



Content
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Motor Control Training

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://www.electricityforum.com/onsite-training-rfq>

The purpose of this motor control training course is to educate both new or experienced industrial electricians and motor technicians who are responsible for the installation, maintenance, and repair motor control centers. Students will learn proper motor control maintenance and troubleshooting techniques which will allow them to ensure optimal operation of electric motors while at the same time reducing repair times.

This course is designed to educate industrial, commercial and institutional motor users about the many savings to be gained from optimum motor control, protection, and maintenance.

Electric motors consume almost 50 per cent of all electricity and in industry, that percentage increases to about 70 per cent. Optimum motor control affects plant production, energy savings, and motor replacement costs.

Students will have an opportunity to ask specific questions and exchange ideas relating to their own unique situations. This motor control training course is designed to be an interactive, problem-solving, learning environment for delegates of all disciplines.

This motor control training course provides the basic information required to safely operate

and maintain low and medium voltage motors and controls. At the conclusion of the course, students will understand the basics of electric motor control maintenance procedures.

WHO SHOULD ATTEND

- Engineering and design personnel
- Maintenance and technical services personnel
- Process and operations personnel
- Technical and process managers
- Engineering and design personnel
- Electrical consulting engineers
- Electrical contractors

STUDENTS RECEIVE

- This Course Includes Our Latest Electric Motor And VFD Handbook Volume!! (Value \$20)
- **\$100 Coupon** Toward Any Future Electricity Forum Event (Restrictions Apply)
- 1.4 Continuing Education Unit (CEU) Credits
- **FREE** Magazine Subscription (Value \$50.00)
- Course Materials In Paper Format

Related Courses

[Electric Motor Training,](#)

[Motor Testing Training,](#)

[Variable Frequency Drive Basics,](#)

[VFD Training](#)

[Motors, Drives and Automation Systems](#)

COURSE OUTLINE

Motor Control Training Course Program Outline

DAY ONE

Session 1: General Motor Control Design and Operation

Basic Motor Control Theory

AC Motors

- Induction
- Synchronous
- Wound Rotor
- DC Motors

Power System Effects on Motors

- Voltage

- Frequency
- Harmonics

Application of Motor Loads

- Variable Torque
- Constant Torque
- Constant Horsepower

High Efficiency Motors

- Cost vs. Energy Saving Analysis
- Inrush Characteristics
- kVA Code

Power Factor Correction

- What is power factor?
- Methods to improve it

Session 2: Motor Control Techniques

Symbology and Terminology

- Basic Symbols
- The Power Circuit
- The Control Circuit

Starting Methods

- Full Voltage
- Reduced Voltage
- Wye-Delta
- Soft Starting
- Vacuum Contactors

Stopping Methods

- Dynamic Braking
- Plugging
- Mechanical Braking

Speed Control

- Separate Winding
- Consequent Pole
- Wound Rotor
- Mechanical
- Variable Voltage
- Variable Frequency

VFD Effects on Motor Performance

- Reflected wave phenomena
- Grounding
- Shaft Currents
- Insulation Failure

Session 3: Motor Protection

Induction Motor Characteristics

- Insulation Systems
- Temperature Limits
- Service Factor
- Thermal Limit Curves
- Vendor Motor Data

Short Circuit Protection

- Fuses
- Circuit Breaker
- MCP

Overload Protection

- Overload Relay

Thermal Protection

- RTD
- Thermistor

Solid State Motor Protection Relay

- Advantages
- Enhanced Protection
- Application Examples
- Relay Setting

DAY ONE

Session 4: Motor Failure Analysis

Electrical Failures

- Insulation Failure
- Thermal Heating
- Harmonic Heating
- Improper Grounding

Mechanical Failures

- Bearing Failures
- Belt Alignment
- Shaft Alignment

Load Related Failures

- Application Abuse
- Overloading

Session 5: Motor Testing Methods

Insulation Life Overview

Testing methods

- Insulation Resistance
- Polarization Index
- DC Hipot
- DC Ramp Test
- AC Hipot
- Capacitance test
- Dissipation Factor
- Partial Discharge
- Surge Test
- Mechanical Testing
- On-line Testing

Session 6: Motor Maintenance Practices

Electrical Maintenance

- Cooling Components
- Periodic Testing
- Load Check
- Temperature

Mechanical Maintenance

- Mechanically Intact
- Vibration
- Cleaning
- Belts/ Couplings
- Guards

COURSE TIMETABLE

Both days:

Start: 8:00 a.m.

Coffee Break: 10:00 a.m.

Lunch: 12:00 noon

Restart: 1:15 p.m.

Finish: 4:30 p.m.

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