding concentrating on more advanced weld positions and varied electrodes. This course will also discuss hardfacing, padding, and the techniques for welding pipe.

**WLD 1503 Gas Metal Arc (MIG)****Welding**

Pre-requisite: WLD 1407 or permission of instructor. Provides student with theory and application of wire feed processes also known as MIG Welding or semi-automatic and automatic processes. The student also gains an understanding of the basic gases and mixtures used for different materials.

**WLD 1603 Gas Tungsten Arc (TIG)****Welding**

Pre-requisite: WLD 1407 or permission of instructor. Study of Gas Tungsten Arc (TIG) Welding commonly referred to as TIG or Heliarc. This course will focus on shielding gases, equipment and feasible use situations. Safety will be addressed and demonstrated in a lab experience.

**WLD 1702 Weldment Testing**

Covers different types of testing such as destructive and nondestructive. Students will study guided bend, radiographic, ultrasonic, magnetic particle and dye penetrant tests, and take practical tests that are designed according to AWS D1.1 and ASME Section IX industry standard codes.

**WLD 1804 Certification Welding**

Student practices with projects that are designed according to AWS D1.1 and ASME Section IX industry standard codes. The implementation and approval of the codes in accordance with AWS D1.1 and ASME section IX will be addressed. Documentation of procedure will also be covered.

**WLD 2904 Internship**

This course is intended to teach theory and application of Welding for trade and industry. This course will be specific to the needs and applicable to each area of interest. It will cover basic welding safety, correct cutting torch handling, basic Gas Metal Arc Welding, Gas Tungsten Arc Welding and Shielded Metal Arc Welding. Specific applications will be deemed by the appropriate advisor.