

COURSE CATALOG NUMBERING SYSTEM

The four-letter prefix stands for the topic or department of study.

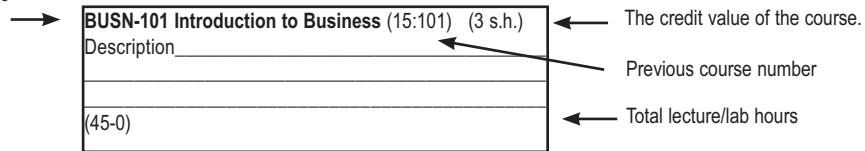
Three numbers:

000-099 = Developmental Courses

100-299 = College Transfer Courses

700-899 = Career/Technical Courses

900-999 = Special Topics



ACCT	Accounting	HEAL	Health
ADNS	Associate Degree Nursing	HIST	History
AGAS	Ag Agronomy	HUMA	Humanities
AGBS	Ag Business	HVAC	Climate Control
AGCS	Ag Conservation	INDU	Industrial
AGES	Ag Equine	INSS	Insurance
AGMS	Ag Management	ISTS	Information Systems Technology
AGPS	Ag Production	JOUR	Journalism
AGSS	Ag Science	LITS	Literature
ARTS	Art	LPNS	Practical Nursing
AUTO	Automotive	MATH	Math
BIOL	Biology	MEDA	Medical Assistant
BUIL	Building Trades	MRKT	Marketing
BUSN	Business	MUSI	Music
CHEM	Chemistry	OFFC	Office Occupations
CNAS	Nursing Assistant	PHIL	Philosophy
COMP	Computer Science	PHYE	Physical Education
CRIM	Criminal Justice	PHYS	Physical Science
DRAM	Drama	POLS	Political Science
ECOM	E-Commerce	PSYC	Psychology
EDUC	Education	PTAS	Physical Therapy
EMSS	Emergency Medical Technician	RETL	Retail Management
EMST	Electromechanical Systems Technology	SDEV	Student Development
ENGL	English	SOCS	Sociology
ENGR	Engineering	SPAN	Spanish
ENRI	Enrich	SPCH	Speech
ENTR	Entrepreneurship	SPOR	Sport Management
ENVR	Environmental Science	SRNE	Senior Network Administration
FIRE	Fire Science	STAT	Statistics
FOOD	Hospitality/Food Service	TLDI	Tool and Die
GEOG	Geography	WELD	Welding

Course Descriptions--

ACCT-101 Introduction to Accounting (15:109) (3 s.h.)

A basic understanding of the process of collecting and using financial information in business. (45-0)

ACCT-105 Payroll Accounting (15:155) (3 s.h.)

Prerequisite: ACCT-101 Introduction to Accounting or ACCT-120 Principles of Accounting I with a grade of C or above. A study of basic business taxes. Emphasis on payroll taxes including social security taxes, income taxes, and unemployment taxes; completion of quarterly and annual reports and a payroll simulation project. (45-0)

ACCT-106 Computer Accounting (15:160) (3 s.h.)

Prerequisite: ACCT-101 Introduction to Accounting or ACCT-120 Principles of Accounting I with a grade of C or above. Designed to provide students with realistic experience with automated accounting consisting of five systems: general ledger, accounts payable, accounts receivable, depreciation, and payroll. The course uses QuickBooks software. (45-0)

ACCT-120 Principles of Accounting I (15:150) (3 s.h.)

An introductory accounting course: analyzing transactions, matching principle, adjusting and closing entries, financial statements, receivables, inventories, fixed assets and intangible assets, current liabilities, corporations (capital stock transactions, dividends, income and taxes, stockholder's equity, investment in stocks), bonds payable, investment in bonds. (45-0)

ACCT-121 Principles of Accounting II (15:151) (3 s.h.)

Prerequisite: ACCT-120, Principles of Accounting I, or equivalent. A managerial accounting course that covers Statement of Cash Flows, financial statement analysis, job order and process cost systems, cost behavior, budgeting, standard costing, differential analysis and product pricing, capital investment analysis, activity-based costing, and just-in-time manufacturing. Emphasis is on management's use of accounting information. (45-0)

ACCT-701 Ag Business Accounting (92:151) (3 s.h.)

Principles of debit, credit, the recording of data in various types of journals, posting of the ledgers, the worksheet, financial statements and their interpretation, analysis, adjusting, and closing the books at the end of the fiscal period. (45-0)

ADNS-701 Introduction to Nursing (90:106) (1 s.h.)

Prerequisite: Acceptance into the ADN Program is a requirement for entrance into this class. An introduction to the philosophy and conceptual framework of the NIACC Associate Degree Nursing Program. The course includes basic concepts related to legal and ethical aspects of nursing, nursing roles, and current trends in health care. The student is introduced to wellness-illness theory, the therapeutic nurse-patient relationship and effective communication techniques. An introduction to caring concepts is also included. This course has been designated as a pass/no pass course. (15-0)

ADNS-702 Nursing I (90:108) (7 s.h.)

Prerequisite: ADNS-701, Introduction to Nursing; BIOL-109, Microbiology; and ENGL-104, Composition I. Nursing I utilizes the

nursing process with emphasis on assessment and nursing diagnosis in meeting client needs resulting from impairments relating to safety and comfort throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills. Clinical experiences include opportunities to apply nursing roles and the nursing process in long-term care, medical-surgical, and community settings. (60-105)

ADNS-703 Nursing II (90:111) (10 s.h.)

Prerequisite: BIOL-220, Anatomy and Physiology I; ADNS-702, Nursing I; PSYC-110, Developmental Psychology; and PSYC-101, Introduction to Psychology; ENGL-104 Composition I; BIOL-109, Microbiology; ADNS-701, Introduction to Nursing. Nursing II utilizes the nursing process with emphasis on planning in meeting client needs resulting from impairments relating to self-esteem and mobility throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills. Clinical experiences include opportunities to apply nursing roles and the nursing process in maternal-newborn, pediatrics, medical-surgical, and community settings. (105-135)

ADNS-704 Nursing IIA (90:113) (1 s.h.)

Prerequisite: Graduate of approved Practical Nursing Program; hold current, unencumbered practical nurse license, plus successful completion of all freshman nonnursing courses. Provides introduction to program, differentiates roles of LPN and RN, reviews nursing process, presents specific communication techniques, and reviews content in laboratory setting. Students must obtain a passing grade in this course to continue into Nursing III, ADNS-801. If a passing grade is not attained, the student will be required to register for Nursing II, ADNS-703. This course has been designated as a pass/no pass course. (14-2)

ADNS-801 Nursing III (90:210) (12 s.h.)

Prerequisite: ADNS-703, Nursing II; or ADNS-704, Nursing IIA, or consent of Associate Degree Nursing faculty, plus all freshman year nonnursing courses. Nursing III utilizes the nursing process with emphasis on implementation in meeting client needs resulting from impairments relating to interpersonal interaction, oxygenation, and nutrition throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills. Clinical experiences will include opportunities to apply nursing roles and the nursing process in a variety of care settings. (105-225)

ADNS-802 Nursing IV (90:211) (12 s.h.)

Prerequisite: ADNS-801, Nursing III, or consent of Associate Degree Nursing faculty, plus SOCS-101, Sociology. Nursing IV utilizes the nursing process with emphasis on evaluation in meeting client needs resulting from impairments relating to nutrition, elimination, and sensory stimulation throughout the life span. Pharmacological concepts, diet modification, psychosocial concepts, and health maintenance are integral considerations in the progressive development of the student's knowledge and skills to meet the diverse needs of the client. Concepts of management, legal, and ethical aspects of the nursing profession and issues related to current trends are presented. Clinical experiences will focus on clients with complex needs. The management

experience is the culmination of the student's academic and clinical education in which the student will have an opportunity to care for a group of clients and apply basic skills in leadership and conflict management. Clinical experiences will include opportunities to apply nursing roles and the nursing process in a variety of care settings. (105-225)

AGAS-701 Crop Science I (90:160) (3 s.h.)
Topics covered include: plant anatomy and physiology; plant classification and ID; pest classification and ID; and pesticides, pest management, application equipment, calibration, laws/regulations. Students will take the Iowa Core Manual examination as a requirement for this course. (38-15)

AGAS-702 Crop Science II (90:161) (3 s.h.)
Production and management practices for corn, soybeans, small grains, and legume crops common to North Iowa agriculture. (38-15)

AGAS-703 Soil Science (90:186) (3 s.h.)
Introduction to the physical, chemical, and biological properties of soils with an emphasis on the functions of the soil as a medium to support plant life. A review of the sources and functions of major and minor plant elements, fertilizers and their properties, soil acidity, liming materials, and soil conservation. (38-15)

AGAS-801 Soils and Crop Management (90:282) (2 s.h.)
Prerequisite: AGAS-703, Soil Science, or its equivalent. The use of advanced technology for crop production. (30-0)

AGAS-805A Crop Production Lab (92:168) (1 s.h.)
Problem-solving approach to crop management. Principles and practices of agricultural science are used in the discussion of management problems and operations related to crop production at the NIACC Farm Lab. Students will participate in the management and operations of the NIACC Farm Lab. (0-30)

AGBS-701 Introduction to Ag Business (90:170) (3 s.h.)
Basic economic concepts, principles, and practices reflected in agriculture. An overview of the major components of an agricultural business organization and the economic fundamentals involved in organizing, operating, and managing an agricultural business. (45-0)

AGBS-710 Ag Economics (90:183) (3 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Students will study the role of agriculture in the American economy. Basic economic concepts, the composition and pricing of agricultural products, government and monetary policy will be discussed. A study of this country's agricultural economic policies with a look at how other countries' agricultural economic policies affect us. The economic decision-making process will be taught built upon the management function of planning, organizing, directing, and controlling. (45-0)

AGBS-801 Commodity Marketing (90:185) (2 s.h.)
Elements of producer marketing of major Midwest crops with emphasis on formulating marketing goals and plans. Marketing tools, futures and option markets, speculation, hedging, and risk management. (30-0)

AGBS-810 Ag Finance Management (90:285) (2 s.h.)
Prerequisite: ACCT-701, Ag Business Accounting. Principles of farm management. Emphasis is given to decision making, implementation, and control in farm operations using economic principles, farm records, enterprise analysis, financial reports, and investment analysis procedures. (30-0)

AGBS-812 Ag Real Estate Evaluation (92:189) (2 s.h.)
Concepts of appraisal and pricing of real estate, along with development, growth, and value of real estate. Methods of acquiring and financing real estate and estate planning. (30-0)

AGBS-815 Salesmanship and Advertising (90:189) (2 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Sales presentations and advertising setups of agricultural goods and services will serve as a basis of discussion in this course. Students will study techniques of selling and advertising of agricultural goods and services, and have a first hand chance to sell products to student/consumers during the course of the semester. (30-0)

AGBS-840 Employment Relations and Business Decisions (92:272) (2 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Provides students with a management and supervisory learning experience. The course emphasizes the role of management in today's agribusiness environment. Principles of managerial control, coordination, communication, motivation, and organization are discussed. The role of management supervision and its influence on employee productivity, satisfaction, and organizational effectiveness is a major part of the course. (30-0)

AGCS-701 Introduction to Farm Operation (90:264) (3 s.h.)
Introduction to Farm Operation is a unique study experience with hands-on-activities in the learning lab at NIACC. Students enrolled in this three-credit course participate in the management and operation of the NIACC Teaching Farm Lab. The primary objective of this course is to provide experience in the planning, purchasing, production, construction, maintenance, marketing, and investment decisions associated with a diversified Iowa farm operation. (10-90)

AGES-701 Horse Essentials (92:264) (2 s.h.)
General concepts of breed type and identification; the selection process; nutrition requirements; the reproduction cycle; the importance of genetics; general health; and management requirements will build a strong background for those interested in owning a horse of their own or pursuing a career in equine management. (30-0)

AGMS-701 Equipment Maintenance and Management (92:273) (2 s.h.)
Maintenance and management of agricultural machinery and power units. (23-45)

AGPS-701 Precision Agriculture Technologies (90:267) (2 s.h.)
Prerequisite: Computer Applications, Crop Science I, II, or demonstrated proficiency in each area. Precision agriculture is a management strategy that uses information technologies to bring data from multiple sources to bear on decisions associated with

crop production. It should be viewed as a developing management system and not simply as an application of technology. GPS is considered the enabling tool for the entire Precision Agriculture system. GPS is vital for yield monitoring, soil sampling, measuring field boundaries, and variable-rate application of crop nutrients and crop protection products. Students will be introduced to this and to other important technologies, with hands-on experience being provided using GPS receivers, scouting, navigation tools, and mapping software. (15-30)

AGPS-702 Site-Specific Crop Management (92:261) (2 s.h.)
Prerequisite: AGAS-703, Soil Science, or its equivalent. The use of advanced technologies for crop production. (30-0)

AGPS-820 Ag Futures and Futures Options (92:263) (2 s.h.)
Prerequisite/Corequisite: AGBS-801, Commodity Marketing. Advanced commodity marketing concepts, principles, and terminology. (30-0)

AGSS-701 Animal Science I (70:112) (4 s.h.)
This course is designed to provide students with a general overview of the livestock industry. It identifies the ways in which domestic animals serve the basic needs of humans for food, fiber, shelter, protection, fuel and emotional well-being. Students will develop an understanding of and be able to apply the basic principles of animal selection, breeding, genetics, feeding, health, and husbandry practices. As a student, you will become familiar with the economic and social issues that confront the livestock industry. (60-0)

AGSS-702 Animal Science II (70:212) (4 s.h.)
This course applies advanced principles of livestock production and management. Areas of emphasis include: a review of animal husbandry practices, which result in greater performance and profit; livestock facilities requirements; production trends, animal health, and nutritional requirements for livestock produced in the Midwest; emphasis on swine and beef cattle production. (60-0)

AGSS-710 Animal Nutrition (90:171) (2 s.h.)
Fundamentals of nutrition that deal with monogastric and ruminant animals. Materials covered will enable students to identify sources, composition and functions of various feedstuffs. Students will learn to evaluate and formulate livestock rations and will be able to make feeding recommendations based upon varying livestock, environment and management conditions. (30-0)

AGSS-720 Swine Production (90:169) (2 s.h.)
This course applies advanced principles of swine production and management. Areas of emphasis include: a review of swine husbandry practices, which result in greater performance and profit; livestock facilities requirements and maintenance, animal health, reproduction, and nutritional requirements. Students will have the opportunity to apply skills learned in the classroom to the swine operation at the NIACC Farm Lab. (30-0)

AGSS-801 Animal Health (92:166) (2 s.h.)
This course provides a basic overview of animal health principles and practices that enable students to identify the major diseases of livestock, prescribe treatment and properly administer treatment. The course includes a review of animal insects, parasites, and reproductive management. The course allows students to

develop strategies aimed at disease prevention, disease treatment and improved animal performance while providing concern for the animal's well being. (30-0)

AGSS-805A-B Livestock Production Lab I (92:270) (1-2 s.h.)
Students will develop livestock husbandry skills associated with profitable beef and swine production. This hands-on experience emphasizes production practices that increase reproductive efficiency, insure herd health, increase pounds of market production, provide proper nutrition, and assure high market value. Students will assist in the selection, breeding, parturition, processing, feeding, fitting, and marketing of hogs and cattle. Students will evaluate, modify, and manage livestock facilities for maximum production efficiency. (0-30 or 60)

AGSS-806A-B Livestock Production Lab II (92:271) (1-2 s.h.)
Students will develop livestock husbandry skills associated with profitable beef and swine production. This hands-on experience emphasizes production practices that increase reproductive efficiency, insure herd health, increase pounds of market production, provide proper nutrition, and assure high market value. Students will assist in the selection, breeding, parturition, processing, feeding, fitting, and marketing of hogs and cattle. Students will evaluate, modify, and manage livestock facilities for maximum production efficiency. (0-30 or 60)

AGSS-810 Beef Cattle Production (90:293) (2 s.h.)
This course is designed to help students identify the primary biological principles that contribute to raising productive beef cattle, to integrate biological and economic principles that comprise effective management decisions needed to produce profitable cattle, and to enhance the understanding and communication between all segments of the beef industry. The course material identifies the primary management principles and practices needed by commercial and seed stock producers to raise productive and profitable cattle that can meet the specifications needed by the beef industry. (30-0)

AGSS-815A-C Swine A.I. Center Management (92:262) (1-3 s.h.)
Students will be responsible for the operation and management of the Swine A.I. Center. During the period of instruction, students will develop skills associated with the artificial insemination of swine. This hands-on experience utilizes the NIACC's industry-leading swine lab facility which includes housing of gilts, sows and boars; bright and easily accessible training areas, a fully equipped laboratory for semen processing, evaluation, extension, packaging, and storage. The course emphasizes boar management, training, reproductive physiology, semen collection, handling and processing; sow reproductive physiology, semen evaluation and packaging, artificial insemination techniques, semen marketing, and business management. (15 to 45-30 to 90)

AGSS-816 Animal Technologies (1 s.h.)
Prerequisite: Students should have a strong foundation in Computer Applications, and Animal Science I and II, or demonstrated proficiency in each area is highly recommended. This course is designed for students seeking an Associate of Science Degree in Agriculture. Students will be involved with techniques and technologies that enable better management decision-making and improved economic efficiency of agricultural operations. Included in the course are Animal Reproductive Technologies, Embryo Transfer,

Estrus & Ovulation Synchronization, Electronic Heat Detection, Quality Assurance Evaluation, and Food Safety. (10-15)

ARTS-101 Art Appreciation (10:101) (3 s.h.)

An introductory course designed to give a better understanding of art as an important force in present-day living. Aims to develop an appreciation of art and creative thinking through lectures, readings, and visual aids. Experimentation with a variety of tools, techniques, and materials is a meaningful part of the course. Recommended for nonart majors. Entry-level course. (45-0)

ARTS-103 Art in the Elementary School (10:112) (3 s.h.)

Prerequisite: ARTS-101, Art Appreciation, or permission of instructor to remove prerequisite. This course is designed for elementary education majors or those who are planning to work with children Pre-K to grade 6. Focuses on instructional planning for art studio and response activities with emphasis on interdisciplinary and multicultural approaches. Components are artistic development of children, peer teaching, field observation, and foundations of art education. (45-0)

ARTS-104 Art History I (10:102) (3 s.h.)

The study of the development of the visual arts of western civilization including painting, sculpture, architecture, and crafts from prehistoric origins through Gothic. (45-0)

ARTS-105 Art History II (10:103) (3 s.h.)

The study of the development of the visual arts of western civilization including painting, sculpture, architecture, crafts, and photography from the Renaissance through the present time. (45-0)

ARTS-120 Drawing (10:120) (3 s.h.)

The development of visual perception in objective and subjective representation. Study of line, form, texture, and value in a variety of media stressing an individual's creative development. Entry-level course. (20-50)

ARTS-130 Ceramics (10:130) (3 s.h.)

An introductory course involving hand-building, wheel-throwing, glazing, and firing. Slides, lectures, and demonstrations. Ceramics facilities are located in the MacNider Museum, Mason City. (20-50)

ARTS-150 Creative Photography (10:150) (3 s.h.)

An investigation into the relationship of basic photographic techniques to design, perception, and aesthetics. Each student is encouraged to cultivate his or her own visual vocabulary while working on photographic projects. (20-50)

ARTS-151 Intermediate Photography (10:151) (3 s.h.)

Prerequisite: ARTS-150, Creative Photography. Emphasis on exploring photographic materials in the development of a personal vision. Technical subjects covered: lighting, advanced printing, and camera techniques. Only offered spring semesters. (20-50)

ARTS-201 Two-Dimensional Design (10:201) (3 s.h.)

Students/artists explore the process of visual problem solving through participation in class critiques of individual projects. Perception and structure: exploring visual order emphasizing two-dimensional concepts. (20-50)

ARTS-202 Graphic Design (10:202) (3 s.h.)

Prerequisite: ARTS-201, Two-Dimensional Design. Creative problem solving through the exploration of aesthetic and technical aspects of graphic design using computer-aided design software. (20-50)

ARTS-210 Painting I (10:210) (3 s.h.)

Prerequisite: ARTS-201, Two-Dimensional Design; ARTS-120, Drawing; or ARTS-101, Art Appreciation. Beginning course planned to familiarize the student with the basic materials and tools of painting, the elements of pictorial organization, and the individual's creative development. Each student is encouraged to cultivate his or her own visual vocabulary. (45-0)

ARTS-211 Painting II (10:211) (3 s.h.)

Prerequisite/Corequisite: ARTS-210, Painting I. Continuation of ARTS-210. Independent research, reading, and personal exploration of media and techniques. (45-0)

ARTS-220 Digital Illustration (10:220) (3 s.h.)

Prerequisites: ARTS-201, Two-Dimensional Design. Recommended: ARTS-150, Creative Photography or ARTS-202, Graphic Design. Creation and manipulation of digital imagery is explored in the context of creative expression. User interactivity, animation, full-color printing, and computer art theories are covered. The student completes visual projects with instructor guidance. (30-30)

AUTO-701 Introduction to Automotive Technology (98:144) (3 s.h.)

Prerequisite/Corequisite: strong mechanical aptitude. Instruction in fundamental shop safety, service procedures, precision measurement and engine operation, use of service manuals and service equipment. Laboratory procedures in performing vehicle lubrication and fluid changes, and general maintenance and service of engine exhaust, and cooling systems. (30-60)

AUTO-702 Brake Systems (98:145) (3 s.h.)

Prerequisite/Corequisite: AUTO-701, Introduction to Automotive Technology. Instruction in the theory and operating principles of drum, disc, hydraulic and anti-lock brake systems (ABS). Laboratory procedures for inspecting, testing, diagnosing, repairing and/or replacing conventional, power, and ABS brake system components. (15-90)

AUTO-703 Suspension and Steering (98:146) (3 s.h.)

Prerequisite/Corequisite: AUTO-701, Introduction to Automotive Technology. Instruction/laboratory service procedures for inspection, adjustments, alignment, repair and/or replacement of suspension and steering components. (15-90)

AUTO-710 Electrical Systems I (98:147) (3 s.h.)

Prerequisite/Corequisite: AUTO-701, Introduction to Automotive Technology and INDU-701, Electrical Concepts. Instruction in the electrical and electronic principles and testing procedures as applied to automotive circuits and microprocessors. Laboratory procedures to include the utilization of wiring schematics and test equipment for diagnosing and repairing instrumentation, electrical accessory, and lighting systems. (30-60)

AUTO-711 Engine Repair (98:148) (3 s.h.)
Prerequisite/Corequisite: AUTO-701, Introduction to Automotive Technology. Instruction/laboratory procedures for engine repair diagnosis, removal, disassembly, inspection, overhaul and reassembly of automotive and/or light truck engines according to manufacturer's specifications. (15-90)

AUTO-712 Manual Drive Train and Axles (98:149) (3 s.h.)
Prerequisite/Corequisite: AUTO-701, Introduction to Automotive Technology. Instruction/laboratory procedures for servicing, diagnosing, and repairing/replacing standard transmissions and clutches, transaxles, and differentials. (15-90)

AUTO-715 Automotive Heating and Air Conditioning (98:133) (3 s.h.)
Prerequisite/Corequisite: INDU-701, Electrical Concepts, or instructor's permission. Instruction in theory and operation of automotive heating and air-conditioning systems including heat transfer and pressures. Laboratory procedures for servicing and maintaining heating and air conditioning systems and controls utilizing approved refrigerant recovery/recycling equipment and methods (30-60)

AUTO-720 Computerized Controls (98:180) (3 s.h.)
Prerequisite/Corequisite: INDU-701, Electrical Concepts, or instructor's permission. Instruction in electronics theory as it applies to automotive computers, sensors, and control devices, with emphasis on developing an organized approach to diagnostics. (30-30)

AUTO-801 Auto Transmissions & Transaxles (98:179) (5 s.h.)
Prerequisite/Corequisite: INDS-701, Electrical Concepts, or instructor's permission. Instruction in diagnosis, maintenance, and overhaul of major automatic transmissions and transaxles in various makes of automobiles. (45-90)

AUTO-802 Fuel Delivery Systems (98:208) (3 s.h.)
Prerequisite/Corequisite: INDU-701, Electrical Concepts, or instructor's permission; and strong mechanical aptitude. Instruction in the fundamentals of operation and service of complete fuel systems, including storage, delivery, and metering. (30-30)

AUTO-810 Electrical Systems II (98:209) (5 s.h.)
Prerequisite/Corequisite: AUTO-710, Electrical Systems I, or instructor's permission. Strong mechanical aptitude. Instruction in operation, service, and troubleshooting of automotive electronic/electrical circuits and systems; to include starting, charging, and ignition systems. (45-60)

AUTO-820 Engine Performance Testing (98:211) (5 s.h.)
Prerequisite/Corequisite: AUTO-720, Computerized Controls, or instructor's permission. Strong mechanical aptitude. Instruction in the theory and operating principles of automotive emission systems with emphasis on utilizing relevant vehicle data and service information, lab and, oscilloscopes, DVOMs, and scan tools to test/diagnose/repair system malfunctions. (45-90)

AUTO-821 Advanced Engine Performance (98:212) (6 s.h.)
Prerequisite/Corequisite: AUTO-720, Computerized Controls, or instructor's permission. Strong mechanical aptitude. Instruction in the theory and operating principles of automotive computerized engine control systems and other advanced electronic systems with

emphasis on utilizing relevant vehicle data and service information, lab and oscilloscopes, DVOMs, and scan tools to test/diagnose/repair system malfunctions. (60-90)

BIOL-101 Biological Principles (70:101) (3 s.h.)
Study of organismic biology including organization, metabolism, and reproduction of living systems. Includes evolutionary patterns, inheritance, growth, development, ecosystems, and structure-function relationships among organisms. (45-0)

BIOL-102 Biological Principles Lab (70:102) (1 s.h.)
Prerequisite: Credit for BIOL-101 or current enrollment in BIOL-101. This is a lab component intended to supplement Biological Principles. (0-30)

BIOL-103 Inquiry Into Life Science (70:190) (3 s.h.)
Prerequisite: EDUC-101, Introduction to Teaching. This course is specifically designed for education majors. Topics include ecosystems, plants, gene, homeostatis, microbes and metabolism. These topics are presented while modeling effective pedagogy when it comes to teaching science. The course is modeled on the Teaching Standards and Content Standards of the National Science Education Standards. (30-30)

BIOL-105 Health and Nutrition (70:110) (3 s.h.)
The science of health and its application to the individual, home, community, and school. Elementary physiology, nutrition, dependency, and current health problems of national concern. (45-0)

BIOL-108 Human Biology (70:111) (4 s.h.)
Course provides overview of human biology for nonscience majors. Includes study of cells, tissues, organs, and systems with emphasis on interrelatedness. Coverage also includes genetics, and aspects of various human diseases. (45-30)

BIOL-109 Microbiology (70:109) (4 s.h.)
Morphology, physiology, taxonomy, and relationship of microorganisms to disease. In-depth laboratory study and suitable lecture material with applications to agriculture, industry, and medicine. (45-30)

BIOL-201 Biology I (70:105) (4 s.h.)
Prerequisite/Corequisite: concurrent enrollment in CHEM-110, General Chemistry I, or CHEM-210, Chemistry Principles I, is strongly encouraged. This course, with the addition of Biology II, is a detailed study of the fundamental principles of biology, including the study of ecology and environmental issues, cell structure and function, energy transfer, inheritance, and evolution. (45-30)

BIOL-202 Biology II (70:108) (4 s.h.)
Prerequisite: BIOL-201, Biology I or permission of instructor. This course, with the addition of Biology I, is a study of evolution and the diversity of life. (45-30)

Note: Students enrolling in Biology I or II should plan on taking both semesters of the sequence at NIACC, preferably during the same academic year. Problems may result for the student who takes one Biology semester at NIACC and the other semester at a different institution.

BIOL-205 Nutrition (70:200) (3 s.h.)
Prerequisite: three credit hours of high school inorganic chemistry. Physiology or biology helpful, but not essential. Basic math skills will be employed. Introduces the science of human nutrition and its application to the role of the nurse, other allied health professional or educator in promoting good nutrition throughout the life span. Emphasis is placed on the study of macro and micro nutrient needs; and the use of science-based evidence for evaluation of findings and adoption of applications promoting sound nutritional practices among patients, clients and the community at large. Some principles of diet modification are presented as they relate to common chronic health problems, such as heart disease and diabetes. (45-0)

BIOL-220 Anatomy and Physiology I (70:250) (4 s.h.)
Prerequisite: Human Biology or Biological Principles highly recommended, but not required. A study of the human body emphasizing the complementary nature of structure and function, molecular and cellular interactions, homeostasis, and metabolic processes. Includes a study of cells, tissues, membranes, skeletal, muscular, and reproductive systems. (45-30)

BIOL-221 Anatomy and Physiology II (70:251) (4 s.h.)
Prerequisite: BIOL-220, Anatomy and Physiology I, or permission of instructor. A continuation of BIOL-220, Anatomy and Physiology I. Includes a study of the circulatory, respiratory, digestive, endocrine, urinary, and nervous systems. Cat, heart, kidney, brain, and eye dissections are performed in the laboratory. (45-30)

Note: Students enrolling in Anatomy and Physiology I or II should plan on taking both semesters of the sequence at NIACC. Problems may result for the student who takes one A&P semester at NIACC and the other semester at a different institution.

BIOL-222 Kinesiology (70:149) (3 s.h.)
Prerequisite: BIOL-220, Anatomy and Physiology I. Provides a basic understanding of normal human body movement as related to skeletal, articular, neurological, and muscular systems. Levers, torques, center of gravity, base of support, and their relationship to balance, posture, and movement will be addressed. The student will learn anatomical palpations and the basics of human gait. (30-30)

BIOL-900A-C Special Topics in Biology (70:297) (1-3 s.h.)
Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0)

BIOL-922A-D Field Studies in Biology (70:204) (1-4 s.h.)
Prerequisite: permission of the instructor. Field-based exploration of fundamental concepts of ecology and biology through active investigation. Use of nature centers, field professionals, parks, and the environment itself for learning and interpretation. Past trips include Belize, tropical ecology; Washington state, temperate rainforest and tide pool ecology; northern Minnesota, boreal forest ecology. (5-30 to 120)

BUIL-700 Construction Safety (91:161) (2 s.h.)
This course covers Safety and Health Standards for the Construction Industry (29 CFR Part 1926). Safety in the construction industry is as essential to securing the well being of the company as it is to protecting the welfare of the worker. Changes in the labor market, insurance costs, and OSHA compliance requirements make it imperative that supervisors and workers receive adequate safety training to develop, practice, and maintain safe working conditions at construction work sites. (30-0)

BUIL-701 Fundamentals of Carpentry I (91:151) (3 s.h.)
General skills instruction covers safety; basic hand tools; basic power tools; job site safety; print reading; construction materials and systems; construction fasteners and processes; residential construction practices; and commercial construction practices. (15-60)

BUIL-702 Fund of Carpentry II (91:152) (3 s.h.)
General skills instruction covers safety; basic hand tools; basic power tools; job site safety; print reading; construction materials and systems; construction fasteners and processes; residential construction practices; and commercial construction practices. (15-60)

BUIL-703 Carpentry I (8 s.h.)
General skills instruction covers safety; hand tools; power tools; print reading; builders level, transit, and laser; scaffolding; rigging; arc welding, cutting, and burning. Residential skills instruction covers site work; building layout; form work; floor and sill framing; wall and ceiling framing; roof framing; stair construction; exterior walls, soffits, and cornice construction; roof coverings; window and door installation; cabinet fabrication; and running trims and hardware installations. (60-210)

BUIL-705 Architectural Drawing (91:173) (1 s.h.)
Students will learn about the fundamentals of drawing using manual and computer-aided drafting skills. Architectural Drawing is designed to give students the skills necessary to produce a set of working drawings. Students will learn to draw plans, sections, elevations, details, and schedules. (15-0)

BUIL-710 Carpentry II (91:156) (8 s.h.)
General skills instruction covers safety; hand tools; power tools; print reading; builders level, transit, and laser; scaffolding; rigging; arc welding, cutting, and burning. Commercial skills instruction covers site work; building layout; footing, wall, stair, column, beam, and deck form constructions; wood and steel stud framing; exterior walls and canopy constructions; cabinet fabrication; wood and steel jamb, window, door, millwork, and hardware installations; office partition, and acoustical ceiling installations. (60-210)

BUIL-715 Building Codes and Standards (91:174) (2 s.h.)
This course covers construction-related building codes and standards. Presentations illustrate which of the various codes and standards affect specific types of construction. Students learn how competent construction workers bear responsibility for knowing, understanding, and complying with codes and standards during all phases of the construction process. (30-0)

BUIL-720 Blueprint Reading and Estimating (91:198) (3 s.h.)
Residential and commercial blueprint reading and materials estimating covers understanding drawings, the language of construction. Students learn how to gather and use information from prints and drawings to estimate quantities of materials and perform construction work processes. (45-0)

BUSN-101 Introduction to Business (15:101) (3 s.h.)
An overview of the phases and functions of the business enterprise. Units of instruction include the organization, financing, production, and contemporary issues in business. The course provides an awareness and understanding of the complexities of the business world. (45-0)

BUSN-102 Keyboarding Level I (15:112) [Open Entry] (1 s.h.)
Prerequisite: None. This course covers the development of keyboarding techniques using the touch method on the computer keyboard to learn/review the alphabetic keys. The keyboarding goal is a minimum rate of 20 words a minute with 3 or fewer errors on a two-minute timing. Students with little or no keyboarding skill would begin at this level. This course has been designated as a pass/no pass course. (0-30)

BUSN-103 Keyboarding Level II (15:113) [Open Entry] (1 s.h.)
Prerequisite: BUSN-102 Keyboarding Level I OR ability to keyboard at 20 words a minute. This course covers the development of the touch method on the computer keyboard to learn/review the alphabetic, numeric, and symbol keys. The keyboarding goal is a minimum rate of 30 words a minute with 3 or fewer errors on a three-minute timing. This course has been designated as a pass/no pass course. (0-30)

BUSN-105 Human Relations (15:241) (3 s.h.)
The study of how people satisfy both personal growth needs and organizational goals. Human Relations looks at what can be done to anticipate problems, resolve them, or prevent them from happening. Emphasis is on practical knowledge which can be applied at work or at home. Significant developments in recent years have increased the importance of interpersonal skills in almost every type of setting; these trends provide support for the necessity of acquiring competence in human relations. (45-0)

BUSN-120 Business Law I (15:120) (3 s.h.)
Law as applied to business transactions and business relationships. An introduction to jurisprudence and the courts, contracts, commercial paper, sales, and security agreements. (45-0)

BUSN-121 Business Law II (15:121) (3 s.h.)
Prerequisite: BUSN-120, Business Law I recommended. A continuation of BUSN-120. Agency, corporations, partnerships, bailments, real property, wills, trusts, insurance, bankruptcy, and government regulation of business. Some information on international law and liability of accountants and other professionals. (45-0)

BUSN-122 Internet Law (15:197) (3 s.h.)
Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. An overview of the legal issues which have arisen in response to Internet usage, particularly those legal issues which impact web-based commerce. Specific issues studied include jurisdiction, copyright, trademarks, contract,

taxation, securities, offerings, privacy, obscenity, defamation, security, and computer crime. (45-0)

BUSN-130 Principles of Management (15:142) (3 s.h.)
BUSN-101, Introduction to Business, is recommended. Provides students with a general introductory management learning experience. Role of management in today's business environment; management's influence on employee productivity, employee satisfaction and organizational effectiveness; major control devices of management. (45-0)

BUSN-131 Principles of Supervision (15:144) (3 s.h.)
This course is designed for individuals who hold, or who will hold, supervisory positions. The course involves the study of the major managerial functions (planning, organizing, staffing, directing, and controlling) and is augmented by other pervasive areas of supervision such as communication, motivation, decision making, and human relations. (45-0)

BUSN-132 Managing Human Resources (15:149) (3 s.h.)
Course describes the transition from personnel management to human resources management. The focus is on the systematic process of recruitment, selection, developing, and appraising employees. (45-0)

BUSN-140 Principles of Banking (15:170) (3 s.h.)
Fundamental bank functions presented in a descriptive fashion so that the beginning banker may view the chosen profession in broad (and operational) perspective. (45-0)

BUSN-201 Advanced Professional Leadership Development (15:231) (1 s.h.)
This course is designed for the experienced business manager and supervisor or the employee that is on the management fast track. This course involves the study of the major management functions of building and leading teams, communications, financial management, coaching and mentoring, presentation skills, business writing, organizational design, managing change, strategic planning, quality management, creative thinking, and negotiation skills. Course is repeatable for credit to a maximum of 3 credit hours. (15-0)

BUSN-210 60-Hour Real Estate Prelicensure (15:207) (3 s.h.)
This prelicense course is required by the Iowa Real Estate Commission prior to examination for an Iowa Real Estate Salesperson License. Upon completion of this curriculum, participants will be exposed to principles of real estate, terminology, mathematical calculations, procedures and ethics necessary to enable them to understand the real estate profession. This course prepares them to take the Real Estate Salesperson Examination, and to function as a well informed real estate salesperson. (30-30)

BUSN-220A-C On-The-Job Training (15:280) (1-3 s.h.)
On-the-Job Training is designed to provide a student an opportunity to apply his/her skills in a job setting. The On-the-Job experience is coordinated with an identified school coordinator and on-site sponsor. This is repeatable credit for a maximum of 6 hours. (0-60 to 180)

BUSN-250 Analysis and Valuation of Stocks (15:272) (1 s.h.)
Analysis and Valuation of Stocks is a comprehensive course

designed to provide you with conventional and advanced techniques in researching and valuing stocks. Starting off with the basics, you will learn how to read financial statements and calculate financial ratios, and then move on to perform industrial comparisons, value stocks, and conduct economic and industrial research. This course is taught in a manner that uses everyday language, simple, yet insightful analogies, and a just-the-facts attitude that you will understand and appreciate. By the end of this course, you will have a strong foundation in the analysis and valuation of stocks. (5-20)

BUSN-252 Introduction to Microsoft Publisher (15:244) (1 s.h.)
Introduction to Publisher 2002 demonstrates layout and design techniques to create brochures, newsletters, and publish a web site to the Internet. This course has been designated as a pass/no pass course. (5-20)

BUSN-253 Learn to Buy and Sell on e-Bay (15:245) (1 s.h.)
Learn to Buy and Sell on e-Bay demonstrates skills of entitling, creating advertisements, uploading photographs, conduct financial transactions and protect against fraud. This course has been designated as a pass/no pass course. (5-20)

BUSN-254 Introduction to Quickbooks (15:246) (1 s.h.)
Introduction to QuickBooks provides a traditional approach to small business accounting by creating a chart of accounts, reconcile checking accounts, create invoices, receipts, statements, payable registry, inventory, receivables registry, and generate reports. This course has been designated as a pass/no pass course. (5-20)

BUSN-255 Stocks, Bonds, and Investing: Oh My! (15:247) (1 s.h.)
Stocks, Bonds, and Investing: Oh My! emphasizes preemptive planning for a financial account by comprehending financial markets through identifying how financial markets operate. This course has been designated as a pass/no pass course. (5-20)

BUSN-256 Online Investing (15:248) (1 s.h.)
Online Investing demonstrates opening an online account, investing, inspecting exchanges, performing financial analysis, conducting research, and choosing investments. This course has been designated as a pass/no pass course. (5-20)

BUSN-900A-C Special Topics in Business (15:299) (1-3 s.h.)
Student may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeated for credit. (15 to 45-0)

CHEM-101 Introductory Chemistry (70:140) (4 s.h.)
Prerequisite: MATH-060, Beginning Algebra, or equivalent. A one-semester college chemistry course which surveys important concepts and topics of chemistry. This course is not intended for science majors (but may be appropriate as preparation for a more thorough beginning chemistry course). Among these are the metric system of measurement, atomic theory of matter, energy levels and atomic structure, the periodic table, ionic and molecular compounds, ionic and covalent bonding, chemical reactions, and reaction equations and calculations. High school chemistry is not a prerequisite. Laboratory work is an important part of this course. (45-30)

CHEM-110 General Chemistry I (70:135) (5 s.h.)
Prerequisite: MATH-060, Beginning Algebra, or equivalent. First semester of a two-semester sequence intended for non-science majors. Introduction to the basic concepts and facts of chemistry. Topics include the metric system of measurement, atomic theory of matter, energy levels and atomic structure, the periodic table, ionic and molecular compounds, ionic bonding, covalent bonding and molecular structure, classification of chemical reactions, and reaction equations and chemical calculations. This course treats these topics in more depth than Introductory Chemistry CHEM-101; however, high school chemistry is NOT a prerequisite. Laboratory work is an important part of this course. (45-60)

CHEM-111 General Chemistry II (70:136) (5 s.h.)
Prerequisite: CHEM-110, General Chemistry I, or equivalent. The continuation of CHEM-110 (General Chemistry I), this is the second semester of a two-semester sequence intended for non-science majors. Topics include a review and extension of first-semester material on chemical calculations; reaction rates, chemical equilibrium and acid-base chemistry, electron-transfer (oxidation-reduction) reactions and electrochemical cells, and, as time permits, introductions to organic and biological chemistry. Laboratory work is an important part of this course. (45-60)

CHEM-210 Chemistry Principles I (70:137) (5 s.h.)
Prerequisite: satisfactory completion of one year of high school chemistry; MATH-100, Intermediate Algebra, or the equivalent. Atomic structure, stoichiometry, thermochemistry, reactions in aqueous solution, chemical bonding and molecular structure, structure-property relationships. (45-60)

CHEM-211 Chemistry Principles II (70:138) (5 s.h.)
Prerequisite: CHEM-210, Chemistry Principles I, or equivalent. Physical properties (gases, liquids, solids), chemical equilibrium and kinetics, acid-base chemistry, chemical thermodynamics, electrochemistry, introduction to organic chemistry and polymers. (45-60)

CHEM-220 Organic Chemistry I (70:274) (5 s.h.)
Prerequisite: CHEM-111, General Chemistry II, or CHEM-211, Chemistry Principles II. Survey of the major classes of organic compounds emphasizing molecular structure, stereochemistry, reaction mechanisms and synthesis. Laboratory work includes procedures of distillation, solvent extraction, chromatography, polarimetry and the use of both macroscale and microscale laboratory glassware. (45-60)

CHEM-221 Organic Chemistry II (70:275) (5 s.h.)
Prerequisite: CHEM-220, Organic Chemistry I. Continuation of CHEM-220 including spectroscopic methods for molecular structure determination. Laboratory work involving the procedures introduced in CHEM-220 and the use of infrared spectroscopy and gas chromatography for compound identification. (45-60)

CHEM-900A-C Special Topics in Chemistry (70:298) (1-3 s.h.)
Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0)

CNAS-101 Nurse Aide Theory (89:164) (2 s.h.)
 Corequisite: CNAS-102, Nurse Aide Clinical. This 75-hour nurse aide course has been designed to meet the training requirements of The Omnibus Budget Reconciliation Act of 1987 (OBRA) for aides working in nursing facilities (NF) and skilled nursing facilities (SNF). Emphasis in the course is on students achieving a basic level of knowledge and demonstrating skills to provide safe, effective resident care. The course has been developed in six units of study. The theory portion includes 30 hours of classroom time and 15 hours of laboratory practice. (30-0)

CNAS-102 Nurse Aide Clinical (89:165) (1 s.h.)
 Corequisite: CNAS-101, Nurse Aide Theory. The clinical experience includes 30 hours in a nursing facility. (0-45)

COMP-100 Computer Literacy (15:114) [Open Entry] (1 s.h.)
 Prerequisite: None. This course is intended to familiarize the student with Windows-based personal computers including introductory file control and management using Windows, exposure to different software, and basics on how to use the Internet. Students with little or no computer background are encouraged to take this course. This course has been designated as a pass/no pass course. (0-30)

COMP-101 Computer Applications (15:134) (3 s.h.)
 Emphasis on business applications of computer software. Students do business problems using word processing, electronic spreadsheet, and database management software. (45-0)

COMP-105 Word Processing (15:211) (2 s.h.)
 This course is designed to introduce students to computers and the fundamentals of word processing. The students will progress from basic through intermediate features of word processing software. Also Open Entry. (20-20)

COMP-110 Introduction to Computers and Information Systems (15:140) (3 s.h.)
 Emphasis on computer literacy and business applications of computer software. Students do business problems using electronic spreadsheets, word processing software, database management software, and presentation software. Students also are exposed to web use, file management, and simple web page development. (45-0)

COMP-111 Management Information Systems I (15:141) (3 s.h.)
 Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. The primary goal of MIS I is to prepare students to be productive participants in an information society. The course is designed to develop a broad understanding of business information systems, various ways to discern information from an information system, and look at ways to distribute this information. The student will also learn the basic principles and techniques for developing simple computer-based information systems for managerial decision support systems through an extensive group project component of the course. (45-0)

COMP-112 Microsoft Outlook (15:227) (2 s.h.)
 The course is designed to take students through the core competencies for Microsoft Outlook in preparation for the Microsoft Office Specialist certification test. (15-30)

COMP-113 Microsoft Access (15:225) (1 s.h.)
 This course is designed to take students through the core competencies for Microsoft Access in preparation for the Microsoft Office Specialist (MOUS) certification test. (5-20)

COMP-114 Microsoft PowerPoint (15:226) (1 s.h.)
 This course is designed to take students through the core competencies for Microsoft PowerPoint in preparation for the Microsoft Office Specialist (MOUS) certification test. (5-20)

COMP-115 Electronic Spreadsheets (15:175) (3 s.h.)
 Prerequisite: COMP-110, Introduction to Computers and Information Systems, or COMP-101, Computer Applications. Learn the fundamentals of spreadsheets, databases, and business graphics using appropriate software. (30-30)

COMP-205 Database Management (15:174) (3 s.h.)
 Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. This course introduces students to database concepts, with topics such as database structure and design, planning, modeling, database software and servers, SQL, reports, fault tolerance, and administration being covered. Exposure to current and popular database systems will be provided. (45-0)

COMP-206 Advanced Desktop Applications (15:176) (3 s.h.)
 Prerequisite: COMP-110, Introduction to Computers and Information Systems. Advanced topics in desktop computer applications will be studied in this course. Students will also examine integrated software packages such as Microsoft Office Professional in this class. They will utilize integrated software to solve several business problems presented to them allowing them to gain an understanding of integrated software, as well as other desktop applications, through hands-on experience. The course will be project-based, providing the student with a collaborative environment. (30-30)

COMP-207 Advanced Document Processing (15:136) (3 s.h.)
 Prerequisites: COMP-101, Computer Applications, and COMP-105, Word Processing. Students will learn intermediate to advanced functions of Microsoft Word including customizing templates, recording macros, creating on-screen forms, managing long documents, creating hyperlinks, and publishing on the World Wide Web. Upon completion of the course, the students may be prepared to take the Microsoft Office Specialist expert exam. (30-30)

COMP-701 Introduction to the PC (91:159) (1 s.h.)
 This course provides an introduction to the desktop PC, its parts and basic operation. The student learns how to operate the computer, work within the windows environment, and manipulate files. Course exercises will include using the MS Office Suite, including Word, Excel, Access, and Outlook to process documents, lay out spreadsheets, compile databases, and send e-mail. Students also learn to explore the Internet to research information. (10-20)

COMP-702 Computer Orientation (96:162) (1 s.h.)
 Introduction to basic computer hardware and software functions. Emphasis on using the computer as a tool to create personal and business documents. Introductory Windows, word processing, spreadsheet, presentation, and Internet units give students an opportunity to view software capabilities and use some of the features. (15-15)

COMP-703 Computer Applications for Agriculture (90:182) (3 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture or for students transferring on to a four-year institution pursuing a degree in agriculture. Students will be involved in techniques that make the personal computer a more productive tool in agriculture. Students will also have the opportunity to see how computers enable better management decision-making and improved economic efficiency of agricultural operations. Major topic area of instruction is the Microsoft Office 2000 package. (30-30)

COMP-803 Advanced Computer Applications (92:260) (2 s.h.)
Prerequisite: COMP-703, Computer Applications for Agriculture; AGAS-703, Soil Science; and AGSS-701, Animal Science I; or with instructor approval. An advanced course that allows the student to apply the fundamentals of computers, accounting, crops, and livestock. Intended to enhance the foundations of early knowledge, in each area, with the ability to make more efficient, effective decisions. (30-0)

CRIM-101 Criminal Law I (80:190) (3 s.h.)
The philosophy and basis for law; the historical development of criminal law and procedures; the structure, definitions, and criminal laws of Iowa. Required course for Criminal Justice curriculum. (45-0)

CRIM-102 Criminal Law II (80:191) (3 s.h.)
Prerequisite: CRIM-101, Criminal Law I. Required course for Criminal Justice curriculum. A continuation of CRIM-101. (45-0)

CRIM-105 Patrol Procedures (80:192) (3 s.h.)
Examining the responsibilities, techniques, and methods utilized by the uniformed police patrol officer. (45-0)

CRIM-106 Criminal Evidence (80:290) (3 s.h.)
The kinds and degrees of evidence and the rules governing the admissibility of evidence in court. Required course for Criminal Justice curriculum. (45-0)

CRIM-107 Administration of Justice (80:291) (3 s.h.)
Arrest, search and seizure; review of court systems; procedures from incident to final disposition; principles of constitutional, federal, state, and civil laws as they apply to and affect law enforcement. Required course for Criminal Justice curriculum. (45-0)

CRIM-108 Criminal Investigation (80:292) (3 s.h.)
The examination of fundamental investigative techniques, and the application of these techniques to specific investigative situations. (45-0)

DRAM-101 Intro to Theatre, TV and Film (85:150) (3 s.h.)
A survey of dramatic theatre, television, and film. (45-0)

ECOM-100 Beginning Web Page Development (15:137) (3 s.h.)
This class covers the basics of building a Web Page. Students will learn basic coding with HTML and explore web development products such as Microsoft's Front Page or Netscape's Composer to build a web page. Students will also learn how to post a web page on web server to be seen on the Internet, add graphics, change fonts, add colors, develop navigation, and design tables. (45-0)

ECOM-101 Introduction to E-Commerce (15:191) (3 s.h.)
Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. This course provides students with foundational skills and general information about electronic business solutions on the World Wide Web. Topics will include features of Internet marketing, sales, computer graphics, and network security. Students will also be introduced to Internet-related programming concepts and tools used to create web-based solutions. (45-0)

ECOM-110 Media Experience (15:169) (3 s.h.)
Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. This course covers comprehensively the latest version of HTML. Students will learn good coding practices and be introduced to web development tools and FTP programs. Students will also be introduced to SSI (Server-Side Includes), CSS (Cascading Style Sheets), image management, browser helper applications, and basic JavaScript. (45-0)

ECOM-115 Visual Communication (15:201) (3 s.h.)
Prerequisite: COMP-110, Introduction to Computers and Information Systems, ECOM-110, Media Experience, or permission of the instructor. This course is an introduction to visual problem solving and communication through the World Wide Web. This course will cover basic technical terminology, an overview of software and equipment for web graphic design and an introduction into digital imagery. Studio assignments will be digitized and sent electronically for evaluation and critique. The goal is to expand student competency in basic visual and technical skills, developing and understanding of how perception relates to communication and expose students to current issues related to web graphic design. (45-0)

ECOM-120 Internet Programming I (15:186) (3 s.h.)
Prerequisite: ECOM-110, Media Experience, and ISTS-125, Structure and Design, or permission of the instructor. This course will teach the fundamentals of client-side web scripting with JavaScript. Students will learn about browser-related object models and their associated properties, events, and methods. Students will work with these models to create documents on the fly, create pop-up documents, manage images, manage framesets, create roll-overs, enable and validate form elements, manage cookies, create and maintain basic databases, define and enable custom objects, and create various web-related tools. (45-0)

ECOM-201 Web Design (15:202) (3 s.h.)
Prerequisite: ECOM-115, Visual Communications or permission of the instructor. This course is an expansion of graphic design concepts merging traditional page design, typography, and digital imagery into the concepts and practices of web design. This studio course will cover the preparation of digital images, compositional dynamics, and sequencing of images into a complete working web design. Students will work with current graphic and digital imaging software and web authoring software. (45-0)

ECOM-203 Server Side Scripting (15:203) (4 s.h.)
Prerequisite: ISTS-105, Introduction to Programming, and COMP-205, Database Management, or permission of the instructor. Students will learn to develop and implement web applications using server side scripting with emphasis on a single language. (45-0)

Additional server side scripting languages and technologies will be discussed. Much of the languages object model and methods will be covered with focus on how to work with these objects and procedures. Students will gain hands-on experience while writing real world-based web applications from the ground up. Database basics will also be learned along with SQL. Simple databases will be created for use with web application back-ends. Students will learn to access and modify their databases by building front-ends for them using server side scripting and embedded SQL. Sufficient time will be spent building solutions that require using ASP, HTML, JavaScript, and various other server side scripting technologies together. (60-0)

ECOM-205 Web Animation (15:206) (3 s.h.)

Prerequisite: ECOM-115, Visual Communications. Animation can be an important part of information transfer from a Web site to the viewer. Topics will include when animation is an appropriate tool to use, when animation should be avoided, what tools are the current standard for Web animation, and how animation can be used to present information. The class will be project-based, with the student solving animation-related problems based on real business situations. Students will be expected to animate their solutions using current software. Animations will be judged on their completeness, correctness, and professionalism. (45-0)

ECOM-220 E-Commerce Cases (15:194) (4 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. Investigate current E-Commerce basics and real life scenarios regarding electronic business practices. This capstone course will tie together previous E-Commerce courses to real life applications. (60-0)

ECOM-225 Web Development Cases (15:199) (3 s.h.)

Prerequisite: ECOM-203, Server Side Scripting, or permission of the instructor. This course will build on the students' prior Internet Programming knowledge and give them an overview of various web application development resources, tools, languages, and technologies. Students will be introduced to various current tools and technologies available to a Web Developer for development and begin to understand the situations each works best in. Emphasis will be on compare and contrast techniques, proper planning, relating the syntax and elements to other tools and languages, knowledge transfer, how interaction takes place, design, and developing an understanding and use of programming resources. (45-0)

ECON-101 Personal Finance (80:135) (3 s.h.)

Introduction to financial planning, using financial services and your income wisely, protecting your assets, increasing your income through savings and investments, and planning for retirement. The primary emphasis is on investments. These include, but are not limited to stocks, bonds, real estate, and financial derivatives. (45-0)

ECON-110 Macroeconomics (80:133) (3 s.h.)

An introductory study of how people use scarce resources to satisfy unlimited wants. After an introduction to economics, the emphasis is on the determination of national income, output, employment, and the general price level in the national economy including an examination of the money and banking system. (45-0)

ECON-111 Microeconomics (80:134) (3 s.h.)

Prerequisite: ECON-110, Macroeconomics. An introductory study of how people use scarce resources to satisfy unlimited wants. The emphasis is on the behavior and decision making by individual consumers, entrepreneurs, workers, and other resource owners in the product and resource markets and the resulting effects on the efficiency with which resources are used. (45-0)

EDUC-101 Introduction to Teaching (20:101) (3 s.h.)

An introductory course in teacher education that gives students a clear view of the skills and knowledge they will need to be successful professionals. The course covers the place of the school in the community, basic philosophy including foundations and the future, the organization and administration of schools, and the nature of the curriculum. Purposeful classroom observations provide practical experience (30-30)

EDUC-125 Introduction to Early Childhood Education (20:125) (3 s.h.)

This course provides an overview of the philosophy and history of early childhood education and gives an understanding of early childhood programming in developmentally appropriate practice in addition to evaluating the essentials of early childhood education. Topics include childcare settings, the role of the child care professional, and related career fields. This course leads to CDA Certification. (45-0)

EDUC-126 Child Health, Safety and Nutrition (20:126) (3 s.h.)

This course blends current theory with practical applications on health, safety, and nutrition in group child care settings. Topics include: indoor and outdoor safety principles and assessments, childhood communicable diseases, nutrition analysis, menu planning, health and hygiene practices, care of the ill or injured child, identification of child abuse, and sound mental and physical health education practices. Students must obtain certification in CPR/ First Aid by completion of the course. This course leads to CDA Certification. (45-0)

EDUC-127 Child Development (20:127) (3 s.h.)

This course combines academic theory, scientific discoveries and practical applications as it presents the developmental progress of children in three domains--biosocial, cognitive and psychosocial. This course leads to CDA certification. (45-0)

EDUC-128 Home and School Relationships in Early Childhood (20:128) (3 s.h.)

Home & School Relationships in Early Childhood provides techniques for developing home, school, and community relationships to encourage the learning and well-being of each child. Birth through age 8 is emphasized. This course leads to CDA Certification. (45-0)

EDUC-195 Educational Media and Classroom Computing (20:195) (3 s.h.)

The production and use of instructional media/computer technology and their relationship to educational strategies. (30-30)

EDUC-201 Children's Literature (30:210) (3 s.h.)

Prerequisite: ENGL-101, Composition & Speech I, or ENGL-104, Composition I, and ENGL-102, Composition & Speech II, or ENGL-

105, Composition II, or comparable courses or approval of instructor. EDUC-101, Introduction to Teaching, is also a prerequisite. A study of Children's Literature by genre. An emphasis on teaching literature in the classroom will be a major component of the course. Purposeful school visitations will provide practical experience. This course meets some education program requirements. (45-0)

EDUC-210 Ed Measurement and Evaluation (20:110) (2 s.h.)
Prerequisite: EDUC-101, Introduction to Teaching. This introductory course in educational measurement and evaluation will provide a survey of the following topics: assessment instruments, test preparation, and use of standardized measures. (30-0)

EDUC-220 Including Exceptional Students (20:120) (3 s.h.)
Prerequisite: EDUC-101, Introduction to Teaching. An introductory discussion of issues and practices regarding the inclusion of diverse student populations in general education settings. Topics include integration, mainstreaming, and inclusion. Emphasis is placed on addressing the needs of all students, i.e. general education, special education, gifted, at risk, and multicultural. Formal and informal projects explore adaptive strategies for the curriculum, classroom, and social skill development. (45-0)

EMSS-100 First Responder (89:170) (2 s.h.)
Prerequisite: At least 17 years of age at the time of enrollment. Proficient in writing, reading, and speaking English. Hold or eligible to obtain a driver's license. Physically and emotionally capable of performing basic emergency care skills. A 48-hour emergency care course which emphasizes life-threatening emergencies, wounds, fractures, medical and environmental emergencies, and other emergency situations as outlined by the U.S. DOT. (20-26)

EMSS-101 EMT-Basic Part I (89:195) (4 s.h.)
Prerequisite/Corequisite: Be at least 17 years of age at the time of enrollment. Be proficient in writing, reading, and speaking English. Hold or be eligible to obtain a current driver's license. Be physically and emotionally capable of performing basic emergency care skills. Hold a current course completion card in CPR. Physical examination required prior to beginning hospital clinicals with immunizations and hepatitis B vaccine or waiver. This class provides the student with the necessary knowledge and skill to perform basic emergency care and transport. It includes an introduction/preparation module, airway management module, patient assessment module, medical/behavioral emergencies module, and obstetrical/gynecological emergencies module. Six hours of clinical in the hospital and nursing home is also included. (47-24-6)

EMSS-102 EMT-Basic: Part II (89:196) (2 s.h.)
Prerequisite/Corequisite: Be at least 17 years of age at the time of enrollment. Be proficient in writing, reading, and speaking English. Hold or be eligible to obtain a current driver's license. Be physically and emotionally capable of performing basic emergency care skills. Hold a current course completion card in CPR. Physical examination required prior to beginning hospital clinicals with immunizations and hepatitis B vaccine or waiver. Must have completed EMT-Basic Part I (EMSS-101). This class is a continuation of EMT-B Part I. It includes a trauma module, infants and children module, and operations module. Twelve hours of clinical in the hospital is also included. (20-14-12)

EMSS-110 EMT-I (89:175) (4 s.h.)
Prerequisite: EMT-B State of Iowa Certification. Must be 17 years of age at time of enrollment. High school diploma or its equivalent. Proficient in writing, reading, and speaking English. Hold a current course completion card in CPR. Hold or be eligible to obtain a current driver's license. Physical examination required prior to beginning clinicals, field time with immunizations and hepatitis B vaccine or waiver. Physically and emotionally capable of performing emergency care skills. This class provides the student with advanced skills to provide emergency care and transport. It includes roles and responsibilities, legal aspects, EMS system and communications, patient assessment, advanced airway management, shock management, including intravenous therapy and defibrillation. It also includes 45 hours of clinical/field experience. (30-30-45)

EMSS-120 EMT-P: Part I (89:171) (6 s.h.)
Prerequisite: EMSS-101, EMT-Basic Part I; EMSS-102, EMT-Basic Part II; State of Iowa Certification. Must be 17 years of age at time of enrollment. High school diploma or its equivalent. Proficient in writing, reading, and speaking English. Hold a current course completion card in CPR. Hold or be eligible to obtain a current driver's license. Physical examination required prior to beginning clinicals, field time with immunizations and hepatitis B vaccine or waiver. Physical and emotionally capable of performing emergency care skills. This course provides the student with advanced pre-hospital training. It includes roles and responsibilities, overview of human systems, emergency pharmacology, airway management, patient assessment, and trauma management (including PHTLS). (60-60)

EMSS-121 EMT-P: Part II (89:172) (7 s.h.)
Prerequisite EMSS-120, EMT-P: Part I. This course is a continuation of EMSS-120, EMT-P: Part I. It includes respiratory, cardiac, diabetic, neurological, toxicological, abdominal, gynecological, behavioral, pediatric, geriatric and obstetrical emergencies. (71-69)

EMSS-122 EMT-P: Part III (89:173) (3 s.h.)
Prerequisite EMSS-120, EMT-P: Part I, and EMSS-121, EMT-P: Part II. This course includes 68 hours of hospital clinical experience and 67 hours of field experience. (0-0-90-45)

EMSS-123 EMT-P: PART IV (89:174) (3 s.h.)
Prerequisite EMSS-120, EMT-P: Part I; EMSS-121, EMT-P: Part II; EMSS-122, EMT-P: Part III. This course includes 67 hours of hospital clinical experience and 68 hours of field experience. (0-0-45-90)

EMST-701 Introduction to Tech Computing & CAD (91:104) (3 s.h.)
Prerequisite/Corequisite: Ability to key-enter the equivalent of 25 words/minute at a computer keyboard. Introduction to Technical Computing and CAD is designed to familiarize the student with micro-computer basics relating to occupations in the industrial/technical area. Topics include computer hardware, operating systems, commands and tasks, disk organization and access, word processing, spreadsheets, and two-dimensional computer-aided drafting (CAD). The student should expect to spend 5-6 hours per week in the EMST lab to accomplish the required modular learning labs. (15-60)

EMST-702 DC/AC Theory (91:175) (3 s.h.)
Prerequisite/Corequisite: MATH-710, Occupational Math I, and MATH-711, Occupational Math II. Study of the nature of electricity involving both direct and alternating current. DC circuit analysis utilizing more advanced techniques such as: superposition, Thevenin's and Norton's theorems. AC circuit analysis involving RL, RC, and RLC circuits, inductive and capacitive reactances, resonance, and transformer fundamentals. Circuit simulation of both DC and AC circuits is stressed along with an application of electronic test equipment; oscilloscopes, meters, and power supplies. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-60)

EMST-703 Fluid Power (92:118) (3 s.h.)
Prerequisite/Corequisite: MATH-710, Occupational Math I, and MATH-711, Occupational Math II. Students gain knowledge and hands-on experience with hydraulic pneumatic components and circuits; the transmission of force through fluids; conversion of force to pressure; the control of power; and systematic methods of troubleshooting and testing hydraulic and pneumatic systems. This is an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-65)

EMST-710 Industrial Control Systems (91:105) (3 s.h.)
Prerequisite: EMST-702, DC/AC Theory. Introduction to industrial electrical motor and control circuitry. Emphasis placed on AC single- and three-phase circuit and transformer theory and industrial applications. Applications include various types of control elements. Study of the National Electrical Code as it pertains to manufacturing/industrial environment. Fundamental skills in electrical wiring and raceway techniques are learned through lab and/or project exercises. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-69)

EMST-711 Analog Devices and Circuits (91:179) (4 s.h.)
Prerequisite: EMST-702, DC/AC Theory. Study of diodes, bipolar transistors and field effect transistors (JFETs and MOSFETs) as they are used in both AC and DC electronic circuits. Applications such as power supplies, switching circuits and amplifier circuits are covered. Advanced topics in electronic devices including operational amplifiers (op amps), active filters, thyristors, and voltage regulation are covered. Practical circuit analysis of the devices under study is covered. Both circuit analysis and measurement techniques using meters and oscilloscopes are stressed. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 100-120 hours (7-8 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-91)

EMST-712 Digital Electronics (91:214) (3 s.h.)
Prerequisite/Corequisite: EMST-702, DC/AC Theory. Study of number systems related to digital circuits, Boolean Algebra/Karnaugh Maps. Combinational logic including AND, OR, NAND, NOR, NOT, and XOR. Combinational circuits decoders. Basic sequential ele-

ments including SR, D, JK, and Master-Slave flipflops. Sequential circuits including registers and counters. Memory circuits and applications. Analog to digital (A/D) and digital to analog (D/A) conversion, and elementary interfacing. Design, analysis, and computer simulation. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-63)

EMST-801 Electromechanical Internship (91:110) (2 s.h.)
Prerequisite: Complete first year of Electronics Technology program or permission of internship supervisor. Work experience in a business or industry directly related to program major. Supervised work experience in a business or industry. Work must be related to the major field of study; i.e., electricity/electronics, industrial maintenance, installation or service of control systems, etc. (0-160)

EMST-802 Intro to Programmable Logic Controllers (91:202) (3 s.h.)
Prerequisite: EMST-710, Industrial Control System, and EMST-712, Digital Electronics. Introduction to programmable logic controllers (PLC's) using the Allen Brady SLC500 and RGSLogix 500 programming software, elementary ladder logic and discrete I/O instructions, counters, timers, program development techniques, and troubleshooting. Advanced topics in programmable logic controllers including program control instructions, math operations, sequencers, and data manipulation. This course is offered on campus as an instructor-supervised/student-paced format and is also offered online. Students enrolled in this course should expect to spend 75-90 hours (5-6 hours/week) to complete the course. If in an on-campus section, that time will be spent in the Electromechanical Systems Technology Lab. (30-45)

EMST-803 Advanced PLCs and System Integration (91:203) (3 s.h.)
Prerequisite: EMST-802, Intro to Programmable Logic Controllers. Advanced topics in programmable logic controllers using the Allen-Bradley SLC500 and RSLogix 500 programming software including analog I/O and PID control. Application of RSLinx to establish communications and DH485 networking. Controller Area Networking (CAN) using DeviceNET programming and integration using RXNetwork. PanelVIEW programming and integration using the Allen-Bradley PanelView 500 and PanelBuilder32. Projects involving practical field devices and program development. (30-45)

EMST-805 Maintenance Shop Operations (96:156) (3 s.h.)
The student is introduced to shop equipment generally found in the industrial maintenance environment. The student uses safe setup and produces parts with metal saws, drills, grinders, elementary welding and cutting, thread repair, anchors and fasteners. The student use of mechanical prints to identify parts in assembly and repair situations is practiced, along with the use of catalogs to find and order repair parts, study of bearings and seals, applications, and failure analysis. (15-61)

EMST-815 Servos and Drives (96:157) (2 s.h.)
Prerequisite: EMST-710, Industrial Control Systems. Study of direct and alternating current variable speed drives, closed loop control systems, and servo systems. Hands-on exercises provide experience with typical components and interconnections needed

to implement various control systems. Concepts of system stability, frequency response, feedback, damping, position and speed control, and many others are covered. Troubleshooting motor drive faults and corrective action. This course is offered in an instructor-supervised/student-paced format. Students enrolled in this course should expect to spend 50-60 hours (3-4 hours/week) in the Electromechanical Systems Technology Lab to complete the course. (15-31)

EMST-816 Computer Automated Manufacturing (91:206) (3 s.h.)
Prerequisite/Corequisite: EMST-703, Fluid Power and EMST-803, Advanced PLCS and Systems Integration. Capstone projects in Electromechanical Systems Technology Project identification, planning, and implementation. Group dynamics, project structure, and troubleshooting techniques. Projects may include, but are not limited to automation, control, manufacturing, or educational hardware for program use. The integration of robots, instrumentation, computers, and programmable logic controllers, human/machine interface, communications, and other industrial systems. (15-65)

EMST-817 Industrial Instrumentation (91:207) (4 s.h.)
Prerequisite/Corequisite: EMST-802, Introduction to PLCs, and EMST-712, Digital Electronics. The student studies modern instrumentation techniques as they apply to the manufacturing environment and uses industrial sensors, transducers, and related components. Instrumentation labs use a variety of control techniques and may include RS Logix500, DeviceNet, and Panel Builder. The labs are self-paced but students should expect to spend 5-6 hours/week in the lab. Lectures are scheduled at a specific time every week. (15-90)

EMST-820 Facilities Maintenance Management (96:155) (3 s.h.)
Prerequisite: EMST-710, Industrial Control Systems. The student studies topics specific to maintenance of facilities. Topics include project estimating issues including installation, cost, and time. The student reads building schematics and blueprints, studies the fundamentals of HVAC with lab exercises, and researches construction issues including sprinkler, electrical, and plumbing systems. Field trips provide a general compare and contrast of industry facility maintenance systems. (45-0)

ENGL-094 Elements of Writing (30:090) (4 s.h.)
A developmental writing course designed for students referred by orientation assessment or by instructors. Emphasis is on writing; students will learn strategies for recognizing and compensating for individual writing problems. Students complete the course by meeting the minimum entrance requirements for Composition & Speech I. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. This course has been designated as a pass/no pass course. (60-0)

ENGL-101 Composition and Speech I (30:101) (4 s.h.)
Improvement of skills in reading, writing, speaking, and listening, with an emphasis on expository methods of development and personal experience as supporting material. Students may be requested to use word processors and the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences video series. Students must meet minimum competency requirements in writing and speaking to receive a grade of C or higher. (60-0)

ENGL-102 Composition and Speech II (30:102) (4 s.h.)
Prerequisite: ENGL-101, Composition and Speech I. Students must have earned a C or higher grade in Composition and Speech I before enrolling in Composition and Speech II. A continuation of ENGL-101, Composition and Speech I, with an emphasis on argumentative and persuasive writing and speaking, on research methods, and on language. Students may be requested to use word processors and the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences video series. Students must meet minimum competency requirements in writing and speaking to receive a grade of C or higher. (60-0)

ENGL-104 Composition I (30:101C) (3 s.h.)
Improvement of skills in reading, writing, and listening with an emphasis on expository methods of development and personal experience as supporting material. Students may be requested to use word processors and the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences video series. Students must meet minimum competency requirements in writing to receive a grade of C or higher. (45-0)

ENGL-105 Composition II (30:102C) (3 s.h.)
Prerequisite: ENGL-104, Composition I, or ENGL-101, Composition and Speech I. Students must have earned a C or higher grade in Composition I before enrolling in Composition II. A continuation of ENGL-104 Composition I, with an emphasis on argumentative and persuasive writing, on research methods, and on language. Students may be requested to use word processors, the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences videos. Students must meet minimum competency requirements in writing to receive a grade of C or higher. (45-0)

ENGL-120 College Reading (30:120) (3 s.h.)
Designed to help students become more efficient and effective in reading college textbooks, required materials, leisure articles, and books. Course adapts to the style and needs of each individual to improve vocabulary, comprehension, rate, and study skills. (45-0)

ENGL-205 Creative Writing (30:205) (3 s.h.)
Prerequisite: ENGL-101, Composition & Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. A practical workshop in writing and rewriting manuscripts in preparation for submitting for publication. Emphasis on nonfiction articles and short stories but also covers poetry, plays, and screenplays. (45-0)

ENGL-701 Communications I (95:130) (3 s.h.)
Study designed to assist students in improving and/or refining skills in the areas of reading, writing, listening, and speaking to help meet communication needs in college and for success and advancement in a career. (45-0)

ENGL-702 Communications II (95:131) (3 s.h.)
Prerequisite: ENGL-701, Communications I or equivalent. Further study designed to assist students in improving and/or refining skills in the areas of reading, writing, listening, and speaking to help meet communication needs in college and for success and advancement in a career. (45-0)

ENGL-705 Business Communications (15:212) (3 s.h.)
 This course will help the student become an effective communicator in the business world. Basic written communication will be emphasized through practice in grammar structure, vocabulary building, and organization of thoughts. These skills will then be implemented when the student plans and writes business letters and interoffice memorandums. A secondary emphasis will be placed on oral communication, listening skills, and nonverbal communication. (45-0)

ENGL-900A-C Special Topics in Communications (30:299) (1-3 s.h.)
 Student may submit a proposal for special project. If instructor approves, and with the consent of the Division Chairperson and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeated for credit. (15 to 45-0)

ENGR-100 Orientation to Engineering (25:110) (0 s.h.)
 Designed to help freshmen better understand engineering and assist them in choosing their area of specialization. Presentations by guest engineers from industry who discuss their areas of the profession. Four field trips to a selected engineering department of North Iowa industrial firms. (Class meets one hour per week.) This course has been designated as a pass/no pass course. (15-0)

ENGR-111 Engineering Problems with FORTRAN (25:111) (3 s.h.)
 Corequisite: MATH-121, College Algebra; or MATH-161, Precalculus; or MATH-251, Calculus I. Development of skills, standards, and orderly methods of solving engineering problems. SI and English measurement and unit conversion. Estimation and calculation with approximate numbers. Significant figures. Graphing and curve-fitting of technical data. Using logarithmic and trigonometric functions. Introduction to engineering economics and statistics. Solution of engineering problems using the FORTRAN language. (30-30)

ENGR-112 Engineering Graphics and Design (25:112) (3 s.h.)
 Prerequisite: ENGR-111, Engineering Problems with FORTRAN, with a grade of C or higher. The integration of fundamental engineering graphics, computer-aided design (CAD), and engineering design. The use and manipulation of drawing instruments; freehand lettering and sketching; machine and CAD drawing of orthographic views and isometric pictorials; and basic dimensioning. Techniques for visualizing, analyzing and communicating 3-D geometries. Application through creative design projects with written and oral reports. (15-75)

ENGR-231 Statics of Engineering (25:231) (3 s.h.)
 Prerequisite: MATH-251 Analytic Geometry and Calculus I, with a grade of C or higher. Corequisite: MATH-252 Analytic Geometry and Calculus II, and PHYS-220 College Physics I. Scalar and vector quantities, forces, moments of forces, couples, and force systems; equilibrium, centroids and centers of gravity; analysis of structures; internal forces, shear and bending moments; friction; moments of inertia of areas. (45-0)

ENGR-232 Mechanics of Materials (25:251) (3 s.h.)
 Prerequisite: ENGR-231, Statics of Engineering. Plane stress, plane strain, stress-strain relationships, and elements of material

behavior. Application of stress and deformation analysis to members subject to centric, torsional, flexural, and combined loadings. Elementary considerations of theories of failure, buckling. (45-0)

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Enrich Program

This program is recommended to students who do not meet the expectations of preparedness for developmental courses. It is intended to lead to a one-year General Studies diploma. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. Students will be accepted into the program through an interview and selection process. Courses in the program have been designed as pass/no pass.

ENRI-045 Communication Through Reading & Writing I (30:048) (4 s.h.)
 Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable adult students to understand and apply reading skills to printed material, and to express ideas clearly and correctly in writing. Applications will be in daily life, at work, and in leisure activities. (60-0)

ENRI-046 Communication Through Reading & Writing II (30:049) (4 s.h.)
 Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable adult students to understand and apply reading skills to printed material and to express ideas clearly and correctly in writing. Applications will be in daily life, at work, and in leisure activities. Emphasis will be on decoding, vocabulary building, and writing. This course is designed to follow Communication Through Reading and Writing I, ENRI-045 but may be taken without that prerequisite. (60-0)

ENRI-047 Enrich Math I (40:038) (2 s.h.)
 Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable adult students to understand and apply mathematics in their daily lives, at work, and in their leisure hours. (30-0)

ENRI-048 Enrich Math II (40:039) (2 s.h.)
 Prerequisite: Consent of instructor. This Enrich course will focus on strategies that enable adult students to understand and apply mathematics in their daily lives, at work, and in their leisure hours. Focus will be on decimals, fractions, and percents. The course is designed to follow Enrich Math I, but may be taken without that prerequisite. (30-0)

ENRI-049 Personal Management (89:030) (3 s.h.)
 Prerequisite: Consent of instructor. This Enrich course will examine concerns faced by students as members of modern society. It is designed to assist students in making sound decisions concerning physical, mental, and financial health, and to use nonworking hours in a creative way. Critical thinking skills will be emphasized as students analyze written documents, including those financial, legal, and medical. (45-0)

ENRI-050 Skills for Job Seekers (89:040) (3 s.h.)
 Prerequisite: Consent of instructor, and ENRI-051, Career Decisions. This Enrich course is designed to assist the student in structuring a job search. Written materials will include applications, resumes, and cover letters. Interviewing skills will be developed. Job-keeping skills will be emphasized. (45-0)

ENRI-051 Career Decisions (89:041) (3 s.h.)
 Prerequisite: Consent of instructor. This Enrich course is designed to assist the student in structuring a job search. Written materials will include applications, resumes, and cover letters. Interviewing skills will be developed. Job-keeping skills will be emphasized. (45-0)

ENRI-900B Special Topics Enrich (89:299) (2 s.h.)
 Prerequisite: Consent of instructor/college recommendation. Fall semester: In this Enrich course, instructor and students focus on making life decisions such as career choices, improving time management skills, anger management, working and interpersonal relationship skills. Emphasis is also placed on improved decision making in academics and in continuing life choices. Spring semester: This Enrich course focuses on the student in a global society. Students work to develop critical thinking skills which will assist them to look past biases and prejudices in order to become responsible citizens. The class stresses both written and verbal communication skills. (30-0)

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ENTR-101 Introduction to Entrepreneurship (15:171) (3 s.h.)
 The course provides students with an opportunity to investigate, understand, and apply the process of founding a successful start-up company. Students will evaluate entrepreneurial characteristics, learn skills to identify new venture opportunities, and develop skills to create a business plan to maximize the chance of success for the new venture. (45-0)

ENTR-102 Managing the Entrepreneurial Venture (15:172) (3 s.h.)
 Prerequisite: ENTR-101, Introduction to Entrepreneurship, or permission of the instructor. The course provides students with an introduction to entrepreneurship and new venture creation. Students will examine the characteristics of successful entrepreneurs and develop insight on developing and enhancing creativity and innovation. Students will also learn the process of assessing new venture proposals and understanding the components of a business/feasibility plan. (45-0)

ENTR-103 Seminar in Entrepreneurship (15:173) (3 s.h.)
 Prerequisite: ENTR-101, Introduction to Entrepreneurship, and ENTR-102, Managing the Entrepreneurial Venture. Course will combine group discussions with an actual case project at a local entrepreneurial firm. Students will have an opportunity to apply business skills learned throughout their NIACC program as they complete a project for a local entrepreneurial venture. Students also will discover key entrepreneurial success characteristics. (15-38)

ENVR-101 Environmental Science (70:104) (3 s.h.)
 The study of ecological principles and the interrelationships among populations, resources, and pollution in developing a sustainable society. Topics include: population, ecology, soil, water, land, air,

and energy resources, plus air, water, soil, and waste management. Environmental decision-making strategies to resolve current and future environmental issues are stressed. (30-30)

FIRE-101 Fire Behavior and Investigation (70:113) (4 s.h.)
 This course is designed to assist in training firefighters and fire officers to properly determine the origin and cause of fire. (45-35)

FIRE-102 Fire Protection Technology (70:115) (4 s.h.)
 This course will familiarize the student with the different types of building construction as they relate to fire protection. Also covered will be: private fire protection systems, municipal water systems, state and local codes. (65-15)

FIRE-103 Hazardous Material Technician (70:116) (3 s.h.)
 This course will be oriented toward preparing emergency response team members to perform advanced control, containment, and/or confinement operations; understand hazard and risk assessment techniques; know how to identify materials using field response plan; understand the various roles within the incident command system; properly identify, select, and use specialized chemical protective clothing; and perform decontamination activities on personnel equipment. (30-30)

FIRE-104 Incident Command System (70:117) (1 s.h.)
 This course is designed to meet the needs of fire officers and managers with responsibilities to use, deploy, implement, and/or function within an incident command system. This program addresses the need for incident management systems, an overview of the structure and expandable nature of ICS, and understanding of the command skills needed by department officers to effectively use ICS guidelines, and scenario practice. (15-0)

FIRE-105 Fire Instructor I (70:119) (2 s.h.)
 This course develops the participants' attitudes, knowledge, skills, and abilities to effectively implement and manage tactical operations. Develop a basic understanding of fire fighting strategies and tactics. (24-24)

FOOD-701 Introduction to Hospitality Supervision (90:246) (1 s.h.)
 This course provides skills-based information in a clear and logical way, covering all of the essential topics and responses to the changing needs of the hospitality supervision industry today. (15-0)

FOOD-702 Professional Cooking (90:247) (3 s.h.)
 Professional Cooking is a course designed to provide a foundation for students in developing their cooking competence. This course will show students what they need to know and how to cook in order to manage restaurant and food service operations. Units covered include cooking meats and game, poultry, fish, seafood, vegetables, and salads. (30-30)

FOOD-703 ServSafe (90:248) (1 s.h.)
 ServSafe is nationally recognized and accepted by more federal, state, and local jurisdictions than any other food safety training program. The course includes latest science-based information and industry best practices. It incorporates new manager job task analysis--tasks that industry, academic and regulatory experts deem essential to the role of food service professionals who are

responsible for ensuring an operation is serving safe food. It equips future managers with food safety knowledge they can share with their employees. (15-0)

FOOD-704 Nutrition for Food Managers (90:249) (2 s.h.)
Provides up-to-date information on nutrition and diet. This course covers topics about biotechnology, vitamins, minerals, and organic foods. The course presents a broad range of facts on the nutritional value of foods, as well as coverage on the nutritional value of foods from other parts of the world. (15-30)

FOOD-705 Food and Beverage Cost Control (90:250) (2 s.h.)
Provide students with a wide-ranging knowledge and specific solutions they need to keep costs low and margins high. Provide instruction in food and beverage sanitation, production, and service methods. (30-0)

FOOD-706 Hospitality Marketing/Management (90:251) 2 s.h.
Hospitality Marketing/Management is the performance of business activities that direct the flow of goods and services from product to consumer. The marketing role in a hotel or restaurant is concerned about understanding customer needs, creating a product-service mix in order to generate a satisfactory level of income. (30-0)

FOOD-720 Food Service Field Experience (90:252) (4 s.h.)
The food service field experience is designed to provide application to the related content in the program. Each student will work in a variety of activities in the food service and hospitality industry, and will also be required to periodically meet with the program coordinator for evaluation. (Six weeks summer) (0-240)

FOOD-801 Presenting Service/Menu Planning (90:256) (2 s.h.)
This course will introduce students to all aspects of menu planning such as institutional, industrial, and commercial menus; menu styles; and characteristics. The course will also train and develop students in "presentation" skills of servers, supervisors, and managers. (15-30)

FOOD-802 Dinner and Front of the House (90:257) (3 s.h.)
Prerequisite: FOOD-702, Professional Cooking. This is a capstone, project-driven course where all of the students will complete the entire planning process and execution of a formal dinner event. (15-60)

FOOD-803 Purchasing (90:262) (1 s.h.)
An overview of the purchasing function in the hospitality industry. The purchasing function involves ordering procedures, distribution systems, supplier channels, price and payment, storage, and security. (15-0)

FOOD-804 Culinary Arts/Book of Yields (90:263) (1 s.h.)
This course will provide students with an introduction to chef's technical references to inventory and portion control. (15-0)

GEOG-101 Introduction to Physical Geography (80:150) (3 s.h.)
An introductory systems course in geography that acquaints the student with spatial relationships that exist in the physical environment. Topics include: geographic tools, weather and climate, land forms, soils, water resources, plants, and animals. Lab experience included. (45-0)

GEOG-102 Regional Geography of the Developed World (80:151) (3 s.h.)
A regional study of the physical and cultural spatial patterns of Europe, Australia, Russia, and Anglo-American. (45-0)

GEOG-103 Regional Geography of the Nonwestern World (80:152) (3 s.h.)
A regional study of the physical and cultural spatial patterns of Middle America, South America, North Africa/Southwest Asia, South Asia, East Asia, Southeast Asia and the Pacific World. (45-0)

HEAL-100 Introduction to Health Professions (89:159) (2 s.h.)
This course provides a brief historical view of health care in addition to an overview of today's health care delivery system and related health care issues. Ethical/legal issues and desirable professional skills and behaviors associated with health care workers are also addressed in this course. Direct observation and research of specific health careers in health care agencies is also a requirement. Specific immunizations and health history information may be required for the observational experience and should be discussed with your counselor prior to the course. This course has been designated as a pass/no pass course. (30-0)

HEAL-105 Urinalysis (70:249) (3 s.h.)
This course provides the foundation for the study of urine formation and its assessment along with the determination of the physical, chemical, and microscopic properties of urine in normal and abnormal states. Objectives also included are the development and evaluation of body fluids including cerebrospinal, synovial, serous, and amniotic fluids. (30-30)

HEAL-110 Medical Terminology I (15:251) (3 s.h.)
Introduction of basic medical terminology utilizing a programmed, word-building system to learn word parts to construct and analyze new terms. Emphasis is placed on spelling, definition, usage, and pronunciation. (45-0)

HEAL-111 Medical Terminology II (15:252) (3 s.h.)
Prerequisite: None. However, HEAL-110, Medical Terminology I is highly desirable. A continuation of HEAL-110. A brief review of basic medical terminology followed by a systems approach to learning terms associated with the anatomical, physiological, and pathological aspects of the body. (45-0)

HEAL-701 Basic Pharmacology (90:134) (2 s.h.)
Provides a basic foundation of the study of drugs including general concepts, biological factors affecting the action of drugs, and effects of medications on body systems. Includes allergy overview, the medication order, and discussion of legal and ethical issues related to pharmacology. (30-0)

HEAL-702 Laboratory Tests (90:140) (2 s.h.)
To familiarize the student with clinical laboratory tests and their normal ranges in the areas of hematology, urology, and microbiology. The student will also learn basic surgical position terminology, instruments, and special organ studies. (30-0)

HEAL-704 Body Structure and Function (94:104A) (4 s.h.)
A basic study of the anatomy and physiology of the human body. Study progresses from the cell to tissues, organs, and systems with emphasis on their interrelatedness. Discussion includes some of the alterations that occur in illness. Usage of applicable medical terminology is stressed. (45-30)

HIST-101 American History to 1877 (80:140) (3 s.h.)
A survey course covering the social, political, and economic history of American civilization from the Age of Discovery through Reconstruction. (45-0)

HIST-102 American History 1877 to Present (80:141) (3 s.h.)
A survey course covering the social, political, and economic history of the United States since 1877. (45-0)

HIST-110 American Indian History (80:144) (3 s.h.)
American Indian History: Prehistory to Mid-20th Century is an ethnographic and historical survey of the social, cultural, and political systems developed by Native Americans north of Mexico, and the developing relationship of these systems with those of the European-Americans. Native religion and world view, agricultural and hunting practices, material culture, trade, diplomacy and political structures are examined, as are the mutual impact on both societies resulting from contact with and interaction between native North Americans and Europeans and their descendants. (45-0)

HIST-111 African American History (80:145) (3 s.h.)
The course chronicles the experience of African Americans in the history of the United States. Topics include African heritage, the slave trade, slavery in the Antebellum South, the Civil War and emancipation, the Jim Crow era, the birth of racial advancement organizations, the development of twentieth-century urbanization and nationalism, and the struggle for civil rights, political power and cultural expression from mid century to the present. (45-0)

HIST-201 Western Civilization to 1648 (80:201) (4 s.h.)
A study of the major social, political, economic, cultural, and philosophical movements in the Western World from the beginning of civilization to 1648. (60-0)

HIST-202 Western Civilization 1648 to Present (80:202) (4 s.h.)
A study of the major social, political, economic, and philosophical movements in the Western World from 1648 to the present. (60-0)

HUMA-100 Encounters in Humanities (10:100) (2 s.h.)
This course is designed to introduce students to the world of humanities; describe the humanities genres and disciplines; provide a systematic method of assessing humanities artifacts; present opportunities to assess humanities artifacts; define methods of participating in the humanities. Four humanities genres are represented with their respective disciplines. (15-30)

HUMA-157 British Life and Culture (89:157) (3 s.h.)
Through NIACC's participation in the Iowa Community College Study Abroad Consortium, students have the opportunity for foreign study while remaining full-time NIACC students. Currently, the program is offered in London during the fall semester. British Life and Culture is a mandatory Humanities offering. On this program, students have the opportunity to earn 12 or more credit hours.

HUMA-900A-C Special Topics in Humanities (1-3 s.h.)
Student may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0)

HVAC-701 Residential Heating Systems (96:128) (4 s.h.)
Corequisite: INDU-701, Electrical Concepts, or instructor's permission. The purpose of this course is to introduce the student to the various types of residential heating systems. Areas and concepts covered include combustion theory, basic air distribution, furnace construction, filters, humidifiers, installation techniques, and maintenance procedures. (30-105)

HVAC-702 Troubleshooting Heating System (96:129) (3 s.h.)
Prerequisite: INDU-701, Electrical Concepts, or instructor's permission. The purpose of this course is to introduce the student to the fundamentals of troubleshooting by utilizing a practical and systematic approach to locate and repair heating system malfunctions. The student will also have the opportunity to study, in detail, the motors and controls used in today's heating systems. Topics to be covered include basic electric circuits, electrical test meters, motors and controls, diagnosis of electrical and mechanical malfunctions, and special emphasis on writing diagrams. (15-90)

HVAC-710 Air-Conditioning Principles (96:134) (2 s.h.)
A study of the theory of air-conditioning. Includes psychometrics, heat gain/loss problems, and equipment sizing. (15-45)

HVAC-711 Residential Air Conditioning Systems (96:138) (4 s.h.)
Prerequisite: INDU-701, Electrical Concepts, or instructor's permission. The purpose of this course is to introduce the student to the various types of residential air-conditioning and heat pump systems. Areas and concepts covered include refrigeration, air-conditioning, heat pump theory, heat pump construction, installation techniques, and maintenance procedures. (30-105)

HVAC-712 Troubleshooting Air Conditioning Systems (96:139) (3 s.h.)
Prerequisite: INDU-701, Electrical Concepts, or instructor's permission. The purpose of this course is to introduce the student to the fundamentals of troubleshooting by utilizing a practical and systematic approach to locate and repair air-conditioning and heat pump system malfunctions. The student will also have the opportunity to study, in detail, the motors and controls used in today's air-conditioning and heat pump systems. Topics to be covered include basic electric circuits, electrical test meters, motors and controls, diagnosis of electrical and mechanical malfunctions, and special emphasis on wiring diagrams. (15-90)

HVAC-801 Technical Graphics (91:124) (2 s.h.)
Corequisite: HVAC-802, Metal Fabrication, and HVAC-803, Commercial Heating Systems. A development of blueprint skills students will need to interpret and sketch various drawings including: construction, mechanical, pneumatic, electrical, plumbing, and duct patterns. He/she will use simple sketching aids and appropriate templates to aid them in their development of drawings. The

end result of these efforts will be the understanding of graphic drawings as a means of communicating information in their field of work. (30-0)

HVAC-802 Metal Fabrication (96:140) (2 s.h.)

Corequisite: HVAC-801, Technical Graphics, and HVAC-803, Commercial Heating Systems. The student performs basic sheet metal fabrication, gas piping, plastic piping, copper piping and venting pertaining to climate control devices. Working safely and neatly performing field tasks in a laboratory atmosphere enhances the student "job readiness." (15-45)

HVAC-803 Commercial Heating Systems (96:230) (5 s.h.)

Prerequisite: HVAC-701, Residential Heating Systems, or instructor's permission. This course covers large heating systems used in commercial, institutional, and industrial applications. Types of equipment include hot water and low-pressure steam boilers and rooftop heating units. (30-135)

HVAC-810 Advanced Control Systems (96:231) (4 s.h.)

Prerequisite: HVAC-702, Troubleshooting Heating Systems; and HVAC-712, Troubleshooting Air-Conditioning Systems, or instructor's permission. Major emphasis is on four basic types of control systems: pneumatic, electronic, electro mechanical, and digital as applied to large heating and air-conditioning applications. (30-120)

HVAC-811 Air Distribution (96:232) (3 s.h.)

Prerequisite: HVAC-710, Air-Conditioning Principles, or instructor's permission. A study of the construction and design of duct work and related duct fittings. Includes correct layout and sizing of ducts, return and supply grills, and use of airflow measuring instruments. (30-60)

HVAC-812 Commercial Air Conditioning Systems (96:234) (5 s.h.)

Prerequisite: HVAC-711, Residential Air-Conditioning Systems, or instructor's permission. This course covers large cooling systems used in commercial, institutional, and industrial applications. Types of equipment include water chillers, multistage reciprocating units, and an introduction to absorption systems. (30-135)

HVAC-815 Energy Management (96:235) (3 s.h.)

Prerequisite/Corequisite: HVAC-810, Advanced Control Systems, or instructor's permission. This course is designed to examine the consumption of energy in commercial and industrial buildings and how energy usage may be reduced. (30-60)

INDU-701 Electrical Concepts (96:132) (3 s.h.)

Electrical Concepts is an introductory survey of electricity and electronics suitable for students interested in pursuing a career in such technical fields as electronics, automotive, HVAC, and other fields that require knowledge of basic electrical/electronic concepts. Topics include safety, shop and lab practices, motors and controls, direct and alternating current, and semiconductor and digital electronics. Course work consists of problem solving, computer-assisted instruction, computer simulation, and hands-on exercises with industrial grade equipment. (30-30)

INDU-705 Metal Processing/Metallurgy (98:161) (2 s.h.)

The student uses basic hand tools, drills, measuring tools, lathes, grinders, and welding equipment to build parts with practical applications in automotive service. (15-30)

INDU-710 Welding (96:169) (2 s.h.)

This is a basic arc/oxy-fuel welding and cutting course. The students will perform introductory skills in SMAW, GTAW, and GMAW welding, oxy-acetylene welding, and oxy-fuel cutting. The students learn safety procedures relating to welding subjects and general shop safety. (15-30)

INSS-101 General Insurance (15:190) (3 s.h.)

Principles of insurance and risk, including personal and business viewpoints in regard to life, health, property, and liability risks. (45-0)

INSS-102 Property and Casualty Insurance (15:195) (3 s.h.)

Prerequisite/Corequisite: INSS 101, General Insurance. This course is designed to provide instruction that will provide a high level of understanding of property and casualty insurance. Topics covered include fire, homeowners, dwelling, auto, business and professional liability, crime and fidelity, worker's compensation, and applications from a personal and commercial perspective. (45-0)

INSS-103 Life, Health, Disability Insurance (15:200) (3 s.h.)

Prerequisite/Corequisite: INSS 101, General Insurance. This course is designed to provide instruction in a variety of areas giving the student a good understanding of life insurance, health insurance, and the role and application of both within the industry. (45-0)

INSS-210 Financial Management/Insurance Internship (89:155) (3 s.h.)

The internship will provide practical application for each student. The activities will be in the actual insurance industry environment where each student will be afforded the opportunity to turn theory into application. (15-150)

ISTS-100 Technology Essentials (15:143) (3 s.h.)

Have a computer that needs some help? Learn how to install memory, upgrade Windows, and scan for viruses. This hands-on course will teach you how to connect computers and share files, bring pictures onto your computer, hook up that scanner and printer, and create a home computer network. (45-0)

ISTS-101 Networking I (15:156) (4 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. Networking Basics is the first of the four courses leading to the Cisco Certified Network Associate (CCNA) designation. Networking I (CCNA 1) introduces Cisco Networking Academy Program students to the networking field. The course focuses on network terminology and protocols, local-area networks (LANs), wide-area networks (WANs), Open System Interconnection (OSI) models, cabling, cabling tools, routers, router programming, Ethernet, Internet Protocol (IP) addressing, and network standards. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment and all local, state, and federal safety, building, and environmental codes and regulations. (60-0)

ISTS-102 Networking II (15:157) (4 s.h.)

Prerequisite: ISTS-101, Networking I, or permission of the instructor. Routers and Routing Basics is the second of four CCNA courses leading to the Cisco Certified Network Associate (CCNA) designation. Networking II (CCNA 2) focuses on initial router configuration, Cisco IOS Software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Students will develop skills on how to configure a router, managing Cisco IOS Software, configuring routing protocol on routers, and set the access lists to control the access to routers. (60-0)

ISTS-105 Introduction to Programming (15:168) (4 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. This course provides students exposure to computer program design, structure, development, and troubleshooting through an examination of such topics as logic concepts, variables, input/output, interactive constructs, conditional flow, modular design, create and manage databases, debugging, cgi scripting, object-oriented programming, and the comparison of programming languages. (60-0)

ISTS-110 Operating Systems I (15:161) (3 s.h.)

Prerequisite: COMP-10, Introduction to Computers and Information Systems, or permission of the instructor. Operating Systems I provides for core skills and understanding needed to successfully complete NIACC's IST Program. Students gain knowledge and understanding for operating systems such as MS-DOS, Microsoft Windows 98, and Windows NT. Students will also be introduced to other operating systems such as Linux, Apple MacOS, Microsoft Windows 2000 Professional, and Microsoft Windows XP Professional. This course addresses operating system interfaces and controls, resource management, file management, application management, and network client connectivity. (45-0)

ISTS-111 Operating Systems II (15:177) (3 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems, and ISTS-110, Operating Systems I, or permission of the instructor. This course is a continuation of Operating Systems I. It addresses advanced topics such as file management, shell programming, security, network and service administration, fault tolerance, recovery, troubleshooting, and operating system structure. This will be accomplished by studying the Unix or Linux operating systems. (45-0)

ISTS-120 Microsoft Windows Professional (15:182) (4 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems; ISTS-110, Operating Systems I, or permission of the instructor. This course prepares the student to properly install, configure, upgrade, troubleshoot, and repair personal computer operating systems such as Microsoft Windows 2000 Professional and Microsoft Windows XP Professional. This course also addresses operating system interface controls; file system management; application management; network client configuration; and, operating system security. (60-0)

ISTS-121 Windows 2000 Network Management (15:184) (4 s.h.)

Prerequisite: ISTS-205, Network Operating Systems, or permission of the instructor. This course applies the students' knowledge of computer networking, client operating systems, and server operating systems to the management of a complete Microsoft Windows net-

work environment. Students will learn to manage client and server computers, storage resources, NTFS permissions, shared drives and printers, server performance and security, Active Directory objects, group policies, the Active Directory service, TCP/IP, name resolution protocols, applications, IIS, remote access, disaster recovery, and security. Concepts learned in this course lead toward the Microsoft Certified Professional Exam #70-218 Managing a Microsoft Windows 2000 Network Environment. (60-0)

ISTS-125 Structure and Design (15:196) (3 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems, or permission of the instructor. A fundamental requirement for people in the Information Technology field is the ability to organize a solution to a problem. This, in and of itself, is a difficult task. Often, however, this skill takes a backseat to learning code or is lost in the complexity of the task. Structure and Design concentrates on the process of developing a logical algorithmic solution to a problem. (45-0)

ISTS-130 Hardware Service and Support (15:178) (4 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems, ISTS-110, Operating Systems I, or permission of instructor. This course prepares the student to properly install, configure, upgrade, troubleshoot and repair microcomputer hardware. This includes basic knowledge of desktop and portable systems, basic networking concepts, and printers. The student must also demonstrate knowledge of safety and common preventive maintenance procedures. Topics include advanced DOS and Windows concepts such as batch files and memory management, installing and uninstalling software, basic hardware installation, and troubleshooting. (60-0)

ISTS-131 Advanced Computer System Support (15:209) (4 s.h.)

Prerequisite: ISTS-130, Hardware Service and Support, or permission of instructor. This course expands on concepts and skills learned in ISTS-130, Hardware Service and Support, and provides the knowledge, skills, and abilities essential for a successful computer service technician at the advanced level. Students are provided theoretical information and hands-on experiences in advanced topics of computer troubleshooting and repair. Students will be presented with opportunities to identify and diagnose hardware and software problems; implement and test solution(s); and prepare appropriate documentation. (60-0)

ISTS-150 Fundamentals of Project Management (15:290) (4 s.h.)

Prerequisites: ISTS-101, Networking I, ISTS-110, Operating Systems I, or by written permission of the instructor. Fundamentals of Project Management defines a project and the role of projects in business. Students identify and demonstrate the basic knowledge areas of Project Management and the Project Management Framework. These knowledge areas focus on managing project components including: Integration, Scope, Time (scheduling), Cost, Quality, Human Resource, Communications, Risk, and Procurement. Fundamentals of Project Management clarifies the relationship between Project Management and other management disciplines including general management knowledge and practice, and application-area knowledge and practice. Students learn to apply the breakdown of project phases and processes and construct project plans that employ project phasing and knowledge areas. Students also learn to identify the aspects of project-based

organizational systems and classify business organizations by type and project characteristics. Critical Path Method (CPM) project scheduling is learned and utilized to coordinate project planning, execution and analysis throughout a project life cycle. (60-0)

ISTS-201 Networking III (15:158) (4 s.h.)

Prerequisite: ISTS-102, Networking II, or permission of the instructor. Switching Basics and Intermediate Routing is the third of four courses leading to the Cisco Certified Network Associate (CCNA) designation. Networking III (CCNA 3) focuses on advanced IP addressing techniques (Variable Length Subnet Masking [VLSM]), intermediate routing protocols (RIP v2, single-area OSPF, EIGRP), command-line interface configuration of switches, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP). Particular emphasis is given to students being able to demonstrate the ability to apply learning from CCNA 1 and 2 to a network and to be able to explain how and why a particular strategy is employed. (60-0)

ISTS-202 Networking IV (15:159) (4 s.h.)

Prerequisite: ISTS-201, Networking III, or permission of the instructor. WAN Technologies is the last of four courses leading to the Cisco Certified Network Associate (CCNA) designation. Networking IV (CCNA 4) focuses on advanced IP addressing techniques (Network Address Translation [NAT], Port Address Translation [PAT], and DHCP), WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, network management and introduction to optical networking. Particular emphasis is given to students being able to demonstrate the ability to apply knowledge from CCNA 1, CCNA 2, and CCNA 3 to a network and to be able to explain how and why a particular strategy is employed. In addition, the student will prepare for taking the CCNA Exam. (60-0)

ISTS-205 Network Operating Systems (15:163) (4 s.h.)

Prerequisite: ISTS-111, Operating Systems II, or permission of the instructor. This course goes into detail on topics of network operating system such as design, planning, installation, configuration, security, performance, administration, troubleshooting, fault tolerance, and disaster recovery. Client setup, file and print sharing, directory services, remote access, along with other network services will be explored. (60-0)

ISTS-206 Internet/Intranet Application Management (15:166) (4 s.h.)

Prerequisite: ISTS-205, Network Operating Systems, and ISTS-111, Operating Systems II, or permission of the instructor. This course enables students to design, set up, configure, and manage Internet and Intranet services such as Web, e-mail, DNS, security, and FTP along with gaining knowledge and insight into management of emerging Internet and Intranet technologies. Students will gain hands-on experiences in the installation, configuration, and management of applications such as Microsoft Internet Information Services (IIS), Apache Web Server, Microsoft Exchange Server, and Lotus Domino. (60-0)

ISTS-210 Network Security (15:167) (3 s.h.)

Prerequisite: ISTS-101, Networking I, and ISTS-110, Operating Systems I, or permission of the instructor. This course will provide an overview of issues related to security in a networked environment,

including such topics as security and disaster recovery, security within information services, security within an organization, virus protection, and Internet security/firewalls. (45-0)

ISTS-220 Java (15:204) (4 s.h.)

Prerequisite: ISTS-105, Introduction to Programming, or permission of the instructor. This course introduces students to doing purely object-oriented programming using the Java syntax. Emphasis is placed on using Java for web development. Students learn how to create their own objects and employ these objects as solutions to common real world-based web problems using applications and applets. Students will learn to create interactive elements and simple GUI elements. Use of the java.awt components, event-handling model, containers, and layout managers will also be emphasized. File handling techniques and multithreading will be presented, along with JavaBeans. Applications and applets will be built from bottom up to facilitate in deeper understanding of the concepts used in OOP. (60-0)

ISTS-230 Computer User Support (15:193) (3 s.h.)

Prerequisite: COMP-110, Introduction to Computers and Information Systems; ISTS-130, Hardware Service and Support, or instructor approval. Introduces the concept of supporting personal computers as a career. Designed to help students target their customers and develop appropriate service skills. This course provides an introduction to end-user computing, computer user support, customer service skills, skills required for troubleshooting computer problems, common support problems, help desk operation, user support management, product evaluation strategies and standards, user needs analysis and assessment, installing end-user computer systems, training computer users, technical writing skills, and computer facilities management. (45-0)

ISTS-240 PC Technician Internship (15:208) (3 s.h.)

Prerequisite: ISTS-130, Hardware Service and Support; Prerequisite/Corequisite: ISTS-230, Computer User Support; or permission of the instructor. Students will improve their proficiency in providing personal computer support by troubleshooting real-life scenarios including specification/management considerations, and customer service skills. This course will provide students with the opportunity at local businesses or nonprofit organizations to install and upgrade operating systems and software; install and upgrade computer system hardware; and, troubleshoot and repair hardware and/or software issues. (45-0)

ISTS-250 Electronic Portfolio (15:220) (2 s.h.)

Prerequisite: ECOM-110, Media Experience, or ECOM-100, Beginning Web Page Development. Electronic Portfolio will help prepare the student for the next step, whether that is moving into the work force or presenting to the teachers at a four-year institution. Skills taught in this class will include final touches to the electronic portfolio, career-advancement skills, resume writing, and interviewing. Student will be expected to present themselves as professionals in various ways, including speaking to members of the business community and various members of the NIACC staff. The course culminates in a formal presentation of the electronic portfolio to staff and business people. (30-0)

JOUR-101 Introduction to Journalism (30:121) (3 s.h.)
Introduction to Journalism is designed to help the student understand the role of the media in a democracy and how that role is accomplished. The student will also improve communication skills because the course stresses the fundamentals of news gathering, news writing, editing, and publication design. Students will have the opportunity to gain practical experience in news writing and interviewing. The course will stress print media. (45-0)

JOUR-102 News Writing and Reporting (30:122) (3 s.h.)
Prerequisite: JOUR-101, Introduction to Journalism, and ability to type. News Writing and Reporting serves as a class designed to help the student improve his or her news gathering and reporting skills. Students will be expected to cover a regular news beat and write stories for publication in *Logos*, the student news publication. Students will be expected to conduct interviews and utilize the computer programs used by the paper. (45-0)

JOUR-113 Logos (30:113) (1 s.h.)
Students may contribute to the student news publication, *Logos*, for 1-4 credits during their enrollment at NIACC. Credit may be earned through practical experience in reporting, photography, advertising, and other production-oriented work. Staff members are required to attend weekly staff meetings and meet a minimum number of contributions for a passing grade. (0-30)

LITS-101 Introduction to Poetry/Drama (30:111) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. A study of selected works of poetry and drama as forms of literature. Discussion and writing emphasizing interpretation, critical analysis, and judgment/evaluation. (45-0)

LITS-102 Intro to Short Story/Novel (30:112) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. A study of selected works of fiction in the short story and novels as forms of literature. Discussion and writing emphasizing interpretation, critical analysis, and judgment/evaluation. (45-0)

LITS-103 African American Literature (30:203) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. A study of the writings of major African Americans from pre-Civil War to contemporary times. Slave narratives, autobiographies, letters, short stories, poetry, and novels will be studied as works of literature. Discussion and writing will focus on the critical analysis of the works. (45-0)

LITS-104 American Indian Literature (30:204) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. A study of the writings of major American Indians from precontact with Europeans to contemporary times. Legends, autobiographies, letters, speeches, poetry, novels and short stories will be studied as works of literature. Discussion and writing will focus on the critical analysis of the works. (45-0)

LITS-105 Literature by Women of Color (30:206) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104,

Composition I, or comparable course or approval of instructor. A study of the writings of contemporary women of color from this country and around the world. Autobiographies, short stories, poetry, plays, essays, and novels will be studied. Discussion and writing will focus on the critical analysis of the works. (45-0)

LITS-110 Oral Interpretation of Literature (30:110) (3 s.h.)
Meets either Communications or Humanities requirement. Analyzing prose, poetry, and drama selections for their logical and emotional content, and learning platform techniques to present this material to an audience. (45-0)

LITS-201 World Literature I (30:201) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. Readings are drawn from several of the world's great civilizations up to the 18th Century. This course emphasizes prose and poetry from the religious and secular traditions of the Far East, South Asia, the Ancient Mediterranean, Northern Europe, and Ancient and Medieval I Near East. (45-0)

LITS-202 World Literature II (30:202) (3 s.h.)
Prerequisite: ENGL-101, Composition and Speech I, or ENGL-104, Composition I, or comparable course or approval of instructor. Readings are taken from works of short story, poetry, novel, and drama from around the world. The course will primarily focus upon literature written from the early 18th Century to Present. World Literature I is not required. (45-0)

LPNS-701 Practical Nursing I (94:101) (4 s.h.)
Prerequisite/Corequisite: HEAL-704, Body Structure and Function, ENGL-104, Composition I. Orientation to nursing and the role of the practical nurse in the health community, history of nursing, ethical principles, legal nursing assessment, basic nursing skills, and practice of nursing skills in college laboratory. (45-30)

LPNS-704 Practical Nursing III (94:110) (13 s.h.)
Prerequisite: LPNS-701, Practical Nursing I; LPNS-705, Practical Nursing II; HEAL-704, Body Structure and Function; ENGL-104, Composition I, and PSYC-101, Introduction to Psychology. Prerequisite/Corequisite: PSYC-110, Developmental Psychology. Utilization of the nursing process to develop basic skills in providing nursing care for patients with common health problems associated with each body system. Continuation of pharmacology and nutrition, beginning management skills and responsibilities of a licensed practical nurse, trends in nursing, preparation for licensure, and employment. Supervised clinical experience in medical/surgical areas, and surgical patient follow-through, mental health, home care and nursing facilities. (105-270)

LPNS-705 Practical Nursing II (13 s.h.)
Prerequisite: LPNS-701, Practical Nursing I; HEAL-704, Body Structure and Function; and ENGL-104, Composition I. Prerequisite/Corequisite: PSYC-101, Introduction to Psychology. A continuation of LPNS-701, Practical Nursing I. Practical Nursing II utilizes the nursing process with emphasis on development of basic skills, nursing assessment, creating and maintaining the physical environment, physical and psychological supportive measures, basic scientific principles of therapeutic nursing interventions and documentation, introduction to pharmacology and the administration of

medications, normal nutrition, and therapeutic diets. The student will be offered basic knowledge about the family and newborn. Includes growth and development through adolescence, as well as the effect of illness and hospitalizations on the child and family. Supervised practices in a college laboratory setting. Clinical experiences include long-term care nursing facilities, medical-surgical settings, birth center, a pediatric unit, and selected community agencies. (135-165)

MATH-040 Essentials of Math (40:040) (4 s.h.)
Prerequisite: A score of 15 or higher on the Essentials of Mathematics Pretest. This is a basic math course that will prepare students to compete in an entry-level math course and to use numbers effectively in other situations. Upon completion, students will be able to perform basic computational skills with whole numbers, fractions, decimals, percentages, and integers. (MATH-040 is a developmental course. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation.) Students will be allowed to register in Essentials of Mathematics upon referral from the instructor and/or appropriate diagnosis. (60-0)

MATH-060 Beginning Algebra (40:060) (4 s.h.)
Prerequisite: MATH-040, Essentials of Math, with a grade of C or higher; OR COMPASS Pre-Algebra score at least 49; OR ACT Math score of at least 16. This course is intended for students who have had no previous experience in algebra. Topics include: the real number system, linear and quadratic equations, exponents, factoring, rational expressions, graphing, systems of equations, radicals, the quadratic formula, square root manipulation, and application of concepts. Credit earned will not satisfy the requirements for an Associate Degree and will not be used in calculating the cumulative grade point average for graduation. (60-0)

MATH-100 Intermediate Algebra (40:120) (4 s.h.)
Prerequisite: MATH-060, Beginning Algebra, with a grade of C or higher; or COMPASS Algebra score of at least 51; or ACT Math score at least 20. This course will prepare the student for college algebra and trigonometry or other course work that requires the same level of sophistication. Topics include properties of real numbers, linear and quadratic equations, graphs of linear and quadratic equations, systems of equations, polynomials and rational expressions, inequalities, integral and rational exponents, radicals, and complex numbers. This course may not be used to satisfy core requirements. (60-0)

MATH-101 Math for Decision Making (40:121) (3 s.h.)
Prerequisite: COMPASS Pre-Algebra score of at least 49, and MATH-060, Beginning Algebra, C or higher; OR ACT Math score of at least 16; and MATH-060, Beginning Algebra, C or higher; OR COMPASS Algebra score of at least 51; OR ACT Math score of at least 20. Mathematics for Decision Making provides a survey of mathematics topics that includes sets, logic, probability, statistics, sets of numbers, algebra, geometry, and consumer math. This course will fulfill three semester hours of Natural Sciences requirement for the A.A. Degree. (45-0)

MATH-104 Math for Elementary Teachers I (40:122) (3 s.h.)
Prerequisite: MATH-100, Intermediate Algebra, with a grade of C or higher or ACT Math score of at least 21 or COMPASS Algebra score of at least 76. This course focuses on the fundamental con-

cepts that all K-6 teachers will teach. Students will develop mathematical tools of reasoning, problem solving, and communication. Specific topics include sets, numeration, operations with whole numbers, fractions, and decimals, proportional reasoning, statistics and probability. Students who have completed two years of high school algebra with at least C grades have met the prerequisite for this course. (30-30)

MATH-105 Math for Elementary Teachers II (3 s.h.)
Prerequisite: MATH-104, Math for Elementary Teachers I with a grade of C or higher. This course focuses on fundamental concepts that all K-6 teachers will teach. Students will develop mathematical tools of reasoning, problem solving, and communication. Specific topics include reasoning and proof, algebraic thinking, geometry, measurement and technology in elementary classrooms. (30-30)

MATH-121 College Algebra (4 s.h.)
Prerequisite: Intermediate Algebra with a C or better, OR Math ACT score of at least 21, or Compass Placement score of 76 or better. This course is intended for students majoring in business, social science, biological sciences, liberal arts, and those mathematics students with insufficient background to begin the study of calculus. The course is a study of various classes of functions, their graphs, and applications. These include linear, polynomial, rational, root, inverse, exponential and logarithmic functions. Also, systems of equations and inequalities, matrices, sequences and series, and the *Binomial Theorem*. Students who have completed two years of high school algebra with a grade of C or better, have met the prerequisites for this course. (60-0)

MATH-125 Quantitative Methods (40:125) (3 s.h.)
Prerequisite: MATH-100, Intermediate Algebra, with a grade of C or higher; or COMPASS Algebra score of at least 76; or ACT Math score of at least 21. This course provides a sampling of applied mathematics topics from various disciplines. Some topics covered include elementary functions, linear systems, matrices, linear programming, set theory, probability, and Markov chains. Students who have successfully completed two years of high school algebra may register for this class. (45-0)

MATH-134 Trigonometry and Analytic Geometry (3 s.h.)
Prerequisite: MATH-121, College Algebra with a C or better, OR Math ACT score of at least 26. This course is a preparation course intended for students majoring in engineering, mathematics, physics, chemistry or certain vocational fields. The course is a study of both trigonometric and conic functions and equations. Both rectangular and polar coordinate systems are studied. (45-0)

MATH-161 Precalculus (40:161) (4 s.h.)
Prerequisite: COMPASS College Algebra score at least 41 or ACT math score of at least 26. This course is intended to provide students with a summary of mathematics topics needed to study analytic geometry and calculus. The functional approach is emphasized. Topics covered include fundamentals of algebra, polynomial, rational, exponential, logarithmic, and trigonometric functions, analytic trigonometry, systems of equations, and analytic geometry of conics. Students who have successfully completed two years of high school algebra with a grade of C or better and one year of geometry may register for this class. (60-0)

MATH-240 Calculus for Business (40:240) (3 s.h.)
Prerequisite: MATH-161, Precalculus with a grade of C or higher; or MATH-121, College Algebra, and MATH-134, Trigonometry and Analytic Geometry, or COMPASS College Algebra score of at least 41; or ACT Math score of at least 28. This course uses calculus techniques with an emphasis on applications to business, the social sciences, the life sciences, and also to certain career programs. Types of functions included in the course are polynomial, rational and root, exponential and logarithmic. Topics include derivatives and their uses, and integrals and their applications. Students who have successfully completed two years of algebra, one year of geometry, and at least one semester of pre-calculus or trigonometry in high school may register for this class. A graphing calculator is required. (45-0)

MATH-251 Analytic Geometry and Calculus I (40:251) (4 s.h.)
Prerequisite: MATH-161, Precalculus, with a grade of C or higher; or MATH-121, College Algebra, and MATH-134, Trigonometry and Analytic Geometry; or COMPASS Trigonometry score of at least 51; or ACT Math score of at least 28. Topics include analysis of functions, limits, derivatives and integrals of algebraic, logarithmic, exponential, and trigonometric functions, and applications of differentiation. Students who have successfully completed two years of algebra, one year of geometry, and at least one semester of pre-calculus or trigonometry in high school may register for this class. A graphing calculator is required. (60-0)

MATH-252 Analytic Geometry and Calculus II (40:252) (4 s.h.)
Prerequisite: MATH-251, Analytic Geometry and Calculus I, with a grade of C or higher. This course is a continuation of MATH-251. Topics include applications of the definite integral; principles of integration evaluation; improper integrals; modeling with differential equations; and infinite sequences and series. A graphing calculator is required. (60-0)

MATH-253 Analytic Geometry and Calculus III (40:253) (4 s.h.)
Prerequisite: MATH-252, Analytic Geometry and Calculus II, with a grade of C or higher. This course is a continuation of MATH-252. Topics include graphs and analysis of the conic sections, polar coordinates and parametric equations, three dimensional space, vectors and vector-valued functions, partial derivatives, multiple integrals, topics in vector calculus. A graphing calculator is required. (60-0)

MATH-261 Differential Equations (40:261) (3 s.h.)
Prerequisite: MATH-252, Analytic Geometry and Calculus II, with a grade of C or higher. Topics include analytic methods for solving first and second order ordinary differential equations, higher order linear differential equations (including Laplace Transforms) and systems of differential equations, numerical methods for approximating solutions of differential equations, and applications using differential equations. (45-0)

MATH-701 Business Math (90:105) (2 s.h.)
Mathematical applications that apply to a variety of business problems. Topics covered include mathematical fundamentals; accounting applications including banking, payroll, and taxes; figuring percentages related to commissions, discounts, and mark-ups; business problems in credit and interest; business and personal insurance; inventory and turnover; financial statements; and employment tests. (30-0)

MATH-702 Ag Math (90:168) (2 s.h.)
This course is designed for students seeking an Associate in Applied Science Degree in Agriculture. Ag Math is a developmental course in the fundamentals of arithmetic and elementary equation solving. (30-0)

MATH-703 Building Trades Math (91:158) (3 s.h.)
The course covers adding, subtracting, multiplying, and dividing whole numbers, fractions, and decimals. The English system and the metric system are used in measuring linear lines, surface areas, and volume shapes. Exercises include applying math skills and measuring skills to lay out geometric shapes from construction drawings. (45-0)

MATH-710 Occupational Math I (91:122) (2 s.h.)
Prerequisite: Compass Pre-Algebra Score of at least 49; or ACT math score of at least 16; or MATH-040 Essentials of Math, with a grade of C or higher. This course covers essential topics in algebra, including ratio and proportion, and basic statistics. This course is offered during the first eight weeks of the fall semester and the first eight weeks of the spring semester. (30-0)

MATH-711 Occupational Math II (91:123) (2 s.h.)
Prerequisite: MATH-710, Occupational Math I, with a grade of C or higher. This course covers essential topics in geometry and trigonometry. This course is offered during the second eight weeks of the fall semester and the second eight weeks of the spring semester. (30-0)

MATH-900A-C Special Topics in Math (1-3 s.h.)
Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15-0)

MEDA-701 Clinical Procedures I (90:141) (4 s.h.)
Assist physician with examinations and treatments, prepare patients for examinations and diagnostic procedures, administer first aid and CPR, maintain and use aseptic techniques, obtain and record patient data. Perform routine tests, autoclave instruments, and prepare sterile setups. If taking curriculum beyond a one-year period, this course should be taken during the final year of the curriculum. (45-30)

MEDA-702 Clinical Procedures II (90:142) (5 s.h.)
Prerequisite: MEDA-701, Clinical Procedures I. A continuation of Clinical Procedures I with emphasis on pharmacology, administration of medications, electrocardiography and the circulatory system. Principles of radiography and nutrition. Collection and testing of laboratory specimens, including phlebotomy. If taking curriculum beyond a one-year period, this course should be taken during the final year of the curriculum. (45-75)

MEDA-720 Medical Assistant Externship (90:208) (6 s.h.)
An eight-week term of practical experience in selected physicians' offices, clinics, or laboratories. It offers the students an opportunity to perform various clinical and office procedures under the supervision of the physician or assistant and the instructor/coordinator. This course has been designated as a pass/no pass course. (0-270)

MRKT-101 Principles of Marketing (15:221) (3 s.h.)
A study of the role of marketing in society as well as a study of target market (customer) determination and selection, product strategy, channels of distribution, pricing concepts, and promotional activities that are used in business today. (45-0)

MRKT-102 Principles of Advertising (15:222) (3 s.h.)
The study of advertising process and its place in business and society. The course involves learning about the planning, creating and placement of advertising. The course also covers the topic of integrated promotion. (45-0)

MRKT-103 Principles of Selling (15:223) (3 s.h.)
This course is centered around the study of concepts and practices used by professional salespeople in today's market-driven economy. The course also includes a study of selling as a promotional strategy used by marketers. (45-0)

MUSI-101 Exploring Music (50:113) (3 s.h.)
Exploring Music is concerned with the development of Western Classical Music that encompasses nearly 2500 years of history beginning in 400 BC and culminating in the 1990s. This course provides the student knowledge of six commonly recognized historical eras through lectures, recordings, videotapes, digital media, and possible guest speakers. (45-0)

MUSI-120 Introduction to Music Theory (50:120) (2 s.h.)
Prerequisite: previous instrumental or vocal music experience. Introduction to Music Theory is designed as a precursor to any Music Theory sequence. The course work will emphasize the circle of fifths, major scales, all forms of the minor scales, parallel and relative scale relationships, and music vocabulary. This course will also introduce the aural skills of scale identification, rhythmic dictation, and interval identification. (22.5-15)

MUSI-121 Music Theory I (50:121) (4 s.h.)
Prerequisite: Previous instrumental or vocal experience. Theory I examines all the basic materials of music which include notation, scales, intervals, chords, melody, harmony, rhythm and texture. Other areas of analysis take in cadence types, chordal inversions, figured bass harmonization and principles of part writing based on 18th century models. This course introduces fundamentals of the aural skills, ear training and sight singing. (45-60)

MUSI-122 Music Theory II (50:122) (4 s.h.)
Prerequisite: Final grade of C or better in MUSI-121, Music Theory I, or instructor consent. A continuation of MUSI-121, Theory II will examine in more detail the harmonic element of music. Discussions will include the harmonic progression, modulation and specific types of seventh chords as they relate to 18th century counterpoint. Continued development of ear training and sight-singing skills. (45-60)

MUSI-150 Concert Chorus (50:150) (1 s.h.)
Concert Chorus is open to all students interested in vocal music. The group performs one formal concert on campus each semester, as well as community performances, area high school assemblies, and community meetings. Course may be repeated for credit. (45-90)

MUSI-151 Vocal Ensemble--NIACC Singers (50:151) (1 s.h.)
Corequisite: MUSI-150, Concert Chorus. NIACC Singers is an auditioned group for students with a high level of competency in vocal music. Auditions may be completed individually by contacting the professor. The group performs one formal concert on campus each semester, as well as community performances, area high school assemblies, and community meetings. Course may be repeated for credit. (0-60)

MUSI-152 Concert Band (50:152) (1 s.h.)
The North Iowa Concert Band, sponsored by North Iowa Area Community College, rehearses one night each week in preparation for concerts and programs. Open to all interested NIACC students and adults in the North Iowa area. Course is repeatable for credit to a maximum of 4 credit hours. (20-0)

MUSI-153 Orchestra (50:153) (1 s.h.)
The North Iowa Symphony Orchestra, sponsored by North Iowa Area Community College rehearses one night each week in preparation for concerts and programs. Open to all interested NIACC students and adults in the North Iowa area. Some sections of the orchestra require an audition. Course is repeatable for credit to a maximum of 4 credit hours. (20-0)

MUSI-154 NIACC Jazz Ensemble (50:154) (1 s.h.)
The NIACC Jazz Ensemble rehearses two and a half hours each week in preparation for concerts on campus, for area high school assemblies, festivals, and community events. Concentration on jazz repertoire from 1930 to the present. Open to all interested NIACC students by audition. Course is repeatable for credit to a maximum of 4 credit hours. (30-0)

MUSI-155 Chamber Ensemble (50:155) (1 s.h.)
Course is designed to provide an opportunity to study and perform chamber literature of the last three centuries. Groups may vary in size from duets to sextets for brass, woodwind, string, or percussion instrumentalists. Also includes jazz combos. Time arranged. Course is repeatable for credit to a maximum of 4 credit hours. (15-0)

MUSI-156A Applied Voice (50:156A) (1 s.h.)
MUSI-156B Applied Voice (50:156B) (2 s.h.)
Individualized instruction in vocal or performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (30-minute lesson per week) or 2 credit hours (60-minute lesson per week) each semester. Each course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5-15 or 15-30)

MUSI-158A Applied Flute (50:158A) (1 s.h.)
MUSI-158B Applied Flute (50:158B) (2 s.h.)
MUSI-159A Applied Oboe (50:159A) (1 s.h.)
MUSI-159B Applied Oboe (50:159B) (2 s.h.)
MUSI-160A Applied Clarinet (50:160A) (1 s.h.)
MUSI-160B Applied Clarinet (50:160B) (2 s.h.)
MUSI-161A Applied Bassoon (50:161A) (1 s.h.)
MUSI-161B Applied Bassoon (50:161B) (2 s.h.)
MUSI-162A Applied Saxophone (50:162A) (1 s.h.)

MUSI-162B Applied Saxophone (50:162B)	(2 s.h.)
MUSI-163A Applied Trumpet (50:163A)	(1 s.h.)
MUSI-163B Applied Trumpet (50:163B)	(2 s.h.)
MUSI-164A Applied French Horn (50:164A)	(1 s.h.)
MUSI-164B Applied French Horn (50:164B)	(2 s.h.)
MUSI-165A Applied Trombone (50:165A)	(1 s.h.)
MUSI-165B Applied Trombone (50:165B)	(2 s.h.)
MUSI-166A Applied Euphonium (50:166A)	(1 s.h.)
MUSI-166B Applied Euphonium (50:166B)	(2 s.h.)
MUSI-167A Applied Tuba (50:167A)	(1 s.h.)
MUSI-167B Applied Tuba (50:167B)	(2 s.h.)
MUSI-168A Applied Percussion (50:168A)	(1 s.h.)
MUSI-168B Applied Percussion (50:168B)	(2 s.h.)
MUSI-169A Applied Drum Set (50:169A)	(1 s.h.)
MUSI-169B Applied Drum Set (50:169B)	(2 s.h.)
MUSI-170A Applied Guitar (50:170A)	(1 s.h.)
MUSI-170B Applied Guitar (50:170B)	(2 s.h.)

Individualized instruction in instrumental performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (30-minute lesson per week) or 2 credit hours (60-minute lesson per week) each semester. Each course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (7.5-15 or 15-30)

MUSI-195 Beginning Piano (50:195) (1 s.h.)
Individualized instruction in piano performance for students who are beginners. Instructional materials include a repertoire of basic piano literature. Students register for 1 credit hour (one 30-minute lesson per week) which is repeatable to a maximum of 4 credit hours. (7.5-15)

MUSI-196A Applied Piano (50:157A) (1 s.h.)
Prerequisite for MUSI-196A, Applied Piano, is 1 credit hour of MUSI-195, Beginning Piano, or equivalent. Individualized instruction in instrumental performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (30-minute lesson per week) or 2 credit hours (60-minute lesson per week) each semester. Each course is repeatable for credit to a maximum of 8 credit hours. (7.5-15)

MUSI-196B Applied Piano (50:157B) (2 s.h.)
Prerequisite for MUSI-196B, Applied Piano, is 1 credit hour of MUSI-195, Beginning Piano, or equivalent. Individualized instruction in instrumental performance through the development of strong technical foundation and well-rounded musicianship. Instructional materials include a repertoire of traditional and contemporary literature. Students may register for 1 credit hour (30-minute lesson per week) or 2 credit hours (60-minute lesson per week) each semester. Each course is repeatable for credit to a maximum of 8 credit hours. Must have instructor consent for 2 credit hours. (15-30)

MUSI-221 Music Theory III (50:123) (4 s.h.)
Prerequisite: Final grade of C or better in MUSI-122, Music Theory II, or instructor consent. Students will develop analytical, written, aural, and sight-singing skills in music covering the Renaissance through the early Classical period. (45-30)

MUSI-222 Music Theory IV (50:124) (4 s.h.)
Prerequisite: Final grade of C or better in MUSI-221, Music Theory III, or instructor consent. Students will develop analytical, written, aural, and sight-singing skills in music covering the late Classical through the 20th Century. (45-30)

OFFC-701 Keyboarding for Office Technology (15:107) (3 s.h.)
Prerequisite: BUSN-102, Keyboarding Level I, and/or BUSN-103, Keyboarding Level II, OR keyboarding skill of 30 wpm (words a minute) with 3 or fewer errors on a 3-minute timed writing. This course covers the continued development of speed and accuracy on the alphabetic, numeric, and symbol keys. Students develop skills in formatting, producing, and proofreading the following documents: memos, letters, envelopes, tables, reports, and other miscellaneous business documents. (30-30)

OFFC-702 Electronic Calculators (15:110) (1 s.h.)
[Structured or Open Entry] A study of the 10-key, electronic calculator. Applied business problems on the calculator. This course has been designated as a pass/no pass course. (5-20)

OFFC-810 Legal Office Procedures (15:122) (5 s.h.)
Prerequisite: COMP-105, Word Processing, and ENGL-705, Business Communication. Management of a lawyer's office that includes topics covering general legal documents, personal and real property, business organizations and meetings, bankruptcies, wills and estates, civil cases, and family law. Includes using a word processor, developing transcription skills, using the Internet to access information, filing, handling telephone services, discussing professionalism, applying grammar rules, and taking care of general office administration. Students are expected to spend time outside of class working in the computer lab. (60-30)

OFFC-830 Professional Office Procedures (15:218) (4 s.h.)
Prerequisite: COMP-105, Word Processing; and ENGL-705, Business Communication. Office procedures and techniques necessary to perform general office duties. Includes using a word processor, developing transcription skills, using the Internet to access information, filing, handling telephone services, discussing professionalism, applying grammar rules, and taking care of general office administration. Students are expected to spend time outside of class working in the computer lab. (20-80)

OFFC-850 Medical Office Procedures (15:259) (3 s.h.)
Prerequisite: COMP-105, Word Processing, and ENGL-705, Business Communication. Management of a medical office that includes preparing correspondence and patient records, using the Internet to access information, filing, handling telephone services, making and keeping appointments, developing transcription skills, composing letters, discussing professionalism, applying grammar rules, and taking care of general office duties. Also includes medical ethics and etiquette, medical law, and use of a computer for word processing. Students are expected to spend time outside of class working in the computer lab. (45-0)

OFFC-851 Basic Medical Insurance and Coding (15:250) (2 s.h.)
HEAL-110, Medical Terminology I and BIOL-701, Body Structure and Function. This course will provide the students with an overview of medical health insurance claims submission guidelines and

basic coding procedures. In addition, the student will work through a number of relevant case studies. (30-0)

OFFC-852 Medical Transcription I (15:249) (3 s.h.)
This course is designed to simulate medical transcription practices used in a healthcare environment. The main objective is to provide the student with knowledge of the content and formats of medical documents and reports typically dictated in physicians' offices, hospital clinics, and hospital ancillary and support facilities. (15-60)

OFFC-853 Medical Transcription II (15:256) (3 s.h.)
Prerequisite: OFFC-852, Medical Transcription I. This course is designed to introduce students to hospital dictation. The students will progress through various levels of dictation including some advanced documents. (15-60)

OFFC-854 Medical Transcription III (15:265) (3 s.h.)
Prerequisites: OFFC-852, Medical Transcription I. This course is designed to introduce students to live medical dictation from the clinical and radiology settings. The students will also be applying the issues of confidentiality and using medical reference books. (15-60)

PHIL-101 Introduction to Philosophy (80:210) (3 s.h.)
Introduces the student to the study of philosophy and teaches skills of critical thinking. The course examines the meaning and value of philosophy; human nature and the self, axiology-ethics and values (In search of the Good Life); social philosophy; freedom; individualism; philosophy and art; epistemology-the nature of knowledge; truth; philosophy and religion; the meaning of suffering and death; examination of decision making and self-discovery. (45-0)

PHIL-102 Ethics (80:212) (3 s.h.)
This course is designed to develop objective thinking skills. The goal is to create a balance between moral principles when considering a variety of ethical issues. The emphasis will be on developing a moral stance that is workable in today's society. Issues include poverty, environment, animal rights, business, preferences in hiring, war, death penalty, abortion, euthanasia, parent-child relationships, sex, love, and marriage. (45-0)

PHYE-101 Introduction to Physical Education (60:117) (2 s.h.)
Designed to provide career information concerning opportunities in physical education, coaching, and recreational activities. (30-0)

PHYE-110 Rape Education & Self Defense (60:175) (2 s.h.)
Rape Education and Self Defense is a course of study designed to introduce the participant to basic self-defense concepts and techniques, to heighten the participant's level of awareness and alertness in her environment, to provide participant with information about violent contexts, and to provide the participant with basic physical methods of self-defense. In general, this course cannot offer absolutes; however, the theory behind such a course rests in the concept that those armed with information and a few operational options stand a better chance of avoiding and, when avoidance fails, surviving violence. (30-0)

PHYE-113 Physical Fitness (60:113) (1 s.h.)
A lecture course designed to teach the student about the importance of being physically fit. The course material will provide insight into various methods of testing physical fitness as well as identify-

ing what good physical fitness is. The student will be able to assess his/her own level of physical fitness. (15-0)

PHYE-114 Physical Fitness Lab (60:114) (1 s.h.)
A lab course designed to increase a person's interest of his/her own level of physical fitness. The course provides activities with which the student can improve his/her level of physical fitness in the areas of strength, flexibility, and endurance. The student will be required to participate in class activities twice a week. (0-30)

PHYE-115 Games and Officiating I (60:115) (2 s.h.)
Guiding principles and standards: rules, mechanics, and procedures for competitive sports officiating. Students will work toward becoming a registered official in the Iowa Athletic Associations. Emphasis will be on football, volleyball, and boys' and girls' basketball officiating. Each student will gain actual officiating experience. (28-4)

PHYE-116 Games and Officiating II (60:116) (2 s.h.)
Prerequisite: PHE-115, Games and Officiating I. This course is a continuation of PHE-115. Attention directed toward the study of wrestling, track, baseball, and softball. (28-4)

PHYE-117 First Aid & Personal Safety (60:232) (1 s.h.)
Lecture-type course designed to give the layperson adequate first aid knowledge and skills with emphasis on accident prevention and recognition and treatment of common medical emergencies. (15-0)

PHYE-120 Baseball (60:120) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)

PHYE-121 Basketball (60:121) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)

PHYE-122 Football (60:122) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)

PHYE-123 Golf (60:123) (1 s.h.)
Course may be repeated for a maximum of two credits. (10-60)

PHYE-124 Cross Country (60:124) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)

PHYE-127 Softball (60:127) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-160)

PHYE-128 Volleyball (60:128) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-100)

PHYE-129 Soccer (60:129) (1 s.h.)
Course may be repeated for a maximum of two credits. (40-100)

PHYE-130 Weight Training (60:102) (1 s.h.)
A lab course designed to increase the student's awareness and appreciation of weight training and its effect on physical well being. The course provides a structured environment for the student to learn proper lifting techniques and an awareness of the benefits associated with different types of lifts. The course is repeatable for up to four semester hours credit. (0-30)

PHYE-131 Bowling (60:107) (1 s.h.)
A 1-hour lab class designed to teach the basic skills and knowledge of bowling through participation in a two hour per week bowling class. Student will be instructed on basic bowling techniques and scoring. Student will participate in various bowling activities such as a class bowling league and other group and individual competition. Class will meet at Lee's Lanes in Mason City. Student is required to pay a one-time bowling fee of \$45. The course is repeatable for up to four credits. (2-28)

PHYE-132 Aerobics/Tae-Bo (60:108) (1 s.h.)
A 1-hour lab class designed to increase the students' level of physical fitness and confidence through participating in three levels of Tae-Bo. Tae-Bo is an aerobic form of exercise using basic self-defense techniques of punching and kicking to develop cardiovascular strength, flexibility, and muscular endurance. The class is set up to be progressive with three levels of Tae-Bo included. The three levels are: a basic level, an intermediate level, and an advanced level of Tae-Bo. Class activity will follow the "Billy Blanks Instructional Tae-Bo" videotapes. Class will meet twice each week for one hour. The course is repeatable for up to four credits. (2-28)

PHYE-133 Yoga (1 s.h.)
A lab course designed to increase the student's awareness and appreciation of yoga and its effect on physical and mental well being. The course provides a structured environment for the student to learn proper body alignment in the yoga poses and an awareness of the benefits associated with the different poses. This course is repeatable for up to 2 semester hours of credit. (0-30)

PHYE-150 Theory, Ethics, and Professional Responsibilities of Coaching Interscholastic Athletics (60:150) (1 s.h.)
Guiding principles and techniques of coaching interscholastic athletics. Discussion of theory, ethics, and professional responsibilities as they relate to coaching interscholastic athletes. (20-0)

PHYE-151 Care and Prevention of Athletic Injuries (60:118) (2 s.h.)
Recommended: one semester course in anatomy and physiology. Introductory preparation in athletic training, injury, treatment techniques, taping, wrapping, etc. Preventative measures to reduce athletic injuries. Course may be used to fulfill partial requirement for Iowa Coaching Certification. (30-0)

PHYE-152 Intro to Anatomy & Physiology for Coaching (60:152) (1 s.h.)
An introduction to anatomy and physiology with stress on the relationship to athletic actions. This course is designed as an introductory course for prospective coaches with little or no background in anatomy and physiology. (15-0)

PHYE-153 Human Development in Sports (60:153) (1 s.h.)
A one-semester course with emphasis on human growth and development and relationship to physical activity, with special attention to children and adolescents. (15-0)

PHYE-900A-C Special Topics in Physical Education (60:299) (1-3 s.h.)
Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division

Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0)

PHYS-100 Introduction to Laboratory Science (70:100) (2 s.h.)
This course introduces the basic concepts for education and career development in the field of laboratory science and the health care profession. Current health care systems and trends are emphasized along with the factors having current and future impact on medical laboratories. The organization and role of the clinical laboratory are explored, as well as medical ethics and conduct, employment opportunities, and professional organizations. (30-0)

PHYS-101 Introduction to Physical Science (70:114) (4 s.h.)
Prerequisite: High school algebra or equivalent. An introductory college level, one-semester course intended to meet general education and elementary education certification requirements. Uses the Powerful Ideas in Physical Science curriculum and includes the units on Light & Color, Electricity, and Heat & Conservation of Energy. (45-30)

PHYS-105 Astronomy (70:182) (3 s.h.)
An introductory level, one-semester course for the nonscience major. Topics include a brief history of astronomy, the physics behind astronomy, the solar system, stars, and galaxies. Computer-based and hands-on activities complement material in the text. (45-0)

PHYS-110 Principles of Physics (70:122) (4 s.h.)
Prerequisite: MATH-100, Intermediate Algebra, or equivalent. An introductory, one-term course covering measurement, motion, heat, waves, electricity, magnetism and atomic physics. (45-30)

PHYS-120 General Physics I (70:280) (4 s.h.)
Prerequisite: MATH-134, Trigonometry and Analytic Geometry, or equivalent. For students going into professional fields other than engineering. Covers mechanics, conservation laws, simple harmonic motion, waves, and fluids. (45-30)

PHYS-121 General Physics II (70:281) (4 s.h.)
Prerequisite: PHYS-120, General Physics I; or equivalent algebra-based first semester physics course as approved by the instructor. A continuation of General Physics I, covering thermodynamics, electricity and magnetism, DC and AC circuits, and optics. (45-30)

PHYS-220 College Physics I (70:282) (5 s.h.)
Prerequisite: MATH-251, Calculus I or equivalent with a C or higher, concurrent enrollment in or completion of MATH-252, Calculus II or equivalent. Calculus-based course intended for engineers or physics majors. Kinematics, dynamics, statics, conservation laws, rotational motion, simple harmonic motion, waves, and fluids. (60-30)

PHYS-221 College Physics II (70:283) (5 s.h.)
Prerequisite: PHYS-220, College Physics I or equivalent; MATH-252, Calculus II or equivalent. Second of two-course sequence for engineers or physics majors. Thermodynamics, electricity and magnetism, electric circuits, and optics. (60-30)

PHYS-701 Career Physics (96:150) (4 s.h.)
Prerequisite/Corequisite: MATH-710, Occupational Math I, and MATH-711, Occupational Math II. An introduction to the physics of mechanical, fluid, electrical and thermal systems with emphasis on application in the technical careers. (45-30)

PHYS-900A-C Special Topics in Physics (70:299) (1-3 s.h.)
Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0)

POLS-101 Introduction to American Government (80:120) (3 s.h.)
A survey of the American federal system of government including a description and analysis of the Constitution, the legislative, executive, and judicial branches of government, and the American political process. (45-0)

POLS-102 American State and Local Government (80:121) (3 s.h.)
A survey of state and local governments in the United States including an analysis of federal-state relations, state constitutions, state and local legislative, executive, and judicial systems, and major issues in state and local politics. (45-0)

POLS-110 International Relations (80:122) (3 s.h.)
An introductory course in international relations which offers an analysis of the structure and processes of world politics. Topics covered include the study of foreign policies, a survey of major problems in contemporary world affairs, and an examination of selected global issues. (45-0)

POLS-125 Student Senate (80:125) (1 s.h.)
Students will develop increased organizational and leadership skills through involvement in planning campus activities and entertainment, participating in community service projects, organizing community college advocacy efforts and helping to get students involved at North Iowa Area Community College. Additional leadership opportunities may include attending a conference, becoming a Student Senate representative on a student or college committee, or assisting with Fine Arts events. Course may be repeatable for a maximum of four credits. (0-30)

PSYC-101 Introduction to Psychology (80:101) (3 s.h.)
Introduction to the scientific study of behavior: a brief history of psychology as a science; influences of heredity and environment, motivation, frustration and conflict, the learning process, intelligence, perception, and mental health. (45-0)

PSYC-110 Developmental Psychology (80:230) (3 s.h.)
A study of the physical, mental, emotional, and social growth of the person from conception through later adulthood. Class lecture and discussion will reflect on such issues as attachment, play behavior, parenting styles and discipline, education, mate selection, mid-life events, and later adulthood experiences. (45-0)

PSYC-204 Child and Adolescent Psychology (80:104) (3 s.h.)
Prerequisite: PSYC-101, Introduction to Psychology, and/or PSYC-

110, Developmental Psychology. Course covers information relevant to the development of humans from the prenatal stages through adolescence. Topics covered include the developing fetus, as well as physical, social, and psychological development in infancy, toddlerhood, childhood, and adolescence. (45-0)

PSYC-205 Educational Psychology (80:103) (3 s.h.)
Educational psychology applies the accumulated knowledge of human cognition and behavior from the field of psychology to the theory and practice of teaching. This course will be taught from a research perspective to facilitate student comprehension of teaching theories and how they can be applied in the classroom. (45-0)

PTAS-701 Introduction to PTA (90:149) (2 s.h.)
Prerequisite: None. This course provides an overview of the physical therapy profession and the role of the physical therapist assistant, including legal and ethical aspects of practice. Students will be introduced to the patient care process, be instructed in documentation, and given opportunities to work on their communication skills. Includes an introduction to the Clinical Education component of the program. (30-0)

PTAS-702 Fundamentals for PTA (90:144) (3 s.h.)
Prerequisite: None. This course provides a foundation in physical therapy interventions by covering techniques that the PTA can utilize to monitor patients as well as basic treatment interventions such as range of motion and transfers. Purposes of all skills, proper techniques, and safety considerations will be addressed. Students will have lab time to apply, practice, and demonstrate skills they are taught. (30-30)

PTAS-703 PTA Terminology (90:145) (1 s.h.)
Prerequisite: None. Includes an orientation to the vocabulary of medicine with emphasis on terminology related to physical therapy. (15-0)

PTAS-710 Introduction to the Clinic (90:136) (1 s.h.)
Prerequisite: PTAS-701, Introduction to PTA; and PTAS-702, Fundamentals for the PTA. Forty-hour clinical occurs one week prior to start of second term. Skills, knowledge, and attitudes learned in Terminology, Introduction to PTA, and Fundamentals for the PTA will be applied to direct patient care in selected clinical settings. Includes application/integration of PTA course work with the goal of student providing quality care with uncomplicated patients and a high degree of supervision and guidance. This course has been designated as a pass/no pass course. (0-40)

PTAS-711 Developmental Processes (90:146) (3 s.h.)
Prerequisite: PTAS-702, Fundamentals for PTA, and PTAS-710, Introduction to the Clinic. Presents overview of cognitive, social, and emotional developmental processes which affect an individual throughout the life span, with an emphasis on physical aspects of development and application of those processes to the field of physical therapy. (45-0)

PTAS-712 Physical Agents (90:159) (4 s.h.)
Prerequisite: PTAS-702, Fundamentals for PTA. Prepares the student for safe and effective application of modalities for patient treatment. Mechanisms of action, indications, contraindications and treatment procedures will be covered for the following: heat,

electromagnetic radiation, cold, massage, biofeedback, external compression, whirlpool, wound care, traction, and electrical stimulation. Pain and skin assessment will be included. Students will practice applications in lab. (37.5-45)

PTAS-713 PTA Clinic I (90:137) (2 s.h.)
Prerequisite: PTAS-701, Introduction to PTA; PTAS-702, Fundamentals for the PTA; BIOL-222, Kinesiology; PTAS-711, Developmental Processes; and PTAS-712, Physical Agents. Eighty-hour clinical occurs two weeks beyond the end of the second term. Skills, knowledge, and attitudes learned in Developmental Processes, Kinesiology, and Physical Agents will be applied to direct patient care in selected clinical settings. Includes application/integration of current and previous PTA course work with the goal of student providing quality care with uncomplicated to complex patients and a degree of supervision and guidance that will vary with the complexity of the patient or the environment. This course has been designated as a pass/no pass course. (0-80)

PTAS-801 Pathophysiology (90:147) (3 s.h.)
Prerequisite: HEAL-110, Medical Terminology or PTAS-703, PTA Terminology; BIOL-220, Anatomy & Physiology I; and BIOL-221, Anatomy & Physiology II. Presents clinical disorders and diseases commonly treated in physical therapy. Pathology, etiology, diagnosis, signs, symptoms, prognosis and implications for rehabilitation will be covered. (45-0)

PTAS-802 PTA Assessment Procedures (90:150) (3 s.h.)
Prerequisites: HEAL-110, Medical Terminology or PTAS-703, PTA Terminology; PTAS-702, Fundamentals for PTA; and BIOL-222, Kinesiology. This course provides an in-depth look at various assessment skills performed and utilized by the PTA. Special emphasis will be on theory, application procedures, and documentation of findings when utilizing goniometry and manual muscle testing in the clinic setting. Students will have an opportunity in the lab portion to apply, practice, and demonstrate techniques they are taught. (30-30)

PTAS-803 PTA Clinic II (90:138) (2 s.h.)
Prerequisite: HEAL-110, Medical Terminology or PTAS-703, PTA Terminology; PTAS-701, Introduction to PTA; PTAS-702, Fundamentals for the PTA; BIOL-222, Kinesiology; PTAS-711, Developmental Processes; PTAS-712, Physical Agents; PTAS-801, Pathophysiology; and PTAS-802, PTA Assessment Procedures. Eighty-hour clinical occurs in the final week of the third term and extends one week after the term ends. Skills, knowledge, and attitudes learned in Pathophysiology and PTA Assessment Procedures will be applied to direct patient care in selected clinical settings. Includes application/integration of current and previous PTA course work, with the goal of the student providing quality care with uncomplicated to complex patients and a degree of supervision/guidance that will vary with the complexity of the patient or the environment. This course has been designated as a pass/no pass course. (0-80)

PTAS-810 Therapeutic Exercise (90:212) (3 s.h.)
Prerequisite: PTAS-702, Fundamentals for PTA, and BIOL-222, Kinesiology. This course studies the physiological effects of exercise on the musculoskeletal, cardiovascular, and pulmonary systems. Physical therapy treatment techniques to improve strength,

flexibility, cardiovascular and pulmonary functions are presented. Treatment programs for specific diagnoses such as diabetes, pregnancy, and amputation are addressed. Students will practice techniques in lab. (30-30)

PTAS-811 Orthopedics (90:213) (3 s.h.)
Prerequisite: BIOL-220 and BIOL-221, Anatomy and Physiology I and II, and PTAS-701, Kinesiology. Principles of fracture and soft tissue healing are applied to musculoskeletal injuries and disorders. Injuries, disorders, and function specific to each joint are covered. Physical therapy treatment for specific joint injuries are presented. Students will practice techniques in lab. (30-30)

PTAS-812 Neurology for the PTA (90:214) (4 s.h.)
Prerequisites: BIOL-220, Human Anatomy and Physiology I; BIOL-221, Human Anatomy and Physiology II; PTAS-801, Pathophysiology; PTAS-711, Developmental Processes. This course will provide information, discussion, and treatment considerations with neurologically based diagnoses. Emphasis will be on exploring clinical manifestations and treatment considerations with all the disorders with special emphasis on cardiovascular accidents. Typical treatment techniques, exercise programs, and treatment progression will be applied to lab scenarios with a variety of neurological diagnoses. Students will have an opportunity in the lab portion to apply, practice, and demonstrate techniques they are taught. (45-30)

PTAS-813 Career Essentials (90:215) (2 s.h.)
Prerequisite: All previous PTA technical courses. This course studies basic principles of management, ethical and legal issues, and the process of quality assurance. Special emphasis will be on reimbursement systems and their impact on health care delivery. Resume writing, interviewing, and employability skills will also be covered. (30-0)

PTAS-821 PTA Clinic III (90:218) (7 s.h.)
Prerequisite: HEAL-110, Medical Terminology, or PTAS-703, PTA Terminology; PTAS-701, Introduction to PTA; PTAS-702, Fundamentals for PTA; BIOL-222, Kinesiology; PTAS-711, Developmental Processes; PTAS-712, Physical Agents; PTAS-801, Pathophysiology; PTAS-802, PTA Assessment Procedures; PTAS-803, PTA Clinic II. Eight-week, full-time clinical experience. Skills, knowledge, and attitudes learned in Neurology, Orthopedics, Therapeutic Exercise and Career Essentials will be applied to direct patient care in selected clinical settings. Includes application and integration of all PTA course work with goal of student consistently and efficiently providing quality care with uncomplicated to complex patients and a moderate to low degree of supervision/guidance except when addressing new and highly complex situations. This course has been designated as a pass/no pass course. (0-320)

PTAS-822 PTA Clinic IV (90:219) (5 s.h.)
Prerequisite: HEAL-110, Medical Terminology, or PTAS-703, PTA Terminology; PTAS-701, Introduction to PTA; PTAS-702, Fundamentals for PTA; BIOL-222, Kinesiology; PTAS-711, Developmental Processes; PTAS-712, Physical Agents; PTAS-801, Pathophysiology; PTAS-802, PTA Assessment Procedures; PTAS-803, PTA Clinic II; PTAS-821, PTA Clinic III. Six-week, full-time clinical experience. Skills, knowledge, and attitudes learned in all PTA course work will be applied to direct patient care in selected

clinical settings. Includes application and integration of all PTA course work with the goal of the student consistently and efficiently providing quality care with uncomplicated to complex patients. The student usually needs no further guidance or supervision except when addressing new and highly complex situations. This course has been designated as a pass/no pass course. (0-240)

PTAS-823 PTA Seminar (90:217) (1 s.h.)
Prerequisite: All PTA courses. This course will focus on the role of the PTA in helping patients achieve optimal mobility and become as independent as possible with functional activities. Lecture and discussions will incorporate students' experiences from PTA Clinic III and PTA Clinic IV so that each student has time to process and consider these learning experiences. All aspects of patient care will be addressed and case study presentations will be included to assist with problem-solving skills. (15-0)

RETL-701 Retailing (90:125) (3 s.h.)
The study of the selling of goods and services to ultimate consumers, involving distribution, inventory control, site selection, pricing, and other topics pertinent to successful retail business operations. (45-0)

RETL-702 Retail Field Experience (90:123) (5 s.h.)
The on-the-job training component of the Retail Management Program. (15-225)

RETL-710 Retail Field Experience (90:126) (5 s.h.)
Prerequisite: RETL-702, Retail Field Experience. The on-the-job training component of the Retail Management Program. (15-225)

RETL-801 Retail Buying (90:234) (3 s.h.)
Buying duties and policies, how to buy, how much to buy, buying methods, source selection, price lines, and sales records. Product knowledge and analysis relative to the buying function and value analysis of products. (30-30)

RETL-802 Retail Field Experience (90:233) (5 s.h.)
Prerequisite: RETL-702 and RETL-710, Retail Field Experience. The on-the-job training component of the Retail Management Program. (15-225)

RETL-810 Retail Field Experience (90:237) (5 s.h.)
Prerequisite: RETL-702, RETL-710, and RETL-802, Retail Field Experience. The on-the-job training component of the Retail Management Program. (15-225)

SDEV-100 Orientation to College (89:140) (0 s.h.)
Prerequisite: First-time, full-time college students [transfer students with less than 12 hours credit]. Areas included in this course are campus involvement, services available to students, alcohol awareness, career awareness, and personality types/study behaviors. (5-0)

SDEV-101 ACE-Action for College Education (89:153) (1 s.h.)
Prerequisite/Corequisite: For participants in the Student Support Services Project. ACE (Action for College Education) is a motivational behavioral modification program. The course cultivates a positive attitude and gives students the motivation to help themselves in a college setting. The goal is to instill confidence, eagerness, and enthusiasm toward obtaining a college degree. (15-0)

SDEV-105 Academic Success Seminar (89:151) (2 s.h.)
Designed primarily for freshmen. The focus is assisting in the development of effective study techniques and comprehensive skills necessary for independent learning and academic success. (30-0)

SDEV-106 Career Decision Making (89:152) (2 s.h.)
Introduction to a structured career decision-making process, including self-awareness, career and educational information, economic information, and related activities/projects. (30-0)

SDEV-110 Employment Strategies (89:150) (1 s.h.)
Develop skills necessary to enter the job market and experience long-term career growth. Students learn basic job seeking techniques, job keeping skills, and strategies for continued growth. (15-0)

SDEV-111 Leadership Development Seminar (80:127) (2 s.h.)
This course will help students develop the necessary skills to be an effective leader. Topics covered include developing a leadership philosophy, articulating a vision, decision making, time management, team building, empowering and delegating, initiating change, managing conflict, and ethics. Class time will primarily consist of discussion and small-group activities. (15-30)

SDEV-120A-E Cooperative Education Internship (89:100) (1-5 s.h.)
Practical training on the job under the cooperative supervision of the college and work supervisor. Designed primarily for the college transfer students to provide an experience that: (1) is directly related to their college program and career objectives; or (2) will help them test out career interest and/or discover new career possibilities. Credit is determined on the basis of one semester of credit for each 60 hours of approved employment to be completed in a term. Appropriateness of learning objectives is an essential factor in the approval process. 1-5 credits per semester, 12 credits maximum. (0-300)

SDEV-125 Individualized Educational Planning & Assessment (89:120) (1 s.h.)
Prerequisite: Students must have the consent of the instructor. The introductory and required beginning course for the Individualized Competency Based Education program (ICBE). It is designed to teach personal educational assessment and evaluation, goal setting, degree pact writing and individualized educational planning. (15-0)

SDEV-250 Listen to Your Heart and Success Will Follow (89:145) (1 s.h.)
Intelligently facilitated and fast-paced, Listen to Your Heart, and Success Will Follow will help you enjoy the rewards that come from doing what really makes you happy! Your instructor and a caring community of students will help you begin designing a life that really works for you. With a complete understanding of your own interests, values, needs and abilities, you'll learn how you can use work to express yourself and share your interests and talents. Your every day will be filled with joy and inspiration, and a greater depth of meaning will be added to everything you do. This course program is skillfully crafted to weave experiential learning with the conceptual presentation, giving you time to experience, understand, and implement each new strategy as it is introduced. (5-20)

SDEV-251 Speed Reading - Merrill Ream (89:146) (1 s.h.)
Are you struggling to keep up with a flood of e-mail, articles, reports, books, and other printed matter? Save yourself oodles of time by learning to read faster and with better comprehension from acclaimed speed reading expert, Dr. Merrill Ream. This course is a complete speed reading experience. Topics are presented in a logical progression with plenty of time to help you master the skills and techniques you'll need for lasting proficiency as a speed reader. (5-20)

SOCS-100 Introduction to Human Services (80:114) (3 s.h.)
This course is designed to familiarize the student with the human services arena. Various employment opportunities are explored, as well as ethical, legal, political, and economic forces. (45-0)

SOCS-101 Sociology (80:110) (3 s.h.)
An introductory survey course, sociology is the scientific study of society. Inquires into what holds societies together, what causes societies to change, and how social forces affect our daily lives. Topics covered include: culture and society, socialization, social research, groups, organizations, institutions, deviance, gender, race and ethnicity. An emphasis is placed on cultural diversity. (45-0)

SOCS-103 Social Problems (80:111) (3 s.h.)
SOCS-101, Sociology, is strongly recommended. Introduction to the study of contemporary social problems. The course examines how social problems are identified, explores underlying conditions and causes of social problems, and considers possible solutions and policy implications. Emphasis is on sociological and critical thinking frameworks. Topics of exploration include: mental illness, substance abuse, crime, prejudice and discrimination, prostitution, poverty, and more. (45-0)

SOCS-112 Marriage and Family (80:112) (3 s.h.)
A survey of the family as a social unit in the modern American culture. A study is made regarding the creation of the American family from various cultures as well as the problems the family is subjected to such as sex relations, social roles, communication, finance, and divorce. (45-0)

SOCS-115 Cultural Anthropology (80:160) (3 s.h.)
This course embraces cultures from all continents; highlights major human subsistence patterns; and illustrates human adaptation to the environment, from the beginning of human history to the present. Individual studies enable students to experience cultures in-depth. The student's goal is to understand one's own culture from a historical perspective and to analyze the forces of today in terms of how those forces may affect the future of earth and mankind. (26-38)

SOCS-900A-C Special Topics in Social Science (80:299) (1-3 s.h.)
Students may submit a proposal for a special project to an instructor. With the instructor's approval and the consent of the Division Chair and the Vice President for Academic Affairs, credit may be given upon satisfactory completion of the project. Course may be repeatable for credit. (15 to 45-0)

SPAN-101 Beginning Spanish I (35:110) (4 s.h.)
Designed for students with little or no previous study of Spanish. Focus is on acquainting the student with fundamentals, including pronunciation, basic grammar needed to express activities in the present and near future. Basic vocabulary will be learned to enhance speaking, listening, writing, and reading skills. Increase global awareness by video shorts and short readings. (45-30)

SPAN-102 Beginning Spanish II (35:111) (4 s.h.)
Prerequisite: SPAN-101, Beginning Spanish I or minimum of one year of high school Spanish. Designed as a continuation of Beginning Spanish I. Focus is on reinforcing students' knowledge in fundamentals, including pronunciation, basic grammar needed to express activities in the present and near future. Basic vocabulary will be learned to enhance speaking, listening, writing, and reading skills. New grammar includes being able to communicate in the past tenses, and giving commands for common verbs. Students are expected to use as much Spanish as possible with classmates and the instructor. (45-30)

SPAN-201 Intermediate Spanish I (35:211) (4 s.h.)
Prerequisite: SPAN-102, Beginning Spanish II or minimum of two years of high school Spanish. Designed as a comprehensive grammar review, composition, and speaking course. Builds on aural-oral skills, increased vocabulary, and reading short pedagogical (using vocabulary and grammar students are familiar with) stories and authentic language literature. (45-30)

SPAN-202 Intermediate Spanish II (35:212) (4 s.h.)
Prerequisite: SPAN-201, Intermediate Spanish I or minimum of three years of high school Spanish with instructor approval. Designed as a comprehensive grammar review, composition, and speaking course. Builds on aural-oral skills, increased vocabulary, and reading short pedagogical (vocabulary and grammar suited to student abilities) stories and authentic language literature. (45-30)

SPAN-260 Advanced Spanish I (35:260) (3 s.h.)
Prerequisite: SPAN-202, Intermediate Spanish II; or four years of high school Spanish with instructor approval. Students will become more comfortable speaking by Q & A, impromptu speaking. Reading skills will be enhanced by reading original short stories and cultural and historical selections from the text. Use of visual aids, video shorts, speaking, and reading will increase vocabulary competency. Grammar study and activities will increase language accuracy and expression. Use of exams will be limited; students will be graded on in-class discussion and homework completion. Students will at times use the Internet to find and interpret articles from Hispanic newspapers. A final oral (optional) and written evaluation will determine the student's progress in the above-mentioned areas. (30-30)

SPAN-261 Advanced Spanish II (35:261) (3 s.h.)
Prerequisite: SPAN-260, Advanced Spanish I, or four satisfactory years of high school Spanish with instructor approval. Students are expected to maximize their use of Spanish in the classroom. Guided dialogs as well as extemporaneous speaking will increase fluency. Original texts from various Hispanic countries will be used to gain cultural understanding, vocabulary, and provide topics for classroom discussion. By end of semester, students should be able to express themselves in speech and writing using all verb tenses.

Short creative writings will be done. Articles from Hispanic countries will be used to expose students to a wide range of events and cultural differences. The use of contemporary music and videos will enhance student listening comprehension. Limited use of tests will be used along with in-class participation and out-of-class work to evaluate student progress. This semester's reading will include one drama, "En la ardiente oscuridad" and/or "Fuenteovejuna," and excerpts from one novel (Como agua para chocolate). As segments of the latter are read, the movie will be watched in segments also. Projects may include transcription of a song or video segment, or researching a topic of a current event in a Hispanic country. Every student should demonstrate improvement in all four skills-reading, writing, listening, and speaking. (30-30)

SPCH-101 Public Speaking (85:101) (2 s.h.)
Public speaking as an intellectual tool for use in argumentation and persuasion in a democratic society. (Offered each term.) (30-0)

SPCH-102 Group Discussion (85:105) (2 s.h.)
Principles and techniques of group discussion methods and procedures. (30-0)

SPOR-101 Introduction to Sport Management (15:126) (3 s.h.)
For individuals entering into the sport and physical education profession, it is critical to understand the theory and practice of ethical management principles in sport/fitness organizations. Administrators need to understand marketing, financial and legal aspects regarding the management of facilities, events, and organizations. These principles are applied to organizations within interscholastic, intercollegiate, international and professional sport along with the health/fitness and community recreation industries. (45-0)

SPOR-120 Current Issues in Sport (15:127) (3 s.h.)
Prerequisite: SPOR-101, Introduction to Sport Management. Sport, health/fitness, and recreation organizations have been facing many changes in recent years. These changes have exposed many problems that these organizations must solve in order to ensure future success. This class is designed to expose students to these issues in order to prepare them for management careers in the sport, health/fitness, and recreation fields. (45-0)

SPOR-201A-C Internship in Sport Management (15:128) (1-3 s.h.)
Prerequisite: Recommended SPOR-101, Introduction to Sport Management, or permission of instructor. This course is repeatable for up to six credits. For individuals entering into the sport and physical education profession, it is critical to gain practical experience in the field. Internships in sport management are designed to give the student an inside look at the day-to-day operation of businesses in the sport industry. They are also designed to give each student work experience within the chosen industry. (15-45 to 165)

SRNE-200 Network Routing (15:277) (4 s.h.)
Prerequisite: ISTS-202, Networking IV, or permission of the instructor. This course focuses on advanced routing using Cisco routers connected in local-area networks (LANs) and wide-area networks (WANs) typically found at medium to large network sites. Upon completion of this training course, the student will be able to select and implement the appropriate Cisco IOS services required to build a scalable routed network. (45-30)

SRNE-201 Network Remote Access (15:278) (4 s.h.)
Prerequisite: SRNE-200, Network Routing, or permission of the instructor. Network Remote Access focuses on advanced WAN configurations, building remote access networks. The course teaches students how to build a remote access network to interconnect central sites to branch offices and home offices for telecommuters. The course further teaches students how to control access to the central site and how to maximize bandwidth utilization over the remote links. (45-30)

SRNE-202 Network Design I (15:288) (3 s.h.)
Prerequisite: ISTS-201, Networking III. This course leads to the CCDA certification. The CCDA certification (Cisco Certified Design Associate) indicates a foundation or apprentice knowledge of network design for the small office/home office (SOHO) market. CCDA certified professionals can design routed and switched networks involving LAN, WAN, and dial access services for businesses and organizations with networks of fewer than 100 nodes. (45-0)

SRNE-203 Multi-layer Switching (15:285) (4 s.h.)
Prerequisite: SRNE-200, Network Routing, or permission of instructor. Multi-layer Switching is the third of four courses leading to the Cisco Certified Network Professional (CCNP) designation. Multi-layer Switching (CCNP 3) introduces students to the process of deployment of the state-of-the-art campus LANS. The course focuses on the selection and implementation of the appropriate Cisco IOS services to build reliable scalable multi-layer-switched LANS. Students will develop skills with VLANS, VTP, STP, inter-VLAN routing, multi-layer switching, redundancy, Cisco AVVID solutions, QoS issues, campus LAN security, and emergency transparent LAN services. This hands-on, lab-oriented course stresses the design, implementation, operation, and troubleshooting of switched and routed environments. (45-30)

SRNE-204 Network Support (15:286) (4 s.h.)
Prerequisite: SRNE-200, Network Routing; SRNE-201, Network Remote Access; and, SRNE-203, Multi-layer Switching, or permission of the instructor. This course leads to the CCNP. This course teaches students how to baseline and troubleshoot an environment using Cisco routers and switches for multi-protocol client hosts and servers connected with the following: Ethernet and Fast Ethernet LANS, Serial, Frame Relay, and ISDN BRI WANs. The course provides students with methodical practice using specific Cisco IOS software and Catalyst software tools to diagnose and correct problems on widely installed Cisco products. (45-30)

SRNE-205 Emerging Network Access Technologies (15:287) (4 s.h.)
Prerequisite: ISTS-102, Networking II, or permission of the instructor. This introductory course to Wireless LANs focuses on the design, planning, implementation, operation and troubleshooting of Wireless LANs. It covers a comprehensive overview of technologies, security, and design best practices with particular emphasis on hands-on skills in the following areas: Wireless LAN setup and troubleshooting; 802.11a and 802.11b technologies, products and solutions; Site Surveys; Resilient WLAN design, installation and configuration; WLAN Security -- 802.1x, EAP, LEAP, WEP, SSID; Vendor interoperability strategies. (60-0)

SRNE-206 Network Design II (15:289) (4 s.h.)
Prerequisite: SRNE-202, Network Design I; SRNE-200, Network Routing; SRNE-201, Network Remote Access; and SRNE-203, Multi-layer Switching. This course leads to the CCDP certification. The CCDP certification (Cisco Certified Design Professional) indicates advanced or journeyman knowledge of network design. With a CCDP, a network professional can design routed and switched networks involving LAN, WAN, and dial access services for businesses and organizations with 100 to more than 500 nodes. (60-0)

STAT-104 Introduction to Statistics (40:140) (3 s.h.)
Prerequisite: MATH-100, Intermediate Algebra, with a grade of C or higher; or COMPASS Algebra score of at least 76; or ACT Math score of at least 21. This course is intended to introduce students to basic statistical concepts. It covers descriptive and inferential statistical methods, hypothesis testing on the mean and proportion, and linear regression. Students are also introduced to technology as it applies to introductory statistical methods. Students who have successfully completed two years of high school algebra, with a grade of C or better, may register for this class. A graphing calculator is required. (45-0)

STAT-201 Statistics for Business (15:210) (3 s.h.)
Prerequisite: STAT-104, Introduction to Statistics, or by approval of instructor. Statistics for Business looks at the use of statistical methods as an analytical tool in business situations. Data collection, sampling, data analysis, estimation, hypothesis testing, regression and correlation analysis, multinomial experiments and contingency tables, analysis of variance, and nonparametric statistics are covered. The use of calculators and statistical software is incorporated into the course. The course is intended to follow an introductory statistics course. A graphing calculator is required. (45-0)

TLDI-701 Blueprint Reading I (96:163) (1 s.h.)
An introduction to the importance of prints in industry. Covers isometric drawings, orthographic projection, auxiliary views, detail and assembly drawing, dimensions and tolerances, and sectional views. Integrates the alphabet of lines and principles of sketching. Other information covered includes title blocks, drawing change systems, drawing notes, and material lists. (0-30)

TLDI-702 Blueprint Reading II (96:164) (1 s.h.)
Prerequisite/Corequisite: TLDI-701, Blueprint Reading I. Continues Blueprint Reading I with emphasis on geometric dimensioning and tolerancing and the interpretation of more advanced prints used in the construction of tool and die and mold building. (0-30)

TLDI-703 Machine Tool Practices I (96:165) (9 s.h.)
Prerequisite/Corequisite: MATH-710, Occupational Math I; and TLDI-701, Blueprint Reading I, and MATH-711, Occupational Math II. Covers theory and lab use of basic measuring and machining tools, layout inspection tools, as well as bench work. Safety is taught and enforced as it applies to each machine process. Proper terminology of the machinist trade is emphasized as well as following blueprints and holding tolerances through the use of a variety of machining processes to produce a product. (60-225)

TLDI-704 Machine Tool Practices II (96:166) (7 s.h.)
Prerequisite: TLDI-703, Machine Tool Practices I; MATH-710, Occupational Math I; MATH-711, Occupational Math II; TLDI-701, Blueprint Reading I. Corequisite: TLDI-702, Blueprint Reading II. Continues Machine Tool Practices I. Covers more advanced principles in setup and operation of mills, lathes, and grinders, with an introduction to carbide tooling along with a continued emphasis on shop safety, communication, and cooperation. Stresses the inter-relationship of manufactured mating parts. (45-195)

TLDI-705 Fundamentals of CNC (96:167) (3 s.h.)
Prerequisite/Corequisite: TLDI-704, Machine Tool Practices II. Students must obtain a grade of C or better in TLDI-703, Machine Tool Practices I. Covers computer numerical control (CNC) as it relates to milling machines, turning lathes, microcomputers, and related software. Emphasis on input language, codes, machine set-up and operation, inspection of parts, and communication of peripherals. (30-30)

TLDI-760 Survey of Machine Tool Practices I (96:180) (4 s.h.)
The student safely uses basic measuring tools, machine tools, and layout/inspection tools. Emphasis is on turning machines, drills, and hand tools. Safety is taught and enforced as it applies to each machine process. Proper terminology of the machinist trade is emphasized. The student follows blueprints to produce products within tolerances specified. (15-90)

TLDI-761 Survey of Machine Tool Practices II (96:181) (4 s.h.)
Continues Survey of Machine Tool Practices I. The student safely uses basic measuring tools, machine tools, and layout/inspection tools. Emphasis on basic milling machines. Safety is taught and enforced as it applies to each machine process. Proper terminology of the machinist trade is emphasized. The student follows blueprints to produce products within tolerances specified. (15-90)

TLDI-762 Survey of Machine Tool Practices III (96:182) (4 s.h.)
Prerequisite: TLDI-760, Survey of Machine Tool Practices I; TLDI-761, Survey of Machine Tool Practices II. The student safely performs cylindrical grinder and surface grinder operations. Using the grinders, the student makes round and flat surfaces to conform to the specified tolerances. Emphasis is placed on safety, proper use of tools, and using correct terminology of the machinist trade. (15-90)

TLDI-763 Capstone Manufacturing Project (96:193) (4 s.h.)
Prerequisite: TLDI-760, Survey of Machine Tool Practices I - Pass with a C or better; TLDI-761, Survey of Machine Tool Practices II - Pass with a C or better; TLDI-762, Survey of Machine Tool Practices III - Pass with a C or better; TLDI-705, Fundamentals of CNC - Pass with a C or better. The goal is for the learner to build an approved multiple-part project using machine tools and communicate the successes and difficulties encountered in the project-building process. (15-90)

TLDI-801 Statistical Process Control (96:170) (1 s.h.)
Covers the current transformation methods of industry and business toward a complete quality control system. Management theory on quality, productivity, and controlled charting techniques are included. (15-0)

TLDI-802 Tool and Die Making I (96:171) (5 s.h.)
Prerequisite/Corequisite: Students must obtain a grade of C or better in TLDI-705, Fundamentals of CNC, and TLDI-704, Machine Tool Practices II. This course is an introduction to the design of industrial tools and machining characteristics of tool components. The student is introduced to additional machining skills that will be encountered in typical machine shops in the building of molds, dies, jigs, fixtures, and precision machine parts. (30-160)

TLDI-803 Fundamentals of EDM (96:172) (2 s.h.)
Prerequisite/Corequisite: TLDI-802, Tool and Die Making I. Students must obtain a grade of C or better in TLDI-705, Fundamentals of CNC. The students are introduced to the electrical discharge machines, both wire and ram-type. Emphasis on how these tools are used in the manufacturing of punch and die components and injection mold cores and cavities. (15-45)

TLDI-804 Computer-Aided Drafting (96:270) (2 s.h.)
Prerequisite/Corequisite: TLDI-701, Blueprint Reading I; TLDI-702, Blueprint Reading II; or instructor's permission. Students are introduced to computer-aided drafting and design as an essential tool utilizing and enhancing the student's existing drafting skills. This is accomplished by utilizing ESPRIT through the generation of two- and three-dimensional orthographic drawings as well as pictorial techniques in the CAD environment. Operating systems commands, cursor manipulation, direct display interaction, geometry creation and manipulation, file storage and retrieval, entity manipulation such as rotation and mirroring, and the use of printers are just a few of the hardware and software capabilities to be covered. (15-30)

TLDI-805 3-D Modeling (96:173) (2 s.h.)
Prerequisite: TLDI-804, Computer-Aided Drafting, or instructor's permission. Students are introduced to solid modeling as an essential tool, utilizing and enhancing designing skills. This is accomplished through the generation of 3-D drawings created in Solid Edge. Operating systems commands, cursor manipulation, file storage and retrieval, entity manipulation, such as rotation, mirroring, editing, dimensioning, sections, sheet metal parts, and assemblies capabilities will be covered. (15-30)

TLDI-810 Tool and Die Making II (96:271) (8 s.h.)
Prerequisite/Corequisite: TLDI-802, Tool and Die Making I. This course is a continuation of Tool and Die Making I with instruction and practice in building a progressive or compound die. Emphasis is placed on the tool building procedures learned in Tool and Die I and toward fabricating dies. Instruction is given on the considerations involved in developing die components, such as calculation of die clearances, bend allowance, cutting forces, press tonnage requirements, and practice in building a complete functional die. (45-225)

TLDI-811 Computer-Aided Manufacturing (96:272) (3 s.h.)
Prerequisite/Corequisite: TLDI-802, Tool and Die Making I, and TLDI-803, Fundamentals of EDM. Students must obtain a grade of C or better in TLDI-705, Fundamentals of CNC. This program provides an introduction to (Process Modeling) utilizing the CNC graphics programming system. Using engineering drawings, students program various parts for CNC mills, CNC lathes, and CNC EDM. Related topics include job planning, tool selection,

construction of a process model, tool path verification, simulation, quality control, CAD, CAM data transfer, and CNC code generation. (15-60)

TLDI-812 Plastics Materials and Methods (96:273) (1 s.h.)
This is a survey course designed to introduce the student to the field of plastics. This overview includes thermoplastics and thermoset materials along with the major processing methods being utilized by industry today. (15-0)

TLDI-813 Mold Making I (96:274) (9 s.h.)
Prerequisite/Corequisite: TLDI-810, Tool and Die Making II; TLDI-812, Plastics Materials and Methods. The student is introduced to the field of mold making for plastic injection molds, blow molds, compression and transfer molds, zinc and aluminum die casting molds. Focus is placed on mold theory, mold repair, identification and correction of mold problems, standardization of mold components, mold blueprint reading, and the machine shop skills necessary for mold making, as related to thermoplastic injection molds. In addition, the student develops necessary basic skills for gating, venting, heating, cooling, stoning and polishing as well as other hands-on experiences necessary to manufacture mold plates, cores, cavities, and ejection systems. The student builds a prototype injection mold. (45-285)

TLDI-814 Advanced CNC and EDM (96:275) (2 s.h.)
Prerequisite/Corequisite: TLDI-813, Mold Making I. A continuation of CNC and EDM fundamentals as well as mold making with additional instruction and practice in the use of CAD, wire, and ram electrical discharge machines in the construction of die and mold components. (15-45)

WELD-701 Welding Symbols and Blueprint Reading I (98:110) (2 s.h.)
Prerequisite: None. This course provides instruction in the fundamentals of reading and interpreting blueprints. A student learns to interpret and apply welding symbols along with identifying proper assembly procedures. (30-0)

WELD-702 Welding Symbols and Blueprint Reading II (98:135) (2 s.h.)
Prerequisite: WELD-701, Welding Symbols and Blueprint Reading I. This course provides instruction in the reading and interpreting of blueprints. The course covers the applications of welding symbols, dimensions, and assembly procedures. (15-30)

WELD-703 Oxyacetylene Welding and Cutting; Gas Tungsten Arc Welding and Lab (98:190) (3 s.h.)
Fusion joining of mild steel and cutting processes. The basic principles of gas tungsten arc welding including AC and DC applications. Selection of proper torch tip sizes, filler rods, angles, and travel speeds for OAW processes. The set-up and adjustment of gas tungsten arc welding equipment, along with practical experience using both ferrous and nonferrous metals. (15-90)

WELD-704 Shielded Metal Arc and Gas Metal Arc (98:191) (3 s.h.)
Flat and horizontal shielded arc, vertical, and overhead shielded arc welding. The operation of AC and DC transformer arc welders and motor-driven DC welders. The effects of amperage, polarity,

and characteristics of various electrodes. Butt, fillet, corner, and lap welds are made in various positions. Application of techniques required for equipment repair. (15-90)

WELD-710 Welding (92:176) (2 s.h.)

An introductory course teaching basic skills in the areas of shielded metal arc welding, gas metal arc welding, and oxyacetylene welding, cutting and brazing. The basic fundamentals of each process are covered. Safe welding practices are taught. The course provides skill application in all positions, on mild steel with single and multi-pass welds with backing strips. (15-30)