

Course Code: ECJ 115

Course Title: IBEW Electrical Construction Journeyman V

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: DC/AC review, semiconductors, transistors, SCRs, amplifiers, and electronic applications.

General Course Objectives

Gain experience and knowledge regarding DC/AC review, semiconductors, transistors, SCRs, amplifiers, and electronic applications.

Minimum Placement Levels

English

None

Reading

None

Math

None

Prerequisites

Credit in ECJ 114

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
DC/AC Theory Review, Kirchhoff's Laws, Thevenin's and Norton's Theorems	1. Describe how to use Kirchhoff's law and Norton's theorem to solve mathematical problems.	5	5	0
Diode Characteristics, Power Supplies	1. Describe the use of diodes and proper applications in a circuit.	5	5	0
Transducers, Transistors, Switching and Biasing Techniques	1. Describe the use and selection of transducers and transistors in a circuit.	5	5	0
SCRs, Triacs, and Ciacs; UJT's; Amplifiers I; Amplifiers II	1. Describe how SCRs are used in electrical applications. 2. Explain SCRs' DC/AC switching capability.	5	5	0
Multistage Amplifiers, JFETS/MOSFETS ICs and OP AMPS, IC Timers	1. Draw basic circuit configurations for the three types of amplifiers.	5	5	0
Industrial Specifications and Prints	1. Identify uses and advantages of photoelectric devices.	5	5	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0