

Electrical Safety in the Workplace

Understanding NFPA 70E®

Course 211: Electrical Safety in the Workplace - Understanding NFPA 70E®

Introduces the trainee to the purpose of NFPA 70E and explains the history of its creation. After discussing the relationship between OSHA and NFPA 70E, the course moves through the standard, article by article, highlighting the important points in each. Concludes with a lesson on the annexes and supplemental material found in the NFPA 70E Handbook.

TPC Training is accredited by IACET to offer **0.8 CEU** for this program.



Lesson 1: Article 90: Introduction and Purpose

Topics

Introduction to *NFPA 70E*; Enforcement of *NFPA 70E*; National Electrical Code; Electrical Hazards; Purpose of *NFPA 70E*; Scope of *NFPA 70E*; Arrangement of *NFPA 70E*; Organization of *NFPA 70E*; Rules; Interpretation and Application

Objectives

- Explain how and why *NFPA 70E* was created.
- State the purpose of *NFPA 70E*.
- Understand how OSHA can use *NFPA 70E* in enforcement actions.
- Explain which areas are covered by *NFPA 70E* and which are not covered.
- Explain how *NFPA 70E* is arranged and organized.
- State the differences among mandatory rules, permissive rules, and explanatory material.

Lesson 2: Articles 100 and 105: Terms and Definitions

Topics

Overview of Article 100; Electrical Safety and Hazards; Electrical Equipment; Accessibility and Boundaries; Grounding and Ground Faults; *National Electrical Code (NEC)*; Overview of Article 105

Objectives

- Understand the importance of terms described in Article 100.
- Define terms related to electrical safety and hazards.
- Define terms related to electrical grounding and ground fault equipment.
- Define and understand accessibility terms.
- Recognize terms that are common to *NFPA 70E* and the *NEC*.
- State the purpose and scope of *NFPA 70E* Chapter 1 and the responsibilities of employer and employee.

Lesson 3: Article 110: General Requirements for Work Practices

Topics

Overview of Article 110; Establishing an Electrical Safety Program; Training Procedures and Requirements; Host and Contract Employers; Working with Electrical Equipment

Objectives

- Give an overview of the contents of Article 110.
- Describe the relationship between host employers and contract employers.
- Identify the training requirements, types of training, and documentation procedures covered in the article.
- Explain how to develop an electrical safety program.
- Identify the risks of working with electrical hazards.
- Explain how to use test equipment and instruments safely.

Lesson 4: Article 120: Establishing an Electrically Safe Work Condition

Topics

Overview of Article 120; Achieving an Electrically Safe Work Condition; Principles of Lockout/Tagout; Types of Hazard Control Procedures; Lockout/Tagout Equipment; Lockout/Tagout Application Procedures; Temporary Grounding Equipment

Objectives

- Understand the process of achieving an electrically safe work condition.
- Explain lockout/tagout principles and procedures.
- Describe the different forms of control procedures.
- Define the requirements for lockout/tagout devices.
- Identify the procedures for removing and releasing lockout/tagout devices.
- Understand the requirements for temporary grounding equipment.

Lesson 5: Article 130: Work Involving Electrical Hazards

Topics

Overview of Article 130; Electrical Work Permits; Working with Electrical Hazards; Approach Boundaries; Arc Flash Risk Assessment and Boundary; Personal Activity Precautions; Personal Protective Equipment (PPE); Other Protective Equipment; Overhead and Underground Lines

Objectives

- Recognize electrical hazards and know when it is justifiable to work near such hazards.
- Understand the purpose and use of energized electrical work permits.
- Determine shock hazards associated with approach boundaries.
- Determine required arc flash protection.
- Determine the type of personal protective equipment required for a task.
- Develop an understanding of insulated tools and other protective equipment.
- Identify alerting techniques.
- Learn safety procedures to follow while working with overhead lines.

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Lesson 6: Articles 200-250: Safety-Related Maintenance Requirements

Topics

Overview of Chapter 2; Article 200: Introduction; Article 205: General Maintenance; Article 210: Enclosures; Article 215: Wiring Systems; Article 220: Controllers; Article 225: Overcurrent Devices; Article 230: Rotating Equipment; Article 235: Hazardous Locations; Article 240: Batteries; Article 245: Portable Equipment; Article 250: Protective Equipment

Objectives

- Determine the general maintenance requirements for electrical equipment.
- Identify safety-related maintenance practices.
- Describe the electrical maintenance requirements for facilities.
- Determine to what degree fuses and circuit breakers should be maintained.
- Understand the maintenance of equipment in hazardous locations.
- Explain the requirements for maintaining and testing personal protective equipment.

Lesson 7: Articles 300-350: Safety Requirements for Special Equipment

Topics

Overview of Chapter 3; Article 300: Introduction; Article 310: Electrolytic Cells; Article 320: Batteries and Battery Rooms; Article 330: Lasers; Article 340: Power Electronic Equipment; Article 350: Research and Development Laboratories

Objectives

- Understand the hazards of working with special electrical equipment.
- Determine the safety requirements for special equipment
- Identify safe work practices for electrolytic cells.
- Identify safe work practices for installing and maintaining batteries.
- Identify safe work practices for lasers.
- Identify safe work practices for power electronic equipment.
- Identify safe work practices for laboratories.

Lesson 8: Annexes and Supplemental Materials

Topics

Annexes A and B: References; Annexes C and D: Distances and Boundaries; Annexes E and F: Safety Program and Hazard Evaluation; Annex G: Lockout/Tagout; Annex H: Protective Clothing and PPE; Annexes I and J: Job Planning and Energized Work Permits; Annexes K and L: Hazards and Cell Line Safeguards; Annex M: Layering of Protective Clothing; Annexes N and O: Overhead Lines and Design Requirements; Annex P: *NFPA 70E* and Other Standards; Supplemental Information

Objectives

- Reference publications related to *NFPA 70E*.
- Obtain additional information related to *NFPA 70E*.
- Identify examples of approach and arc flash boundaries.
- Develop a safety program and risk assessment forms.
- Discuss lockout/tagout procedures.
- Be aware of the National Electrical Code references related to *NFPA 70E*.