

# ELECTRICIAN (ELE)

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## **ELE 101 - Introduction to Electrical**

**Credit Hours: 3, Contact Hours: 4**

This course provides an introduction to the electrical. Through structured classroom and hands-on skill building, the student will learn safety, basic electricity, Ohm's Law, basic electric circuits, meters and wire sizes. Group 2 course.

Recommended Prerequisites: Placement in MTH 111 or higher, or co-enrollment in the appropriate developmental Math course, placement into ENG 11/111 or higher or co-enrollment in the appropriate developmental English course.

## **ELE 105 - Beg Residential Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn general information for electrical installations in the residential field to include: electrical symbols and outlets, determining the required number of lighting and receptacle outlets, conductor sizing and connections, switch control, bonding/grounding, ground-fault circuit interrupters and similar devices, and begin calculations for wiring various rooms in a common residential building. Group 2 course  
Required Prerequisites: ELE 101 or EET 103 or HVA 101

## **ELE 110 - Electrical Code Studies I**

**Credit Hours: 3, Contact Hours: 3**

This preparatory course reflects many of the important changes that appear in the current edition of the National Electrical Code. The changes are presented as they pertain to Single Family Dwellings, Multifamily Dwellings, Commercial Locations, Industrial Locations, and Hazardous Locations. It is designed to enable the student to learn electrical print reading and become familiar with applicable sections of the National Electrical Code. Group 2 course.

Required Prerequisites: ELE 105

Recommended Prerequisites: This course is recommended for those seeking more in-depth knowledge of the National Electrical Code and those who intend to sit for the Michigan Electrical Journeyman Exam with the next year.

## **ELE 111 - Electrical Code Studies II**

**Credit Hours: 3, Contact Hours: 3**

This course will help the student in learning to read and interpret the meaning of the Code, and to find information about how to do wiring installations. Upon completion of this course, the student will be able to find information from the Code needed to do residential, commercial, farm, and industrial wiring and to be successful with electrical examinations. Group 2 course.

Required Prerequisites: ELE 110

Recommended Prerequisites: This course is recommended for those seeking more in-depth knowledge of the National Electrical Code and those who intend to sit for the Michigan Electrical Journeyman Exam with the next year.

## **ELE 121 - Adv Residential Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn advanced residential wiring techniques including: workshop circuits, special purpose outlets, gas and oil central heating systems, low-voltage wiring, alarms and security systems, service entrance equipment, overcurrent protection, service entrance calculations, swimming pools, home automation systems, and standby power systems. Group 2 course.  
Required Prerequisites: ELE 105

## **ELE 125 - Pre-Commercial Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn small sources of electricity, basics of alternating current, AC circuits containing inductance, AC circuits containing capacitors, AC circuits containing resistance-inductance-capacitance, three-phase power, transformers, DC machines, and AC machines. Group 2 course.  
Required Prerequisites: ELE 121

## **ELE 131 - Commercial Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn commercial building plans and specifications, reading electrical drawings, calculating the electrical load, branch circuits, wiring methods, motor and appliance circuits, feeders, special systems, and working drawings. Group 2 course.

Required Prerequisites: ELE 105

## **ELE 135 - Adv Commercial Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn special circuits, panelboards selection and installation, the electric service, lamps and ballasts for lighting, luminaires, emergency, standby and optional standby systems, overcurrent protection, short-circuit calculations, equipment and conductor short-circuit protection, low-voltage remote-control, and the cooling system. Group 2 course.

Required Prerequisites: ELE 131

## **ELE 142 - Industrial Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn plans and sitework, the unit substation, feeder bus system, panelboards, trolley busways, using wire tables, signaling systems, basic motor controls, motors and controllers, and motor installation. Group 2 course.

Required Prerequisites: ELE 105

## **ELE 146 - Adv. Industrial Electrical**

**Credit Hours: 3, Contact Hours: 4**

Through structured classroom and hands-on skill building, the student will learn power factor, ventilating, air conditioning, and other facilities, system protection, lightning protection, site lighting, programmable logic controllers, developing a program for a PLC, fiber optics, hazardous locations, and harmonics. Group 2 course.

Required Prerequisites: ELE 142