Module Overview

This module covers electrical shock and arc flash hazards and introduces the trainees to NFPA 70E, *Standard for Electrical Safety in the Workplace®*.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed *Core Curriculum; Electrical Level One; Electrical Level Two; Electrical Level Three; and Electrical Level Four*.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Identify electrical hazard types and locations, and explain related safety guidelines and terms.
2. Recognize and explain hazard boundaries.
3. Explain employer and employee responsibilities in recognizing and managing electrical hazards.
4. Identify common factors that lead to electrical incidents and explain the importance of using good judgment, appropriate procedures, and safe work practices.
5. Analyze the electrical hazards of a given task, plan the job, and complete an electrical work permit request.
6. Select, inspect, use, and care for personal protective equipment (PPE) and test equipment used for electrical work.
7. Explain how to create an electrically safe work condition.

Performance Task

Under the supervision of the instructor, the trainee should be able to do the following:

1. Given a specific electrical task and circumstances, complete an energized electrical work permit request.

Materials and Equipment List

- Multimedia projector and screen
- *Managing Electrical Hazards PowerPoint® Presentation Slides*
- Desktop or laptop computer
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- NFPA 70E, *Standard for Electrical Safety in the Workplace®*
- Various types of protective equipment, including rubber gloves, leathers, rubber blankets, face shields, and arc flash suits
- Various insulated/insulating and live-line tools
- Temporary grounding jumpers
- Insulated rescue hook
- Blank energized electrical work request forms
- Example job drawings
- Insulation tester
- Proximity detectors
- Module Examinations
- Performance Profile Sheets
Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that the trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits.

Additional Resources

This module presents thorough resources for task training. The following reference materials is suggested for further study.


Teaching Time for This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 12½ hours are suggested to cover Managing Electrical Hazards. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

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Session III. Energized Electrical Work Permit

A. Completing Part I
B. Completing Part II
C. Completing Part III
D. Laboratory

Have the trainees practice completing an energized electrical work permit request. This laboratory corresponds to Performance Task 1.

Session IV. Analyzing Electrical Hazards; Electrical Test Equipment Selection and Use

A. Analyzing Electrical Hazards
   1. Drawings and Documents
   2. Shock Risk Assessment
   3. Arc Flash Risk Assessment

B. Electrical Test Equipment Selection and Use
   1. Inspection
   2. Training
   3. Meter Use

Session V. Establishing an Electrically Safe Work Condition; Emergency Response; Personal Safety Toolbox; Review and Testing

A. Establishing an Electrically Safe Work Condition
   1. Electrical Lockout/Tagout
   2. Hazardous Energy Control Procedures

B. Emergency Response
   1. Shock Victims
   2. Arc Flash Victims
   3. Teamwork
   4. Resuscitation

C. Personal Safety Toolbox
   1. Communication
   2. Changes in Scope
   3. Administrative Controls

D. Module Review

E. Module Examination

   1. Trainees must score 70 percent or higher to receive recognition from NCCER.
   2. Record the testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.

F. Performance Testing

   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on the Registration of Training Modules form, and submit the results to the Training Program Sponsor.