ELE 144 - ADVANCED ELECTRICAL STUDIES I

Course Description

This course will introduce the advanced electrical student and/or the apprentice electrician to new residential and commercial electrical concepts and reinforce concepts and skills learned in previous courses. Concepts include load calculation feeders and services, health care facilities, standby and emergency systems, basic electronic theory, specialty transformers, and fire alarm systems. Participants will also apply code rules from the National Electrical Code. Group 2 course.

Credit Hours

3

Contact Hours

4

Lecture Hours

2

Lab Hours

2

Required Prerequisites

ELE 136

Course Learning Outcomes

Knowledge:

- Identify appropriate wiring for health care facilities.
- Identify various specialty transformers.
- Recognize standby and emergency system types.
- Recognize various classifications of health care facilities.

Application:

- Calculate wire size for various service feeders.
- Connect selected fire alarm system(s).

Integration:

- Integrate service feeder circuits with conductor terminations using appropriate wire sizing based on electrical blueprints for commercial and industrial settings.
- Connect a buck-and-boost transformer to a single-phase circuit so that it will first be in the boost mode, and then in the buck mode. Record the voltage increase and decrease for each configuration.

Human Dimension:

- Take responsibility for completing work in a neat and proficient manner.

Caring - Civic Learning:

- Commit to the safety and wellbeing of everyone on the job site and the end user.
- Value the importance of electricity and the electrical field to daily life.

Learning How to Learn:

- Construct knowledge about the use of logic in electrical studies.
- Reflect on their ability to use the National Electric Code, the State of Michigan Electrical Administrative Laws and OSHA Construction and Electrical safety rules effectively.