

Course Descriptions

Auto Body Repair

ABR 1103 Basic Automotive Body and Frame Alignment 3 Credits

The students will receive instruction in the use of frame equipment and frame construction, sectioning, and straightening. Experience working with unitized construction using frame alignment equipment will be provided. The fundamentals of welding, heating, cutting, and shaping are included. This course will be approximately 1/3 theory and 2/3 lab. Safety is taught and emphasized.

ABR 1104 Introduction to Auto Body 4 Credits

This course will cover the introduction to vehicle body panels and tools used in panel straightening. It will also include the procedures necessary for mixing application of body fillers, proper sanding techniques, and welding. This class will be approximately 1/4 theory in the classroom and 3/4 lab. Safety is an integral part of this course.

ABR 1203 Collision Diagnostics and Estimating 3 Credits

Determining repairs needed to damaged vehicles will be taught in this course as well as estimating cost related to the repair of these damages. Repairs to paint, frames, accessories, and safety equipment will be covered. Students will actually work in damaged parts to become familiar with the time needed for repairs. This course will be 1/3 theory and 2/3 lab. Safety will be taught and emphasized.

ABR 1204 Basic Automotive Metal Repair 4 Credits

The straightening, alignment, and fitting of major panels are taught in this course. Procedures necessary to rough, shrink, bump, and finish will also be taught. Safety is an integral part of this course.

ABR 2103 Automotive Mechanical Components 3 Credits

Students will be taught needed skills related to minor repair of automotive mechanical parts. Included in these will be climate control, steering, cooling systems, lighting, and others. This course will be 1/3 theory and 2/3 lab. Safety will be taught and emphasized.

ABR 2104 Automotive Refinishing Techniques 4 Credits

Priming, painting, buffing, and polishing automotive body surfaces will be taught in this course. This course will be 1/4 theory and 3/4 lab. Related safety will be taught and emphasized.

ABR 2203 Automotive Refinishing Preparation 3 Credits

The skills needed to prepare automotive bodies for refinishing will be taught in this course. Straightening, sanding, and other steps in preparing for refinishing will be taught and practiced. This course will be 1/4 theory and 3/4 lab. Related safety will be taught and emphasized.

ABR 2303 Special Automotive Body Material 3 Credits

The identification, preparation, use, and repair of special automotive body materials such as plastics, fiberglass, and automotive glass will be covered in this course. This course will be 1/2 theory and 1/2 lab. Related safety will be taught and emphasized.

Accounting

ACCT 1003 Introduction to Accounting 3 Credits

This course teaches the fundamentals of accounting and is a survey for students with no previous accounting knowledge. The purpose of this course is to provide the necessary background to enter ACCT 2003. Credit will not be given if taken after ACCT 2003 or higher.

ACCT 2003 Principles of Accounting I 3 Credits

The accounting cycle for merchandising and service-oriented business organizations. Primary emphasis is on financial accounting principles applicable to measuring assets, liabilities, and owners' equity.

ACCT 2013 Principles of Accounting II 3 Credits

Special measurement problems for partnerships and corporations. Part of the course covers accounting for manufacturing companies and managerial use of accounting data and reports for decision making. Prerequisite: ACCT 2003 with a grade of C or better.

ACCT 2023 Fundamental Accounting Concepts 3 Credits

This course is designed to develop an understanding of basic accounting concepts, with secondary emphasis on procedural mechanics. Also included is the development of an understanding of the language and environment of business, an appreciation of accounting methodology, and skill in problem solving. (This course does not fill a degree requirement for business majors.)

ACCT 2033 Computerized Accounting 3 Credits

Students' knowledge of accounting concepts and principles is reinforced through use of the computer. Instruction is provided in computer operations using commercially available accounting software. Students concerned about transferability should check with their transfer institution. Prerequisite: ACCT 2003 with a grade of C or better or consent of instructor.

ACCT 2043 Tax Accounting 3 Credits

This course is designed to provide an understanding of the federal income tax structure as it relates to businesses and individuals. Prerequisite: ACCT 2003 with a grade of C or better or consent of instructor.

ACCT 2053 Payroll Accounting 3 Credits

This course focuses on the issues and regulations governing payroll preparation. Taxes, withholding, and computerized systems are addressed. Prerequisite: ACCT 2003 with a grade of C or better or consent of instructor.

Air Conditioning

ACR 1103 Electrical Motors and Components 3 Credits

This course covers electric motor applications, motor structure, and types of electric motors, motor components and servicing electric motors. Practical application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 1104 Basic Electricity 4 Credits

This course covers the fundamentals of generating electricity, types of electricity, circuits, electrical materials, and magnetism. Practical application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 1203 Gas Heating Systems 3 Credits

This course covers the types of fuels, combustion process, furnace components, efficiency, venting and maintenance of gas heating systems. Practical application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 1204 Electric Circuits and Controls 4 Credits

This course covers the complete wiring diagram, electrical circuits in depth, control systems consisting of relays, contactors, circuit boards, pressure switches and troubleshooting. Practical application is provided in the laboratory as needed. This course will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 2102 Air Distribution 2 Credits

This course covers the properties of air, air circulation, indoor air quality, ventilation requirements and air measurement. Practical application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 2204 Materials 4 Credits

This course covers the process of identifying tubing and pipe and fittings. Soft soldering, silver soldering, identification of tools, and the history of air conditioning are taught. Practical application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 2304 Air Conditioning and Refrigeration Systems 4 Credits

This course is a comprehensive study of mechanical refrigeration cycles emphasizing proper service techniques. Testing procedures, parts removal, and installation are covered. The use of vacuum pumps and recovery equipment is taught. Practical application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

ACR 2404 Air Conditioning and Refrigeration Components 4 Credits

This course is a study of the major components and control devices for the cooling systems. Identification and use of refrigerants is taught. Practical

application is provided in the laboratory as needed. This class will be 1/3 theory and 2/3 lab. Safety is emphasized.

Agricultural Economics

AGEC 1003 Introduction to Agricultural Economics 3 Credits

Basic economic principles and their application to agriculture. This course deals briefly with production, distribution, value, price, credit, land value, marketing, and related problems.

Agricultural Education

AGED 1411 Introduction to Agricultural and Extension Education 1 Credit

Philosophy, aims, and objectives of agricultural and extension education. Explanation of programs, career opportunities, and qualifications in agricultural and extension education.

AGED 2001 Parliamentary Law 1 Credit

Instruction and participation in the abilities and practice of parliamentary procedure necessary for leadership in community and school organizations.

Agriculture

AGRI 1211 Introductory Seminar in Agriculture 1 Credit

A series of lectures dealing with agriculture as a profession and with the various possible majors and job opportunities.

AGRI 2203 Introductory Food Science 3 Credits

Introduction to modern food technology. Concepts of food quality, nutrition, sanitation, consumption patterns, and food laws. Overview of careers in food science and technology.

AGRI 2213 Genetic Improvement of Plants and Animals 3 Credits

Introduction to agriculturally important plant and animal traits and the methods used to incorporate these into favorable combinations.

American Humanics

AMHU 1103 Introduction to Non-Profit Professional Studies 3 Credits

This course is designed for beginning American Humanics students and any other students interested in the nonprofit sector. This course addresses the "Historical and Philosophical Foundations" competency required for American Humanics certification.

Animal Science

ANSC 1204 Introduction to Animal Science 4 Credits

A course dealing with fundamental principles of successful livestock farming in Arkansas and the United States. It includes a study of the types, breeds, and economic importance of beef cattle, swine, dairy cattle, sheep, and horses. Lecture three hours, laboratory two hours per week.

ANSC 2213 Feeds and Feeding 3 Credits

Principles of animal nutrition, composition, and digestibility of feeds, balanced rations and feed of farm animals. Prerequisite: ANSC 1204.

ANSC 2602 Principles of Dairying 2 Credits

General management; a general survey of breeds, selection, feeds, care of dairy cattle, product testing, composition, quality, food value, and consumption of dairy products. Lecture two hours.

Art Education

ARED 2703 Public School Art for the Classroom Teacher 3 Credits

A course designed to give future elementary teachers the basic knowledge and skill to lead students through creative experiences in the visual arts. Emphasis will also be placed on how the creative process is valuable to the total education of the child. Prerequisites: 30 hours (not including remedial courses).

Art

ART 1013 Design I 3 Credits

The study of the elements and principles of two-dimensional design.

ART 1033 Drawing I 3 Credits

A studio course in which the concepts of linear perspective, value studies, contrast, contour, and technique are taught by using a variety of subjects from still life to live models. A variety of media will also be explored. Six hours per week.

ART 1043 Drawing II 3 Credits

Continuation of ART 1033. Light and shade drawing with emphasis on original illustration using the human form. Six hours per week. Prerequisite: ART 1033.

ART 2063 Painting I 3 Credits

A studio course which utilizes the elements and principles of art. In addition to the language of art, value studies, contrast, and technique will be taught. Six hours per week. Prerequisite: ART 1033 or consent of instructor.

ART 2073 Painting II 3 Credits

A continuation of ART 2063. Six hours per week. Prerequisite: ART 2063 or consent of instructor.

ART 2093 Ceramics I 3 Credits

An introductory course in creative clay processes. Emphasis is placed upon the hand building techniques of coil, slab, pinch, and wheel thrown pot methods along with glazing and firing procedures. Surface and glaze treatments are explored for visual as well as tactile purposes. Six hours per week.

ART 2103 Ceramics II 3 Credits

Continuation of Introduction to Ceramics work. Emphasis is placed upon sculpture, slab, and wheel thrown pot methods along with glazing and firing procedures. Six hours per week. Prerequisite: ART 2093 or consent of instructor.

ART 2503 Fine Arts-Visual 3 Credits

An introduction to visual arts for all students regardless of background or experience. The purpose is to help the student to develop criteria for appreciation of painting, sculpture, and architecture. Three lecture hours per week.

Automotive Technology

**AST 1103 Introduction to Automotive Technology - 3 Credits
Engines**

Basic shop safety will be extensively covered in this course. Students will become familiar with tools used in automotive repair and diagnostic equipment for automobiles. The basic principles and history of the internal combustion engine will be studied extensively. This course will be 1/2 theory and 1/2 lab.

AST 1104 Basic Electrical and Electronics I 4 Credits

In this course of study, the student will be introduced to the fundamentals of transportation electrical systems. The student will learn what electricity is, how it functions, and its relation to atomic structure. The student is taught the practical application of Ohm's Law, Watt's Law, wiring schematics and the use of simple electrical and electronic diagnostic tools. Practical application is provided in the laboratory. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

**AST 1203 Introduction to Automotive Technology - 3 Credits
Electrical**

Basic shop safety will be extensively covered in this course. Students will become familiar with tools used in automotive repair and diagnostic equipment for automobiles. The basic principles of the uses of electrical components used in automobiles will be studied extensively. This course will be 1/2 theory and 1/2 lab.

AST 1204 Automatic Transmissions 4 Credits

In this course the student will learn how the clutches, bands, servos, solenoids, pump, valve body and modulator work. Also, the laws governing planetary gears are studied. The operating characteristics of this type of gear set will allow the student to understand how torque is routed through an automatic transmission. Learning about the relationship of hydraulic components and planetary control devices will help the student to properly diagnose problems in the transmission. Practical application is provided in the laboratory. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

AST 2104 Brakes 4 Credits

During this course of study the student will learn the proper selection, use, and care of hand tools, and of tools specially designed for automotive repair. The student will learn, in depth, the use and care of precision tools, with a focus on micrometers. Proper safety is also taught. Instruction in basic electricity and meter reading is taught. The student will learn the designs and functions of the various types of wheel bearings and how to diagnose problems associated with wheel bearings. Hydraulic and mechanical components and how they operate in the brake systems are taught. Hands-on-training in turning drum and disc brakes is learned. The student will gain a working knowledge of both power assist and anti lock brake systems. Practical application is provided in the laboratory. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

AST 2204 Suspension and Steering 4 Credits

During this course, the student will learn about wheels, hubs, tires, their design and construction. The design and construction of automotive frames and front and rear suspensions plus the unique characteristics of each type of suspension system will be highlighted. The various types of manual and power steering systems used in the modern automobile plus the difference between the parallelogram steering systems and the rack and pinion steering system are taught. The student will learn the theory of wheel alignment angles that allow the automobile's suspension, tires, wheels and steering systems to work together in harmony. In addition, the correct procedures required to set wheel alignment in an automobile will be taught. Practical application is provided in the laboratory. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

AST 2304 Basic Electrical and Electronics II 4 Credits

This is a continuation of the course AST 1104 Basic Electrical and Electronics I. This course will be 1/2 theory and 1/2 lab. Safety is emphasized. Prerequisite: AST 1104 Basic Electrical and Electronics I.

AST 2404 Manual Transmissions/Transaxles 4 Credits

During this course of study the student will learn the components and power flow of both the manual transmission and transaxle. The student will gain the ability to inspect, diagnose problems, service, disassemble, repair and test the transmission and transaxles. Also, the student will be able to identify the

components of the clutch and understand how they function in relation to each other. Drive lines and U-joints of both front engines, rear wheel drive and transaxles drive trains are taught. The different types of U-joints, CV-joints and differentials are covered. The student will gain the ability to check, service, diagnose problems and repair all this equipment. Practical application is provided in the laboratory. This course will be 1/3 theory and 2/3 lab. Safety is emphasized.

AST 2504 Engine Performance I 4 Credits

This course will include the study of fuel systems, electronic engine/emission controls, proper engine performance, tune-up, and automotive safety devices. Diagnostics will be extensively covered. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

AST 2604 Engine Performance II 4 Credits

This course will include the study of fuel systems, electronic engine/emission controls, proper engine performance, tune-up, and automotive safety devices. Engine repair will be extensively covered. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

AST 2704 Automotive Climate Control 4 Credits

During this course of study the student will learn the theory governing Refrigeration, the law of Thermodynamics, the refrigeration cycle and the components that make up the basic air conditioning system, plus the proper, safe method of handling refrigerants is taught. The student will learn the functions of the compressor, condenser, receiver-drier, accumulator, evaporator, various metering devices and the lines connecting these components. The student will gain the ability to properly diagnose, repair and service the entire system. Knowledge of vacuum and electrical control devices and how to diagnose problems in these areas is also gained. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

AST 2804 Engine Rebuild 4 Credits

During this course of study the student will learn the theory and operation of the internal combustion gasoline engine. Instruction will be given on the different classifications and measurements involved in gasoline engines. The student will have a clear understanding of cooling and lubrication systems, and will also know how the engine block is constructed and the reasons for multiple cylinders. A thorough understanding is gained of the relationship between the friction bearing, crankshaft, connecting rods, pistons and piston rings for the lower end of the engine. In addition, knowledge of the relationship between valve lifters, cylinder heads and valves of the upper end of the engine is gained. The student will be able to properly inspect, clean, measure, service and repair all the various components of the engine upon completion of this course. In addition, the student will learn the value of a correct complete work order as well as learning the proper procedures involved with engine inspection and diagnosis. Different types of gaskets, seals and sealants used in today's engine repair are taught. Practical application is provided

in the laboratory. This course will be 1/2 theory and 1/2 lab. Safety is emphasized.

Biological Science

BIOL 1004 Biological Science 4 Credits

A study of the similarity and diversity of life on earth. Lecture three hours, laboratory two hours per week. This course is a prerequisite for most other BIOL and ZOOL courses.

BIOL 2013 Introduction to Nutrition 3 Credits

A study of human nutritional needs over the human life span. Individual nutrients, their nature, functions, and their processing by the human body. Dietary analyses and evaluations. Food labels and their interpretation, weight control, exercise, food safety, relationships of nutrition to health and the environment.

BIOL 2024 Ecology 4 Credits

This course will provide an understanding of the natural world and the relationship of the organisms with one another and the environment in which they live. Students will learn the complexities of these interrelationships and the effect of humans on the biosphere.

BIOL 2104 Microbiology 4 Credits

A study of microorganisms, in particular, bacteria, involving their structure and function at the molecular level, and interaction of these organisms with humans and their environment. Prerequisite: BIOL 1004 or consent of instructor. Knowledge of basic chemistry strongly recommended. Lecture three hours, laboratory three hours per week.

Botany

BOT 1104 General Botany 4 Credits

A study of selected aspects of the anatomy, morphology, ecology, and physiology of plants. An overview of the life cycles, evolution, and diversity of Archaea, Bacteria, Protista, Fungi, and Plantae. Lecture three hours, laboratory three hours per week. Prerequisite: BIOL 1004.

Business Systems

BSYS 1523 Keyboarding I 3 Credits

Instruction in and application of the basic skills and techniques of keyboarding on microcomputers. Three hours per week plus laboratory time. For beginners only.

BSYS 1532 Personal Use Keyboarding 2 Credits

Individualized keyboarding instruction for those wishing to improve their skills. Instruction is provided using microcomputers. Tests and grades are not

emphasized. Three hours per week plus laboratory time. Prerequisite: Previous keyboarding instruction and speed of less than 40 words per minute.

BSYS 2413 Word Processing 3 Credits

Instruction in use of word processing software on microcomputers. Familiarization with word processing procedures and terminology. Three hours per week plus laboratory time. Prerequisite: Keyboarding speed of 40 words per minute, CIS 1503 or equivalent, or consent of instructor.

BSYS 2503 Business Office Skills 3 Credits

Development of professional skills, knowledge, attitudes, and other competencies necessary for employees in business occupations. Includes filing emphasis, word processing concepts, and career enhancement skills. Prerequisite: keyboarding ability and consent of instructor.

BSYS 2513 Machine Transcription 3 Credits

Instruction and practice in operation of transcribing machines. Includes review of basic language skills and preparation of business documents from machine-recorded materials using microcomputers. Three hours per week plus laboratory time. Prerequisite: keyboarding speed of 40 words per minute or consent of instructor.

BSYS 2533 Internet, Intranet, and E-mail Applications for Business 3 Credits

This is a course to teach students about the Internet, Intranet, and E-mail. They will develop technology skills and research strategies using the Internet. Prerequisite: basic computer competency.

BSYS 2543 Keyboarding II 3 Credits

This course is for persons with some keyboarding skill. The major emphasis is on skill development. Instruction is provided on microcomputers. Three hours per week plus laboratory time. Prerequisite: BSYS 1523 or keyboarding speed of 40 words per minute.

BSYS 2553 Business Machines 3 Credits

Instruction and practice in the operation of electronic display and printing calculators, and computerized spreadsheets, with emphasis on business application problems.

BSYS 2563 Business Communications 3 Credits

Survey of the principles of effective oral and written communication. Practice in writing business letters and reports, and preparing various types of oral presentations. Prerequisite: ENG 1013 and keyboarding ability.

BSYS 2573 Medical Transcription 3 Credits

Instruction and practice in transcribing from medical audiocassette tapes. Areas of concentration include urinary, musculoskeletal, cardiovascular, integumentary, reproductive, nervous, digestive, endocrine, lymphatic, and respiratory systems. Three hours per week plus laboratory time. Prerequisite: keyboarding speed of 40 words per minute and medical terminology or consent of the instructor.

BSYS 2583 Spreadsheet Applications for Business 3 Credits

The study of electronic spreadsheet concepts. The fundamentals of worksheets, graphics, database, and macro features of electronic spreadsheets will be utilized to solve problems. Prerequisite: CIS 1503 or consent of instructor. Students concerned about transferability should check with their transfer institution.

BSYS 2593 Legal Transcription 3 Credits

Instruction and practice in transcribing from legal audiocassette tapes. Areas of concentration include litigation, civil actions, criminal law, probate, and contracts. Three hours per week plus laboratory time. Prerequisite: keyboarding speed of 40 words per minute or consent of the instructor.

BSYS 2643 Keyboarding III 3 Credits

Skill development is continued at a higher level. Instruction is provided using microcomputers. Emphasis is placed on the production of business letters, statistical tables, manuscripts, business forms, word processing, and related typing projects. Three hours per week plus laboratory time. Prerequisite: BSYS 2543 or keyboarding speed of 55 words per minute.

Business Administration

BUAD 2093 Internship 3 Credits

An employment experience relating to the student's major within the AAS in Business Technology. An instructor will monitor the student's progress with the supervising employer. The student will submit a journal describing the experience and will be evaluated by the employer at the end of the internship. Prerequisite: Consent of instructor, completion of 50 hours toward AAS degree, and a 2.00 GPA.

Business

BUS 1103 Business English 3 Credits

This course provides an introduction/review of the basics in English grammar, punctuation, spelling and other mechanics of good business writing. The emphasis is on writing.

BUS 1203 Word Processing Fundamentals 3 Credits

Word Processing Fundamentals is designed for students who have had no previous instruction in keyboarding or in basic word processing functions. The first week of the semester will be spent on keyboarding instruction. During the remainder of the semester, the student will learn such functions as sort, find and replace, footnotes, and merge, and will create a variety of business documents, such as announcements, reports, resumes, tables, and newsletters. Prerequisite/Corequisite: BSYS 1523 Keyboarding I or BSYS 2543 Keyboarding II.

BUS 1303 Finance and Budget 3 Credits

This course will provide the information necessary for an individual to manage the finances of a child care facility. Basic checkbook reconciliation, payroll, withholding, payroll taxes, payroll deductions, petty cash and spreadsheet will be covered. Students will also become proficient in the use of the computerized software Quick Books Professional and will be able to compare the benefits of computerized bookkeeping to manual bookkeeping.

BUS 1401 Office Machines 1 Credit

Office Machines covers touch operation of electronic calculators with emphasis on speed and accuracy of business applications such as discounts, percents, and payroll forms. Also, included are proper telephone techniques of receiving and making business calls using a self-contained computerized telephone system.

BUS 1503 Computer Applications for Business 3 Credits

Computer Applications for Business covers the usage of personal computers in business with emphasis on software applications that include Internet, electronic communications, Windows operating system, database, worksheet, and presentation applications. Also includes basic information on hardware.

BUS 2101 Records Management 1 Credit

This course covers the concepts, rules, and practical applications of both manual and electronic records management. The student will learn the four basic filing methods-alphabetic, geographic, numeric, and subject-and will work with cards, correspondence, forms, and database software.

BUS 2102 Office Communications 2 Credits

Office Communications covers the principles of effective oral and written communications used in a business office. Topics include grammar and spelling, communication skills, electronic communications, employment skills, business reports and correspondence. Prerequisite/Corequisite: BUS 1103 Business English, BSYS 1523 Keyboarding I or BSYS 2543 Keyboarding II.

BUS 2203 Accounting Applications 3 Credits

Accounting Applications is the continuation of the accounting concepts and procedures presented in Introduction to Accounting with emphasis on payroll, sales, cash receipts, purchases, cash payments, and financial statements for a merchandising business. Prerequisite: ACCT 1003 Introduction to Accounting.

BUS 2603 Quick Books Applications 2 Credits

Quick Books Applications provides an integrated approach to solving accounting applications and learning automated accounting functions. Applications include the major computerized accounting systems: general ledger, accounts receivable, accounts payable, and payroll. Prerequisite: ACCT 1003 Introduction to Accounting.

BUS 2703 Internship/OJT**3 Credits**

A student's Internship/OJT assignment will be in an industry/business appropriate to the curriculum. The experience should relate to course work included in the program. An instructor and the coordinator of internship will monitor the student's progress with the supervising employer. The company will periodically turn in evaluation forms.

Chemistry

CHEM 1003 Introduction to Chemistry**3 Credits**

Fundamentals of chemistry and a survey of topics for students with no previous training in chemistry. The purpose of this course is to provide the necessary background to enter CHEM 1014. Lecture three hours per week. Prerequisite: MATH 0003 or equivalent.

CHEM 1014 General Chemistry I**4 Credits**

Fundamental laws and theories of chemistry. Lecture three hours, laboratory three hours per week. Prerequisite: High school chemistry or CHEM 1003. Corequisite: MATH 1003; recommended MATH 1023.

CHEM 1024 General Chemistry II**4 Credits**

Continuation of CHEM 1014. Lecture three hours, laboratory three hours per week. Prerequisite: CHEM 1014 and MATH 1023.

CHEM 1034 Introduction to Organic and Biochemistry **4 Credits**

A brief survey of organic compounds, their nomenclature, classification, preparation, and reactions. An introduction to reaction mechanisms, stereochemistry, and spectroscopy. Lecture three hours, laboratory three hours per week. Prerequisite: CHEM 1024 or CHEM 1014 and consent of instructor.

CHEM 2104 Organic Chemistry I**4 Credits**

Structure and bonding in organic compounds, conformational analysis, stereochemistry, introduction to reaction mechanisms and spectroscopic characterization of organic molecules. Lecture three hours, laboratory three hours per week. Prerequisite: CHEM 1024.

CHEM 2114 Organic Chemistry II**4 Credits**

Organic transformations, carbonyl chemistry, carbon-carbon bond formation, reaction mechanisms, stereochemistry and regiochemistry of synthetic processes. Lecture three hours, laboratory three hours per week. Prerequisite: CHEM 2104.

Computer Information Systems

CIS 1503 Microcomputer Applications I**3 Credits**

A course designed to introduce students to the concepts of computer information systems through the application of software packages for microcomputers. Students will gain "hands-on" experience using popular business

application software including word processing, spreadsheets, databases, and presentation graphics.

CIS 2013 Web Page Design 3 Credits

This course provides instruction on the development of web pages using basic HTML and web page authoring software. Students should be familiar with the Internet and the World Wide Web. Students will be provided with a thorough introduction of HTML and basic web page design concepts. Prerequisite: CIS 1503 or consent of instructor. This course may not transfer for credit to some institutions.

CIS 2023 Computer Animation 3 Credits

An introduction to computer animation concepts through application. Course concentrates on composition and manipulation, masking and layering, sound effects, animation rendering, and other animation techniques. Students will learn terminology, principles, and theories behind successful animation. A variety of sophisticated software programs will be used during the course. Prerequisite: CIS 1503 or consent of instructor. Students concerned about transferability should check with their transfer institution.

CIS 2033 Visual Basic Programming 3 Credits

An introduction to object oriented high level programming language. Emphasis will be on designing full featured GUI applications that exploit the key features of Microsoft Windows. Prerequisite: CIS 1503 or consent of instructor.

CIS 2203 Principles of COBOL Programming 3 Credits

A study of COBOL computer language, including input/output operations, arithmetic computations, comparing, control breaks, and table processing. Emphasis is placed on typical business applications. Prerequisite: CIS 1503 or consent of instructor.

CIS 2403 Database Management Systems 3 Credits

A study of database management principles including file organization, data storage, access methods, data structures, data privacy, security, and integrity. Surveys current generalized database management systems. Prerequisites: CIS 1503 or consent of instructor.

CIS 2453 Microcomputer Applications II 3 Credits

An intermediate course in the application of software packages for micro-computers with emphasis on common business functions. Students will gain an increased level of understanding of the integration of word processing, spreadsheet applications, databases, and presentation graphics. Prerequisite: CIS 1503 or consent of instructor.

CIS	25-1	Special Topics in Computer Applications	1 Credit
CIS	25-2	Special Topics in Computer Applications	2 Credits
CIS	25-3	Special Topics in Computer Applications	3 Credits

Course content and length will vary. Subject matter will be determined by demand and recent developments in information systems. Prerequisite: consent of instructor. (Course may be repeated if topic changes.) Offered on demand.

CIS	2813	Desktop Publishing Applications	3 Credits
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An introduction to desktop publishing concepts. Course concentrates on design, creation, formatting, and revision of business documents using micro-computers with desktop publishing software. Students will learn terminology, layout techniques, graphics creation and manipulation, text integration, and other desktop publishing principles. Prerequisites: CIS 1503, BSYS 2413, or consent of instructor. Typing skills are important. Keyboard familiarity is essential.

CIS	2874	Structured Programming in the C Language	4 Credits
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Structured design in software development will be emphasized, along with usage of the many software modules available in most libraries that come with C compilers. Prerequisites: CIS 2203 and/or CIS 2033 or consent of instructor.

Career Communications

COM	1003	Career Communications	3 Credits
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This course is designed for the student who needs a review of communication skills and basic computer skills in order to be able to function in situations similar to those encountered in the workplace. The format provides for diagnosis, instruction, and practice with emphasis on competencies involved in the job search as well as job retention. Topics include how to prepare an employment plan and how to communicate effectively through reading, writing, and speaking. This course also provides instruction on using Windows operating system, database, worksheet, and presentation applications. Some sections of this course may require a research paper for certain degree program requirements. This course may be a requirement for all certificate students with less than six (6) hours of college English.

Criminology

CRIM	1023	Introduction to Criminal Justice	3 Credits
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This course is intended to expose the student to the workings of criminal justice systems, exploring the historical development, current operation, and future trends of criminal justice. Emphasis will be placed on contemporary problems in the definition of law, the enforcement of law, strategies of policing, judicial systems, sentencing strategies, and correctional practices. Content includes not only practices in the United States, but also other cultures and their systems of justice. (Fall, Spring, and Summer II)

CRIM 2043 Community Relations in the Administration of Justice 3 Credits

Provides an understanding of the complex factors in human relations. The philosophy of law enforcement is examined with the emphasis on the social forces which create social change and disturbance. (Spring)

CRIM 2253 Criminal Investigation 3 Credits

Includes fundamentals and theory of an investigation, conduct at crime scenes, collection and presentation of physical evidence, and methods used in the police service industry. (Fall)

CRIM 2263 Criminal Evidence and Procedure 3 Credits

Rules of evidence of import at the operational level in law enforcement and criminal procedures, personal conduct of the officer as a witness, and examination of safeguarding personal constitutional liberties. (Fall)

Computer Repair and Networking

CRN 1003 Accelerated Intro to Electricity and Electronics 3 Credits

This course is a fast paced introduction to basic electricity and electronics covering elemental D.C., A.C., and linear device principals.

CRN 1103 Computer Operating Systems 3 Credits

Windows 2000 and Advanced Windows 2000: Windows 2000 is a new powerful desktop operating system that is a direct replacement to Novell and Windows NT. Windows 2000 focuses on networking control and security. Much of Windows 2000 is derived from Windows NT. This course also introduces networking, servers and clients, security and user administrator rights and privileges.

CRN 1203 Data Communication Fundamentals 3 Credits

This course introduces data communication concepts. It explores data communication hardware components and interfaces. Hardware such as modems, DSU interfaces, and CSU interfaces are covered.

CRN 1303 PC Servicing and Upgrade Concepts I 3 Credits

This course is a preparation for the A+ Certification exam. It covers PC history, microprocessors (Intel x 86 family), mainboard evolution and architecture, bus structures, and peripherals (keyboards, monitors, mice, printers, etc.).

CRN 1403 Windows 3 Credits

Windows is an introduction to the Microsoft Window 9X operating system including a history of Windows. A focus on how to install, setup, use, maintain and troubleshoot Window 95 and 98.

CRN 2003 Accelerated Intro to Digital Electronics and Microprocessor Fundamentals 3 Credits

This course is a fast paced introduction to the microprocessor and the foundations of digital electronics it is built upon. Logic, numbering systems, basic software, and hardware are all covered during the course.

CRN 2103 Fundamentals of Application Programs 3 Credits

This course is an introduction to application programs. The student is introduced to the concepts of word processing, databases, and presentation graphics programs. The course will cover the basics of program set-up and operation of Word 2000, Access 2000, and Power Point 2000.

CRN 2203 PC Graphical User Interfaces 3 Credits

This course describes the basic principles of the Graphical User Interface and the manner in which the GUI relates to the PC hardware.

CRN 2303 PC Servicing and Upgrade Concepts II 3 Credits

This course is a continuation of CRN 1303 PC Servicing and Concepts I. Both courses prepare students for the CompTia A+ exam. The course covers data communications, the operating system, detailed inter-workings of the PC, and repair and trouble shooting solutions. Prerequisite: CRN 1303 PC Servicing and Upgrade Concepts I.

CRN 2403 Advanced Windows 3 Credits

This course is a continuation of the Computer Operating System. Prerequisite: CRN 1103 Computer Operating Systems.

CRN 2503 Local Area Network Fundamentals 3 Credits

This course covers the basic concepts of networking personal computers together. The topology of networks is discussed as well as the type of cabling that can be used. Network software and troubleshooting is introduced.

Computer Systems Technology

CST 1104 Introduction to Computer Hardware/Software 4 Credits

An introductory course for the beginning Computer Systems student including such topics as computer hardware, software, firmware, and terminology. It is the first course in preparation toward the A+ certification. Both theory and hands-on application will be emphasized. Lecture three hours. Laboratory three hours.

CST 1114 Networking Essentials - Cisco I 4 Credits

It is the first of four courses preparing the student to sit for the Cisco Certified Network Associate certification exam. It is the study of networking and internetworking. Topics include the OSI model, data link and network layer devices, IP addresses, subnet masking, ARP, RARP, cabling, topologies, LAN technologies, basic electrical and electronic issues in networks, and TCP/IP network-layer protocols. Lecture three hours. Laboratory three hours.

CST 1124 Microcomputer Operating Systems 4 Credits

Instruction of the current microcomputer operating systems. Purpose of the OS, application of essential commands, file and disk management, directory organization, creating and modifying batch files, and system configurations will be studied. Both theory and hands-on application will be emphasized. Lecture three hours. Laboratory three hours.

CST 1134 Router Technologies - Cisco II 4 Credits

The second of four courses preparing the student to sit for the Cisco Certified Network Associate certification exam. It is the study of router hardware and software. Topics include TCP/IP transport-layer protocols, flow control, IOS, router configuration, RIP and IGRP routing protocols, access-lists, and router troubleshooting. Lecture three hours. Laboratory three hours. Prerequisite: CST 1114.

CST 1154 Introduction to Microcomputer Programming 4 Credits

An introduction to the study of structured programming languages with applications. Topics include: designing, coding, and applying learned skills. Heavy emphasis will be placed on planning, writing and debugging programs. Lecture three hours. Laboratory three hours.

CST 1234 Database Operator-Oracle 4 Credits

The focus is on the database as opposed to specific operating system tasks. Students gain practical experience installing and operating an Oracle database to support departmental database applications that have from one to 20 users. Using a variety of Oracle tools, students learn to anticipate and solve common problems associated with operating an Oracle database, perform common administration tasks, and set up the Oracle WebDB tool to monitor Web databases and applications. The class consists of demonstrations and hands-on exercises for performing daily operator tasks. Lecture three hours. Laboratory three hours.

CST 2114 Advanced Router Technologies - Cisco III 4 Credits

The third of four courses preparing the student to sit for the Cisco Certified Network Associate certification exam. It is a continuation of the study of router hardware and software. Topics include LAN switching, VLANs, LAN design, EIGRP, OSPF, classless routing, and trunking. Lecture three hours. Laboratory three hours. Prerequisite: CST 1134.

CST 2124 Wan Technologies - Cisco IV 4 Credits

The final of four courses preparing the student to sit for the Cisco Certified Network Associate certification exam. It is a continuation of the study of router hardware and software. Topics include WAN theory and design, WAN technology, NAT, PAT, DHCP, basics of optical networks, PPP, frame relay, ISDN and network troubleshooting. Lecture three hours. Laboratory three hours. Prerequisite: CST 2114.

CST 2134 Local Area Network I 4 Credits

It is the study of the most current version of Microsoft Server/Workstation Operation System. Topics include current LAN topology, hardware requirements, installing and maintaining the network Operating System, and file server setup and maintenance. It prepares the student to sit for the appropriate Microsoft Certified Professional exam. Both theory and hands-on application will be emphasized. Lecture three hours. Laboratory three hours.

CST 2144 Telecommunication Concepts 4 Credits

This course will introduce the student to the concepts necessary to understand the common operations of many telecommunication systems, including communication devices, switching techniques, media, protocols, and layering. Lecture three hours. Laboratory three hours. Prerequisite: CST 1114 or consent of instructor.

CST 2174 Local Area Network II 4 Credits

It is the study of the current version of Novell NetWare. Topics include hardware requirements, basic and customized server installation, and login scripts. It prepares the student to sit for the Certified Network Administrator certification exam. Both theory and hands-on application will be emphasized. Lecture three hours. Laboratory three hours.

CST 2194 Microcomputer Systems Installation and Troubleshooting 4 Credits

It is the final course in preparing the student to sit for the A+ certification exam. It is the study of installation and troubleshooting of a microcomputer system. Techniques of installing, maintaining and troubleshooting a microcomputer system will be studied. Laboratory sessions will include hardware, operating system, and software installation, testing and troubleshooting (isolation down to the card level) techniques and preventive maintenance. Lecture three hours. Laboratory three hours. Prerequisite: CST 1104 and CST 1124.

CST 2234 Introduction to Security 4 Credits

This course is the study of the current security concerns facing network administrators. Topics include security threats, enforcing an organized security policy, managing PKI, and monitoring security infrastructure. This course will help prepare the student for the Security+ certification exam. Lecture three hours. Laboratory three hours. Prerequisite: CST 2134 and CST 1124.

CST 2314 Building Scalable Cisco Networks - Cisco V 4 Credits

Building Scalable Cisco Networks is an elective course for the Associate of Applied Science in Computer Systems Technology degree. Topics include: overview of scalable internetworks, managing traffic and access, managing IP traffic, extending IP addressings using VLSMs, configuring OSPF in a single area, interconnecting multiple OSPF areas, configuring enhanced IGRP, optimizing routing update operation, and configuring BGP. Prerequisite: Suc-

successful completion of CCNA and successfully passing skills test or CCNA Networking Academy.

CST 2324 Remote-Access Networks - Cisco VI 4 Credits

Remote-Access Networks is an elective course for the Associate of Applied Science in Computer Systems Technology degree. Topics include: assembling and cabling the WAN components, configuring asynchronous connections with modems, configuring PPP, using ISDN and DDR, establishing dedicated frame relay connection, optimizing traffic on dedicated WAN connections, scaling IP address with PAT and NAT, and troubleshooting the remote access network. Prerequisite: Successful completion of CCNA and successfully passing skills test or CCNA Networking Academy.

CST 2414 Multi-Layer Switching - Cisco VII 4 Credits

Multi-Layer Switching is an elective course for the Associate of Applied Science in Computer Systems Technology degree. Topics include: switching concepts, VLANs, Catalyst® switch architecture, hardware and software, and configuring, managing and troubleshooting the Catalyst® switch. Prerequisite: Successful completion of CCNA and successfully passing skills test or CCNA Networking Academy.

CST 2424 Networking Troubleshooting - Cisco VIII 4 Credits

Networking Troubleshooting is an elective course for the Associate of Applied Science in Computer Systems Technology degree. Topics include: support resources for troubleshooting, using troubleshooting methods, identifying troubleshooting targets, applying Cisco troubleshooting tools, documenting symptoms, actions and results, tracking log-ins and connections, diagnosing and correcting campus TCP/IP, catalyst, frame relay, and ISDN BRI problems and troubleshooting VLANs on routers and switches. Prerequisite: Successful completion of CST 2314, CST 2324, and CST 2414.

Diesel Technology

DST 1104 Diesel Engine Technology 4 Credits

This course consists of basic fundamentals of internal combustion engines, with emphasis on diesel powered engines. The course stresses different types of engine cylinder and valve arrangements, ignition, fuel, lubrication, air induction, and cooling systems. Laboratory work will include disassembly and reassembly of diesel engines and component parts with emphasis on diagnosis and repair. The proper use of tools and safe work habits will be emphasized.

DST 1204 Transportation Electronics 4 Credits

This course is the study of the different components that make up the electronic controls on a diesel engine and their functions. This course covers computer principles and the computer control system makeup. A study of electronically activated injectors, electronic transmission controls, electronic cruise control, and a number of sensors that send signals to the computer is

included. Other topics covered include basic fundamentals of electricity, Ohm's law, measuring voltage, amperage, and resistance. Students study three types of electrical circuits, drawing and reading schematics, and distinguishing between AC and DC circuits. Safety and the use of special tools are emphasized.

DST 1304 Tractor and Trailer Hydraulics 4 Credits

This course covers hydraulic principles and the makeup of hydraulic systems and is a study of pumps, motors, controls, valves, cylinders, and symbols. Students will demonstrate the ability to check pressures, troubleshoot the systems and make necessary repairs and/or adjustments. Safety and the use of special tools will be emphasized.

DST 2104 Climate Control 4 Credits

This course will cover the operational principles of air conditioning systems and related components as applied to diesel equipment with emphasis on testing, maintenance, and repair. Safety and the use of special tools are emphasized.

DST 2204 Brake Systems 4 Credits

This course is a study of the different types and makeup of mechanical, air, and hydraulic brake systems. This course covers hydraulic principles and the makeup of hydraulic systems. A study of pumps, motors, controls, valves, and cylinders will also be covered. Students will demonstrate the ability to check pressures, troubleshoot the systems, and make necessary repairs and/or adjustments. Emphasis will be on maintenance, repair, safety and special tools.

DST 2304 Truck Preventive Maintenance 4 Credits

This course deals with the knowledge required of a diesel mechanic with the over-the-road class eight tractor as well as smaller trucks. The student should be able to properly disconnect the trailer and maneuver the tractor safely into the shop. Also, the student should be able to perform a complete maintenance and pre-trip inspection. Safety is emphasized.

Early Childhood Education

ECE 1102 Child Guidance and Discipline 2 Credits

Students will become familiar with a variety of discipline techniques and how they can be incorporated with various age groups. Focus will be given to positive and preventive discipline techniques as well as supportive and corrective discipline techniques. Students will learn how to set up classrooms and activities to prevent behavior problems.

ECE 1103 Child Growth and Development 3 Credits

Students will become familiar with developmental ages and stages of children from birth through adolescence. Students will be able to identify developmental stages within a variety of child development theories including

Erickson, Freud, Piaget, Kohlberg and Maslow. Students will become familiar with developmental milestones and will be able to recognize activities that are developmentally appropriate for an infant, toddler, preschooler, and school age children. Students will be able to determine what developmental stage children are in according to the characteristics they exhibit. They will also become familiar with brain based research and how it relates to the early childhood classroom.

ECE 1105 Methods and Materials in Early Childhood 5 Credits

Students will become familiar with different types of materials that can be used to implement lessons that incorporate the seven multiple intelligences and learning modalities. Students will develop activities that facilitate learning and social development. Students will observe classroom teachers in local child care facilities and will assist in developing and presenting lessons and activities for childhood classrooms. Students will also become familiar with a variety of discipline techniques and how they can be incorporated with various age groups. Focus will be given to positive and preventive discipline techniques as well as supportive and corrective discipline techniques. Students will learn how to set up classrooms and activities to prevent behavior problems.

ECE 1202 Professional Development in Early Childhood 2 Credits

This course will assist students in learning how to incorporate parent involvement in the child care facility. Students will develop a parent bulletin board and newsletter. Students will also learn how to help parents become more active in his or her child's education through superstar programs, informative letters, and parent conferences. Students will learn various methods to communicate with parents and will create daily activity sheets to distribute to parents to inform them of what their child has done throughout the day. Students will also learn how to plan and successfully implement a parent workshop, open house, or children's program. Students will plan and assist in implementing a professional child care conference. They will also learn to use active listening when communicating with parents and how to prevent barriers and roadblocks in communication. This course will also help students understand the different roles that are placed on members of the family and how those roles interrelate with one another. The six characteristics of strong healthy families will also be studied.

ECE 1203 Business Administration in Early Childhood Education 3 Credits

Students will learn how to develop policies and procedures pertaining to child care facilities based on Arkansas State Licensing Regulations. They will develop a parent handbook, personnel policies, job descriptions and teacher evaluations. Students will design a building blueprint and will create an operating budget and a one-time start up budget. Students will also participate in simulated job interviews and will demonstrate questioning techniques that facilitate answers that provide insight into personalities and attitudes within the

statutes of the law. Students will also become familiar with child care software and how to run programs that will monitor student attendance, emergency information and billing. Students will also learn how to use the Arkansas State Voucher Program.

ECE 2103 Nutrition 3 Credits

Students will learn basic strengths and weaknesses of each of the food groups as well as the functions of vitamins and minerals. Students will also become familiar with foods contained in the food pyramid and appropriate serving sizes for toddlers, preschoolers and school age children. Students will create cyclic menus based on the Special Nutrition Program. They will become proficient in calculating the amount of food required to serve specified numbers of children and in completing food reimbursement production worksheets. Students will be certified in the Special Nutrition Food Program.

ECE 2104 Health, First Aid, and Safety 4 Credits

Students will become proficient and certified in CPR and first aid. Students will also become familiar with signs and symptoms of communicable illnesses that pertain to children. Students will become proficient in dealing with emergency situations. Upon completion of the CPR and first aid portion of the course, students will participate in a simulated trauma where they will be required to prioritize and treat injuries until emergency medical personnel arrive. Students will also become familiar with childhood immunizations and how to track them manually and on the computer. Students will also learn how to monitor children's normal growth patterns and how to identify and seek treatment for abnormalities. In the safety portion of the course, students will become familiar with basic classroom and playground safety issues and how to avoid problems. They will also learn how to inspect playgrounds and identify hazards on playgrounds. Students will design a developmentally appropriate playground and budget that complies with Arkansas Licensing Regulations. Students will also be able to demonstrate proper fire and emergency procedures and will develop evacuation plans that meet Arkansas State Regulations.

ECE 2105 Curriculum Development in Early Childhood Education 5 Credits

Students will learn how to create a lesson plan based on right and left brain dominance, learning styles preferences, learning modalities, the seven multiple intelligences, and Bloom's Taxonomy. Students will integrate units weekly and create one lesson plan each week that coordinates with the thematic unit of study. Students will create and present a complete thematic unit with audio and visual aids to be used in the classroom. Students will plan weekly activities that are developmentally appropriate for toddlers, preschoolers and school age children. Students will become familiar with different math, science and oral language teaching strategies and how to incorporate these activities into daily lessons. Students will work directly with children to implement theory and skills learned in the classroom.

ECE 2203 Exceptional Children 3 Credits

Students will become familiar with the laws pertaining to disabled children in child care facilities and special accommodations that child care facilities are required to make according to the Americans with Disabilities Act. Students will also learn how to tailor classroom curriculum to meet the individual needs of each child. Students will become familiar with signs and symptoms of a variety of physical, mental and learning disabilities, their prognosis, treatment, educational implications and expected outcomes. Students will also compare and contrast the pros and cons of integrating special needs children into the regular classroom.

Early Childhood**ECH 2012 Survey of Early Childhood 2 Credits**

This course will provide a study of the history, theory, and practice of Early Childhood Education in context as well as supervised observation and experience in the Early Childhood field. This course requires four hours of observation in four separate early childhood settings.

ECH 2023 Child Development 3 Credits

This course is a study of the nature and development of children from pre-birth to the middle years of childhood. It includes physical, cognitive, and psychosocial development.

Economics**ECON 2313 Principles of Macroeconomics 3 Credits**

Analysis of whole economic systems, particularly the U.S. economy. Emphasis is placed on analysis of economic problems and their possible solutions. Topics include inflation, unemployment, national income, and the monetary system. ECON 2313 and ECON 2323 may not be taken concurrently. Prerequisite: MATH 1003.

ECON 2323 Principles of Microeconomics 3 Credits

Analysis of the decision making of individual units of economics: households, business firms, and the government. Topics include price determination, production, income distribution, market structures, and international economics. ECON 2313 and ECON 2323 may not be taken concurrently. Prerequisite: MATH 1003.

ECON 2333 Economic Issues and Concepts 3 Credits

An introduction to the fundamental issues impacting economic decision-making in American industry, as well as the global environment. The emphasis of the course is on current economic problems and issues, as well as solutions to the problems.

Education

EDU 2001 Introduction to Teaching Lab 1 Credit

A career in education involves a great deal more than knowledge in a subject matter and provides opportunities other than classroom teaching. Direct experiences with students and a certified teacher in a public school will assist you in deciding whether a career in education is a good choice for you.

EDU 2013 Educational Technology 3 Credits

An introduction to the use of technology for the classroom teacher. Emphasis will be on the computer as an instructional, administrative, and information-gathering tool.

EDU 2023 Introduction to Teaching 3 Credits

An introduction to the teaching profession. Provides a basic understanding of the foundations of the education system in the United States and the role of teachers. Course requires 30 hours of observation and directed experiences in a public school.

EDU 2033 Child and Adolescent Development 3 Credits

A study of the nature and development of the child and adolescent, including physical, cognitive and psychosocial development.

EDU 2043 Instructional Technologies 3 Credits

The focus of this class is on teaching the fundamentals of designing, developing, presenting, and evaluating classroom instructional material in order to develop effective classroom instruction. Students will be Air Force personnel who have been assigned as Formal Training Unit (FTU) instructors to the 314th Airlift Wing C-130 qualification schools. Subjects covered include theories on Adult Learning, Instructional Systems Development, Domains of Learning, Instructional Design, Effective Presentation, Test Construction, Test Analysis, Teaching Concepts/Principles, and lectures on different teaching methods.

Engineering Technology

EGR 1123 Industrial Human Relations 3 Credits

Provides supervised experience and instruction designed to help the student recognize and develop the traits necessary for good relations with fellow workers, supervisors, subordinates, customers, and others. The course is designed to help develop improved interpersonal relationships through exercises involving awareness, self-concept and self-evaluation, role-playing, and group and individual problem solving. Applications of industrial relations concepts to the supervisory role will be made. Lecture three hours. (On demand)

EGR 1143 Industrial Safety 3 Credits

An introduction to the basic concepts of industrial safety and health. Topics include the role of the safety professional, industrial accident prevention,

accident statistics and costs, appraising safety performance, recognizing industrial hazards and recommending safeguards, and a study of the Occupational Safety and Health Act. (On demand)

EGR 1163 Maintenance Management 3 Credits

An introduction to the basic concepts of industrial maintenance management. Topics are introduced that familiarize the student with the processes that ensure systems and plants continue to function at optimum levels through use of totally supportive maintenance plans. Reliability, life cycle maintenance, computerized maintenance management programs, and the predictive and preventive approach for building reliability into the total production maintenance effort are introduced to the student. The course stresses maintenance planning considering company cost factors, maintenance effectiveness, and how to develop a viable maintenance management plan. (On demand)

EGR 2203 Cooperative Work Experience 3 Credits

An employment internship in an industry appropriate to the curriculum. The experience should be developmental and relate to course work included in the program. An instructor monitors the student's progress with the supervising employer. The company turns in an evaluation form at the end of the employment period and the student submits a journal and report for grading.

Engineering Graphics Technology (Computer-Aided Drafting and Design)

EGT 1104 Basic Drafting 4 Credits

This is an entry level course in drafting using the most current version of AutoCad. It provides hands-on training in the areas of Drawing Media, Basic Drafting Skills, Applied Geometry, Orthographic Projection, Auxiliary Views and Revolutions, Basic Dimensioning, and Sectional Views. Lecture three hours. Laboratory three hours.

EGT 1114 Intermediate Drafting 4 Credits

This is a course in drafting using the most current version of AutoDesk Mechanical. It provides hands-on training in the areas of Design Concepts, Developments and Intersections, Geometry Dimensioning and Tolerancing, Fasteners, Detail Drawings, Assembly Drawings, Pictorial Drawings, and Welding Drawings. Lecture three hours. Laboratory three hours. Prerequisite: EGT 1104.

EGT 1124 Introduction to Computer-Aided Design 4 Credits

This is an entry level course in interactive computer-aided drafting using the most current version of AutoCad. It provides hands-on training in the areas of the AutoCad User Interface, Drawing Aids and Controls, Drawing and Editing, Preparing and Printing a Drawing, Dimensioning and Tolerancing, and Groups and Details. Lecture three hours. Laboratory three hours.

EGT 2144 Intermediate Computer-Aided Design 4 Credits

This is a course in interactive computer-aided drafting using the most current version of AutoCad. It provides hands-on training in the areas of 3D Drawing and Modeling, Surface Modeling and Rendering, Solid Modeling, Menus, Autolisp, and Importing and Exporting Files. Lecture three hours. Laboratory three hours. Prerequisite: EGT 1124.

EGT 2114 Introduction to Pro/Engineer 4 Credits

This is a course in interactive computer-aided drafting using the most current version of Pro/Engineer. It provides hands-on training in the areas of the Pro/Engineer User Interface, Parametric Modeling Fundamentals, Constructive Solid Geometry Concepts, Model History Tree, Parent/Child Relationships, Parametric Relations, Geometry Constraints, Symmetrical Features in Designs, Three Dimensional Construction Tools, Advanced Modeling Tools, and Assembly Modeling. Lecture three hours. Laboratory three hours. Prerequisite: EGT 2123.

EGT 2123 Introduction to Solid Modeling 3 Credits

This is a course in interactive computer-aided drafting using the most current version of AutoDesk Mechanical Desktop. It provides hands-on training in the areas of the Mechanical Desktop User Interface, Parametric Modeling Fundamentals, Constructive Solid Geometry Concepts, Model History Tree, Parametric Constraints, BORN Technique and Work Features, Part Drawings and Associative Functionality, Symmetrical Features in Designs, Geometric Construction Tools, Parent/Child Relationships, Advanced Modeling Techniques, and Assembly Modeling. Lecture three hours. Laboratory three hours. Prerequisite: EGT 1144.

EGT 2134 Introduction to Inventor 4 Credits

This is a course in interactive computer-aided drafting using the most current version of AutoDesk Inventor. It provides hands-on training in the areas of the Inventor User Interface, Parametric Modeling Fundamentals, Constructive Solid Geometry Concepts, Model History Tree, Parametric Constraints, BORN Technique and Work Features, Part Drawings and Associative Functionality, Symmetrical Features in Designs, Geometric Construction Tools, Parent/Child Relationships, and Assembly Modeling. Lecture three hours. Laboratory three hours. Prerequisite: EGT 2123.

EGT 2154 Civil Drafting 4 Credits

This is a course in civil drafting using the most current version of AutoDesk Land Desktop. It provides hands-on training in the areas of Civil Drafting Technology, Mapping Scales, Mapping Symbols, Surveying Fundamentals, Location and Direction, Legal Descriptions, Plot Plans, Contour Lines, Profiles, Highway Layout, Earthwork, and an Introduction to Geographic Information Systems (GIS). Lecture three hours. Laboratory three hours. Prerequisite: EGT 1114.

EGT 2163 Structural Drafting I 3 Credits

This is a course in structural steel drafting using the most current version of AutoDesk Architectural Desktop. It provides hands-on training in the areas of Column Framing Plans, Beam Framing Plans, Sections, Connection Details, Fabrication Details, and Bill of Materials. Lecture two hours. Laboratory two hours. Prerequisite: EGT 1114.

EGT 2173 Structural Drafting II 3 Credits

This is a course in structural pre-cast concrete drafting using the most current version of AutoDesk Architectural Desktop. It provides hands-on training in the areas of Column Framing Plans, Beam Framing Plans, Sections, Connection Details, Fabrication Details, and Bill of Materials. Lecture two hours. Laboratory two hours. Prerequisite: EGT 1114.

EGT 2183 Architectural Drafting I 3 Credits

This is a course in architectural drafting using the most current version of AutoDesk Architectural Desktop. It provides hands-on training in the areas of Basic House Design, Primary Considerations, Room Planning, Plot Plans, Foundation Plans, Sill and Floor Construction, Wall and Ceiling Construction, Doors and Windows, Stairs, Fireplaces and Chimneys, and Floor Plans. Lecture two hours. Laboratory two hours. Prerequisite: EGT 1114.

EGT 2193 Architectural Drafting II 3 Credits

This is a course in architectural drafting using the most current version of AutoDesk Architectural Desktop. It provides hands-on training in the areas of Roof Designs, Elevations, Electrical Plans, Plumbing Plans, Climate Control Plans, Perspective Plans, Material and Tradework Specifications, and Estimating Building Cost. Lecture two hours. Laboratory two hours. Prerequisite: EGT 2183.

EGT 2214 Pro-Engineer II 4 Credits

This course provides the exposure and experience necessary for the student to understand the theory of computer-aided drafting and design and to construct drawings on the computer in a manner that is acceptable to employers within the discipline. Lecture three hours. Laboratory three hours. Prerequisite: EGT 2114.

EGT 2234 Inventor II 4 Credits

This course provides the exposure and experience necessary for the student to understand the theory of computer-aided drafting and design and to construct drawings on the computer in a manner that is acceptable to employers within the discipline. Lecture three hours. Laboratory three hours. Prerequisite: EGT 2134.

Industrial Automation (Taught on Demand)

**ELEC 2102 Programmable Logic Controllers (PLC) 2 Credits
Introductory Course**

This course introduces the student to a specialized computer-based system, along with associated input/output and communication hardware, called a Programmable Logic Controller (PLC). This solid state system, used for controlling process systems, replicates standard electrical Relay Ladder Logic (RLL) operation. Programming and documentation use standard RLL format. The course identifies the basic PLC hardware components, their inter-connection and their functions. It shows the student how to read a conventional RLL schematic comprised of discrete components, then shows how that schematic appears when implemented through a PLC. The focus of this course is on basic RLL functions found in PLCs. Students write and enter RLL circuits using PLC software that emulates CONTROL RELAY, TIMER and COUNTER elements. The elements' performances are tested and analyzed using laboratory trainers. Simple control circuits using the above elements are designed, built, and tested. The student learns basic RLL trouble-shooting techniques. The Allen Bradley SLC500 with Windows-based RSLogix 500 software and/or the Siemens 500 Series PLC with Windows-based SoftShop software are utilized.

**ELEC 2112 Programmable Logic Controllers (PLC) 2 Credits
Advanced Course**

This course develops the more complex relay ladder logic (RLL) functions found in a Programmable Logic Controller (PLC). The concept of decimal and natural binary number systems is introduced. Integer math special functions of ADD, SUBTRACT, MULTIPLY, DIVIDE, GREATER THAN, EQUAL TO, LESS THAN and LIMIT are implemented along with binary coded decimal (BCD)-a common interface format. Data manipulation functions of SHIFT REGISTER, MOVE, MASKED MOVE and COPY are explained. Analog-to-digital and digital-to-analog INPUT/OUTPUT interfaces are presented and employed. These special functions are tested and analyzed using laboratory trainers. The student designs, builds and tests complex RLL control circuits using the above functions. The Allen Bradley SLC500 PLC with Windows-based RSLogix 500 software and/or the Siemens 500 Series PLC with Windows-based SoftShop software are utilized in the laboratory. Prerequisite: ELEC 2102 or consent of instructor.

Emergency Medical Technician/Paramedic

EMS 1001 Clinicals 1 Credit
Hands on applications of skills acquired in EMS 1005 and EMS 2205.

EMS 1005 EMT I 5 Credits

This course is an introduction to pre-hospital care and the basic legal and ethical aspects involved.

EMS 1102 Preparatory 2 Credits

Medical terminology and the metric system are discussed. An overview of general patient assessment, airway and ventilation, and shock are covered. Understanding and management of the body's system's reaction to decreased cellular oxygenation are discussed. Body fluids, osmosis and pathophysiology of inadequate tissue perfusion combined with the evaluation and resuscitation of these patients is emphasized. The use of MAST and intravenous techniques are taught.

EMS 1103 Anatomy & Physiology 3 Credits

This course is an overview of the structure and function of the human body. Emphasis is placed on directing, defining, and describing normal and pathological body conditions. Includes a patient assessment by body region and how to communicate effectively with medical control and other members of the health care team.

EMS 1104 Pre-Hospital Environment 4 Credits

EMS systems are overviewed. Emphasis is placed on professionalism, responsibility, development, improvement, and community involvement. The ethical and legal aspects of Emergency Medical Systems including malpractice, consent, and contracts will also be discussed. EMS communications, stress management, and emergency rescue techniques are taught.

EMS 1204 Pharmacology 4 Credits

Clinical pharmacology, classification, and uses of medications with emphasis on the proper indications, precautions, dosages, and methods of administration will be covered. The course will include dosage calculations and metric conversions.

EMS 1301 Field Internship I 1 Credit

Supervised experience in the pre-hospital care setting in a paramedic ambulance service is covered in this course. This will aid all the paramedic students in an understanding of the Advanced Life Support system. This will provide the student with the opportunity to utilize skills as a team member and progress to function as a team leader under the direct supervision of a paramedic in a field setting. Includes directing activities at the scene, delegating patient care responsibilities, and providing coordination of events from dispatch to the transfer of patient care to the emergency care physician.

EMS 1303 Clinical Rotation I 3 Credits

Supervised rotations through hospital clinical areas. Emphasis will focus on areas that reinforce and allow the paramedic student to apply airway management, IV therapy, and patient assessment skills.

EMS 2103 Trauma 3 Credits

Management and treatment of traumatic injuries including soft tissue, central nervous system, and musculoskeletal structures, anatomy and pathophysiology, and assessment and management of traumatic injuries involving these human systems. Includes management of all types of burns.

- EMS 2104 Medical Emergencies I 4 Credits**
Recognition, management, and pathophysiology of patients with medical emergencies are included in this course. Includes respiratory disorders, diabetic emergencies, nervous systems disorders, acute abdominal pain and renal failure and anaphylaxis.
- EMS 2203 Medical Emergencies II 3 Credits**
Recognition, management and pathophysiology of patients with medical emergencies. Includes toxicology, drug abuse, alcoholism, infectious diseases, environmental emergencies, geriatrics, pediatrics, behavioral emergencies and crisis intervention.
- EMS 2204 Cardiac Emergencies 4 Credits**
Etiology, pathophysiology, clinical features, cardiac disease process and assessment of patient with cardiac disorders. ACLS skills and techniques are taught. Emphasis will be placed on the interpretation of cardiac dysrhythmia, clinical signs and symptoms of cardiac conditions, indications and administration of cardiac therapy along with defibrillation and synchronized cardioversion skills.
- EMS 2205 EMT II 5 Credits**
A continuation of EMS 1005 EMT I and with emphasis on medical emergencies.
- EMS 2303 Clinical Rotation II 3 Credits**
A continuation of EMS 1303 - Clinical Rotation I.
- EMS 2304 EMT III 4 Credits**
A continuation of EMS 2205 EMT II.
- EMS 2402 OB/GYN/Neonatal 2 Credits**
This course includes etiology and treatment of obstetrical emergencies, the normal and abnormal events associated with pregnancy and childbirth, initial care and resuscitation of the neonate and gynecological emergencies. Emphasis will be on recognizing and managing these events and assisting in abnormal births.
- EMS 2404 Field Internship II 4 Credits**
A continuation of EMS 1301 - Field Internship I.

English

- ENG 0003 Developmental English 3 Credits**
A course designed to improve writing skills through exercises in basic grammar, in mechanics, in sentence structure, and in paragraph structure. Students with ACT scores below 19 in English must take this course. (Credit earned not applicable toward a degree.)

ENG 1003 Freshman English I 3 Credits

Instruction in expository essay form, structure, and style. Prerequisite: ACT scores of 19 or better on reading and English or successful completion of Developmental English and Reading Improvement.

ENG 1013 Freshman English II 3 Credits

A continuation of ENG 1003 with the addition of research papers and literary genres. Prerequisite: ENG 1003.

ENG 1033 Technical Communication 3 Credits

A course designed to prepare students to demonstrate a high level of effectiveness in handling the demands of workplace writing and communication. Prerequisite: ENG 1003.

ENG 2003 World Literature I 3 Credits

A study of literature from antiquity through the Renaissance, reflecting the major philosophical, religious, and literary trends of these time periods. Prerequisite: ENG 1013.

ENG 2013 World Literature II 3 Credits

A continuation of ENG 2003, from the Renaissance to the present. Prerequisite: ENG 1013.

ENG 2023 Creative Writing 3 Credits

Instruction and practice in writing in creative literary forms including creative non-fiction, fiction, and poetry. Students develop skills in the use of literary devices and techniques as well as methods for inspiring creative thinking and expression. Prerequisite: ENG 1013 or consent of instructor.

ENG 2583 Literature for Adolescents 3 Credits

A seminar focusing on novels, poetry, short stories, and drama suitable for young adult (YA) students in the upper elementary grades, middle school, and high school. Prerequisite: ENG 1013.

ENG 2613 Folklore 3 Credits

Survey of form in American folk culture. Includes collection, classification, and analysis of folklore within the context of form. Prerequisite: ENG 1013.

ENG 2623 Mythology 3 Credits

A survey of world mythologies, including archetype, hero, creation, flood, apocalyptic, and afterlife characteristics that cultivate literary interpretive skills. Prerequisite: ENG 1013 or consent of instructor.

French

FREN 1013 Elementary French I 3 Credits

Elementary French I is designed to teach French language and culture as complementary facets of a single reality. Students will learn authentic,

unsimplified French and use it in the context of actual communication. Elementary French I is designed as a foundation course for students who intend to focus on careers based on either a primary or secondary use of the language. There is no prerequisite for Elementary French I.

FREN 1023 Elementary French II 3 Credits

Elementary French II is a continuation of FREN 1013. Prerequisite: FREN 1013 or at least one year of high school French.

FREN 2013 Intermediate French I 3 Credits

Intermediate French I is a continuation of FREN 1023. Prerequisite: FREN 1023 or two years of high school French.

FREN 2023 Intermediate French II 3 Credits

Intermediate French II is a continuation of FREN 2013 with an introduction to reading French literature. Prerequisite: FREN 2013 or consent of instructor.

Geography

GEOG 2603 World Regional Geography 3 Credits

A general survey of geographic regions of the world emphasizing culture, demography, and economic and social patterns.

GEOG 2613 Introduction to Geography 3 Credits

Emphasizes the physical and cultural patterns of the world.

Health Information Assistant

HIA 1103 Medical Terminology I 3 Credits

This course is a study of basic medical terminology including diseases, abbreviations, spellings, and diagnostic procedures.

HIA 1203 Body Structure and Function 3 Credits

This course is a study of the basic concepts of the anatomy and physiology of the human body. The organs and tissues in each body system are studied in detail as well as the interrelationship between the systems. In order to successfully complete this course, every student must make an oral presentation.

HIA 1303 Medical Office Procedures 3 Credits

This course teaches responsibilities for records management, CPT coding, and medical office regulations. It includes the assignment of code numbers to procedures and physician services. A medical office software program is used. Prerequisites: HIA 1203 Body Structure and Function, HIA 1403 Medical Keyboarding, and HIA 1103 Medical Terminology I.

HIA 1403 Medical Keyboarding 3 Credits

Medical Keyboarding provides training in the touch operation of the alpha-betic and numerical keys. Basic skills development through drills for speed and accuracy control, centering, tabulation, and formation of basic business documents is included in keyboarding. This course builds production skills necessary to operate computer terminals and information processors with accuracy and speed.

HIA 1503 Software Applications/Word Processing 3 Credits

The student will become familiar with different software packages in order to maintain medical records, with special emphasis in word processing.

HIA 2103 Medical Terminology II 3 Credits

This course is a detailed study of medical terminology that integrates the entire spectrum of information needed by health information managers. This will include anatomical terms, word parts, medical terms, diagnostic terms, surgical terms, and diagnostic procedural terms of each body system. Prerequisite: HIA 1103 Medical Terminology I.

HIA 2203 Medical Office Applications 3 Credits

This course teaches a medical office software. The software is a database that includes applications of appointment scheduling, posting procedures, insurance billing, and accounts receivable. Prerequisite: HIA 1103 Medical Terminology I.

HIA 2303 Coding 3 Credits

This course is the study of ICD 9 CM. It includes the assignment of code numbers to diagnoses and procedures. Prerequisites: HIA 1203 Body Structure and Function, HIA 1103 Medical Terminology I.

HIA 2403 Medical Transcription 3 Credits

Medical Transcription provides training in the transcribing of medical documents from recordings using a word processor/microcomputer. Prerequisites: HIA 1403 Medical Keyboarding, HIA 1103 Medical Terminology I, HIA 1203 Body Structure and Function.

HIA 2503 Internship/OJT 3 Credits

A student's Internship/OJT assignment will be in an industry/business appropriate to the curriculum. The experience should relate to course work included in the program. An instructor and the coordinator of internship will monitor the student's progress with the supervising employer. The company will periodically turn in evaluation forms. Prerequisite: Successful completion of all required courses and a cumulative 2.0 grade point average.

History

HIST 1013 World Civilization to 1660 3 Credits

A survey of world civilizations from pre-history to 1660.

- HIST 1023 World Civilization since 1660 3 Credits**
A survey of world civilizations from 1660 to present.
- HIST 2083 History of Arkansas 3 Credits**
A survey of Arkansas history from the pre-Columbian period to the present.
- HIST 2093 Russian History 3 Credits**
A survey course on the origins and development of the Russian state and society from ancient times to the present.
- HIST 2263 A Survey of Asian History 3 Credits**
A survey of Asian societies from ancient times to the present.
- HIST 2763 The United States to 1876 3 Credits**
A survey of the development of social, political and economic institutions in the United States from the age of exploration and discovery to reconstruction.
- HIST 2773 The United States Since 1876 3 Credits**
A survey of changing social, political and economic policies in the United States from reconstruction to the present.
- HIST 2893 American Minorities 3 Credits**
A survey course involving the study of several minority groups in American society from colonial times to the present. The major emphasis will be on African Americans and Native Americans. The course will also examine the contributions of Oriental and Hispanic minorities to the development of American culture.

Health

- HLTH 2513 Principles of Personal Health 3 Credits**
A study of principles, problems, and practices involved in the improvement of individual and community health. The course is designed to stimulate a greater appreciation and understanding of health for more intelligent self direction of health behavior and safety awareness.
- HLTH 2523 First Aid and Safety (Responding to Emergencies) 3 Credits**
Fundamentals, techniques, and practice of first aid as prescribed by the responding to emergencies course of the American Red Cross. Emphasis is given to programs of accident prevention in school, home, recreation and traffic. Certification may be earned in standard first aid and community CPR (adult, infant, and child) through the American Red Cross.
- HLTH 2553 Basic Physiology of Activity 3 Credits**
A basic study of the organs and systems of the human body, with particular emphasis on the effects of physical activity on the functioning of the system.

Horticulture

HORT 2203 General Horticulture 3 Credits

A survey of the general field of horticulture: growth, fruiting habits, propagation, and culture of horticultural plants. Lecture two hours, laboratory two hours per week.

HORT 2273 Vegetable Crops Production 3 Credits

An introduction to the growth habits, soils and climate requirements, storage, varietal characteristics, and pests of vegetable crops. Prerequisite: HORT 2203.

Humanities

HUM 2003 Introduction to Humanities I: Greece and Rome 3 Credits

This course is a study of the history, literature, arts, and philosophy of ancient cultures, reflecting the major historical, artistic, and philosophical trends of different time periods.

HUM 2013 Introduction to Humanities II: Europe 3 Credits

This course is a study of the history, literature, arts, and philosophy of the peoples living in Europe and England from the Medieval period to the present.

Industrial Electronics

IET 1103 Microprocessor Fundamentals 3 Credits

This course introduces both hardware and software aspects of microprocessor systems. Assembly language programming is emphasized along with hardware skills involved in interfacing and debugging a typical microprocessor-based system. The course concentrates on the principles and applications of microprocessors and peripheral ICs such as Programmable Timers, Serial and Parallel I/O, Display Controllers, and Memory, as well as various linear, digital, and electro-optical devices used with microcomputer systems. The ability to work from manufacturers' data sheets and application notes are stressed. Safety is emphasized.

IET 1104 AC/DC Circuits 4 Credits

This course is an introduction to electricity and its interaction with conductors, resistors, inductors and capacitors in direct and alternating current circuits. The study includes the use of measuring equipment and calculations to determine resistance, reluctance, impedance, resonance, voltage, current, power, and time constants. Also discussed are magnetism and transformers. In lab exercises, the students learn to use digital and analog multi-meters, frequency counters, signal generators, breadboards, and the oscilloscope. Safety is emphasized.

IET 1203 Basic Machining 3 Credits

This course is a study of the tools and procedures commonly used during installation and repair of industrial equipment. Topics for the course include interpreting detail and assembly drawings, precision measuring tools and layout work, which the student will finish by machining to the specified print tolerance. Tools that will be studied and used include hand tools, taps and dies, cut-off saws, pedestal grinders, metal lathes, milling machines, drill presses, and abrasive disc grinders. Safety will be emphasized.

IET 1204 Power Transmission 4 Credits

This course is a study of the principles and components of hydraulic, pneumatic and mechanical power transmission systems. Fluid power (hyd/pne) topics include physical principles, compressors, pumps, actuators, basic valves, circuits, symbols, systems and maintenance. Mechanical topics include gear-boxes, pulleys, belts, sprockets, chains, couplers and proper alignment methods. Safety is emphasized.

IET 1304 Electrical Power Systems 4 Credits

This course is a study of electrical distribution equipment and wiring methods. Emphasis is placed on safety and the N.E.C. Topics include services, feeders, branch circuits, grounding, over-current protection, ampacity, conduit fill, conductor properties and applications, conduit bending, and enclosures.

IET 2104 Control Systems 4 Credits

This course is a study of controllers and the electromechanical interface. Topics include control logic, operator controls, automatic controls, relay logic, signal conditioning, micro controllers, motors, motor drives and sensors. Safety is emphasized.

IET 2203 Welding 3 Credits

This course will introduce the trainee to the safety and techniques of basic welding that will include oxygen-acetylene brazing, heating, cutting and fusion welding. It will introduce the student/trainee to safety with arc-welding and skills necessary to utilize both the "stick" welder and wire welder to be able to weld electrically two pieces of similar metal together and to "buildup" shafts and related items to machine. Safety is emphasized.

IET 2204 Solid-State Devices 4 Credits

This course is designed to give the student a basic understanding of solid-state devices and their associated circuits. Topics include diodes, transistors, thyristors, integrated circuits and optoelectronic devices. Troubleshooting and safety is emphasized.

IET 2303 System Troubleshooting 3 Credits

This course is a study of the systematic methods that should be used when troubleshooting a complex industrial system. Topics include a troubleshooting overview, troubleshooting tools, collecting information, on-line troubleshooting, and specialized tests and equipment. Safety is emphasized.

IET 2304 Digital and Programmable Logic Controllers 4 Credits

This course is a study of programmable logic controllers including the basics of digital electronics required to understand the P.L.C. operation. Topics include number systems, Boolean algebra, logic gates, control logic, memory organization, I/O modules, basic troubleshooting. The study of PLC programming includes the topics of basic input and output instructions, timers, counters, and program control instructions. Networking is also discussed. Safety is emphasized.

Agriculture Equipment Technology**JDAT 1001 Safety 1 Credit**

This is a study of causes and prevention of accidents in the shop and industry. Local, state, and federal regulations and codes will be reviewed. One hour lecture per week. Prerequisite: John Deere dealer sponsor.

JDAT 1002 John Deere Air Quality Systems 2 Credits

The basics of air conditioning will be studied and repair and diagnostic procedures practiced. Cooling, heating, and filtering systems, both R-12 and R134A, will be studied and repair procedures practiced. Prerequisite: John Deere dealer sponsor.

JDAT 1004 John Deere Agricultural Electric Systems 4 Credits

The basic electrical system principles-flow, pressures, and resistance-will be studied. These concepts will then be applied to the starting, charging, and accessory systems of typical John Deere electrical systems. Starters, alternators, and various circuit failures will be studied. Electronic components as found on the monitoring and control systems of JD electrical systems will be introduced. Prerequisite: John Deere dealer sponsor.

JDAT 1012 Precision Farming Technologies 2 Credits

This course is an introduction to the theory and application of precision farming technologies, as well as their diagnosis and repair. Topics include global positioning, equipment automated systems, implement monitoring and electro-hydraulic control. Prerequisite: John Deere dealer sponsor.

JDAT 1014 Tractor Power Trains 4 Credits

The theory, operation and repair procedures for tractor power train systems will be covered. Emphasis will be placed on assembly and adjustment procedures. Prerequisite: John Deere dealer sponsor.

JDAT 1023 Agricultural Hydraulics 3 Credits

Basic hydraulic principles-flow, pressure, and restriction (load)-will be covered. These principles will then be applied to John Deere hydraulic systems. Basic hydraulic components-radial piston pumps, external gear pumps, selective control valves, and valve housings on current John Deere equipment-will be assembled and adjusted. Basic hydraulic system diagnostics will be introduced. Prerequisite: John Deere dealer sponsor.

JDAT 1033 John Deere Consumer Products and Systems 3 Credits

This course covers the function, adjustment, and repair of various grounds care products marketed by John Deere Company. Walk-behind mowers, riders, lawn and garden tractors, and compact utility tractors will be studied. Included will be adjustment of power trains, hydraulic and electrical systems, and cutting components. Hydrostatic drive systems will be introduced. Prerequisite: John Deere dealer sponsor.

JDAT 1046 Dealer Internship I 6 Credits

Offers a supervised work experience needed to make courses taught on campus meaningful and useful. Students will practice the skills and use the knowledge acquired in class and in the lab. Prerequisites: John Deere dealer sponsor, JDAT 1014, 1023.

JDAT 2003 Harvesting Equipment 3 Credits

Combines, cotton pickers and hay balers, along with various attachments, will be covered during this class. Their function and adjustments as well as repair will be studied. Electrical and hydraulic systems and diagnostic procedures will be emphasized. Prerequisite: John Deere dealer sponsor and JDAT 2014.

JDAT 2014 Advanced Tractor Diagnostics 4 Credits

On-board and off-board diagnostic systems and procedures will be introduced and applied. Controller networking theory and signals will be analyzed. Troubleshooting of transmission and hydraulic control systems using traditional and advanced diagnostic methods will be practiced. Prerequisites: John Deere dealer sponsor, JDAT 1004, 1023, 1046, and 1014.

JDAT 2023 Dealer Internship II 3 Credits

See Dealer Internship I. Prerequisites: John Deere dealer sponsor, JDAT 1014, 1023, 1004, 1002, 1033, 1046, 2003, 2014.

JDAT 2033 John Deere Engine Systems 3 Credits

The basic diesel engine cycle, components of a typical John Deere engine and their theory of operation will be studied. Failure analysis and repair procedures will be emphasized. Prerequisite: John Deere dealer sponsor.

JDAT 2043 Agricultural Fuel Systems and Performance 3 Credits

Simple gasoline fuel systems and diesel fuel injection systems will be studied with an emphasis on how these systems affect total performance of the equipment. Basic gas fuel injection as found on John Deere equipment and electronic governor systems will be studied, with operation of the system and test procedures emphasized. Methods of measuring and analyzing torque curves will be practiced. Prerequisites: John Deere dealer sponsor, JDAT 1004 and 1023.

Law

LAW 2023 The Legal Environment of Business 3 Credits

Introduction to the fundamental concepts of the American legal system, especially as it relates to business. Areas of concentration include contracts, torts, sales, agency, negotiable instruments, and government regulation.

Practical Nursing

LPN 1002 Clinical Nursing I 2 Credits

This course is a practical, clinical component with an emphasis on procedural skills. As the student progresses through the clinical areas, progression from basic skills to complex skills will be incorporated into patient care being delivered. The student will develop the ability to adapt nursing procedures to give individualized patient care.

LPN 1101 Vocational, Legal, and Ethical Concepts 1 Credit

This course introduces the principles of personal development and professional development with legal aspects, ethical concepts, and nursing responsibilities with the patient, family, and co-workers emphasized. Vocational responsibilities of the practical nurse including nursing organizations of the local, state, and national level are introduced. Teaching/learning principles with emphasis on study skills are included.

LPN 1102 Pharmacology I 2 Credits

This course includes a brief history of drugs, methods of administration, drugs commonly used in the treatment of illness, and such information as usual dosages, expected actions, side effects, contraindications, and points of observation following the administration of drugs. Formulas for conversion of measurements from the apothecary to the metric system, as well as, formulas for calculations of dosages for infants and children are included.

LPN 1103 Basic Nursing Principles and Skills I 3 Credits

This course is a study of fundamental skills, principles, and attitudes needed to give nursing care with skill, safety, and comfort for the patient. This course includes basic nursing principles, skills, attitudes, and procedures relative to infection control and care of the environment and hygiene needs of the patient, and the development of the ability to utilize nursing processes in situations to ensure skill, safety and comfort for the patient. Concepts including self-adjustment, personality development, ethical, legal and social relationships with the patient, family, and co-workers; communication skills; vocational responsibilities of the practical nurse are integrated into each unit utilizing the basic needs approach to nursing.

LPN 1104 Body Structure and Function 4 Credits

This course is a study of basic anatomy and physiology of the human body and all its systems. Each unit in this course is designed to include the study of major parts in the specific system of the body and interlocks the depen-

dependency of one system on another with contributions of each system to the well being of the body as a whole.

LPN 1201 Nursing of the Geriatric Patient 1 Credit

This course discusses normal aging processes, characteristics of age, special problems associated with aging, and the nursing care of the aging patient.

LPN 1202 Nutrition in Health and Illness 2 Credits

This course covers principles of good nutrition for all age groups and modifications for therapeutic purposes. Nutritional concepts are integrated through the entire curriculum.

LPN 1203 Basic Nursing Principles and Skills II 3 Credits

This course is a study of increasing complex skills and principles beginning with basic skills and progressing to the complex skills incorporating critical thinking to give safe, skillful patient care using the nursing process. The student will develop the ability to adapt nursing procedures to various situations with skill, safety, and concern for the patient in the ambulatory, mildly ill, seriously ill, long term illness, and emergency settings. Concepts taught in Basic Nursing Principles and Skills I will be integrated and reinforced throughout the course. Ethical, legal, and social concepts will be discussed with units as appropriate. Prerequisite: LPN 1103 Basic Nursing Principles and Skills I.

LPN 2005 Clinical Nursing II 5 Credits

This course is a practical, clinical component with an emphasis on total patient care. As the student progresses through the course, patient assignment load will increase to develop time management skills and assist the student in the transition from student role to Licensed Practical Nurse role. Students will continue to deliver individualized nursing care with focus on specific standards of care for the diagnosis of the patient.

LPN 2102 Pharmacology II 2 Credits

This course continues the study of drugs, their methods of administration, and those commonly used in the treatment of illness. Prerequisite: LPN 1102 Pharmacology I.

LPN 2105 Medical Surgical Nursing I 5 Credits

This course is prepared to instruct the student in the nursing management of the adult patient. The methods of determining the diagnosis and treatment of diseases are outlined in the first unit of the course. Suggestions as to the nursing care approach are made. This course is arranged according to the body systems most closely associated with the symptom. The units are listed according to body systems dealing with specific diseases. Nutrition, pharmacology, and basic skills are reinforced with the study of the disorders. Nursing process is better enhanced by correlating assessment, planning, and intervention of the necessary skills, and understanding how nutrition and pharmacological aspects enhance the treatment of the patient.

LPN 2202 Nursing of Children 2 Credits

This course introduces the principles of nursing from infancy through adolescence. The study includes the behavior of the well and the sick child and the essential needs, special care, and nursing problems appropriate to this age group. The role of the parents and family centered care is incorporated in this study.

LPN 2301 Mental Health 1 Credit

This course is designed to include common conditions of mental health and mental illness, prevention of such conditions, and the diagnosis, treatment, and nursing care of patients suffering from abnormal mental and emotional responses.

LPN 2302 Medical Surgical Nursing II 2 Credits

This course is a continuation of Medical Surgical Nursing I and will include an in-depth study of the concepts of illness and nursing care in acute, sub-acute, or convalescent stages of illness with integration of pharmacological, nutritional, and communication theories. The units are listed according to body systems dealing with specific diseases.

LPN 2311 Clinical Nursing III 11 Credits

This course is a practical, clinical component with an emphasis on total patient care. As the student progresses through the course, patient assignment load will increase to develop time management skills and assist the student in the transition from student role to Licensed Practical Nurse role. Students will continue to deliver individualized nursing care with focus on specific standards of care for the diagnosis of the patient. Prerequisite: LPN 2005 Clinical Nursing II.

LPN 2401 Pharmacology III 1 Credit

This course continues in the third stage of the study of drugs, their methods of administration, and those commonly used in the treatment of illness. Prerequisite: LPN 2102 Pharmacology II.

LPN 2402 Nursing of Mother and Infant 2 Credits

This course includes the modern aspects of maternity nursing with emphasis on normal obstetrics. The components of maternity nursing care are anatomy and physiology, communication skills, prenatal care, labor and delivery, post-partum care, family planning, and care of the newborn.

Mathematics

MATH 0503 Pre-Algebra 3 Credits

Arithmetic, including fractions and percents, will be reviewed. The use of formulas and calculators will be treated. Exercises to prepare for the concept of algebraic variables will be worked. Linear equations will be solved. Applications problems will appear throughout. (Credit earned not applicable toward a degree.)

MATH 0003 Developmental Algebra 3 Credits

An introduction to fundamental algebraic concepts. Algebraic topics include real numbers, linear equations, linear inequalities, integral exponents, polynomials, factoring, and graphing linear equations. (Credit earned not applicable toward a degree.)

MATH 1003 Intermediate Algebra 3 Credits

Continued development of fundamental concepts with additional topics including functions, rational expressions, absolute value equations and inequalities, rational exponents, radical expressions, quadratic equations, and complex numbers. Prerequisite: MATH 0003 or acceptable ACT score and high school Algebra I. (Credit earned not applicable toward an Associate of Arts or an Associate of Science degree.)

MATH 1103 Mathematical Solutions for Mechanical Technology 3 Credits

Designed to give the student the basic problem-solving skills needed in the work place. Applications of arithmetic, ratios and proportions, percentages, formulas, statistics, metric system, geometry and algebra.

MATH 1023 College Algebra 3 Credits

Quadratic equations and inequalities. Polynomial, rational, exponential, and logarithmic functions. Graphing functions, combining functions, inverse functions. Solving systems of linear and nonlinear equations. Use of matrices and determinants. Emphasis on applications and problem solving. Prerequisite: MATH 1003 or acceptable ACT score and high school Algebra II.

MATH 1033 Plane Trigonometry 3 Credits

A study of trigonometric functions, identities, basic logarithmic and exponential functions, conic sections, and complex numbers. Prerequisite: MATH 1023 or consent of instructor.

MATH 2113 Mathematics for Teachers I 3 Credits

An introduction to the mathematical concepts underlying the traditional computational techniques for elementary school mathematics with the NCTM (National Council of Teachers of Mathematics) Curriculum and Evaluation Standards for school mathematics as a foundation and a guideline. Emphasis will be placed on applications and problem solving. Prerequisite: MATH 1023 or higher level of mathematics.

MATH 2123 Mathematics for Teachers II 3 Credits

Probability and statistics, geometry, and concepts of measurement in elementary school mathematics, with the NCTM Curriculum and Evaluation Standards for school mathematics as a foundation and a guideline. Emphasis will be placed on applications and problem solving. Prerequisite: MATH 2113.

MATH 2143 Calculus with Business Applications 3 Credits

Topics in elementary differential and integral calculus, stressing applications in business and economics. Prerequisite: MATH 1023 or consent of instructor.

MATH 2153 Calculus with Technical Applications 3 Credits

Topics in elementary differential and integral calculus, stressing applications in electronics and technology. Prerequisite: MATH 1033 or consent of instructor.

MATH 2183 Discrete Structures 3 Credits

Topics include sets and functions, partially ordered sets, trees and graphs, algorithms, symbolic logic, Boolean algebra, combinations, and probability modeling. Prerequisite: MATH 1023.

MATH 2194 Survey of Calculus 4 Credits

Survey of the basic concepts of calculus, including limits, derivatives, exponential and logarithmic functions, integrals, sequences and series. A broad range of applications will be treated. (Credit will not be given for both MATH 2194 and MATH 2205 Calculus I.) Prerequisite: MATH 1023.

MATH 2205 Calculus I 5 Credits

First course, including analytic geometry, functions and limits, differentials and integrals, and transcendental functions. (Credit will not be given for both MATH 2194 Survey of Calculus and MATH 2205.) Prerequisites: MATH 1023 and MATH 1033 or consent of instructor.

MATH 2215 Calculus II 5 Credits

Second course, including techniques of integration, sequences and series, conic sections, polar coordinates, and vectors. Prerequisite: MATH 2205.

MATH 2233 Applied Statistics 3 Credits

A study of elementary statistics for students in the biological, physical, or social sciences. Prerequisite: MATH 1023.

Management

MGMT 2003 Introduction to Management 3 Credits

Introduction to management techniques and organizational structure. Fundamentals of various approaches to managing: planning; decision making; strategic management; organizing and coordinating work; authority, delegation, and decentralization; organizational design; interpersonal skills; leadership; organizational effectiveness; control methods; and organizational change and development.

MGMT 2043 Supervisory Management 3 Credits

A course covering the responsibilities of a first line supervisor; development of techniques and skills in employee communications, decision making, motivation, leadership, and training.

MGMT 2063 Management of Marketing Organizations 3 Credits

An introductory survey course that examines various critical issues involved in the transfer of goods and services from the producer to the consumer. Emphasis is placed on managerial planning and execution, policy formulation, contemporary operating methods, and performance appraisal to achieve organizational effectiveness. Prerequisites: ACCT 2003 and ECON 2313 recommended.

MGMT 2083 Introduction to Retail Store Management 3 Credits

A course designed to aid students seeking a general knowledge of contemporary issues in retailing within the larger area of marketing. Emphasis is placed on decision making relative to such integrated variables as store location and layout, sales promotion, buying, pricing, personnel management, credit, and stock control.

MGMT 2153 Small Business Management 3 Credits

A course covering the organization and operation of the small business, with emphasis on personal qualifications, small business techniques, capital requirements, forms of organization, location, and sources for assistance. Prerequisites: ACCT 2003 recommended or consent of instructor.

Marketing

MKTG 1013 Introduction to Business 3 Credits

A survey course to acquaint beginning students with the major institutions and practices in the business world, and to provide the elementary concepts of business.

Medical Laboratory Technology

(Admittance into the second year of the program is limited and is based upon completion of first year courses and selective admission criteria.)

MLT 1203 Orientation to the Clinical Lab 3 Credits

This course provides an overview of Medical Technology/Clinical Laboratory Science, including historical foundations, healthcare infrastructure, and laboratory safety. An emphasis on medical ethics, employment forecasts, laboratory mathematics, as well as the basics of laboratory specimen collection techniques (Phlebotomy) and equipment will be introduced.

MLT 2213 Clinical Microscopy 3 Credits

The care and use of the microscope are presented. Clinical theory as well as chemical, macroscopic and microscopic analysis of urine and body fluids in normal and disease states are covered. Lecture two hours. Laboratory two hours. Prerequisite: MLT 1203 plus additional first year requirements.

MLT 2223 Clinical Practicum I 3 Credits

The students will become proficient in all phases of proper blood collection. Urinalysis and body fluid analysis for normal and abnormal constituents will

be clinically applied. Students can expect to spend 40 hours per week of clinical time at the affiliate hospital. Prerequisite: MLT 2213.

MLT 2234 Clinical Hematology 4 Credits

Cellular elements of blood and blood formation are presented. Emphasis will be on blood cell morphology, cell counting, differentiation, hematocrit and hemoglobin determinations and red cell indices in both normal and disease states. This phase also includes the study of coagulation. Lecture two hours. Laboratory four hours. Prerequisite: MLT 2223.

MLT 2244 Clinical Practicum II 4 Credits

Clinical application of material covered in MLT 2234 with hands-on emphasis on blood counts, white cell differentials, coagulation testing, hematocrit and hemoglobin determinations and red cell indices. Students can expect to spend 40 hours per week of clinical time at the affiliate hospital. Prerequisite: MLT 2234.

MLT 2254 Clinical Chemistry 4 Credits

The study of chemical substances found in body fluids and their correlation in health and disease is presented. Both theory of chemical procedures and clinical applications as well as instrumentation are included. Routine laboratory mathematics is included in this course. Lecture two hours. Laboratory four hours. Prerequisite: MLT 2244.

MLT 2264 Clinical Practicum III 4 Credits

Clinical application of the study of chemical substances with emphasis on instrumentation, methodology and interpretation of test results. Students can expect to spend 40 hours per week of clinical time at the affiliate hospital. Prerequisite: MLT 2254.

MLT 2274 Clinical Microbiology 4 Credits

The study of morphology and physiology of bacteria, parasites, mycobacteria and fungi is covered. Relation to disease, mode of transmission, medical importance and identification are emphasized. Lecture two hours. Laboratory four hours. Prerequisite: MLT 2284.

MLT 2284 Clinical Practicum IV 4 Credits

Clinical application of material covered in MLT 2294 with special emphasis on routine blood typing, crossmatching, serological procedures and antibody detection. Students can expect to spend 40 hours per week of clinical time at the affiliate hospital. Prerequisite: MLT 2294.

MLT 2294 Clinical Serology/Immunohematology 4 Credits

The theory of antibody and antigen production, function and detection is presented. Included will be the study of the lymphoid system, immunity, autoimmune diseases and complement. Also included are the study and applied techniques of blood typing, crossmatching, antibody and antigen detection and identification. Lecture two hours. Laboratory four hours. Prerequisite: MLT 2264.

MLT 2314 Clinical Practicum V 4 Credits

Clinical application of material covered in MLT 2274 with emphasis on identification of microorganisms and correlation to disease states. Students can expect to spend 40 hours per week of clinical time at the affiliate hospital. Prerequisite: MLT 2274.

Machining Technology

MST 1105 Benchwork/Introduction to Lathes 5 Credits

This course will provide instruction in the basic skills needed in the machining trade. Some of these skills are blueprint reading, precision measurements, material layout, and basic metals. The basic skills needed for the operation of a Lathe will be covered in this course also. Preparing materials, fundamental functions of the Lathe, and simple operations will be taught. This course will be 1/3 theory and 2/3 lab. Related safety will be taught and emphasized.

MST 1205 Machine Tools/Introduction to Mills 5 Credits

Basic hand and power tools used in machining will be covered in this course. Students will become skilled in the use of the hand hacksaw, power hacksaw, drill press, grinders, and other tools. The basic skills needed for the operation of a Mill will also be covered in this course. Preparing materials, fundamental functions of the Mill, and simple operations will be taught. This course will be 1/3 theory and 2/3 lab. Related safety will be taught and emphasized.

MST 2103 Heat Treatment of Metals 3 Credits

This course will cover the proper methods of heat-treating various types of metals and the proper applications for metal types. Carbon based metals, aluminum, lead, and other metals will be discussed. This course will be 1/2 theory and 1/2 lab. Related safety will be taught and emphasized.

MST 2105 Advanced Mills/Lathes 5 Credits

Knowledge gained in the Benchwork/Introduction to Lathes class will be used to enhance knowledge and continue skill development with the Lathe. During this course the student should become skilled and knowledgeable in the proper use of the Lathe to a degree of employability. Knowledge gained in the Machine Tools/Introduction to Mills class will be used to enhance knowledge and continue skill development with the Mill. During this part of the course the student should become skilled and knowledgeable in the proper use of the Mill to a degree of employability. This course will be 1/3 theory and 2/3 lab. Related safety will be taught and emphasized.

MST 2205 Precision Grinding/Tool & Cutter 5 Credits

This course will cover the surfacing and grinding of metal products to precision tolerances with tools other than the Mill. The student will be taught to match terms and definitions related to basic tool and die, such as punch presses, basic die making, principles of blanking screw pierce dies, bending screw holes, die life for punches, and die block construction. This course will be 1/4 theory and 3/4 lab. Related safety will be taught and emphasized.

MST 2304 CAD/CNC 4 Credits

Master Cam is the use of a computer to design, test, and manufacture parts. The student will learn how to draw and manipulate a design on screen, how to create a tool path, and finally how to send the information to a machine tool for manufacture of the part. Two-dimensional and three-dimensional programming will be taught as well as the use of different work holding fixtures.

MST 2404 Mold Principles 4 Credits

In this course of study, the student will receive the fundamentals of plastic injected molds and die cast molds. Experience will be gained by using the Tool and Die and EDM knowledge that has been acquired. Safety is emphasized throughout the course. This course is 1/3 theory and 2/3 lab.

MST 2504 Electronic Discharge Machining 4 Credits

In this course of study, the student will receive the theory of the Electrical Discharge Machining machine. Fundamentals of removing metal and cutting contours with the EDM are also studied. The student will learn to EDM machine complex shapes in metals of any hardness. This course is 1/2 theory and 1/2 lab. Safety is emphasized throughout the course.

MST 2604 Automotive Machining 4 Credits

This course of study will apply machining principles to the making of automotive parts. The student will gain experience in designing, making and modifying parts for the automotive industry. This course will be 1/3 theory and 2/3 lab. Safety will be emphasized throughout the program.

MST 2704 Die Making 4 Credits

This course of study will apply machining principles to the making of industrial parts. The student will gain experience in designing, making and modifying parts for industry. This course will be 1/3 theory and 2/3 lab. Safety will be emphasized throughout the program.

Technical Mathematics

The following mathematics courses are not appropriate for students seeking an Associate of Arts or Associate of Science degree.

MTH 1003 Introduction to Technical Mathematics 3 Credits

Technical Mathematics covers fractions, decimals, ratios, percents, and measurement systems.

MTH 1103 Introduction to Algebra 3 Credits

This course will develop competencies in decimal numbers, fractions, ratios, order of operations, and measurements. Other topics include correct use of the scientific calculator and solving simple equations.

MTH 1303 Business Mathematics 3 Credits

This course begins with a review of basic concepts and principles of percents. Business applications covered include banking records, cash discounts, trade discounts, markups, simple interest, and discount interest.

MTH 1403 Medical Office Mathematics 3 Credits

Medical Office Mathematics includes a review of fractions, decimals, percents, ratios, and measurement systems. Business applications covered include banking records and invoice payments.

MTH 2003 Technical Mathematics 3 Credits

This course includes working with fractions, decimals, percents, and measurements. An introduction to basic algebra with applications in ratios and use of formulas is also included.

MTH 2103 Advanced Technical Math 3 Credits

This course develops competencies in decimal numbers, fractions, percents, scientific/engineering notation, order of operations, linear equations, simple quadratic equations, graphing, different number bases, and real/complex numbers. Use of the scientific calculator is integrated throughout the course.

MTH 2203 Introduction to Trigonometry 3 Credits

This course will develop competencies in the Cartesian coordinate plane, geometric shapes, and both right triangle and oblique triangle trigonometry. Prerequisite: MTH 1103 Introduction to Algebra.

Music

MUS 1000 Recital Attendance No Credit

This course is designed to provide the music student with exposure to a wide variety of music through concert and recital attendance.

MUS 1101, 1111, 2101, 2111 Applied Piano 1 Credit

Applied lessons are met weekly. Students are evaluated at each lesson as to the individual technical and musical progress. The students study a variety of traditional repertoire of classical piano music, covering style periods from the Baroque era through the present day. Repertoire difficulty increases as technical and musical skills increase.

MUS 1201, 1211, 2201, 2211 Functional Piano 1 Credit

This course presents basic functional keyboard skills. It is designed to prepare the music major to pass piano proficiency requirements.

MUS 1301, 1311, 2301, 2311 **1 Credit**
Applied Voice

Applied lessons are met weekly. Students are evaluated at each lesson as to the individual vocal and musical progress. The students study a variety of traditional repertoire of classical vocal music, covering style periods from the Baroque era through the present day. Repertoire difficulty increases as vocal and musical skills increase.

MUS 1403 Music Fundamentals **3 Credits**

The study of music elements beginning with the properties of sound and concluding with triad construction and recognition. Instruction will include beginning sight singing and ear training. No previous musical training is necessary. Open to all university students. MUS 1403 may be used as a preparatory course for Music Theory I.

MUS 1411 Ear Training I **1 Credit**

Sight reading of melodies, ear training, melodic dictation, and keyboard harmony. Music grade of "C" required for advancement in ear training sequence. Must be taken concurrently with Music Theory I or by instructor's consent.

MUS 1413 Music Theory I **3 Credits**

Major and minor scales, key signatures, intervals, note values, and meter signatures. Part writing using primary and secondary triads. Failure to pass music entrance examination will require students to take MUS 1403. Music grade of "C" required for advancement in theory sequence. Must be taken concurrently with Ear Training I or by instructor's consent.

MUS 1421 Ear Training II **1 Credit**

This course is a continuation of Ear Training I. The aural study of intervals, melodies and triads, scales, rhythms and sequences. While further developing those skills acquired in Ear Training I, the course will proceed with an aural study of functional harmony. The purpose is to increase listening skills essential for a musician. Must be taken with Music Theory II or by instructor's consent.

MUS 1423 Music Theory II **3 Credits**

The study of theory, harmony, and practice of Western music from the 17th century to the present, including review of music fundamentals, triad construction and inversions, voice leading, and harmonic structure. Part writing and ear training will be in conjunction with MUS 1421. This course is a continuation of Theory I. Triads and seventh chords, non-harmonic tones, and modulations to closely related keys are studied. Secondary functions will be introduced and studied as well as formal analysis of binary and ternary forms. The student will harmonize melodies and realize figured basses. Must be taken with Ear Training II or by instructor's consent.

MUS 1501, 1511 1 Credit

Class Voice

Group instruction for beginning voice students emphasizing vocal techniques, methods, and physiology.

MUS 1791 The Singers I 1 Credit

Non-music majors as well as music majors may enroll in this course for credit. A performing ensemble designed to study a wide variety of music, The Singers perform on campus as well as before civic organizations.

MUS 1891 The Singers II 1 Credit

Continuation of MUS 1791.

MUS 2503 Fine Arts-Musical 3 Credits

An introduction to music for the listener who has had no formal training. The purpose is to help the student develop criteria for appreciation of music. Three lecture hours per week.

MUS 2791 The Singers III 1 Credit

Continuation of MUS 1891.

MUS 2891 The Singers IV 1 Credit

Continuation of MUS 2791.

Physical Education

PE 1012 Fitness for Life 2 Credits

A course designed for students who wish to improve their personal physical fitness. Activities in the course will provide the student with the opportunity to develop physical strength, cardiovascular endurance, and flexibility. The student will have the opportunity to be certified in ARC/Adult CPR. Motivational materials provided by the instructor will be included in this study so that students can assess and select future fitness activities.

PE 1022 Physical Conditioning I 2 Credits

The purpose of this course is to provide an understanding and personal appreciation of the relationship of physical activity and fitness to health so that the individual will select an appropriate personal life-style for optimal lifelong health and well being. The course is a conditioning class consisting of physical fitness tests, weight room activities, and cardiovascular conditioning. Emphasis upon self-improvement as related to fitness, conditioning, strength development, weight loss or gain, and decreasing or increasing body measurements.

PE 1032 Physical Conditioning II 2 Credits

Physical Conditioning II is a continuation of Physical Conditioning I.

- PE 1301 Recreational Games 1 Credit**
The course is designed for individuals who wish to be introduced to a variety of recreational games. It is designed to develop the basic skills, knowledge, and techniques of badminton, pickle ball, volleyball, table tennis, racquetball, wallyball, and horseshoes.
- PE 1421 Beginning Racquetball 1 Credit**
Designed for individuals who wish to learn the basic fundamentals of racquetball. The course includes the fundamental skills and techniques needed to play racquetball successfully. It also includes the knowledge of rules, terminology, etiquette, and strategy.
- PE 2421 Intermediate Racquetball 1 Credit**
Review of the game of racquetball: rules, etiquette, and selection of equipment. Develop racquetball skills with emphasis upon serves, backhand, and strategy. For students who have already acquired basic skills.
- PE 1461 Fundamentals of Archery 1 Credit**
Fundamentals, techniques, and practice in recreational archery.
- PE 1481 Beginning Tennis 1 Credit**
Introduction to the basic skills, rules and strategy of tennis.
- PE 2481 Intermediate Tennis 1 Credit**
Instruction in skill, strategy, and techniques of tennis.
- PE 1491 Badminton 1 Credit**
Introduction to the basic skills, rules, and strategy of badminton.
- PE 1501 Beginning Golf 1 Credit**
An introduction to the basic skills, rules, and strategy of golf.
- PE 2501 Intermediate Golf 1 Credit**
Instruction in skills, strategy, and techniques of golf for students who have already acquired basic skills in golf.
- PE 1601 Soccer 1 Credit**
Introduction to the basic skills, rules, and strategy of soccer.
- PE 1611 Basketball 1 Credit**
Introduction to the basic skills, rules, and strategy of basketball.
- PE 1621 Volleyball 1 Credit**
Introduction to the basic skills, rules, and strategy of volleyball.
- PE 1623 Concepts of Fitness 3 Credits**
Provides knowledge and appreciation of the importance of physical activity for lifelong health, wellness, and a quality life; provides opportunities for

psychomotor development. A required course for physical education majors. The course may be taken by the general population. It will satisfy the 2 hours activity physical education requirement for the core curriculum.

PE 1651 Softball 1 Credit

Introduction to the basic skills, rules and strategy of softball.

PE 1862 Aerobic Exercise I 2 Credits

The principles and concepts of exercise as related to the enhancement of cardiovascular development.

PE 1872 Aerobic Exercise II 2 Credits

A continuation of PE 1862.

PE 1883 Foundations of Physical Education 3 Credits

An introductory course designed for the prospective physical education major. Areas of special emphasis are history, principles, scope of program, relationship of physical education to general education, current professional literature, and vocational opportunities.

PE 2803 Physical Education for Elementary Grades 3 Credits

A course designed to assist prospective elementary teachers in planning and conducting a well-rounded program. Emphasis is placed on proper selection of activities, program organization, and teaching procedures. For course transferability, see an advisor. (Fall, Spring, Summer)

Philosophy

PHIL 1103 Introduction to Philosophy 3 Credits

An examination of the basic problems of philosophy as evidenced in the major schools of philosophical thought. Includes historical and contemporary readings.

Physical Science

PHSC 1204 Physical Science 4 Credits

An introduction to basic concepts of physical science for the student who has completed no college course in chemistry or physics. This course is designed to provide an understanding of the facts, methods, and significance of the physical sciences by concentrating on selected topics from physics, chemistry, earth science, and astronomy. Lecture three hours, laboratory two hours per week. Prerequisite: MATH 0003 or equivalent or consent of instructor.

Physics

PHYS 1014 Applied Physics for Health Science 4 Credits

A survey of the general areas of mechanics, heat, wave motion, basic electricity and magnetism, light and atomic physics for students in the health

sciences. Lecture three hours, laboratory two hours per week. Prerequisite: MATH 1023.

PHYS 2054 General Physics I 4 Credits

The essentials of mechanics, heat and sound for students of the life sciences or non-science majors. Lecture three hours, laboratory two hours per week. Prerequisite: MATH 1033 or consent of instructor.

PHYS 2064 General Physics II 4 Credits

The continuation of PHYS 2054, covering electricity, magnetism, light and modern physics. Lecture three hours, laboratory two hours per week. Prerequisite: PHYS 2054 or consent of instructor.

PHYS 2074 Fundamental Physics I 4 Credits

A detailed study of the basic principles of mechanics, thermodynamics, and wave motion for students of physical science, mathematics, and engineering, utilizing calculus. Lecture three hours, laboratory two hours per week. Corequisite: MATH 2205.

PHYS 2084 Fundamental Physics II 4 Credits

The continuation of PHYS 2074, covering electricity, magnetism, optics and modern physics. Lecture three hours, laboratory two hours per week. Prerequisite: PHYS 2074. Corequisite: MATH 2215.

Political Science

POSC 2103 Introduction to United States Government 3 Credits

A survey of the structure and process of American national government.

POSC 2203 State and Local Government 3 Credits

An examination of the basic principles and problems with state and local governments and the administration of their programs.

POSC 2323 Principles of International Relations 3 Credits

A survey of contemporary international problems and issues as they relate to the foreign policies of the major powers.

Poultry Science

POUL 2313 Incubation and Brooding 3 Credits

Incubation of eggs; hatchery management and artificial brooding of broiler and egg type chicks. Lecture two hours, laboratory two hours per week.

POUL 2703 Principles of Poultry Production 3 Credits

Principles of breeding, housing, feeding, incubation, brooding, disease control, and marketing applied to general farm conditions.

Plant and Soil Science

PSSC 1303 Introduction to Plant Science 3 Credits

Introduction to agronomic and horticultural cropping systems including crop growth and development, crop physiology, crop ecology, environmental considerations and production/protection practices.

PSSC 2323 Agricultural Chemicals 3 Credits

A study of agricultural chemicals in relation to agricultural practices. Comparison of chemicals used in controlling internal and external parasites, treatment of deficiencies, disease, and growth factors in animals and plants. An evaluation of effectiveness and safety standards. Prerequisite: CHEM 1014.

PSSC 2333 Forage Production and Use 3 Credits

A study of pasture and hay products and their use. Lecture three hours per week.

PSSC 2803 Field Crops 3 Credits

A study of field crops, types and varieties, seed of small grains, and green manure crops. Lecture two hours, laboratory two hours per week.

PSSC 2811 Soils Laboratory 1 Credit

Corequisite: PSSC 2813.

PSSC 2813 Soils 3 Credits

A study of origin, classification and physical and chemical properties of soil. Lecture three hours per week. Prerequisite: CHEM 1003 or CHEM 1014.

Psychology

PSY 2013 Introduction to Psychology 3 Credits

A scientific study of behavior and cognitive processes. General psychology covers a wide range of human behavior.

**PSY 2533 Lifespan Development 3 Credits
(formerly Developmental Psychology)**

A study of the transformation in human development from pre-birth to death. Usually required for nursing, psychology, and social work majors.

PSY 2553 Sensation and Perception 3 Credits

An explanation of the sensory processes and perceptual phenomena. Prerequisite: PSY 2013.

Quality Control Technology (Taught on Demand)

QA 1113 Introduction to Quality Control 3 Credits

An introduction to quality control presented as a body of technical, analytical, and managerial knowledge. Covers the scope of quality control activity

throughout the entire business system of a company, the administrative problems and elements of managerial work, the identification and description of engineering technologies required, and quality control education and training. Lecture three hours.

QA 1123 Quality Assurance Engineering Concepts/Practices 3 Credits

An overview study of the elements of Quality Engineering. The course addresses the concepts of Quality Assurance organization, policies, philosophies, and the math and statistics used by Quality Engineers to maintain control of the Quality System. The course is based on practical applications of concepts and philosophies for effective functioning of the Quality System. Lecture three hours.

QA 1153 Manufacturing Processes 3 Credits

A study of the basic manufacturing processes including casting or molding, forming or metal working, machining, joining, finishing, and heat treating. Emphasis will also be placed on general assembly, chemical processes, robotic and automated assembly, electronic assembly, vision systems, and food processing.

QA 2113 Quality Control Technology and Application 3 Credits

A description and discussion of the technology of quality control which includes frequency distributions, control charts, sampling tables, special methods and reliability, and applications of these methods to new-design control, incoming material control, product control and special studies. Lecture three hours. Prerequisite: QA 1113.

QA 2123 Metrology 3 Credits

A study and application of gauges, micrometers, calipers, height gauges, indicators, electronic coordinate measuring machines, and optical comparators. Other specialized quality control instruments used in the chemical and food-processing industries will be studied. Lecture three hours. Prerequisite: Consent of instructor.

QA 2133 Inspection Standards 3 Credits

Development, use and control of codes, standards, inspection standards, testing procedures, engineering and manufacturing specifications, sampling plans, quality cycles, and reporting of necessary data. Incorporated will be F.D.A., U.L., government and other standards and regulatory requirements. Lecture three hours. Prerequisites: QA 1113 and QA 2113.

QA 2153 Quality Control Management, Policies and Procedures 3 Credits

An investigation of the administrative responsibilities and problems associated with quality control work, organizing required to get the work accomplished, methods of measuring effectiveness, and the integration of organiza-

tional activities into a quality system. An investigation of quality control activity and its scope throughout the entire business system of a company. Special attention will be given to the economics of Quality Control and its importance to American industry in the competition of world markets. Lecture three hours. Prerequisites: QA 1113 and QA 2113.

QA 2163 Problem Solving and Decision Making Techniques 3 Credits

A study of the decision making process and the application of statistical methods in solving problems and making choices. Emphasis will be placed on the actual solving of practical problems. Projects will be assigned by the instructor, or with the instructor's approval, student may develop projects from problems encountered by the student in their place of work. Lecture three hours.

Quality Management

QM 2113 Business Statistics 3 Credits

Statistical methods used in studying business and economic data, averages and dispersions, probability, sampling, statistical inference, estimation, tests of hypotheses, index numbers, linear regression, and correlation. Prerequisite: MATH 1023.

Reading

READ 0003 Developmental Reading 3 Credits

A course designed to help students improve reading and comprehension skills as well as reading habits. Students with ACT reading scores below 19 must take this course. Lecture 3 hours, laboratory 1 hour per week. (Credit earned not applicable toward a degree.)

READ 1023 Rapid Reading 3 Credits

A course designed for those who wish to improve existing reading skills. Primarily a laboratory course, its purpose is to increase reading speed and comprehension. Prerequisites: Students must have an ACT score of 19 or above or have successfully completed Reading Improvement.

Sociology

SOC 2213 Principles of Sociology 3 Credits

A survey of origin, development, structure, and functioning of human relationships, and the factors influencing group life.

SOC 2223 Social Problems 3 Credits

Application of sociological concepts and methods of the analysis of current social problems in the United States, including family and community disorganization, delinquency and crime, mental illness, and intergroup relations.

SOC 2233 Introduction to Cultural Anthropology 3 Credits

Students will examine the concept of culture, cultural processes and several anthropological theories. Some topics to be studied are: introduction to anthropology, culture and communications, economic systems, kinship and descent, sex, marriage and the family, religious beliefs, behavior, and symbolism.

SOC 2263 Comparative Religions 3 Credits

Students will examine the historical and philosophical tenets of the world's major religions. This course will also examine the basic beliefs and values of those religions, and the human condition, spiritually.

Spanish

SPAN 1013 Elementary Spanish I 3 Credits

Elementary Spanish I is designed to teach Spanish language and culture as complementary facets of a single reality. Students will learn authentic, unsimplified Spanish and use it in the context of actual communication. Elementary Spanish I is designed as a foundation course for students who intend to focus on careers based on either a primary or secondary use of the language. There is no prerequisite for Elementary Spanish I.

SPAN 1023 Elementary Spanish II 3 Credits

Elementary Spanish II is a continuation of Elementary Spanish I. Prerequisite: SPAN 1013 or at least one year of high school Spanish.

SPAN 2013 Intermediate Spanish I 3 Credits

Intermediate Spanish I is a continuation of Elementary Spanish II. Prerequisite: SPAN 1023.

SPAN 2023 Intermediate Spanish II 3 Credits

Intermediate Spanish II students will continue developing skills in reading, writing, and speaking through the selected use of authentic Spanish literature and cultural presentations. Prerequisite: SPAN 2013.

Speech

SPCH 1203 Oral Communications 3 Credits

A basic speech course in which an understanding of the fundamentals of communication theory and a proficiency in the use of oral communication skills are developed. The course also serves as a prerequisite for all other speech courses unless exemption is granted by the division.

SPCH 2233 Oral Interpretation 3 Credits

The theory and practice of reading aloud, with emphasis on the emotional and intellectual content of literature. Prerequisite: SPCH 1203.

SPCH 2243 Interpersonal Communication 3 Credits

The primary aim of this course is to introduce the student to the basic concepts and theories necessary for the study of interpersonal communications and to provide the student with the opportunity to gain and practice new interpersonal skills in an open, helpful, accepting environment. Prerequisite: SPCH 1203.

Special Education**SPED 2613 Introduction to Exceptional Children 3 Credits**

An introduction to the characteristics of exceptional individuals and the field of special education. Course requires an outside observation of children in special education.

Social Work**SW 2203 Introduction to Social Work 3 Credits**

This is the required introductory course in social work for social work majors. Students will examine the emerging profession of social work and its role in various social programs. A history of social welfare events and philosophies will be given in order to assess present services. This is a basic overview course and not an in-depth study of social work. This course is not intended to teach how to interview, how to be a counselor, or how to conduct case management. This course will, however, teach assessment of adequacy/inadequacy of resources, prevailing attitudes and influences, and trends during various periods of history.

Theatre**THEA 1203 Introduction to Theatre 3 Credits**

A study of basic principles and techniques of drama with emphasis on analytic reading of representative traditional and contemporary plays and the theatrical traditions, terminology, and techniques for the production of dramatic works. Prerequisite: ENG 1003 or consent of Instructor.

THEA 1213 Beginning Acting 3 Credits

Study of theories and styles of acting. Group and individual projects in different types and periods of roles and plays.

THEA 1261 Theatre Workshop I 1 Credit

Open to all interested students. Two major plays will be produced; students will work both on stage and backstage.

THEA 1271 Theatre Workshop II 1 Credit

Continuation of THEA 1261.

THEA 1293 Stage Combat I 3 Credits

Introduction in the basic techniques of stage combat. Students will learn basic hand to hand combat and athletic movements for stage. Students will also be introduced to common stage combat weapons. Stress will be placed on safety procedures and professional development.

THEA 2223 Fundamentals of Stagecraft 3 Credits

Basic construction, painting, and rigging of scenic units. Fundamentals of backstage organization. Classroom theory is supplemented by laboratory sessions in the scene shop and by assignment in production crews.

THEA 2261 Theatre Workshop III 1 Credit

The second year in the workshop sequence. Open to all interested students by permission of the instructor or by completion of THEA 1261 and THEA 1271.

THEA 2271 Theatre Workshop IV 1 Credit

Continuation of THEA 2261.

THEA 2503 Fine Arts-Theatre 3 Credits

Introduction to the creative process and history of theatre. Provides students with an appreciation of how various artistic elements combine to produce theatrical presentations. Students will explore the human experience through the theatre arts.

THEA 2273 Theatre Practicum 3 Credits

A special theatre workshop to provide experience in all phases of theatre including lighting, costume and scene building, props, house management, and acting.

Upholstery

UPH 1004 Basic Upholstery Techniques 4 Credits

Students will develop and show proficiency in the use of tools, materials, shop supplies, and terminology as applied to the upholstery industry.

UPH 1014 Auto Upholstery I 4 Credits

Students will develop knowledge and skills in the removal, repair, recovering and reinstallation of automotive seats.

UPH 1024 Auto Upholstery II 4 Credits

Students will demonstrate proficiency in removal of old carpet and pad and construction of new carpet and pad. They will also demonstrate proficiency in removal and construction of a convertible top and convertible boot. (Students may select one of all of these units, with approval of the instructor, to meet the requirements of the course.)

- UPH 1034 Auto Upholstery III 4 Credits**
This course is designed to give students a working knowledge of automotive interior replacement or repair including repair or replacement of arm rest door panels and wind lace headliners. It also features a continuation of UPH 1024.
- UPH 1044 Furniture Upholstery I 4 Credits**
Students will demonstrate proficiency in disassembling and reupholstering reclining furniture.
- UPH 1054 Furniture Upholstery II 4 Credits**
Students will demonstrate proficiency in upholstering pillow-type furniture.
- UPH 1064 Furniture Upholstery III 4 Credits**
Students will demonstrate proficiency in upholstering sofas or loveseats.
- UPH 1074 Advanced Upholstery Techniques I 4 Credits**
Students will continue to develop skills and knowledge in upholstering techniques. Channeling will be emphasized in this course.
- UPH 1084 Advanced Upholstery Techniques II 4 Credits**
Students will continue to develop skills and knowledge in upholstering techniques. In this course, students will be required to refurbish one tufted-back chair.
- UPH 1094 Restoration of Antique Furniture 4 Credits**
Students will develop knowledge and skills in the repair, recovering, and refinishing of an antique chair.

Zoology

- ZOOL 1014 Basic Human Anatomy and Physiology 4 Credits**
A course in physiology wherein the functions of each of the organ systems are studied. Emphasis will be placed on the nervous, musculoskeletal, cardiovascular, respiratory, excretory, and endocrine systems. Designed for majors in medical technology, radiology, home economics, physical education, psychology, and secondary education with teaching emphasis in biology. Lecture three hours, laboratory three hours. Prerequisites: BIOL 1004 or consent of instructor.
- ZOOL 1304 General Zoology I 4 Credits**
A study of the evolution, form, structure, function and reproduction of invertebrate animals. Lecture three hours, laboratory three hours per week. Prerequisite: BIOL 1004.
- ZOOL 1314 General Zoology II 4 Credits**
A study of the evolution, form, structure, function and reproduction of vertebrate animals. Lecture three hours, laboratory three hours per week. Prerequisite: BIOL 1004.

ZOOL 2004 Human Anatomy and Physiology I 4 Credits

Structure and function of cells, tissues, integumentary system, skeletal system, muscular system, nervous system. Lecture three hours, laboratory three hours per week. Prerequisite: BIOL 1004 or consent of instructor.

ZOOL 2014 Human Anatomy and Physiology II 4 Credits

Structure and function of special senses, endocrine, circulatory, digestive, respiratory, excretory and reproductive systems, acid base balance, and fluid balance. Lecture three hours, laboratory three hours per week. Prerequisite: ZOOL 2004 or consent of instructor.