

2020-2021 Apprenticeship Program

Electrical Level 2 Course Outline

This is the second year, of four, in the Registered Electrical Apprenticeship program. This year students will study the effects of Alternating and Direct Current electricity in regards to Resistive, Inductive and Capacitive Circuits. Students will learn to calculate voltages and amperages, using basic Trigonometry and Vector Math. Students will learn to determine the proper Electrical Code Rules and Application with regards to Single Phase Transformers.

This year will specifically cover the following topics:

- **Alternating Current (AC)**
 - Three Phase AC Alternators
- **Circuits**
 - Capacitors in AC Circuits
 - Introduction to AC Circuits
 - Resistive-Capacitive Parallel Circuits
 - Resistive-Capacitive Series Circuits
 - Resistive-Inductive Parallel Circuits
 - Resistive-Inductive Series Circuits
 - Resistive-Inductive-Capacitive Parallel Circuits
 - Resistive-Inductive-Capacitive Series Circuits
 - RLC Circuits
 - Three Phase AC Circuits
- **Direct Current (DC)**
 - DC Generators
 - DC Motors
- **Harmonics**
- **Introduction to AC Electricity**
- **Magnetic Induction**
- **Math Review**
 - Pythagorean Theorem
 - Basic Trigonometry
 - Vectors
- **Motors**
 - Motors
 - Motor Circuits
 - Motor Controllers
 - Single Phase Motors
 - Three Phase Motors
- **Power Factor Correction**
- **Transformers**
 - Single Phase Transformers
 - Three Phase Transformers & Calculations
 - Transformers Components
 - Transformer Windings
 - Transformer Sizing
 - Transformer Protection