High Voltage Operational Safety for Engineers and Technicians Training Course

6 – 10 June 2027
Johannesburg

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Ref: 1346_199489 **Date:** 6 – 10 June 2027 **Location:** Johannesburg **Fees:** 6000 Euro

Overview

High Voltage Operational Safety for Engineers and Technicians Training Course is a one-week advanced course for personnel responsible for high-voltage systems who leave with a High Voltage Operational Safety Plan. Participants apply high voltage operational safety controls to switching, isolation, permits, shock and arc-flash risk, proving dead, earthing, restoration, and emergencies. The course turns safe-work principles into repeatable field decisions for industrial and utility environments. Agile Leaders Training Center presents high-voltage operations through risk-based preparation, execution, verification, and learning.

Who Should Attend

- Functions responsible for operating high-voltage switchgear and networks
- Teams responsible for electrical maintenance and testing
- Personnel authorized to plan or execute switching
- Supervisors responsible for permits, isolations, and work control
- Safety functions responsible for electrical-risk assurance

The course assumes participants already work with electrical operating procedures and leaves out equipment design, protection-system engineering, live-line techniques, and professional certification.

Departments and Industries

The course supports departments and industries that operate, maintain, or oversee high-voltage assets.

- Power generation, transmission, and distribution operations
- Oil, gas, petrochemical, and process facilities
- Manufacturing, mining, and heavy industry
- Transport, utilities, and infrastructure services
- Electrical maintenance, engineering, and operational safety functions

Learning Objectives

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

- Analyze high-voltage shock and arc-flash risk
- Apply permit-to-work and switching controls
- Use isolation, lockout/tagout, and proving-dead methods
- Evaluate earthing, PPE, tools, and approach boundaries
- Diagnose unsafe restoration and emergency conditions

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- Build a High Voltage Operational Safety Plan

Course Agenda

Day 1: High-Voltage Risk Foundations

- High-Voltage Hazard Recognition Map
- Shock and Arc-Flash Risk Assessment Method
- Qualified-Person Task Authorization Matrix
- Electrical Approach Boundary Review
- High-Voltage Operational Safety Control Hierarchy

Day 2: Work Control and Switching

- Permit-to-Work Control Workflow
- Switching Schedule Preparation Method
- Single-Line Diagram Verification Checklist
- Operational Communication and Read-Back Protocol
- Abnormal Switching Decision Matrix

Day 3: Isolation and Safe Work

- Electrical Isolation Point Register
- Lockout/Tagout Application Sequence
- Prove-Test-Prove Absence-of-Voltage Method
- Temporary Earthing and Grounding Plan
- Arc-Rated PPE and Insulated Tool Selection Guide

Day 4: Restoration and Incident Control

- Controlled Restoration Readiness Checklist
- Stored and Induced Energy Verification Method
- High-Voltage Emergency Response Roles
- Electrical Incident Scene-Control Protocol
- Incident Cause and Learning Review

Day 5: Operational Safety Practice

- Exercise: High-Voltage Risk Assessment Scenario
- Exercise: Permit and Switching Schedule Review
- Exercise: Isolation and Proving-Dead Simulation
- Exercise: Restoration and Emergency Decision Drill
- Capstone Exercise: High Voltage Operational Safety Plan

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Practical Exercises

The course uses suggested activities from power, process, manufacturing, and infrastructure operations.

- Suggested activity: analyze a switchgear task and define shock, arc-flash, boundary, and PPE controls.
- Suggested activity: prepare and challenge a switching schedule, permit, and communication sequence.
- Suggested activity: verify isolation points, lockout/tagout, absence of voltage, and temporary earthing.
- Suggested activity: control restoration after an emergency and convert incident findings into operating actions.

FAQs

What is high voltage operational safety?

High voltage operational safety is the disciplined control of electrical hazards during switching, isolation, work, testing, restoration, and emergencies through authorization, planning, communication, verification, protective equipment, and operational records.

Who suits high voltage operational safety training, and what does it assume?

High voltage operational safety training suits engineers, technicians, switching personnel, maintenance supervisors, and safety professionals who already use electrical procedures and need advanced operational-control practice.

How does high voltage operational safety differ from electrical design training?

High voltage operational safety concentrates on risk control, permits, switching, isolation, proving dead, earthing, PPE, restoration, and emergency decisions; electrical design training concentrates on system specification, calculations, protection, and equipment selection.

How does safe high-voltage switching reduce operational risk?

Safe high-voltage switching reduces risk by defining equipment states, checking diagrams and interlocks, controlling authorization, using read-back communication, verifying isolation, and preventing unintended energization before work or restoration.

Conclusion

The course connects high-voltage risk assessment with permits, switching, isolation, proving dead, earthing, PPE, restoration, and emergency control. Participants take back a High Voltage Operational Safety Plan with roles, decision points, checklists, and verification records. The plan changes how teams prepare, execute, challenge, and learn from high-voltage operations.