



Maintenance & Reliability Management

# Motor Protection, Control & Maintenance

## Course Introduction

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Motor protection, control, and maintenance are essential for ensuring the safe and efficient operation of electric motors in industrial and commercial applications. Proper motor protection helps prevent costly breakdowns, extends the life of the equipment, and enhances overall system reliability. Control systems, including motor starters and variable frequency drives (VFDs), are critical for regulating motor operations, while preventive maintenance ensures that motors continue to run efficiently over time.

This training program covers the fundamentals of motor protection, control, and maintenance, including how to select and configure protection devices, diagnose faults, and perform routine maintenance tasks. Participants will also learn how to troubleshoot and repair motor control systems effectively, ensuring optimal performance.

## Target Audience

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This course is designed for maintenance engineers, technicians, and managers responsible for the protection, control, and maintenance of electric motors in industrial settings.

# Learning Objectives

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- Understand the importance of motor protection and control in preventing system failures.
- Learn how to select and configure protection devices for various types of motors.
- Gain knowledge of different motor control systems and how they work.
- Understand the preventive maintenance procedures required to extend motor life.
- Learn troubleshooting and repair techniques for motor protection and control systems.

## Course Outline

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### • 01 DAY ONE

#### Introduction to Motor Protection and Control

- Overview of motor protection and control systems
- Importance of motor protection for preventing damage and downtime
- Types of motors commonly used in industrial applications
- Key components of motor protection systems (fuses, circuit breakers, relays, etc.)
- Understanding motor control circuits and their functions
- Basic principles of overcurrent, short-circuit, and overload protection
- Safety standards and regulations in motor protection and control

### • 02 DAY TWO

#### Motor Control Systems and Components

- Different types of motor control systems (DOL, star-delta, VFD, etc.)
- Components of motor control systems (contactors, relays, starters)
- How motor starters protect motors during startup and shutdown
- Understanding variable frequency drives (VFDs) for motor speed control
- The role of sensors in motor control and protection
- Integration of motor control systems into overall electrical systems

### • 03 DAY THREE

#### Motor Protection Devices and Techniques

- Overview of motor protection devices (thermal overload, phase failure, etc.)

- How to select the appropriate protection devices for different motors
- Setting up and adjusting protection devices based on motor ratings
- The role of protective relays in motor protection
- Fault detection techniques and how to identify motor issues
- Calibration and testing of protection devices

#### • 04 DAY FOUR

##### Preventive Maintenance for Motors

- The importance of preventive maintenance in motor longevity
- Regular inspections and checks to ensure proper motor function
- Cleaning, lubrication, and cooling of motors
- Monitoring motor performance parameters (voltage, current, vibration, etc.)
- Identifying early signs of motor failure and taking corrective actions
- Developing and implementing a motor maintenance schedule
- Tools and techniques for diagnosing motor issues during maintenance

#### • 05 DAY FIVE

##### Troubleshooting and Repairing Motor Control Systems

- Common motor control system faults and their causes
- Step-by-step troubleshooting techniques for motor control systems
- How to diagnose and fix electrical faults (e.g., open circuits, short circuits)
- Using testing equipment (multimeter, insulation tester, etc.) for motor control troubleshooting
- Techniques for repairing and replacing faulty components
- How to verify that repairs restore motor control system functionality
- Best practices for motor system testing after repairs and replacements

## Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 16, 2025	June 20, 2025	5 days	4250.00 \$	UAE - Dubai
Dec. 22, 2025	Dec. 26, 2025	5 days	4250.00 \$	UAE - Dubai

