PARKLAND COLLEGE

Course Information Form (CIF)

Course Code: ELX 110

Course Title: Introduction to Electrical Fundamentals and Theories

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 46.0302
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 0.5-1-1
Credit Hour Distribution:

Lecture: 0.5	Lab: 1	Clinical: 0	**Total: 1**

General Course Information

Catalog Description

Introduction to the electrical field, career outlook, and opportunities as well as electrician roles and levels of expertise. Basic electrical theory regarding the nature of electricity; electrical quantification such as voltage, current, resistance, and power; and the rules that determine how these work with one another within a circuit.

General Course Objectives

The student should be able to articulate knowledge of the role of an electrician, the skill sets needed to enter the workplace, and the skill levels needed to advance within the field. The student should also be able to accurately define and describe the nature of electricity, define basic electrical concepts such as alternating current and direct current, and use Ohm's law and the power formula to determine electrical quantities within a circuit.

Minimum Placement Levels

English	Reading	Math
None	None	Placement out of MAT 060

Prerequisites

None

Methods of Evaluation

Students will be given a minimum of 2 quizzes, 1 final exam, and 1 lab practical exam.

Instructional Materials and Additional Supplies

Illustrated Guide to the National Electrical Code, 8th Edition. Charles R. Miller. Cengage Publishing. 978-1455922970
National Electrical Code 2020, 978-1455922970
Safety glasses

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Electrician Definitions	1. Describe the role of the electrician in the workplace and their value to the workforce. 2. Demonstrate the ability to make an informed decision regarding electrical work as a career choice.	1.5	0	0
Electrician Levels of Expertise	1. Define the skill sets, responsibilities, and limitations for any given recognized role of electrical expertise/experience.	2	0	0
Electrical Fundamentals	1. Describe the fundamentals of electricity: what electricity is, its history and composition, and how it is produced. 2. Describe and differentiate between conventional and electron current flow. 3. Demonstrate ability to download LTspice circuit simulation software and virtually construct and run selected circuit projects.	2	6	0
Electrical Theories	1. Describe relationships of the units of electrical measurement in context with Ohm's law. 2. Describe alternating and direct current power sources, how they are used, and how they differ from one another. 3. Demonstrate the ability to manually perform circuit calculations to find unknown values from given values using Ohm's law and the power formula. 4. Demonstrate ability to verify load calculations using LTspice.	2	9	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
7.5	15	0