

# Electrical Technology (ELTE)

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## Courses

### ELTE 110 AC/DC Circuits (4 Hours)

This is an introductory course that addresses the basics of Direct Current (DC) and Alternating Current (AC) circuits. The lab component to this course will expand on concepts taught in lecture by incorporating hands-on projects using common components found in the electrical industry. Students will gain experience in the process of reading and troubleshooting schematic drawings using electrical measuring equipment.

### ELTE 115 Print Reading (2 Hours)

This course addresses the fundamentals of interpreting construction drawings. Students learn to read specification manuals and prints as applied to electrical installations in residential, commercial and industrial buildings.

### ELTE 122 National Electrical Code I (4 Hours)

This is an introductory course on the use and interpretation of the current National Electrical Code (NEC), chapters 1-4. Students will learn the purpose and history of the code; develop a working knowledge of the code requirements for wiring, protection, materials and equipment; and be able to discern between wiring methods used in different occupancies.

### ELTE 125 Residential Wiring\* (4 Hours)

**Prerequisites or corequisites:** ELTE 110 .

This course covers residential wiring methods that include practical application and hands-on experience in implementing the code requirements. Installation rules and circuit designs for switches, receptacles, luminaires and appliances will also be discussed. The student will explore necessary skills to install electrical systems in a residential occupancy, meeting the minimum requirements as set forth in the current National Electrical Code (NEC).

### ELTE 175 Low Voltage Wiring\* (3 Hours)

**Prerequisites or corequisites:** ELTE 200.

This course covers the basic theory, installation standards and code requirements for various low voltage systems and their connecting devices. Discussion of closed circuit television, security, telephone, fire alarm, computer networking and wireless systems will be incorporated with hands-on experience installing and terminating conductors and cables in a lab environment.

### ELTE 200 Commercial Wiring\* (4 Hours)

**Prerequisites :** ELTE 125.

This course covers commercial wiring methods, including practical application and hands-on experience in implementing code requirements. Conduit hand-bending techniques, conductor sizing, and various wiring methods will also be discussed. The student will explore the necessary skills to install electrical systems in a commercial occupancy, meeting the minimum requirements as set forth in the current National Electrical Code (NEC).

### ELTE 202 Electrical Estimating\* (3 Hours)

**Prerequisites :** ELTE 200 .

This course covers the process of estimating the cost of an electrical design. Students will learn to develop an electrical estimate for a residential and commercial design. Emphasis will be placed on compiling a take-off list of materials from blueprints, determining material and labor costs, writing bid proposals, and creating change orders.

### ELTE 211 Solar Electric Systems\* (3 Hours)

**Prerequisites :** ELTE 175.

Solar Electric Systems presents the key components of photovoltaic (PV) conversion systems to produce electricity from sunlight. Solar module types and properties, balance of system components, stand-alone and utility interface, energy management and economics for a variety of PV applications are studied.

### ELTE 220 Heavy Commercial Wiring\* (3 Hours)

**Prerequisites :** ELTE 200.

This course covers heavy commercial wiring methods that include practical application and hands-on experience in implementing the code requirements. Conduit bending techniques, commercial raceway and conductor installations, commercial equipment installations, transformers, commercial panelboards and overcurrent protection applications will be discussed. The student will explore the necessary skills to install electrical systems in heavy commercial applications, meeting the minimum requirements as set forth in the current National Electrical Code (NEC).

### ELTE 222 National Electrical Code II\* (4 Hours)

**Prerequisites :** ELTE 122 .

This course is a continuation of the National Electrical Code I course on using and interpreting the current National Electrical Code (NEC), chapters 5-9. Students will develop a working knowledge of the code requirements for special occupancies, special equipment, special conditions and communication systems, and be able to use the NEC tables to size conduit raceways.

### ELTE 223 Electrical Certification Review\* (1 Hour)

**Prerequisites or corequisites:** ELTE 222.

This course covers the process and requirements for becoming a certified licensed electrician. License levels and permitting, state and local requirements, and best practices for being successful on a licensing examination will be covered.

**ELTE 230 Industrial Wiring\* (3 Hours)**

**Prerequisites :** ELTE 200.

This is an introductory course that covers industrial wiring methods that include practical application and hands-on experience in implementing the code requirements. Transformer installation, power distribution and various wiring methods will also be discussed. The student will explore the necessary skills to install electrical systems in an industrial occupancy, meeting the minimum requirements as set forth in the current National Electrical Code (NEC).

**ELTE 250 Industrial Motor Applications\* (3 Hours)**

**Prerequisites :** ELTE 200.

This course is an introduction to industrial motor application that includes practical application and hands-on experience in implementing code requirements. Motor installation and control, motor drives, motor control centers and various wiring methods will also be discussed. The student will explore necessary skills to install electrical motors and controls in an industrial occupancy, meeting the minimum requirements as set forth in the current National Electrical Code (NEC).

**ELTE 270 Electrical Internship\* (1-3 Hour)**

**Prerequisites :** Department approval.

The internship will provide advanced students the opportunity to apply classroom knowledge with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 5-15 hrs. on-the-job training/wk. This is a repeatable course and may be taken more than once for credit.