

Course Code: ECJ 111

Course Title: IBEW Electrical Construction Journeyman I

Department: Applied Sciences and Technologies

Effective Date: Summer 2026

PCS Code: 1.2 - Occupational/Technical Instruction

CIP Code: 46.0302

Repeatability: 0

Credit Hours

Catalog Notation: 2-2-3

Credit Hour Distribution:

Lecture: 2

Lab: 2

Clinical: 0

Total: 3

General Course Information

Catalog Description

Part of IBEW Apprenticeship Program: job site safety, electrician's tools, material rigging, basic conduit bending, direct current theory, and series circuit calculations.

General Course Objectives

Gain experience and knowledge regarding job site safety, electrician's tools, material rigging, basic conduit bending, direct current theory, and series circuit calculations.

Minimum Placement Levels

English

None

Reading

None

Math

None

Prerequisites

Credit in MAT 131

Admission into the IBEW Apprenticeship School

Methods of Evaluation

The minimum evaluation tools to be used are: 4 written tests, 4 quizzes, 25 homework lessons, attendance at 18 class sessions, and 4 lab exercises.

Instructional Materials and Additional Supplies

Cables and Wiring, 2nd Edition, by John Cadick 9780766802704

Delmar's Standard Textbook of Electricity, 6th Edition, Stephen L. Herman 9781285852706

Electrician's Guide To Conduit Bending, 3rd Edition, Richard Cox

Blueprint Reading Textbook, NJATC

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.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
IBEW/NECA Apprenticeship Program, IBEW History, Safety	1. Discuss the history and role of the IBEW and apprenticeship program. 2. Describe and define the importance of safety on the job site.	4	0	0
Tools and the Workplace, Ladders, Electrical Shock, Basic Knots	1. Identify and select the proper tools for job site. 2. Define terms associated with conduit bending. 3. Calculate 90 degree, back to back, saddle, and stub-up bends and demonstrate with various benders.	6	6	0
Overhead Work, Hoisting Loads	1. Identify and select the proper tools for job site. 2. Demonstrate how to safely hoist loads.	6	6	0
Electrical Symbols and Drawings, Mechanical Symbols and Drawings, Reading Blueprints	1. Recognize, identify, and sketch symbols used in mechanical trades as they relate to the electrical industry. 2. Recognize and devise locations using a blueprint, and calculate size and quantities. 3. Prove accuracy of drawings using electrical trainers.	6	6	0
Introduction to Electricity, Ohm's Law, Power Law, Electrical Devices, Electrical Hazards, Drawing Electrical Circuits	1. Develop algebraic formulas and solve equations for electrical calculations. 2. Draw and label components. 3. Describe and define Ohm's Law. 4. Solve circuits for voltage drops, current, power, and resistance. 5. Use ratios and proportions. 6. Calculate power.	8	12	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0