



Utah System of Higher Education
Electrical Residential
FY2023 / 12 Credits (360 Clock-Hours)

Electrical Residential			
Institutions: Dixie			
<i>Certificate of Program Completion (Catalog Year: 2023, 12 Credits/360 Clock-Hours Required, CIP: 46.0302)</i>			
Core (12 Credits/360 Clock-Hours)		Credits	Clock-Hours
TEEL 1110	Electrician Apprentice IA	3	90
TEEL 1120	Electrician Apprentice IB	3	90
TEEL 1210	Electrician Apprentice IIA	3	90
TEEL 1220	Electrician Apprentice IIB	3	90



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PROGRAM DESCRIPTION

The Electrical Residential Apprenticeship program provides a solid understanding of the National Electrical Code (NEC), its layout, and the ability to find the requirements for different electrical systems. This program discusses the risks involved with electricity and electrical systems as well as the safety equipment and measures that are in place to protect electricians and the general public alike. The Electrical Residential Apprenticeship program will provide a student with the knowledge in the areas of electrical work needed to sit and pass the State Residential Journeyman exams.

Objectives:

- Apply the principles of the National Electrical Code (NEC)
- Navigate the National Electrical Code (NEC)
- Understand the State of Utah Laws and Regulations concerning electrical work and licensing
- Calculate the sizes of residential services and other various loads in electrical systems
- Explain the application of A/C and D/C electrical theory
- Explain Electrical Safety procedures, processes, and equipment
- Wire electrical circuits per National Codes and safety regulations
- Explain specific codes and regulations for Solar Systems, Swimming pools, EV Charging and other specific equipment found in Residential Homes

COURSE DESCRIPTIONS

Electrician Apprentice IA

3 Credits / 90 Clock-Hours

The Electrician Apprentice IA course establishes a solid foundation in electrical fundamentals and the study of basic electrical theory. This course addresses math applications as they relate to the electrical field. In this course, students will use the National Electrical Code (NEC) to apply code requirements to electrical systems. Students will learn and practice in the basics of conduit bending. Students will be introduced to electrical and jobsite hazards and workplace safety.

Objectives:

- Demonstrate a proficiency in general math skills with an emphasis on how they relate to the electrical field
- Identify electrical and jobsite hazards
- Explain workplace safety
- Apply Mathematical Principles to Conduit Bending
- Demonstrate a practical application of conduit bending
- Explain the Fundamentals of Electrical Theory
- Explain the Fundamentals of Electrical Circuitry
- Demonstrate the application of the National Electrical Code (NEC) Articles 090-240
- Demonstrate how to navigate the National Electrical Code (NEC) Articles 090-240

Electrician Apprentice IB

3 Credits / 90 Clock-Hours

The Electrician Apprentice IB course continues the study of electrical theory and its application within the electrical field. In this course, students will learn how devices and electrical systems work. Students will also explore lock out tag out, learn what makes a qualified person, and become more familiar with the National Electrical Code (NEC).



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Objectives:

- Apply the fundamentals of electrical theory
- Apply the fundamentals of electrical circuitry
- Explain the definition of a qualified person
- Explain responsibilities and risks of qualified persons
- Demonstrate principles and procedures of lock out tag out.
- Demonstrate the application of the National Electrical Code (NEC) Articles 300-450
- Demonstrate how to navigate the National Electrical Code (NEC) Articles 300-450

Electrician Apprentice IIA

3 Credits / 90 Clock-Hours

The Electrician Apprentice IIA course discusses single-phase and three-phase alternating current (AC) power systems, inductance, capacitance, reactance, power factor, and power correction. In this course, students will begin a more comprehensive analysis of National Electrical Code (NEC) requirements and calculations. They will explore the NEC requirements for wiring methods and installations of electrical systems as well as electrical safety in the use of energized equipment.

Objectives:

- Show proficiency in calculating properties of an AC circuit.
- Demonstrate proper use of hand tools and electrical equipment in practice live applications
- Demonstrate proficiency in applying and calculating the sizing of Branch circuits, feeders, services, and load calculations

Electrician Apprentice IIB

3 Credits / 90 Clock-Hours

The Electrician Apprentice IIB course continues the comprehensive analysis of the National Electrical Code (NEC). In this course, students will evaluate the functions, uses, and calculations for direct current (DC) and alternating current (AC) motors, transformers, and other equipment. They will be instructed in electrical safety regarding Personal Protective Equipment (PPE) clothing requirements.

Objectives:

- Identify the types and voltages of transformers
- Calculate values related to transformers
- Apply the NEC with emphasis in codes regarding Motors, Transformers, and other electrical equipment
- Identify types, categories, and ratings of PPE clothing
- Show applications of types, categories, ratings of Personal Protective Equipment (PPE)