JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

MV & HV Gas-Insulated Switchgear Maintenance Training Course

14 – 18 November 2027
Muscat

MV & HV Gas-Insulated Switchgear Maintenance Training Course

Ref: 1300_48829 **Date:** 14 – 18 November 2027 **Location:** Muscat **Fees:** 6500 GBP

MV & HV Gas-Insulated Switchgear Maintenance is a 1-week training course for electrical engineers, technicians and substation supervisors who look after enclosed, gas-filled switchgear bays, with a GIS maintenance schedule as the work product. Utilities, refineries and data centres now rely on compact gas-insulated bays where a single gas leak or internal flashover can isolate a whole busbar section. The course is led by Jupiter Prime Training.

Why MV & HV Gas-Insulated Switchgear Maintenance Matters Now

Three forces shape the subject. Owners are installing gas-insulated bays in tight urban substations and process plants, so more crews meet sealed compartments they cannot inspect by eye. Environmental pressure on insulating gas emissions makes every leak a reportable loss. Original equipment makers stretch service intervals, leaving owners to decide what to check between overhauls. Sites that monitor gas density, partial discharge and mechanism timing avoid forced outages; sites that wait for alarms face long repairs and lost supply. The course rests on EN 13306 for maintenance terminology and ISO 55001 for asset management.

Who Gains Most from MV & HV Gas-Insulated Switchgear Maintenance

- Engineers responsible for substation availability and outage requests
- Technicians who perform gas handling, density checks and mechanism servicing
- Supervisors who authorise switching, isolation and earthing of bays
- Asset owners who decide on refurbishment or replacement of ageing panels
- Commissioning staff who accept new gas-insulated bays from contractors

A substation crew gains most when its engineers, technicians and switching supervisors attend together and agree one routine for each bay.

MV & HV Gas-Insulated Switchgear Maintenance Capabilities

Participants practise reading the signals a sealed bay gives off and turning them into dated inspection and test tasks.

- Compare air-insulated, gas-insulated and hybrid switchgear designs — bay replacement choices
- Apply safe switching, isolation and earthing sequences on gas-insulated bays — switching authorisations
- Test gas density, moisture and purity readings — leak repair priorities
- Assess partial discharge and mechanism timing results — outage planning
- Specify gas handling and recovery steps — environmental reporting
- Build a GIS maintenance schedule — substation supervisors and asset owners

Key MV & HV Gas-Insulated Switchgear Maintenance Terms

- Gas-Insulated Switchgear GIS — switchgear whose live parts sit in sealed metal compartments filled with insulating gas instead of open air.
- Gas Density Monitor — a temperature-compensated gauge that warns when insulating gas in a compartment falls below safe levels.
- Partial Discharge — small electrical sparks inside insulation that do not bridge the gap but signal developing defects.
- Mechanism Timing Test — a measurement of opening and closing times of a breaker to confirm the operating mechanism performs correctly.
- Gas Handling Cart — equipment that evacuates, filters, stores and refills insulating gas during maintenance.
- Interlocking — mechanical or electrical locks that prevent unsafe switching sequences, such as earthing a live conductor.

MV & HV Gas-Insulated Switchgear Maintenance Day by Day

Day 1: Gas-Insulated Bays in the Network

- Air-Insulated Versus Gas-Insulated Designs — Footprint, Access and Risk
- GIS Bay Layout and Gas Compartments — Isolating Sections for Work
- Medium and High Voltage Ratings — Selecting the Right Test Levels
- EN 13306 and ISO 55001 Concepts — Maintenance Language for Substations
- Substation Walkdown Checklists — Visual and Gauge Readings per Bay

Day 2: Safe Switching and Isolation

- Switching Programmes and Sequence Sheets — Authorising Bay Operations
- Interlocking Schemes and Key Exchange — Preventing Unsafe Operations
- Isolation and Earthing of Gas-Insulated Bays — Safe Access to Compartments
- Arc Flash Hazard Awareness — Personal Protection and Boundaries
- Permit and Sanction for Test Procedures — Control of Live Testing

Day 3: Insulating Gas Care

- Gas Density Monitoring and Alarm Stages — Leak Response Decisions
- Moisture, Purity and Decomposition Product Tests — Gas Quality Verdicts
- Leak Detection Methods — Locating Flange and Seal Losses
- Gas Handling Carts and Recovery — Preventing Emissions During Work
- Gas Inventory Records — Tracking Top-Ups and Losses

Day 4: Testing and Condition Monitoring

- Partial Discharge Measurement by UHF and Acoustic Sensors — Defect Detection
- Mechanism Timing and Travel Curves — Breaker Health Verdicts
- Contact Resistance and Insulation Resistance Tests — Joint and Insulation Condition
- Infrared Scans of Cable Terminations — Hot Joint Detection
- Fault Diagnosis From Alarms and Trip Records — Root Cause of Bay Failures

Day 5: Practising the GIS Maintenance Schedule

- Walkdown and Gas Readings Applied — Case Substation Condition Profile
- Partial Discharge and Timing Results Applied — Ranking Bays by Risk
- Switching and Isolation Plan for an Outage — Safe Work Window
- Refurbish or Replace Decision for an Ageing Panel — Lifecycle View
- GIS Maintenance Schedule — Inspection, Test and Diagnosis Tasks per Bay

Applying MV & HV Gas-Insulated Switchgear Maintenance After the Course

- Lead a gas density and leak review of every compartment in one substation and set repair priorities.
- Compare mechanism timing records across breakers of one type and flag any drifting units for the next outage.

MV & HV Gas-Insulated Switchgear Maintenance Questions FAQ

What is MV & HV Gas-Insulated Switchgear Maintenance and why does it matter now?

It is the inspection, testing and gas care that keep sealed switchgear bays reliable. It matters now because more substations use gas-insulated bays and insulating gas leaks carry environmental and outage costs.

Which roles gain most from MV & HV Gas-Insulated Switchgear Maintenance?

Substation engineers, maintenance technicians and switching supervisors gain most. Asset owners and commissioning staff also benefit when they plan refurbishment or accept new bays.

How does MV & HV Gas-Insulated Switchgear Maintenance differ from a general circuit breaker maintenance course?

It centres on sealed gas-filled bays. A general breaker course covers open and air-insulated equipment, while this course adds gas density, gas handling, partial discharge sensing and isolation of compartments.

What do you bring back from MV & HV Gas-Insulated Switchgear Maintenance?

You bring back a bay-by-bay schedule. It lists walkdown checks, gas tests, partial discharge and timing measurements and the fault diagnosis steps for each bay type.

MV & HV Gas-Insulated Switchgear Maintenance: The Way Forward

The GIS maintenance schedule turns gauge readings and test results into dated tasks for each bay. Its first decision is which compartments need leak repair or partial discharge follow-up at the next outage. Substation supervisors and technicians use it to book outages and gas handling equipment. After one cycle, it is worth reviewing whether online sensors could replace some manual checks.