



Recommended Electrical Basics Lesson

Grantees may utilize this lesson or develop their own material, based on the core concepts covered here.

Description

As part of clean energy basics, the Electrical Basics lesson introduces electrical circuits, electrical theory, the national electrical code, wiring, conductors and cables.

Objectives

Upon completion of electrical basics portion of the clean energy training, students will be able to:

1. Describe atomic and electrical theories
2. Explain Ohm's law and determine unknown values in power equations
3. Recognize basic circuits
4. Identify installation code requirements
5. Discuss conductor types, cable markings, color codes, and ampacity derating
6. Describe how to install conductors
7. Interpret electrical drawings
8. Explain how to lay out branch circuits
9. Discuss how to install wiring and wiring devices

Estimated length

Recommended: Minimum 10 hours

Learning environment & format

Recommended: Primarily offered in-person, classroom-based training with props and demonstrations. Some elements may be appropriate for online learning, with support from the training staff and access to a facility with a computer.

Tools and equipment

Required: This program requires the following:

- Laptops and/or computer lab

- Course materials/books

Content overview

Required: Training programs will be required to cover the following workplace basic electrical content. This content aligns with the basic topics in the NCCER Journeyman Electrician Test, though the NCCER curriculum and exam is much more comprehensive.

1. Introduction to electrical circuits
2. Electrical theory
3. National electrical code
4. Conductors and cables
5. Basic electrical drawings
6. Wiring

Evaluation methods

Required: Must have measurable learning outcomes and be able to assess whether those outcomes are met, using a variety of formative (continuous assessment module by module or providing multiple quizzes when appropriate) and summative assessments (final evaluation after completion of the lesson).

Recommended: We recommend administering a quiz at the end of the lesson.

References and example curriculum

- [NCCER Journeyman Electrician Test Prep](#)