Electronics (ELN)

ELN 131. Analog Electronics I. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces the characteristics and applications of semiconductor devices and circuits. Emphasis is placed on analysis, selection, biasing, and applications. Upon completion, students should be able to construct, analyze, verify, and troubleshoot analog circuits using appropriate techniques and test equipment.
Prerequisites: Take ELC 131, minimum grade of C

ELN 132. Analog Electronics II. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers additional applications of analog electronic circuits with an emphasis on analog and mixed signal integrated circuits (IC). Topics include amplification, filtering, oscillation, voltage regulation, and other analog circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot analog electronic circuits using appropriate techniques and test equipment.

ELN 133. Digital Electronics. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, medium scale integration (MSI) and large scale integration (LSI) circuits, analog to digital (AD) and digital to analog (DA) conversion, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment.

ELN 150. Computer-Aided Drafting for Electronics. 2.0 Credits.
Class-1.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces computer-aided drafting (CAD) with an emphasis on applications in the electronics field. Topics include electronics industry standards (symbols, schematic diagrams, layouts); drawing electronic circuit diagrams; and specialized electronic drafting practices and components such as resistors, capacitors, and ICs. Upon completion, students should be able to prepare electronic drawings with CAD software.

ELN 232. Introduction to Microprocessors. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces microprocessor architecture and microcomputer systems including memory and input/output interfacing. Topics include low-level language programming, bus architecture, I/O systems, memory systems, interrupts, and other related topics. Upon completion, students should be able to interpret, analyze, verify, and troubleshoot fundamental microprocessor circuits and programs using appropriate techniques and test equipment.
Prerequisites: Take ELN 133, minimum grade of C

ELN 233. Microprocessor Systems. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course covers the application and design of microprocessor control systems. Topics include control and interfacing of systems using AD/DA, serial/parallel I/O, communication protocols, and other related applications. Upon completion, students should be able to design, construct, program, verify, analyze, and troubleshoot fundamental microprocessor interface and control circuits using related equipment.
Prerequisites: Take ELN 232

ELN 237. Local Area Networks. 3.0 Credits. Class-2.0. Clinical-0.0. Lab-3.0. Work-0.0
This course introduces the fundamentals of local area networks and their operation. Topics include the characteristics of network topologies, system hardware, system configuration, installation and operation of the LAN. Upon completion, students should be able to install and maintain a local area network.
Prerequisites: Take ELN 133

ELN 260. Prog Logic Controllers. 4.0 Credits. Class-3.0. Clinical-0.0. Lab-3.0. Work-0.0
This course provides a detailed study of PLC applications, with a focus on design of industrial controls using the PLC. Topics include PLC components, memory organization, math instructions, documentation, input/output devices, and applying PLCs in industrial control systems. Upon completion, students should be able to select and program a PLC system to perform a wide variety of industrial control functions.
Prerequisites: Take ELC 213 or ELN 133 with a minimum grade C