

# ADVANCED STRATEGIES ON HV/MV CIRCUIT BREAKERS & SWITCHGEARS MAINTENANCE

*“Enhancing Reliability, Safety, and Performance of High & Medium Voltage Power Systems”*

## Schedule

Date	Venue	Fees (Online)
24 - 25 Jun 2026	Online	USD 700 per delegate

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

## Introduction

High Voltage (HV) and Medium Voltage (MV) circuit breakers and switchgears are critical components in power systems, ensuring safe operation, fault isolation, and system reliability. Improper maintenance or delayed fault detection can lead to catastrophic failures, extended downtime, and safety hazards.

This intensive 2-day online training provides participants with advanced technical knowledge and practical maintenance strategies for HV/MV circuit breakers and switchgears. The program focuses on modern maintenance practices, diagnostics, failure analysis, and condition-based monitoring to improve system performance, safety, and asset life-cycle management.

## Objectives

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

- Understand construction and operating principles of HV/MV circuit breakers and switchgears
- Apply advanced preventive and predictive maintenance strategies
- Identify common faults, failure modes, and deterioration mechanisms
- Perform condition assessment and diagnostic testing
- Interpret test results for informed maintenance decisions
- Enhance safety practices and compliance with international standards
- Optimize asset reliability and operational efficiency

## Why Attend

- Gain advanced technical insights into HV/MV switching equipment
- Learn best practices for maintenance and condition monitoring
- Reduce unplanned outages and equipment failures
- Improve personnel safety and system reliability
- Understand international standards and manufacturer recommendations
- Enhance troubleshooting and root cause analysis skills

## Target Audience

This program is designed for:

- Electrical engineers and power system engineers
- Maintenance and reliability engineers
- Electrical technicians and supervisors
- Power plant, substation, and utility personnel
- Industrial facilities and operations engineers
- Asset management and technical support professionals

## Individual Benefits

Key competencies that will be developed include:

- Advanced understanding of HV/MV circuit breaker technologies
- Ability to diagnose faults and abnormal operating conditions
- Skills in condition-based and reliability-centered maintenance
- Improved technical decision-making for maintenance planning
- Enhanced safety awareness and compliance knowledge
- Professional development in power system maintenance

## Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved reliability and availability of HV/MV assets
- Reduced maintenance costs and emergency repairs
- Extended service life of circuit breakers and switchgears
- Enhanced operational safety and regulatory compliance
- Better asset performance monitoring and reporting
- Improved maintenance planning and risk mitigation

## Instructional Methodology

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

- Technical Briefings - Detailed explanation of HV/MV circuit breaker and switchgear technologies
- Case Studies - Real-world failures, lessons learned, and best practices
- Maintenance Workshops - Maintenance planning, diagnostics, and testing techniques
- Peer Exchange - Interactive discussions on operational challenges and solutions
- Tools - Maintenance checklists, test procedures, and condition assessment templates

## Course Outline

Detailed 2-Day Course Outline

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

Day 1: Fundamentals and Maintenance of HV/MV Circuit Breakers

Module 1: Overview of HV/MV Circuit Breakers (07:30 – 09:30)

- Types of HV/MV circuit breakers (SF<sub>6</sub>, Vacuum, Air, Oil)
- Construction and operating principles
- Applications in power systems

Module 2: Circuit Breaker Components & Failure Modes

- Contacts, arc quenching systems, operating mechanisms
- Common defects and deterioration mechanisms
- Failure statistics and root causes

Module 3: Maintenance Strategies for Circuit Breakers

- Preventive vs. predictive maintenance
- Timing tests, contact resistance, insulation testing
- Condition-based maintenance approaches

Day 2: Switchgears, Diagnostics, and Advanced Practices

Module 1: MV & HV Switchgears – Design and Operation

- Switchgear classifications and configurations
- Protection, control, and interlocking systems
- Safety requirements and standards

Module 2: Diagnostics, Testing & Condition Monitoring

- Partial discharge measurement
- Thermography and online monitoring
- Interpretation of test results

Module 3: Best Practices, Safety & Lifecycle Management

- Maintenance planning and documentation
- Safety procedures and risk assessment
- Asset lifecycle optimization and modernization

## Certification

Participants will receive a Certificate of Completion in Advanced HV/MV Circuit Breakers & Switchgears Maintenance, validating their technical knowledge and practical understanding of maintenance strategies, diagnostics, and reliability enhancement for high and medium voltage power systems.

## Why Choose MAWA Events

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