

HEALTH (HED)**HED 221. PERSONAL HEALTH.—3 hours. B**

This course introduces principles and practices of personal and family health; it includes human reproduction, growth and development, psychological dimensions of health, human sexuality, nutrition and fitness, aging, death and dying.

HED 222. COMMUNITY HEALTH. C

This course introduces principles and practices of community health; it includes drug use and abuse, communicable diseases, cardiovascular diseases, cancer, consumer health, health organization, and environmental concerns.

HED 224. PERSONAL AND COMMUNITY HEALTH.—3 hours. B

This course covers health problems for the individual and for the community. Areas of study include mental health, family life, physical health, chronic and degenerative diseases, control of communicable diseases, and the understanding of depressants and stimulants. Healthful living habits will be emphasized.

HED 226. WELLNESS.—1-3 hours. C

PREREQUISITE: As required by program.

This course provides health-related education to those individuals seeking advancement in the area of personal wellness. The course has five major components: (1) fitness and health assessment, (2) physical work capacity, (3) education, (4) reassessment and (5) retesting.

HED 230. SAFETY AND FIRST AID.—3 hours. B

HED 230 is divided into two parts. The first part concerns itself with the development of a safety education program within an organization (i.e., school, office, shop, etc.). The second part deals with physical injuries, emergency care, and treatment of those injuries. CPR certification and Standard Red Cross Cards are given upon successful completion of American Red Cross requirements.

HED 231. FIRST AID.—3 hours. B

This course provides instruction to the immediate, temporary care which should be given to the victims of accidents and sudden illness. It also includes standard and advanced requirements of the American Red Cross, and/or the American Heart Association. CPR training also is included.

HISTORY (HIS)**HIS 101. WESTERN CIVILIZATION I.—3 hours. A**

This course is a survey of social, cultural, economic, and political developments which have molded the modern Western world. It covers the ancient world through the era of the Renaissance and Reformation.

HIS 102. WESTERN CIVILIZATION II.—3 hours. A

This course is a survey of social, cultural, economic, and political developments which have molded the modern Western world. It covers the development of the modern Western world from the era of world exploration to the present.

HIS 201. UNITED STATES HISTORY I.—3 hours. A

This course surveys United States history during colonial, Revolutionary, early national and antebellum periods. It concludes with the Civil War and Reconstruction.

HIS 202. UNITED STATES HISTORY II.—3 hours. A

This course is a continuation of HIS 201; it surveys United States history from the Reconstruction era to the present.

HIS 260. ALABAMA HISTORY.—3 hours. B

This course surveys the development of the state of Alabama from pre-historic times to the present. The course presents material on the discovery, exploration, colonization, territorial period, ante-bellum Alabama, Reconstruction, and modern history.

HUMANITIES (HUM)**HUM 120. INTERNATIONAL STUDIES IN (ENGLAND). —1-3 hours. C**

This course offers a survey of art, music, and culture of foreign countries. This may involve travel abroad and may be repeated for credit.

HUM 298. DIRECTED STUDIES IN HUMANITIES.—1-3 hours. C

This course provides an opportunity for the student to study selected topics in the area of the humanities under the supervision of a qualified instructor. The specific topics will be determined by the interests of the students and faculty and the course may be repeated for credit.

INDUSTRIAL ELECTRONICS TECHNOLOGY (ILT)**ILT 100. APPLIED ELECTRONIC COMPUTATION.—3 hours.**

This course is an applied mathematics and algebra course for students in electronics or similar programs. Topics include decimals, fractions, negative numbers, powers and roots, the metric systems, logarithms, applied trigonometry and algebra. Upon completion of this course, a student will be able to perform applied mathematics calculations needed in electronics.

ILT 103. INTRODUCTION TO INSTRUMENTATION TECHNOLOGY.—1+2=3 hours.

This course introduces various hand and power tools, basic blueprint reading, basic rigging and basic math that will be used in the electronic, instrumentation and electrical trades. Emphasis is placed on basic hand tool and power tool safety and procedures for selecting, inspecting, using and maintaining these tools. Upon completion, students should be able to identify and use various hand and power tools, read a blueprint and know how to perform basic rigging.

ILT 104. INDUSTRIAL INSTRUMENTATION.—3+0=3 hours.

This course provides a study of instrumentation circuits/systems. Topics include the use of transducers, detectors, actuators, and/or other devices and equipment in industrial applications. Upon completion, the student should be able to apply principles of instrumentation circuits and systems.

ILT 105. INDUSTRIAL INSTRUMENTATION LAB.
—0+2=2 hours.

This lab includes the use of transducers, detectors, actuators, and/or other devices and equipment in industrial applications. Upon completion, the student should be able to apply principles of instrumentation circuits and systems.

ILT 106. CONCEPTS OF DIRECT CURRENT.—
3+2=5 hours.

This course provides a study of basic concepts and application of direct current (DC). Specific topics include but are not limited to: an introduction to electrical theory, units of electrical measurement, DC electrical components, and constructing various types of DC circuits. Students gain hands-on experience through various laboratory problems. Emphasis is placed on the use of scientific calculators and the operation of common test equipment used to analyze and troubleshoot DC circuits and to prove the theories taught during classroom instruction. **This course may serve as a substitute core for DC Fundamentals.**

ILT 107. CONCEPTS OF ALTERNATING CURRENT.
—3+2=5 hours.

This course provides a study of basic concepts and application of alternating current (AC). Specific topics include but are not limited to: an introduction to AC electrical theory, AC electrical measurements, and constructing and measuring various types of AC circuits. Students gain hands-on experience through various laboratory problems. Emphasis is placed on the use of scientific calculators and the operation of various test equipment used to analyze and troubleshoot AC circuits. **This course may serve as a substitute core for AC Fundamentals.**

ILT 109. ELECTRICAL BLUEPRINT READING.—
3+0=3 hours.

This course will enable the student to obtain a working knowledge of the elements of blueprint reading; the ability to interpret electrical, mechanical, and architectural drawing; and the ability to visualize the entire building structure in relationship to the electrical system.

ILT 111. CONCEPTS OF SOLID STATE.—
3+2=5 hours.

This course is an introduction to semiconductor fundamentals and applications to the electronic devices. Course covers the basic operations and applications to include rectifier circuits, transistors, and thyristors. Coverage is given to safety, use, and care with hazardous materials and personal as well as material and environmental considerations. Upon completion students will be able to construct and test for proper operation of various types of solid state devices. **This course may serve as a substitute core for Solid State Fundamentals for EET, ILT, and ETC.**

ILT 112. CONCEPTS OF DIGITAL ELECTRONICS.
—3+2=5 hours.

This course provides instruction in digital electronics. Topics include: number systems and codes, a review of Boolean algebra, logic elements, digital circuits, programmable logic circuits, and memory and computing circuits. This course provides laboratory exercises to analyze, construct, test and troubleshoot digital circuits. **This course may serve as a substitute core for Digital Fundamentals in the EET, ETC, and ILT disciplines.**

ILT 113. CONCEPTS OF ELECTRONICS CIRCUITS.
—3+2=5 hours.

This course covers the commonly utilized circuits found in all areas of electronics. These include various rectifiers, filters, voltage regulating circuits, operational amplifier circuits, ICs, and oscillator circuits. Upon completion students will be able to construct and test various types of electronic circuits. **This course is a suitable substitute core for Electronic Circuit for EET.**

ILT 115. ADVANCED INDUSTRIAL CONTROLS.—
3 hours.

This course emphasizes the fundamentals and applications of solid state motor starters. Topics include DC drives, AC variable frequency drives, thyristors, sequence circuits and closed loop control including PID process control. Upon completion, students should be able to apply principles of solid state motor starters.

ILT 116. ADVANCED INDUSTRIAL CONTROLS
LAB.—2 hours.

COREQUISITE: ILT 115.

This lab emphasizes DC drives, AC variable frequency drives, thyristors, sequence circuits and closed loop control including PID process control. Upon completion, students should be able to apply principles of solid state motor starters.

ILT 117. PRINCIPLES OF CONSTRUCTION
WIRING.—1+2=3 hours.

This course provides a study of the technical skills required to safely perform electrical wiring installations. Topics include methods of wiring residential, commercial, and industrial locations. Upon completion, students should be able to apply safe wiring skills to residential, commercial and industrial applications.

ILT 118. CONSTRUCTION WIRING NEC.—
1+2=3 hours.

This course provides a study of the codes that is required to safely perform electrical wiring installations. Emphasis will be placed upon the codes that apply to residential, commercial, and industrial locations. Upon completion, students should be able to apply the codes in the electrical wiring of residential, commercial and industrial applications.

ILT 121. SEMICONDUCTOR ELECTRONIC
CIRCUITS II.—3+0=3 hours.

This course provides a study of electronic circuits. Topics are designed to explain circuits using solid state devices in a variety of circuit configurations, biasing and classes of operations of amplifiers. Upon completion, students will be able to design a bipolar and unipolar transistors, thyristors, optoelectronics devices, and integrated circuits.

ILT 122. SEMICONDUCTOR ELECTRONIC
CIRCUITS II LAB.—0+2=2 hours.

This lab focuses on solid state devices in a variety of circuit configurations, biasing and classes of operations of amplifiers. Upon completion, students will be able to design a bipolar and unipolar transistors, thyristors, optoelectronics devices, and integrated circuits.

ILT 125. DIGITAL COMMUNICATIONS.—3 hours.

This course provides the electronics technician with sufficient background in data and digital communications to enter this rapidly expanding field. It includes telephone systems, error detection and correction, data link protocols, modems, multiple-channel systems, network architecture, fiberoptic communications, and data communications applications. Upon completion of this course, students should be able to describe the operation of various digital communications circuits and calculate all parameters.

ILT 126. DIGITAL COMMUNICATIONS LAB.—2 hours.

This course provides experimentation to verify theories of digital communication. Upon completion of this course and Digital Communications, students should be able to construct various digital communications circuits and make necessary measurements and adjustments.

ILT 127. MICROCOMPUTER FUNDAMENTALS.—3 hours.

This course provides the student with knowledge in installation of, and familiarization with the basic assemblies in microcomputer systems. Topics include DOS, hard drives and floppy drives, dipswitches, and RAM. Upon completion, students should be able to use DOS, format hard drives, floppy drives, configure circuit boards functions and install RAM.

ILT 128. MICROCOMPUTER FUNDAMENTALS LAB.—2 hours.

This lab focuses on the installation of basic assemblies in microcomputer systems. Topics include DOS, hard drives and floppy drives, dipswitches, and RAM. Upon completion, students should be able to use DOS, format hard drives, floppy drives, configure circuit boards functions and install RAM.

ILT 129. PERSONAL COMPUTER (PC) HARDWARE.—3 hours.

This course covers PC Hardware terminology, component purpose, configuration, pricing and selecting components and systems, for assembling, repairing, and upgrading IBM compatible computers. Upon completion of this course, students should be able to describe the basic systems of a PC and be able to perform disassembly and assembly of the same.

ILT 130. PC SOFTWARE INSTALLATION AND MAINTENANCE.—3 hours.

This course will cover installation and maintenance for operation systems and application software on personal computers. Upon completion of this course, students should be able to install and maintain common software packages found on personal computers.

ILT 131. PERSONAL COMPUTER PROBLEM DETERMINATION.—3 hours.

This course will cover various hardware and software tools for diagnosing failures of compatible computers. Upon completion of this course, students should be able to diagnose and prescribe the repair steps for a faulty personal computer.

ILT 132. PROGRAMMING SURVEY FOR TECHNICIANS.—3 hours.

This course introduces the student to common programming languages which they may encounter as technicians. Upon completion of this course students should be able to write simple programs in common programming languages encountered by technicians.

ILT 135. LOCAL AREA NETWORKS (LANs).—3 hours.

This course provides the student with knowledge of planning, installation, maintenance, and administration of local area networks. Upon completion of this course, students should be able to install and set up a basic local area network.

ILT 136. MICROCOMPUTER INTERFACING.—3+0=3 hours.

This course focuses on microcomputer interfacing. Topics include memory circuits including RAM, ROM, EPROM, EEPROM. Upon completion, students should be able to perform programming operation and handshaking techniques and perform interfacing synchronous and asynchronous data communications.

ILT 137. MICROCOMPUTER INTERFACING LAB.—0+2=2 hours.

COREQUISITE: ILT 136.

This lab emphasizes memory circuits including RAM, ROM, EPROM, EEPROM. Upon completion, students should be able to perform programming operation, and handshaking techniques and perform interfacing synchronous and asynchronous data communications.

ILT 145. ADVANCED LOCAL AREA NETWORKS (LAN).—2+1=3 hours.

This course provides the student with in depth knowledge local area network technologies. This course will consist of detailed studies of the protocols and structures of LAN and VLAN devices along with their specifications and integration methods in the support of local area networks used in businesses and industries. A comprehensive overview of the CompTIA Network + Network Certificate and the preparation of the certificate will be emphasized as a major portion of the course.

ILT 148. AUTOMATIC CONTROLS SYSTEMS.—3+0=3 hours.

This course emphasizes automated control systems and sub-systems. Topics include robotics, programmable hydraulics, pneumatic, microprocessor, variable-speed drives, transducers, and related control circuitry with emphasis on troubleshooting the total system. Upon completion, students should be able to apply principles of automated control systems.

ILT 149. AUTOMATIC CONTROLS SYSTEMS LAB.—0+2=2 hours.

COREQUISITE: ILT 148.

This lab emphasizes robotics, programmable hydraulics/pneumatic, microprocessors, variable-speed drives, transducers, and related control circuitry with emphasis on troubleshooting the total system. Upon completion, students should be able to apply principles of automated control systems.

ILT 160. DC FUNDAMENTALS.—3 hours.

This course provides a study of atomic theory, direct current (DC), properties of conductors and insulators, direct current characteristics of series, parallel, and series parallel circuits. Inductors and capacitors are introduced and their effects on DC circuits are examined. Students are prepared to analyze complex DC circuits, solve for unknown circuits variables and to use basic electronic test equipment. This course also provides hands on laboratory exercises to analyze, construct, test, and troubleshoot direct current circuits. Emphasis is placed on the use of scientific calculator and the operation of common test equipment used to analyze and troubleshoot DC and to prove the theories taught during classroom instruction.

ILT 161. AC FUNDAMENTALS.—3 hours.

This course provides a study of the theory of alternating current (AC). Students are prepared to analyze complex AC circuit configurations with resistor, capacitors, and inductors in series and parallel combinations. Upon completion, students should be able to describe AC circuits and explain the function of AC such as RLC, impedance, phase relationships, and power factor. This course also provides hands on laboratory exercises to analyze alternating current using a variety of circuit configurations with resistors, capacitors, and inductors in series and parallel combinations. Emphasis is placed on the operation of common test equipment used to analyze and troubleshoot AC circuits to prove the theories taught.

ILT 162. SOLID STATE FUNDAMENTALS.—3 hours.

This course provides instruction in basic solid state theory beginning with atomic structure and including devices such as diodes, bipolar transistors, field effect transistors, amplifiers, thyristors, operational amplifiers, oscillator and power supply circuits. Emphasis is placed on the practical application of solid-state devices, proper biasing and amplifier circuit analysis and the use of test equipment to diagnose, troubleshoot and repair typical solid-state device circuits. This course also provides the opportunity for students to apply the solid-state principles and theories learned in class in the laboratory setting. Emphasis is placed on the practical application of solid-state devices, proper biasing and amplifier circuit analysis and the use of test equipment to diagnose, troubleshoot and repair typical solid-state.

ILT 163. DIGITAL FUNDAMENTALS.—3 hours.

This course provides instruction on basic logic gates, flip-flops, registers, counters, microprocessor/computer fundamentals, analog to digital conversion, and digital analog conversion. Emphasis is placed on number systems, Boolean algebra, combination logic circuits, sequential logic circuits and typical microprocessor data manipulation and storage. This course also has an embedded lab with exercises designed to develop skills required by industry. Upon completion, students should be able to analyze digital circuits, draw timing diagrams, determine output of combinational and sequential logic circuits, and diagnose and troubleshoot electronic components, as well as demonstrate knowledge of microprocessor and computer circuits.

ILT 164. CIRCUIT FABRICATION I.—1 credit hour.

This course provides instruction in fabrication of functional circuits and is an introduction to device construction

and fabrication. Utilizing discrete components, students will fabricate functional circuits. Topics include soldering, cable construction, coaxial cable connection and termination, component mounting, cases, and chassis, printed circuit board design, layout, fabrication, and repair, as well as soldering techniques, care of tools, wire splicing, wire wrapping, connector maintenance, and related shop safety. Upon completion of this course, students should be able to perform basic circuit and project construction.

ILT 165. INDUSTRIAL ELECTRONICS CONTROLS I.—3 hours.

This course provides a study of industrial electronics controls. Topics include photo-electric, temperature, gas and humidity, pressure and strain measurements for industrial instrumentation controls and applications. The laboratory enables students to test, troubleshoot and repair electronic control circuits. Upon completion, students should be able to apply principles of industrial electronics control circuits.

ILT 166. MOTORS AND TRANSFORMERS I.—3 hours.

This course covers motor operation, motor types, motor components, motor feeder and branch circuits. Topics include motor protection and motor control circuits. The laboratory enables students to test motors, transformer types, and testing of input and output voltage. Upon completion, students should be able to test motors, transformer types, and testing for input and output voltage.

ILT 167. AC/DC MACHINERY AND CONTROLS I.—3 hours.

This course provides the student with knowledge in AC/DC machinery and controls. Topics include the characteristics and operating principles of the different types of AC/DC generators and motors, manual and automatic starters and controllers. The laboratory enables students to test, troubleshoot and repair AC/DC machinery and controls. Upon completion, students will be able to apply practical skills in AC/DC machinery.

ILT 169. HYDRAULICS/PNEUMATICS.—3 hours.

This course provides an introduction to hydraulics/pneumatics. Topics include hydraulic pumps, pneumatic compressors work and system components such as valves, filters, regulators, actuators, accumulators, and lubricators. The laboratory enables students to test, troubleshoot and repair hydraulic pumps, pneumatic compressors work and system components such as valves, filters, regulators, actuators, accumulators, and lubricators. Upon completion, students will be able to apply principles of hydraulics/pneumatics.

ILT 175. COMPUTER FUNDAMENTALS FOR TECHNOLOGY STUDENTS.—3 hours.

This course introduces the student to applications of computers in the laboratory setting. It will cover the computer from a hardware standpoint and introduce the operating system. Application software will include word processing, spreadsheets, database managers, and other electronics related software. Upon completion of this course, students should be able to operate a personal computer in a technical setting.

ILT 179. WIRELESS COMMUNICATION DEVICES.—2+1=3 hours.

This course is an introduction course to wireless communication technologies and applications in support of networked structures. Wireless device specification, integration, configuration, and utilization of IEEE 802.11x compliant communication equipment and their integration into the support of WAN and LAN structures commonly found in corporate, industrial, automotive (telematics), or commercial platforms will be the main emphasis of this course. Specific wireless communication theory concerning wireless boundaries, security and encryption methods, and quality of service measurements will be discussed along with WAN/LAN expansion and limitations from a system design perspective.

ILT 180. SPECIAL TOPICS.—3 hours.

This course is designed to allow students an opportunity to study topics of particular interest which require the application of technical knowledge and technical skills. Emphasis is placed on the application of skills and knowledge with practical experiences. Upon completion, students should be able to solve job related problems using technical skills and knowledge.

ILT 181. SPECIAL TOPICS IN ILT.—1+2=3 hours.

This course provides a guided independent study of special topics in ILT. The student and instructor designs the plan of study. Upon completion, students should be able to demonstrate skills developed in these courses.

ILT 192/193. CO-OP IN ILT.—1-3 hours.

These courses provide students with relevant work experience in business/industry. Emphasis is placed on production in a work setting. Upon completion, students should be able to identify job responsibilities and to demonstrate skills necessary for entry level employment.

ILT 194. PROGRAMMABLE LOGIC CONTROLLERS I.—3 hours.

This course focuses on the use of PLCs. Topics include operations, programming procedures, fault isolation procedures, and methods of entering, executing, debugging, and changing programs. The laboratory enables students to practice operations, programming procedures, fault isolation procedures, and methods of entering, executing, debugging, and changing programs. Upon completion, students should be able to apply principles of operations and programming of programmable logic controllers.

ILT 195. TROUBLESHOOTING TECHNIQUES I.—3 hours.

This course focuses on the systematic approach to solving problems. The laboratory portion emphasizes instrument failures and their interaction with process down-time. Upon completion, students should be able to solve problems on a process simulator or in an actual setting.

ILT 197. MOTOR CONTROLS I.—3 hours.

This course covers the use of motor control symbols, magnetic motor starters, running overload protection, push-button stations, sizing of magnetic motor starters and overload protection, and complex ladder diagrams of motor control circuits. Topics include sizing magnetic starters and overload protection, the use of push-button stations, ladder diagrams,

and magnetic motor starters in control of electric motors, wye-delta starting, part start winding, resistor starting and electric starting devices. Upon completion, students should be able to understand the operation of motor starters, overload protection, interpret ladder diagrams using push-button stations and understand complex motor control diagrams. This is a **CORE** course for ELT.

ILT 198. ELECTRONIC CIRCUITS I.—3 hours.

This course covers the commonly utilized circuits found in all areas of electronics. These include the various rectifier, filter, voltage regulation circuits, and linear solid-state amplifier circuits. The entire course emphasizes the typical circuits, their principles of operation, and troubleshooting defective circuits. This course also provides students the opportunity to apply the principles and theories taught in laboratory exercises designed to develop the skills listed in the industry competencies.

ILT 201. INDUSTRIAL ELECTRONICS.—3 hours.

COREQUISITE: ILT 202.

This course applications of electronics in the industry with a major emphasis on microprocessors as applied to data acquisition and machine control. Topics include A/D and D/A conversion, signal conditioning, sensors, and transducers, control devices, stepper motors, and microprocessor interfacing. Upon completion of this course, students should be able to describe the operation of various sensors, signal conditioning, A/D and D/A conversion, and control devices, as well as, perform necessary calculations.

ILT 202. INDUSTRIAL ELECTRONICS LAB.—2 hours.

COREQUISITE: ILT 201.

This course demonstrates the concepts, devices, and applications of electronics in industrial processes. Upon completion of this course, students should be able to construct, evaluate, and calibrate basic industrial sensing and control circuits.

ILT 205. MICROPROCESSORS.—3 hours.

COREQUISITE: ILT 206.

This course introduces microprocessors and explores their applications. The course emphasizes programming and interfacing the microprocessor chip. Upon completion of this course, students should be able to perform computer arithmetic, describe the basic operation procedures for microprocessor system, and write programs for a basic microprocessor.

ILT 206. MICROPROCESSORS LAB.—2 hours.

COREQUISITE: ILT 205.

This course provides familiarization of microprocessor instruction sets. Experiments in programming and interfacing provide an understanding of microprocessor theory. Upon completion of this course, students should be able to program and interface a basic microprocessor system.

ILT 211. TROUBLESHOOTING TECHNIQUES.—1+2=3 hours.

This course focuses on the systematic approach to solving problems. The laboratory portion emphasizes instrument failures and their interaction with process down-time. Upon completion, students should be able to solve problems on a process simulator or in an actual setting.

ILT 216. INDUSTRIAL ROBOTICS.—3+0=3 hours.

This course covers principles of electro-mechanical devices. Topics include the principles, concepts, and techniques involved in interfacing microcomputers to various electromechanical devices to produce geographical movement. Upon completion, students should be able to apply the principles of electro-mechanical devices.

ILT 217. INDUSTRIAL ROBOTICS LAB.—**0+2=2 hours.**

COREQUISITE: ILT 216.

This lab covers the principles, concepts, and techniques involved in interfacing microcomputers to various electromechanical devices to produce geographical movement. Upon completion students should be able to apply the principles of electro-mechanical devices.

ILT 220. ELECTRO-OPTICS.—3+0=3 hours.

This course provides a study of fiber optics principles. Topics include optical components, the physics of light, radiation measurements, fiber optic applications, light sources, optic receivers, transmitters and sensors, fiber optic systems, data transfer systems concepts, and systems troubleshooting. Upon completion, students should be able to apply principles of fiber optics.

ILT 221. ELECTRO-OPTICS LAB.—0+2 =2 hours.

COREQUISITE: ILT 220.

This lab enables students to apply principles of fiber optics.

ILT 222. ADVANCED PROGRAMMABLE LOGIC CONTROLLERS.—3 hours.

This course focuses on advanced PLCs. Topics include operations, programming procedures, fault isolation procedures, and methods of entering, executing, debugging, and changing programs. Upon completion, students should be able to apply principles of operations and programming of advanced PLCs.

ILT 223. ADVANCED PROGRAMMABLE LOGIC CONTROLLERS LAB.—3 hours.

This lab emphasizes advanced PLCs. Topics include operations, programming procedures, fault isolation procedures, and methods of entering, executing, debugging, and changing programs. Upon completion, students should be able to apply principles of operations and programming of advanced PLCs.

ILT 224. ELECTRONICS COMMUNICATIONS.—3+0=3 hours.

This course provides the student with knowledge in electronic circuits used in amplitude, frequency, and phase modulation communication systems. Topics include modulation and detection techniques, antennas and transmission lines. Upon completion, students should be able to apply principles of filters, oscillators, classes of amplifiers, and resonance.

ILT 225. ELECTRONICS COMMUNICATIONS LAB.—0+2=2 hours.

COREQUISITE: ILT 224.

This lab focuses on electronic circuits used in amplitude, frequency, and phase modulation communication systems. Topics include modulation and detection techniques, antennas

and transmission lines. Upon completion, students should be able to apply principles of filters, oscillators, classes of amplifiers, and resonance.

ILT 227. NATIONAL ELECTRIC CODE.—2+0=2 hours.

This course provides in-depth study of safety procedures according to the National Electrical Code. Topics include residential, commercial, and industrial wiring procedures. Upon completion, students should be able to apply principles of National Electrical Code Manual to specific residential, commercial, and industrial applications.

ILT 229. PC REPAIR.—3 hours.

This course covers the repair of personal computers including hardware and software problems. Proper procedures for circuit card handling and replacement, installation of various drives and installations of software are covered. This course helps prepare the student for the A+ certification. Upon completion of this course, the student should be able to explain the proper procedures used in handling and replacing circuit cards, drives, memory and installing software.

ILT 230. COMPUTER REPAIR LAB.—2 hours.

This course allows the student to practice using the proper procedure discussed in the theory course. Students will repair computers following the proper procedures covered. This course will help prepare the student for the A+ certification. Upon completion of this course, the student should be able to repair a personal computer.

ILT 231. NATIONAL ELECTRIC CODE.—3 hours.

This course introduces students to the National Electric Code. Emphasis is placed on locating and interpreting needed information within the NEC manual. Upon completion of this course, the student should be able to locate code requirements for a specific electrical installation.

ILT 232. PC REPAIR CLINICAL.—3 hours.

This course allows the student to work in the technical capacity as a PC technician at the college or other local sites as approved by the college. Upon completion, the student should be able to perform specific job related skills associated with PC repair.

ILT 234. MICROPROCESSOR SYSTEMS TROUBLESHOOTING.—2+1=3 hours.

This course provides familiarization with various techniques and test equipment required for troubleshooting microprocessor based designs to the component and module level. It provides hands on experience troubleshooting microcomputer trainers designed for fault insertion or in an actual setting. Upon completion, students will be able to troubleshoot a faulty microprocessor based system.

ILT 239. CERTIFICATION PREPARATION.—3+0 =3 hours.

This course includes the review necessary before attempting technician certification examinations given by various non-government certifying organizations and pre-employment tests given by employers. Upon completion of this course students should understand the preparations necessary to successfully complete the exam process.

ILT 247 ASP.NET PROGRAMMING FOR TECHNOLOGY APPLICATIONS. — 2+1=3 hours.

This Active Server Pages (ASP) programming course will focus on object oriented programming structures within the language. This course is specifically designed for industrial technology students that will integrate servers and communication devices into WANs, LANs, or design specific web server based applications. Emphasis of this course is on web based application programming including server to server data transfer applications, the creation and integration of web services using UDDI and WDSL web discovery services, creating and using server side scripts and designing specific business to business web applications.

ILT 251. RF COMMUNICATIONS.—1+2=3 hours.

This course provides a study of the transmission and receiving of analog communication signals that are used in radio, television, and radio frequency (R.F.) communication applications. Emphasis is placed on circuits that produce, transmit, and receive RF signals used in radio, television, and RF communication. Upon completion, students will be able to apply RF communication principles in the transmission and receiving of radio, television, and RF communication signals.

ILT 252. DIGITAL COMMUNICATIONS.— 1+2= 3 hours.

This course provides a study of the transmission and receiving digital communication signals that are used in radio, television, and digital communication applications. Emphasis is placed on circuits that produce, transmit, and receive digital signals used in radio, television, and digital communication. Upon completion, students will be able to apply digital communication principles in the transmission and receiving of radio, television, and digital communication signals.

ILT 262. CERTIFICATION PREPARATION (CET).— 3+0=3 hours.

This course provides an overview of electrical/electronics principles to prepare the student for the CET exam. Upon completion, students should be able to pass the CET exam and be classified as a national certified electronic technician.

ILT 269. INTRODUCTION TO NETWORKING.— 3+0=3 hours.

PREREQUISITE: Permission by instructor
COREQUISITE: Introduction to Networking Lab

This course is a study of the basic concepts of LAN and WAN. Topics include topologies, media, computer hardware and software used in networking. Network administrative procedures and security techniques will be introduced and observed.

ILT 270. INTRODUCTION TO NETWORKING LAB. —0+2=2 hours.

PREREQUISITE: Permission by instructor
COREQUISITE: Introduction to Networking

This course provides students the working knowledge of networks by installing a LAN including cables and other hardware, as well as software. Planning and implementation of the network will be documented using current networking standards. This is designed to introduce students to the hands-on procedures for basic network setup.

ILT 271. INDEPENDENT STUDY.—0+2=2 hours.

This course is designed to allow students to independently study various topics related to technology. Emphasis is placed on the refinement or advancement of a particular skill or skills. Upon completion, students should be able to perform specific job related functions according to standard operating procedures.

ILT 272. INDEPENDENT STUDY.—0+2=2 hours.

This course is designed to allow students to independently study various topics related to technology. Emphasis is placed on the refinement or advancement of a particular skill or skills. Upon completion, students should be able to perform specific job related functions according to standard operating procedures.

ILT 273. INDEPENDENT STUDY.—3+ 0=3 hours.

This course is designed to allow students to independently study various topics related to technology. Emphasis is placed on the refinement or advancement of a particular skill or skills. Upon completion, students should be able to perform specific job related functions according to standard operating procedures.

ILT 274. INDEPENDENT STUDY.—0+3=3 hours.

This course is designed to allow students to independently study various topics related to technology. Emphasis is placed on the refinement or advancement of a particular skill or skills. Upon completion, students should be able to perform specific job related functions according to standard operating procedures.

ILT 280. SPECIAL TOPICS.—0+3=3 hours.

This course is designed to allow students an opportunity to study directly-related topics of particular interest which require the application of technical knowledge and technical skills. Emphasis is placed on the application of skills and knowledge with practical experiences. Upon completion, students should be able to solve job related problems using technical skills and knowledge.

ILT 291. COOPERATIVE EDUCATION.— 0+3=3 hours.

This course provides students work experience with a college-approved employer in an area directly related to the student's program of study. Emphasis is placed on integrating classroom experiences with work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

ILT 292. COOPERATIVE EDUCATION.— 0+3=3 hours.

This course provides students work experience with a college-approved employer in an area directly related to the student's program of study. Emphasis is placed on integrating classroom experiences with work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

**ILT 293. COOPERATIVE EDUCATION.—
0+3=3 hours.**

This course provides students work experience with a college-approved employer in an area directly related to the student's program of study. Emphasis is placed on integrating classroom experiences with work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

INTERDISCIPLINARY STUDIES (IDS)**IDS 115. FORUM.—1 hour. C**

PREREQUISITE: Minimum 3.0 GPA.

In this course, credit is given in recognition of attendance at academic lectures, concerts, and other events. IDS 115 requires attendance at designated events which are chosen from various lectures, cultural events and programs given at the college or in the community. IDS 115 may be repeated for credit.

**IDS 200. COLLEGE SCHOLARS BOWL
WORKSHOP.—1 hour. C**

PREREQUISITE: As required by program.

This course offers the student preparation, practice, and participation in the College Scholars Bowl Program and competition. IDS 200 may be repeated for credit.

**IDS 299. DIRECTED STUDIES IN LEADERSHIP.—
2 hours.**

This course provides training and experience in leadership techniques and practice. Students are required to serve in leadership positions on campus and/or in the community. Students are chosen by an interview process.

MASS COMMUNICATIONS (MCM)**MCM 113-114-115 213-214-215. STUDENT
PUBLICATIONS.—1-2 hours. C**

These courses offer practical experience in journalism skills through working on the staff of student publications.

MCM 102. WRITING FOR MASS MEDIA.—3 hours. B

This course is an introduction to the technique, form, style, and content of writing for the mass media, with attention to the various formats used in journalism, telecommunications, advertising, public relations, and Internet communications.

**MCM 120. INTRODUCTON TO JOURNALISM.
—3 hours. C**

This is a first writing course in journalism, covering journalistic style, copy, reading, story types, headlines, typography, page design, and photography.

MATHEMATICS (MAH) (MTH)**MTH 091. DEVELOPMENTAL ALGEBRA I.— 3 hours.**

This course provides the student with a review of arithmetic and algebraic skills to provide sufficient mathematical proficiency for entry into MTH 098. The student who places via COMPASS to take MTH 091 must finish the course with a minimum grade of 70% or a C before taking MTH 098.

MTH 098. ELEMENTARY ALGEBRA.—4 hours.

PREREQUISITE: MTH 091 or appropriate mathematics placement score.

This course is a review of the fundamental arithmetic and algebra operations. The topics include the numbers of ordinary arithmetic and the properties; integers and rational numbers; the solving of equations; polynomials and factoring; and an introduction to systems of equations and graphs. The student who places via COMPASS to take MTH 098 must finish the course with a minimum grade of 70% or a C before taking MTH 100.

**MTH 100. INTERMEDIATE COLLEGE ALGEBRA.—
3 hours. B**

PREREQUISITE: MTH 098 or appropriate mathematics placement score.

This course provides a study of algebraic techniques such as linear equations and inequalities, quadratic equations, system of equations, and operations with exponents and radicals. Functions and relations are introduced and graphed with special emphasis on linear and quadratic functions. This course does not apply toward the general core requirement for mathematics in the AA or AS degree programs. MTH 100 may apply toward the general core requirement for AAS degree programs at Northeast. The student who places via COMPASS to take MTH 100 must finish the course with a minimum grade of 70% or a C before taking MTH 110 or MTH 112.

**MAH 101. INTRODUCTORY MATHEMATICS I.—
3 hours. C**

PREREQUISITE: Satisfactory placement score.

This course is a comprehensive review of arithmetic with basic algebra designed to meet the needs of certificate and diploma programs. Topics include business and industry related arithmetic and geometric skills used in measurement, ratio and proportion, exponents and roots, applications of percent, linear equations, and formulas. Upon completion, students should be able to solve practical problems in their specific occupational areas of study. Upon completion of this course, students will be ready for MTH 116. NCA

MTH 110. FINITE MATHEMATICS.—3 hours. A

PREREQUISITE: All core mathematics courses in Alabama must have as a minimum prerequisite high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score. An alternative to this is that the student should successfully pass with a C or higher Intermediate College Algebra.

This course is intended to give an overview of topics in finite mathematics together with their applications, and is taken primarily by students who are not majoring in science, engineering, commerce, or mathematics (i.e., students who are