MAWA EVENTS

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

Phone: +601116373203 | **Email:** info@mawaevents.net

ELECTRICAL GROUNDING SYSTEMS & HAZARDOUS AREA CLASSIFICATIONS

"Ensuring Safety and Compliance in Electrical Installations and Hazardous Environments"

Schedule

Date	Venue	Fees
02 – 06 Aug 2026	Doha, Qatar	USD 3495 per delegate

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

Introduction

This 5-day intensive course is designed to provide professionals with a thorough understanding of electrical grounding systems and the classification of hazardous areas. Participants will gain valuable knowledge about grounding techniques and how to ensure safe electrical installations in potentially explosive environments. The course covers the standards, principles, and best practices for grounding systems and provides insights into the proper classification of hazardous areas to prevent accidents and enhance workplace safety.

Through practical examples, case studies, and hands-on exercises, participants will also learn about national and international codes, such as NEC (National Electrical Code), IEC (International Electrotechnical Commission), and other relevant standards, ensuring that they are equipped to meet regulatory requirements in their organizations.

Objectives

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

- Understand the importance of electrical grounding and its role in safety
- Learn the principles of hazardous area classification and its application
- Identify and apply international codes and standards for grounding and hazardous areas
- Assess and design electrical grounding systems for various types of installations
- Classify hazardous areas and apply appropriate protection methods in accordance with standards

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Why Attend

- Gain specialized knowledge in electrical grounding systems and hazardous area classifications
- Learn about the most current safety standards and codes to ensure compliance
- Improve your skills in designing and assessing grounding systems in industrial and commercial settings
- Gain hands-on experience with real-world electrical installations and hazardous area scenarios
- Enhance your understanding of electrical safety and risk mitigation in hazardous environments

Target Audience

This program is designed for:

- Electrical engineers and technicians
- Safety officers and safety engineers
- Professionals working in hazardous area management and industrial safety
- Maintenance managers and personnel responsible for electrical systems
- Project managers and consultants working in construction or plant operations

Individual Benefits

Key competencies that will be developed include:

- In-depth knowledge of electrical grounding systems and design principles
- Expertise in hazardous area classification and selection of protection techniques
- Ability to apply international standards and regulations in electrical systems design
- Enhanced ability to manage electrical safety and risk assessments in hazardous areas
- Practical skills for assessing, troubleshooting, and implementing grounding and classification systems

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved safety and compliance in electrical installations and hazardous areas
- Ability to design and implement effective grounding systems and hazard mitigation strategies
- Increased awareness of international standards and best practices in electrical safety
- Strengthened ability to ensure safe working environments and prevent electrical accidents
- Enhanced organizational resilience in dealing with electrical hazards and emergency situations

Instructional Methodology

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

- Strategy Briefings – Comprehensive overview of electrical grounding systems, hazardous area classifications, and related safety standards
- Case Studies – Real-world examples of grounding system failures and hazardous area accidents
- Workshops – Practical exercises to design and assess grounding systems and hazardous area classification plans
- Peer Exchange – Group discussions on challenges and solutions in electrical grounding and safety systems
- Tools – Templates and checklists for grounding system design, hazardous area classification, and safety audits

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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: Introduction to Electrical Grounding and Safety Standards

- Module 1: Importance of Electrical Grounding (07:30 – 09:30)
- Overview of electrical grounding systems and their role in safety
- Key principles of grounding in electrical systems
- National and international codes for grounding design
- Module 2: Grounding System Components (09:45 – 11:15)
- Key components of grounding systems: conductors, electrodes, and connections
- Types of grounding systems: TN, TT, IT, and more
- Selection criteria for grounding system components
- Module 3: Grounding Techniques for Industrial Installations (11:30 – 01:00)
- Grounding systems for power plants, substations, and industrial equipment
- Practical examples of grounding installation and maintenance
- Troubleshooting common grounding system issues

Day 2: Hazardous Area Classification Fundamentals

- Module 1: Introduction to Hazardous Area Classification (07:30 – 09:30)
- Understanding hazardous areas and the risks they present
- The principles of area classification according to NEC and IEC standards
- Types of hazardous areas: gas, dust, and hybrid environments
- Module 2: Zone Classification and Protection Techniques (09:45 – 11:15)
- Classification of hazardous areas by zones: Zone 0, Zone 1, Zone 2
- Selection of appropriate protection methods: Ex d, Ex e, Ex i, etc.
- Case studies of hazardous area incidents and lessons learned
- Module 3: Electrical Equipment in Hazardous Areas (11:30 – 01:00)
- Choosing electrical equipment suitable for hazardous environments
- Requirements for explosion-proof and flameproof enclosures
- Installation and maintenance of electrical equipment in hazardous areas

Day 3: Codes, Standards, and Best Practices

- Module 1: National Electrical Code (NEC) for Grounding and Hazardous Areas (07:30 – 09:30)
- Key sections of NEC that apply to grounding and hazardous areas
- How to interpret and apply NEC standards in real-world scenarios
- Compliance and inspection requirements for electrical installations
- Module 2: International Electrotechnical Commission (IEC) Standards (09:45 – 11:15)
- Overview of IEC standards for electrical installations and hazardous area classification
- Comparison between IEC and NEC standards
- Compliance and certification processes for hazardous area equipment
- Module 3: Best Practices in Grounding and Safety (11:30 – 01:00)
- Implementing best practices in grounding and hazardous area classification
- Risk assessment techniques for electrical installations
- Creating and maintaining safety documentation for electrical systems

Day 4: Advanced Grounding System Design and Hazardous Area Management

- Module 1: Advanced Grounding System Design (07:30 – 09:30)
- Complex grounding systems for large industrial sites and high-voltage applications
- Grounding design for critical electrical infrastructure
- Managing soil resistivity and ground impedance
- Module 2: Hazardous Area Risk Management (09:45 – 11:15)
- Risk management strategies for hazardous areas
- Identifying and mitigating risks associated with electrical installations in hazardous environments
- Emergency preparedness and response plans
- Module 3: Case Study on Grounding and Hazardous Area Failure (11:30 – 01:00)
- Real-world case study of grounding system failure in hazardous areas
- Lessons learned from past incidents
- Mitigation strategies and safety improvements

Day 5: Final Review and Certification

- Module 1: Group Workshop on Grounding and Hazardous Area Classification (07:30 – 09:30)
- Hands-on exercise to design grounding systems and classify hazardous areas
- Group discussions on best practices and common challenges
- Module 2: Review of Key Concepts (09:45 – 11:15)
- Recap of key topics covered throughout the training
- Final Q&A session to address any remaining questions
- Module 3: Certification and Closing (11:30 – 01:00)
- Distribution of certificates
- Course feedback and evaluation

Certification

Upon successful completion of the course, participants will receive a Certificate of Completion in Electrical Grounding Systems & Hazardous Area Classifications, demonstrating their expertise in electrical safety and their ability to design and manage grounding systems and hazardous area classifications according to international standards.

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.
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