

NFPA 79 Training - Electrical Standard For Industrial Machinery



Course Description

NFPA 79 Training - Electrical Standard For Industrial Machinery - Our Instructor-Led, course teaches proper production equipment uptime and reliability. This course is designed for employees who maintain or repair machine electrical controls as part of a company's production process. NFPA 79-2021 provides safeguards for industrial machinery to protect operators, equipment, facilities, and work-in-progress from fire and electrical hazards.



NFPA 79-2021 is the Electrical Standard for Industrial Machinery and thus one of the most important industry-specific standards in North America. As of the standard's current 2018 edition, surge protection is now also a mandatory component of all industrial machinery. Worker and equipment safety is the key when working with industrial machinery, not only the kind of safety that protects and preserves lives but also the procedures that help protect your valuable equipment. Avoiding equipment downtime from accidents and disruptions, as well as the added costs of replacing damaged equipment, is the focus of this course.

NFPA 79-2021 Electrical Standard For Industrial Machinery is the key regulatory standard for administering a safety protocol in any business that uses industrial machinery. This standard provides information that helps managers and workers apply the provisions of the standard to electrical equipment or systems. It applies to electrical or electronic equipment (or apparatus or systems) of industrial machines supplied from nominal voltage of 1000 volts or less. The standard applies to the point of connection of the supply circuit conductors to the electrical equipment of the machine. The standard is designed to protect equipment, operators, the facilities, and jobs in progress from electrical and fire hazards.

Our course helps students to understand NFPA 79-2021 and its relationship with other NFPA codes. Learn how to effectively use the Standard as a guideline for wiring, sizing conductors and over-current protection for industrial machines operating from a nominal voltage of 1000 volts or less.

The NFPA 70 addresses how that equipment can be electrically installed but the NEC stops at the outside of the piece of equipment. NFPA 79-2021 picks-up inside the equipment and addresses how the wiring and grounding of the actual piece of equipment is done. When equipment does need maintenance or repair, workers need to understand why the electrical controls and components were designed and installed the way they are so you can keep it that way.

So if you want to understand NFPA 79, have your team repair your equipment's electrical components correctly for safety, compliance, and longer equipment use, and build a better Preventative Maintenance procedures that can be correctly applied, then take a look at our newly update NFPA 79 course. Its a must for today's fast changing and challenging electrical environments.

Students Will Learn

- **Today's Worker and Equipment Safety**
- **How to Protects and Preserves Lives**
- **Procedures that help Protect your Valuable Equipment**
- **How to Avoid Equipment Downtime from Accidents and Disruptions**
- **How to have Less Downtime Due to Improperly Maintained Equipment**
- **Why Reoccurring Problems are Happening**
- **Required Surge Protection**
- **More Effective Maintenance Tasks and Procedures**
- **The Added Costs of Replacing Damaged Equipment**
- **How to Protect Equipment, Operators, the Facilities, and Jobs in Progress from Electrical and Fire Hazards.**
- **And Much More...**

Target Audience

Workers responsible for repairing and maintaining the electrical components of industrial machines

- Safety directors
- Electrical contractors
- Electricians
- Maintenance electricians
- HVAC maintenance and Repair
- Machine Builders
- Engineers making modifications to existing machinery
- Technicians
- Plant & facility maintenance technicians
- Electrical engineers

Prerequisites

None.

Course Outline

DAY ONE

MODULE 1: INTRODUCTION TO NFPA 79
Machine history

The need for training and developed standards
NFPA 79-1 and Article 670
Major changes in 2021

MODULE 2: MODERN MACHINE TOOL ELECTRICAL EQUIPMENT
NFPA 79 compared to NFPA 70, 70B and NEC
Evolution of machinery and NFPA 79

MODULE 3: DEFINITIONS
NFPA official definitions
Determination of ordinarily accepted meaning
Referencing terms

MODULE 4: GENERAL REQUIREMENTS AND OPERATING CONDITIONS
Electrical supply voltage
Continuous allowed variation
Limits for temperature, humidity, and altitude

MODULE 5: DISCONNECTING MEANS
Machine supply circuit conductor and termination requirements
Machine supply circuit disconnecting device requirements
Handle requirements

MODULE 6: PROTECTION FROM ELECTRICAL HAZARDS
Basic Protection
Fault Protection
PELV control panels
Residual voltage

MODULE 7: PROTECTION OF EQUIPMENT AND GROUNDING
Overcurrent protection of control devices and equipment
Fuse and wire sizing
Equipment grounding

MODULE 8: CONTROL CIRCUITS AND CONTROL FUNCTIONS, OPERATOR INTERFACE AND CONTROL DEVICES
Control circuit and control function requirements
Operating device arrangement and color
Control panel arrangement

DAY TWO

MODULE 9: CONTROL EQUIPMENT LOCATION, MOUNTING AND ENCLOSURES
Enclosure construction compliance
Subpanel mounting
Cabinet working space depths and prohibitions

MODULE 10: CONDUCTORS, CABLES, AND FLEXIBLE CORDS

Sizing
Correction factors
Protection

MODULE 11: WIRING PRACTICES

Color codes
Material and sizing of rigid metal conduit

MODULE 12: ELECTRIC MOTORS

Motor Installation
Motor Protection

MODULE 13: LIGHTING AND ACCESSORIES

Accessory requirements
Lighting installation and protection

MODULE 14: MARKING AND SAFETY SIGNS

Required Marking
Safety Sign Placement

MODULE 15: TECHNICAL DOCUMENTATION

Documentation Types
Required Documentation

MODULE 16: TESTING AND VERIFICATION

Types of testing
Testing requirements

MODULE 17: SERVO DRIVES AND MOTORS

Protection for Servo Drives and Motors

MODULE 18: QUESTIONS, REVIEW & ANSWERS

Delivery Method

Available Instructor-led On-Site or Virtual Live Instructor-led.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

2 Days