

# Electricity

## Electricity Classes

### ELEC 115: Applied Electricity

An introduction to applied electricity in the industrial trades, this course discusses basic alternating (AC) and direct (DC) current, transformers, motors, relays, reactance, electrical power generation and power distribution systems.

**Credits** 5

**Weekly Contact Hours** 7

**Meets Degree Requirements For**

Restricted Elective

**Prerequisites**

MATH 92 or MATH 93 or MATH 96 or Instructor Permission

### ELEC 125: Wiring Diagrams and Schematics

In-depth study of ladder and pictorial wiring diagrams and schematics as applied to various industrial applications specifically in electronics, manufacturing, industrial food processing, refrigeration and industrial equipment manufacturers' circuits.

**Credits** 5

**Weekly Contact Hours** 7

**Meets Degree Requirements For**

Restricted Elective

### ELEC 135: Control Fundamentals

Basic introductory course for understanding control theory and principles of automatic controls used for residential, commercial and industrial equipment. Includes application, service and installation procedures for electrical, electronic and mechanical control systems.

**Credits** 5

**Weekly Contact Hours** 5

**Meets Degree Requirements For**

Restricted Elective

**Prerequisites**

[ELEC 115](#) or [ELEC 125](#) or [ELTRO 101](#)

### ELEC 225: Industrial Electricity & Controls

Review of industrial electricity to include discussion on generation, power distribution, wiring, electrical code, transformers, solid-state motor starters, AC and DC motors, power-factor correction, speed controllers and schematics.

**Credits** 5

**Weekly Contact Hours** 7

**Meets Degree Requirements For**

Restricted Elective

**Prerequisites**

[ELEC 115](#) or [ELEC 125](#) or ELTRO 101

## ELEC 226: Applied Circuit Analysis

Design and analysis of DC and AC circuits using basic laws such as Ohm's and Kirchhoff's laws. Introduction to circuit analysis methods such as the node method, mesh current method, superposition, and the Thevenin methods. Applications of phasor representations to circuits with R, L, and C components. Analysis of AC steady-state circuits and determination of average power. Measurement of circuit variables using tools such as oscilloscopes, multimeters, and signal generators.

**Credits 5**

**Weekly Contact Hours 6**

**Meets Degree Requirements For**

Not Intended for Transfer, Typically Numbered Below 100.

**Prerequisites**

ELEC 115 and PHYS& 114, 115, and 116 or Instructor permission

## ELEC 325: Instrumentation

This course covers sensors, transducers, signal conditioning devices and computer-based instrumentation. Input/output (I/O) characteristics of sensors for pressure, distance, light, airflow, temperature, Hall effect and humidity are evaluated using data acquisition equipment and virtual instrumentation. Emphasis is placed on industrial applications, troubleshooting and determining I/O requirements to interface actuators such as AC, DC, stepper and servo motors to programmable logic controllers (PLCs).

**Credits 5**

**Weekly Contact Hours 6**

**Meets Degree Requirements For**

Restricted Elective

**Prerequisites**

[ELEC 225](#) and ENGR 315 and [CHEM& 161](#) and PHYS& 116