

Revised by: C. Bertram
Reviewed by: R. Mallard
C & G Ed approval: November 8, 2010
Board approval: December 9, 2010

Industrial Education Safety (IES) 1056 Electrical Standards (1.25 Units)
[formerly Industrial Education Safety 56]

Prerequisite: None

Total Hours: 20 hours lecture

Catalog Description: This course is designed to provide a survey of Federal and California standards and the hazards associated with electrical installations and equipment. Topics include single- and three-phase systems, cord- and plug-connected and fixed equipment, grounding, ground fault circuit interrupters, and safety-related work practices. Emphasis is placed on electrical hazard recognition and OSHA inspection procedures. Hands-on training is provided using various types of electrical test equipment. This course is offered on a Pass/No Pass basis with the option to receive a letter grade.

Type of Class/Course: Degree Credit

Textbook: *29 CFR §1910, General Industry Regulations*. Mangan Communications, Inc.:
Davenport, Iowa, 2008. Print.

Cal-OSHA, Construction and Electrical Safety Orders. Mangan Communications, Inc.: Davenport, Iowa,
2008. Print.

Additional Required Materials: None

Course Objectives:

By the end of the course, a successful student will be able to

1. identify basic electrical terms,
2. describe common electrical components found within a broad spectrum of industries,
3. identify hazards that occur in or on machinery, and
4. select the appropriate OSHA standard that applies to a hazard.

Course Scope and Content:

Unit I Electrical Fundamentals

- A. Circuits
- B. Installation
- C. Basic Components
- D. Working on Energized Equipment

Unit II Electrical Effects on the Human Body, 29 Code of Federal Regulations (CFR) 1910.303 and
29 CFR 1926.403, System and Equipment Grounding

- A. Shock, Arcing, Falls, Electrocution
- B. System Grounding
- C. Personnel Grounding
- D. Control of Hazardous Energy - Lockout/Tagout

Learning Activities Required Outside of Class: None

Methods of Instruction:

1. Lecture

2. Group exercises in class

Methods of Evaluation:

1. Written final exam
2. Observation of student performance