MAWA EVENTS

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

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POWER TRANSMISSION & DISTRIBUTION AUTOMATION

"Enhancing Electrical Network Efficiency Through Automation and Smart Technologies"

Schedule

Date	Venue	Fees (Face-to-Face)
06 – 10 Dec 2026	Riyadh, KSA	USD 3,495 per delegate

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

Introduction

The power transmission and distribution sector is evolving rapidly with the integration of automation technologies, smart grids, and intelligent control systems. This 5-day intensive training equips participants with the knowledge and practical skills required to implement, operate, and optimize automated transmission and distribution networks, enhancing efficiency, reliability, and safety.

Through a combination of lectures, case studies, and hands-on workshops, participants will gain insights into advanced automation techniques, communication protocols, protection systems, and smart grid applications. The course prepares professionals to manage modern electrical networks effectively, ensuring optimal performance and compliance with international standards.

Objectives

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

- Understand the fundamentals of power transmission and distribution automation.
- Apply automation technologies and smart grid solutions for electrical networks.
- Configure and operate automated protection and control systems.
- Optimize energy distribution and improve network reliability.
- Integrate monitoring, communication, and control systems for network efficiency.

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Why Attend

- Gain practical knowledge of power system automation and smart grids.
- Learn techniques to enhance network reliability and operational efficiency.
- Understand international standards and best practices in power transmission and distribution.
- Acquire hands-on experience with protection, control, and monitoring systems.
- Network with industry experts and peers in electrical engineering and automation.

Target Audience

This program is designed for:

- Electrical engineers and technicians in power utilities
- Operations and maintenance managers
- Smart grid and automation specialists
- Protection and control engineers
- Professionals responsible for power transmission and distribution systems

Individual Benefits

Key competencies that will be developed include:

- Knowledge of transmission and distribution automation systems
- Ability to operate and configure protective relays and control systems
- Skills in implementing smart grid and monitoring solutions
- Understanding of network optimization and reliability improvement techniques
- Proficiency in integrating communication protocols and automation technologies

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved network reliability, efficiency, and safety
- Optimized power distribution and automated operations
- Enhanced operational monitoring and control capabilities
- Compliance with international electrical standards and best practices
- Strengthened organizational expertise in modern power systems

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – Overview of transmission and distribution automation principles
- Case Studies – Real-world examples of successful network automation projects
- Workshops – Hands-on exercises with protective relays, control devices, and monitoring systems
- Peer Exchange – Group discussions on challenges and lessons learned in power automation
- Tools – Templates and guides for network monitoring, optimization, and automation implementation

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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: Fundamentals of Power Transmission & Distribution

Module 1: Overview of Electrical Networks (07:30 – 09:30)

- Transmission and distribution system components
- Network configurations and operational principles
- Introduction to automation technologies

Module 2: Protection and Control Systems (09:45 – 11:15)

- Relay protection principles and devices
- Control systems and automation in electrical networks

Module 3: Communication and Monitoring Protocols (11:30 – 01:00)

- SCADA, IEC 61850, and other communication standards
- Real-time monitoring and control techniques

Module 4: Workshop – Basic Automation (02:00 – 03:30)

- Hands-on exercises in protection and control system configuration

Day 2: Advanced Automation Practices

Module 1: Smart Grid Integration (07:30 – 09:30)

- Smart grid concepts and components
- Integration of distributed energy resources

Module 2: Automation in Distribution Networks (09:45 – 11:15)

- Automated switching and fault detection
- Load management and network optimization

Module 3: Data Acquisition and Control (11:30 – 01:00)

- Monitoring network performance using SCADA
- Data analysis for decision making

Module 4: Workshop – Monitoring & Control (02:00 – 03:30)

- Practical exercises in SCADA and automation systems

Day 3: Protection and Reliability

Module 1: Protection Coordination (07:30 – 09:30)

- Overcurrent, distance, and differential protection schemes
- Coordination of protection devices

Module 2: Fault Detection and Isolation (09:45 – 11:15)

- Techniques for rapid fault detection
- Automation for minimizing downtime

Module 3: Reliability Improvement (11:30 – 01:00)

- Methods to enhance network reliability and resilience

Module 4: Workshop – Fault Simulation (02:00 – 03:30)

- Hands-on exercises in fault detection and protection

Day 4: Network Optimization and Automation Tools

Module 1: Load Flow Analysis (07:30 – 09:30)

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Techniques for power flow analysis and optimization

- Balancing generation and demand

Module 2: Advanced Automation Tools (09:45 – 11:15)

- Software tools for network monitoring and automation
- Decision support for network operators

Module 3: Case Studies in Optimization (11:30 – 01:00)

- Real-world examples of network efficiency improvement

Module 4: Workshop – Optimization Tools (02:00 – 03:30)

- Hands-on exercises in network analysis and optimization

Day 5: Practical Application and Review

Module 1: Integration and Testing (07:30 – 09:30)

- Integrating automation systems into operational networks
- Testing and commissioning procedures

Module 2: Performance Monitoring & KPI Evaluation (09:45 – 11:15)

- Evaluating key performance indicators
- Continuous improvement strategies

Module 3: Review and Certification Preparation (11:30 – 01:00)

- Consolidation of learning points
- Practical scenarios and discussion

Module 4: Workshop and Q&A (02:00 – 03:30)

- Final hands-on exercises and knowledge consolidation
- Feedback and course wrap-up

Certification

Participants will receive a Certificate of Completion in Power Transmission & Distribution Automation, validating their expertise in electrical network automation, monitoring, protection, and smart grid integration for efficient and reliable operations.

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**