

## NFPA 70E® 2015 – Electrical Safety and Arc Flash Compliance Course Description

### COURSE AGENDA

#### Day 1

- Arc Flash Ruling
- Arc Flash Hazards
  - Facts and Statistics
  - Requirements
  - Thermal Intensity
  - Pressure
  - Auditory
  - Projectile
  - Inhalation
- Protecting the Electrical Worker
  - Company Safety Programs
  - Electrical Safety Program
  - OSHA General Industry Regulations
  - OSHA 29 CFR 1910.132
  - OSHA 29 CFR 1910.333
  - OSHA 29 CFR 1910.335
  - Enforcement
- Applicable Standards
  - Electrically Safe Work Conditions
  - Qualified Person
  - 2014 NEC Article 110.16
  - Flash Protection Labeling
  - NFPA 70E 2015 Labeling
- Approach Boundary Terms
  - Arc Flash Boundary
  - Limited Approach Boundary
  - Restricted Approach Boundary
- Energized Electrical Work Permit
- Personal Protective Equipment (PPE) Selection
  - Use of Article 130 Tables to Select PPE
  - PPE Categories
  - Shock Protection PPE
  - Arc Flash PPE



### COURSE NUMBER: SAF-SFT11215

#### *Course Purpose*

The purpose of this course is to provide the student with an in-depth understanding of the current requirements of NFPA 70E® 2015. A complete presentation of the standard will be provided, along with the examples and exercises covering the tables and calculation methods used in the standard for determining Approach Boundaries and selecting proper Personal Protective Equipment (PPE).

This course will present the following major topics:

- NFPA 70E 2015 Standard for Electrical Safety in the Workplace
- Safe Electrical Work Practices
- Calculating Arc Flash Boundary (Bolted Fault)
- Selecting Appropriate Personnel Protective Equipment
- Calculations based on Bolted Fault Current – Short-circuit Current, Power in the Arc, Arc Flash Boundary, Determining Clearing Time, Incident Energy (Arc in Open Air & Arc in a Cubic Box), Calculation Limitations
- Calculations based on Arcing Current (IEEE 1584) – Arcing Current, Incident Energy (Normalized and Actual), IEEE 1584 Arc Flash Boundary Calculation

#### *Who Should Attend*

Individuals or engineers responsible for ensuring compliance with, developing training on, or supervising employees who are required to work in accordance with NFPA 70E 2015 or who will be exposed to work areas designated by the approach boundaries should attend this course.

# COURSE AGENDA

## Day 2

- Arc Flash Calculations (NFPA 70E)
  - Short Circuit Current Calculation
  - Power in the Arc Calculation
  - Arc Flash Boundary Calculation (two methods)
  - Arc in Open Air Incident Energy Calculation
  - Arc in a Cubic Box Incident Energy
  - Calculation Limitations
  - Introduction to IEEE 1584 Methodology
  - IEEE 1584 Arcing Current Calculations
  - IEEE 1584 Incident Energy Calculations
  - IEEE 1584 Curable Burn Distance Calculations
- PPE Selection Based on Incident Energy Calculations
- Other Topics:
  - Maintenance
  - A Turnkey Solution
  - Arc-Flash Study Benefits
  - Typical Third Party Vendor Arc-Flash Study
  - Mitigation
  - Overcurrent Protective Devices
  - Trip Coordination

## Prerequisites

To successfully complete this course, the following prerequisites are required:

- Familiarity with basic electricity
  - Proficiency in Student's Respective Classification
- OR
- Enrolled in an Up-grader/Apprentice Program

## Technology Requirements

All technology is provided for student use in the classroom by Rockwell Automation. It is not necessary for students to bring any technology with them when attending this course.

## Student Materials

To enhance and facilitate your learning experience, the following materials are provided as part of the course package:

- *Student Manual*, which contains the topical outlines and problem-solving exercises.
- *NFPA 70E: Standard for Electrical Safety in the Workplace®*, 2015 Edition, which provides key concepts, definitions and certification requirements.

## Hands-On Practice

Throughout this course, you will have the opportunity to practice the skills you have learned through class interaction and observational exercises. The interactive exercises focus on awareness, safe work practices, maintenance requirements, calculation methods, boundaries, and regulations learned during the lessons.

## Course Length

This is a two-day course.

## Course Number

The course number is SAF-SFT11215.

## To Register

To register for this or any other Rockwell Automation training course, contact your local authorized Allen-Bradley Distributor or your local Sales/Support office for a complete listing of courses, descriptions, prices, and schedules.

You can also access course information via the Web at <http://www.rockwellautomation.com/training>

[www.rockwellautomation.com](http://www.rockwellautomation.com)

## Power, Control and Information Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846