

ELT - ELECTRONICS AND COMPUTER TECHNOLOGY

ELT 101 5 credit hours (lecture: 4 | lab: 3)

Introduction to Electronics

Course introduces electronics curriculum with hands-on labs and simulations. Topics range from Ohm's Law to semiconductor circuits, and include series and parallel circuits, capacitors, inductors, and magnetics, with focus on analog and digital circuits. Background in basic algebra recommended to understand electronics concepts.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40

ELT 105 3 credit hours (lecture: 3 | lab: 2)

Network Infrastructure Essentials

Course examines physical aspects of voice and data network cabling and installation. Topics include overview of industry and worldwide standards; types of media and cabling; physical and logical networks, as well as signal transmission. Focus of hands-on, lab-oriented course is documentation, design and installation issues, laboratory safety, on-the-job safety, and working effectively in group environments. Course helps prepare for BICSI Registered Certified Installer, Level 1 exam. Students cannot receive credit for both ELT 105 and CNS 140.

Delivery mode: Face-to-Face Fee: \$40

ELT 106 3 credit hours (lecture: 2 | lab: 2)

Semiconductor Theory

Course presents basic study of diodes and transistors. Content includes grounded base, emitter and collector amplifiers; study of stability, gain and the impedance characteristics of the transistor.

Recommended: ELT 101.

Delivery mode: Face-to-Face | Hybrid Fee: \$30

ELT 107 3 credit hours (lecture: 3 | lab: 0)

Survey of Electronics

Course covers fundamentals of electricity and electronics. Overview of circuitry and devices used in industry, as basis for further study and practical application of skills. Experimentation and demonstration for thorough understanding of principles. Of value for both the lay person and future professional in the field.

Delivery mode: Face-to-Face | Online

ELT 108 3 credit hours (lecture: 2 | lab: 2)

Home Technology Integration

Course, sponsored by the Cisco Learning Institute, presents knowledge and skills in core competencies such as installation, integration, and troubleshooting, as related to the home networking technology industry. Lab equipment and online curricula are used. Content includes variety of residential subsystems including networking, lighting, structured wiring, HVAC controls, security, and home entertainment. Course helps prepare students for the CompTIA HTI+ Certified Exam.

Recommended: ELT 101 or ELT 107 or equivalent.

Delivery mode: Face-to-Face Fee: \$55

ELT 110 4 credit hours (lecture: 3 | lab: 3)

Electronic Drafting Using CAD

Project-based course covering elementary principles of drafting as applied to electronics systems, using AutoCAD. Content includes block diagrams, schematics and printed circuit boards. Prior computer experience not essential.

Delivery mode: Face-to-Face | Online Fee: \$40

ELT 114 3 credit hours (lecture: 2 | lab: 2)

Residential Wiring

Course provides technical skills and knowledge of residential wiring, to conform to the National Electrical Code. Content includes safe installing, maintaining, replacing and repairing residential wiring and distribution systems. Hands-on labs, using of variety of tools and equipment to complete and troubleshoot residential electrical wiring projects.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$40

ELT 120 3 credit hours (lecture: 2 | lab: 2)

Introduction to Radio Frequency Identification

Course covers radio frequency identification (RFID) concepts and fundamentals, and how emerging electronic product code (EPCglobal) standards are influencing adoption. Content includes RFID capabilities, current applications of RFID in businesses, and practical ways to articulate use cases for this technology to potential employers and peers.

Delivery mode: Face-to-Face | Online Fee: \$40

ELT 130 3 credit hours (lecture: 2 | lab: 2)

Microcomputer Hardware Systems

Course introduces maintenance and repairs of personal computers. Content includes hardware parts of computers, theory of operation, function of parts, topics in maintenance, proper use of instruments in troubleshooting, limited repairs and an introduction to language.

Recommended: ELT 101 or ELT 107.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30

ELT 140 3 credit hours (lecture: 2 | lab: 2)

Computer Peripherals

Course examines all computer peripherals, including printers, scanners, and DVDs, associated with computer use and enhancement of computer operations and functions. Hands-on labs, on installation, trouble-shooting and repair of peripherals.

Recommended: ELT 130.

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30

ELT 150 2 credit hours (lecture: 2 | lab: 0)

A+ Certification Preparation

Course builds upon the knowledge learned in ELT 130 and ELT 140, to prepare the student to pass the A+ Certification exam. Content includes sample exams and material covered on the exam. A+ Certification determines a level of competence in the computer hardware business, which may be required or considered an advantage when employing a computer technician.

Recommended: ELT 130 and ELT 140

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$25

ELT 154 3 credit hours (lecture: 2 | lab: 2)

Fundamentals of Solar Energy Systems

Course covers the theory, operation, and application of photovoltaic and thermal systems and technologies. The content includes solar energy basics, site surveys, available technologies, installation options, cost estimation, and project justification. The course will include both lecture as well as hand-on lab sessions.

Recommended: ELT 101 or ELT 107

Delivery mode: Face-to-Face | Hybrid | Online Fee: \$30

ELT 160 3 credit hours (lecture: 2 | lab: 2)

Overview of Alternative Energy Resources

Project-based course covering renewable and alternative forms of energy. Content includes an overview of solar, wind, hydroelectric, biomass, geothermal and nuclear power. Includes hands-on labs on solar, wind and hydropower, and simulations of the others.

Recommended: Concurrent enrollment in ELT 101 or ELT 107 or ELT 130, or prior knowledge of electronics and electricity.

Delivery mode: Face-to-Face | Online Fee: \$30

ELT 204 **3 credit hours (lecture: 2 | lab: 0)****Wireless Technology Integration (WTI)**

Course introduces wireless technology integration for wireless communication, and fundamentals of wired and wireless networks with a variety of devices. Content includes study of network protocols and standards, wireless security, advantages and disadvantages of wireless LAN, and an overview of installation and testing of wireless networks. Focus is on troubleshooting and use of measuring equipment.

Prerequisite: ELT 130 and CNS 105 or equivalent knowledge.

Delivery mode: Face-to-Face

Fee: \$40

ELT 221 **3 credit hours (lecture: 2 | lab: 2)****Digital Circuit Fundamentals**

Course involves study of discrete devices and integrated circuits. Content includes application of inverters, AND, OR, NAND, and NOR gates, and all circuits necessary to operation of a computer including microprocessors.

Focus is on analysis of functions from a systems and circuit standpoint.

Recommended: ELT 101 or ELT 106.

Delivery mode: Face-to-Face | Hybrid | Online

Fee: \$30

ELT 223 **3 credit hours (lecture: 2 | lab: 2)****Integrated Circuits**

Course covers integrated circuits and their applications. Content includes operational amplifiers and digital integrated circuits, both from monolithic and hybrid standpoints, application of integrated circuits to current industry situations.

Prerequisite: ELT 106 or concurrent enrollment in ELT 106.

Delivery mode: Face-to-Face | Hybrid | Online

Fee: \$30

ELT 224 **3 credit hours (lecture: 2 | lab: 2)****Industrial Circuit Applications**

Course focuses on application of circuits to specific situations such as SCRs. Content includes welding, motor control systems and industrial antipollution systems.

Prerequisite: ELT 106.

Delivery mode: Face-to-Face

Fee: \$30

ELT 225 **3 credit hours (lecture: 2 | lab: 2)****Digital Integrated Circuits**

Hands-on course covers applications of digital integrated circuits. Content includes use of gates, registers, drivers, memory circuits and various circuits that are available as "chips" I.C.s are presented. Course involves lecture and lab experiments, and use of the applications manual.

Prerequisite: ELT 221.

Delivery mode: Face-to-Face | Hybrid | Online

Fee: \$30

ELT 231 **3 credit hours (lecture: 2 | lab: 2)****Fundamentals of Microprocessors**

Course focuses on hardware and software aspects of microprocessor/microcomputer systems, the nucleus of programmed digital systems. Content includes discussion of largescale integrated devices (LSI) with associated memory and input/output components, and rapid replacement of hardwired digital logic in industrial and commercial applications, with hands-on lab sessions.

Recommended: ELT 221.

Delivery mode: Face-to-Face | Hybrid

Fee: \$30

ELT 290 **1-4 credit hours (lecture: 1-4 | lab: 1-4)****Topics in Electronics**

Course explores major issues in the field of electronics. Topics will be selected from the following subspecialties as they relate to electronics, computer network systems, and computer service: network wiring, wireless technologies, semiconductors, and computer peripherals. Course has different focus and/or scope from other courses currently offered in the department. May be repeated on different topics up to three times for up to nine semester hours of credit. Fee Varies. Prerequisite may vary by topic.

Delivery mode: Face-to-Face