ELECTRICAL CONSTRUCTION (ELCE)

ELCE 102 Electrical Blueprint Reading4 Credits
Development of skills needed to interpret electrical drawings properly. Critical for anyone involved in the design, construction, or maintenance of electrical systems.
Fees: Yes.

ELCE 110 House Wiring4 Credits
Approaches to residential building wiring in conformance with the current National Electrical Code and local codes using non-metallic cable.
Fees: Yes.

ELCE 120 Commercial Wiring4 Credits
Approaches to commercial and industrial building wiring in conformance with the current National Electrical Code and local codes using electric metallic tubing and other raceways.
Fees: Yes.

ELCE 124 Electrical Safety1 Credit
Exploration of OSHA's electrical safety-related work practices, and how they are applied to the work environment.

ELCE 130 National Electrical Code I4 Credits
Exploration of the National Electrical Code and local code requirements for electrical installations. Chapters one through four of the National Electrical Code are covered.

ELCE 135 National Electrical Code II4 Credits
Further development of material from ELCE 130 and covering chapters five through nine of the National Electrical Code, including hazardous locations, special occupancies, conditions, and equipment.
Prerequisites: ELCE 130.
Terms Typically Offered: Fall.

ELCE 144 Grounding and Bonding1 Credit
Exploration of technology and techniques available for code and standards-compliant grounding and bonding systems, focusing on grounding and bonding requirements as they relate to Article 250 and other articles of the NEC code.
Fees: Yes.

ELCE 150 DC Circuit Fundamentals4 Credits
Introduction to the principles of DC electricity and magnetism with emphasis on Ohm's, Kirchoff's, and Watt's laws to analyze circuit voltage, current, and power. Addresses common measuring instruments and safety.
Prerequisites: MATH 107 or higher (may be taken concurrently).
Terms Typically Offered: Fall.
Fees: Yes.

ELCE 155 AC Circuit Fundamentals4 Credits
Exploration of AC circuits including: resistance, current, voltage, computations of series and parallel circuits, circuit analysis, magnetism, inductive and capacitive circuits and troubleshooting with basic test equipment.
Prerequisites: ELCE 150.
Terms Typically Offered: Fall.
Fees: Yes.

ELCE 167 Electrical Maintenance4 Credits
Introduction to common electrical repairs, electrical systems, tools and test equipment. Includes replacing or repairing devices, such as receptacles, light fixtures and ballasts, circuit breakers, fuses, and switches. Addresses electrical safety and code applications.
Fees: Yes.

ELCE 220 Industrial Controls4 Credits
Application of electrical and electromechanical sensing/control devices including heating, ventilating, and air conditioning applications, motor control, conveyor drives, and other industrial applications. Students design control systems to meet assigned conditions, use principles of relay logic to prepare correct ladder diagrams and wire up, test, and troubleshoot their systems. Course stresses accuracy, safety, and National Electric Code requirements.
Fees: Yes.

ELCE 222 Instrumentation and Process4 Credits
Investigation of theory of industrial instrumentation measurement through process control. Includes theory and measurement methods for temperature, pressure, level, and flow. Incorporates hands-on training equipment to measure temperature and pressure, and perform calibration of a pressure differential transmitter. Test equipment is used to simulate a two-wire transmitter and source a current signal for calibration of an I/P transducer.
Fees: Yes.

ELCE 225 Introduction to PLCs4 Credits
Development of the ability to read, interpret, and analyze electrical ladder drawings. Acquaints the student with the basic electromechanical components commonly used in electrical control circuits, as well as solid-state relays and the role of programmable controllers.
Fees: Yes.

ELCE 229 AC/DC Variable Speed Drive2 Credits
Introduction to variable speed drive technology that offers a cost-effective method to match driver speed to load demands. Represents a state-of-the-art opportunity to reduce operating costs and improve overall productivity. Focuses on variable speed drive technology including operation, set-up, troubleshooting, maintenance, proper selection, and application for drives, as well as basic drive overview and comparison.
Fees: Yes.

ELCE 263 Specific Wiring for Structured Cabling Systems2 Credits
Development of ability to wire for specifications and for structured cabling systems. Examines the job layout, products used, and execution of the project.
Fees: Yes.

ELCE 295 Independent Study1-3 Credits
Course may be taken multiple times up to maximum of 6 credit hours.