MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

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ELECTRIC MOTOR DRIVE CONTROLS FOR INDUSTRIAL APPLICATIONS

"Optimizing Performance, Efficiency, and Reliability of Industrial Motor Drive Systems"

Schedule

Date	Venue	Fees (Face-to-Face)
07 – 11 Sep 2026	Dubai, UAE	USD 3495 per delegate
06 – 10 Dec 2026	Doha, Qatar	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

Electric motor drive systems are at the heart of industrial operations, driving pumps, compressors, conveyors, fans, and a wide range of process equipment. Efficient control of electric motors is essential for improving productivity, reducing energy consumption, and ensuring reliable plant operation.

This intensive 5-day training provides participants with in-depth knowledge of electric motor drive control systems used in industrial applications. The course covers motor fundamentals, drive technologies, control methods, installation practices, protection schemes, troubleshooting, and maintenance strategies, enabling participants to effectively select, operate, and maintain motor drive systems in accordance with international best practices.

Objectives

By the end of this course, participants will be able to:

- Understand principles of electric motors and motor drive systems
- Explain operating characteristics of AC and DC motor drives
- Select appropriate motor drives for industrial applications
- Apply motor control techniques for speed, torque, and position control
- Interpret drive control diagrams and parameters
- Identify common drive and motor faults and apply troubleshooting methods
- Improve energy efficiency, reliability, and safety of motor-driven systems

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Why Attend

- Gain comprehensive understanding of industrial motor drive controls
- Learn practical techniques for drive selection and application
- Reduce motor and drive failures and downtime
- Improve energy efficiency and operational performance
- Enhance troubleshooting and maintenance capabilities
- Strengthen technical competence in industrial drive systems

Target Audience

This program is designed for:

- Electrical and power engineers
- Maintenance and reliability engineers
- Electrical technicians and supervisors
- Automation and control engineers
- Plant operations and facilities engineers
- Professionals involved in motor-driven industrial systems

Individual Benefits

Key competencies that will be developed include:

- In-depth knowledge of electric motor and drive technologies
- Ability to configure and control motor drive systems
- Improved fault diagnosis and troubleshooting skills
- Enhanced understanding of energy-efficient motor operation
- Greater awareness of protection, safety, and standards
- Professional development in motor control and drives

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved reliability and performance of motor-driven equipment
- Reduced energy consumption and operating costs
- Minimized downtime and maintenance-related failures
- Enhanced safety and compliance with international standards
- Optimized motor and drive lifecycle management
- Improved operational efficiency and productivity

Instructional Methodology

The course follows a blended learning approach combining theory with practical application:

- Technical Briefings – Motor theory, drive technologies, and control principles
- Case Studies – Real-world industrial motor drive applications and failures
- Workshops – Drive configuration, parameter setting, and fault analysis
- Peer Exchange – Group discussions on operational challenges and solutions
- Tools – Drive selection guides, configuration checklists, and troubleshooting templates

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Course Outline

Detailed 5-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM Daily Format: 3–4 Learning Modules Coffee Breaks: 09:30 & 11:15 Lunch Buffet: 01:00 – 02:00

Day 1: Electric Motor Fundamentals and Industrial Applications

Module 1: Overview of Electric Motors (07:30 – 09:30)

- Role of motors in industrial processes
- AC and DC motor types and characteristics
- Motor ratings, efficiency classes, and standards

Module 2: Motor Operating Principles

- Torque–speed characteristics
- Starting methods and load considerations
- Thermal behavior and insulation classes

Module 3: Industrial Applications of Motors

- Pumps, fans, compressors, conveyors
- Duty cycles and load profiles
- Motor selection criteria

Day 2: Motor Drive Technologies and Control Methods

Module 1: Introduction to Motor Drives

- Purpose and benefits of motor drives
- AC vs. DC drives
- Variable Frequency Drives (VFDs) overview

Module 2: Control Methods for AC Drives

- V/f control
- Vector control and direct torque control
- Speed and torque regulation

Module 3: Drive Components and Architecture

- Power electronics and converters
- Control circuits and feedback devices
- Cooling and protection systems

Day 3: Drive Selection, Installation, and Commissioning

Module 1: Drive Selection and Sizing

- Load characteristics and drive sizing
- Environmental and application considerations
- Harmonics and power quality issues

Module 2: Installation Best Practices

- Wiring, grounding, and shielding
- EMC considerations
- Safety and compliance requirements

Module 3: Commissioning and Parameter Setting

- Basic and advanced drive parameters
- Startup and functional testing
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Performance verification

Day 4: Protection, Maintenance, and Troubleshooting

Module 1: Protection of Motors and Drives

- Electrical and thermal protection
- Overload, short-circuit, and earth fault protection
- Coordination with upstream protection

Module 2: Maintenance Strategies

- Preventive and predictive maintenance
- Condition monitoring techniques
- Maintenance documentation

Module 3: Troubleshooting Motor Drive Systems

- Common faults and alarms
- Diagnostic tools and techniques
- Root cause analysis

Day 5: Energy Efficiency, Reliability, and Optimization

Module 1: Energy Efficiency and Optimization

- Energy-efficient motor and drive operation
- Load optimization and energy savings
- Performance monitoring

Module 2: Reliability and Lifecycle Management

- Improving system reliability
- Spare parts and obsolescence management
- Upgrading and retrofitting drives

Module 3: Best Practices and Course Review

- Lessons learned from industrial applications
- Key takeaways and action planning
- Final discussion and wrap-up

Certification

Participants will receive a Certificate of Completion in Electric Motor Drive Controls for Industrial Applications, validating their advanced knowledge and practical competence in motor drive selection, control, maintenance, and optimization for industrial environments.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**