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COURSE BROCHURE

# Switchgear Specification Review and Selection Training Course

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Registered in the United Kingdom and Saudi Arabia

# Switchgear Specification Review and Selection Training Course

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Switchgear Specification Review and Selection is a 1-week training course for electrical engineers who define, compare and approve switchgear for new and extended installations, and it produces a switchgear specification review that tests every rating, interlock and enclosure choice before purchase. Growing fault levels, denser loads and stricter arc protection expectations make each selection decision harder to reverse once equipment is ordered. Jupiter Prime Training delivers this switchgear specification review and selection course.

## Why Switchgear Specification Review and Selection Matters Now

Three pressures shape switchgear selection today. Network owners are adding generation and storage close to loads, raising prospective fault current at older boards. Operators and insurers expect internal arc containment and safe operating positions, so enclosure classification and pressure relief now carry as much weight as current rating. Procurement teams also want fewer panel variants and longer service intervals across each site. Good specification buys equipment that clears faults, protects staff and accepts extension; poor specification brings derating, retrofits and long outages.

## Who Gains Most from Switchgear Specification Review and Selection

- Engineers who write equipment data sheets and technical schedules
- Engineers who check supplier offers and deviation lists against the purchaser's requirements
- Engineers who calculate fault levels at each busbar section
- Engineers who approve interlocking schemes, earthing switches and operating sequences
- Engineers who plan board extensions, replacements and spare panel allowances

Project engineering groups gain most when those who write and check the specification attend together.

## Switchgear Specification Review and Selection Capabilities

Participants turn ratings tables, single-line drawings and supplier offers into choices defensible at bid evaluation.

- Calculate prospective fault current and select making and breaking capacity — the breaker rating approved for each board
- Specify busbar current, short-time withstand and temperature rise limits — the panel arrangement offered to suppliers
- Weigh vacuum, gas-insulated and air-insulated interruption options — the technology choice for the site and its climate
- Assess internal arc classification and pressure relief routes — the room layout and operator safety case
- Design mechanical and electrical interlock sequences — the switching procedure written for operators
- Test supplier deviation lists against the purchaser's schedule — the bid evaluation and clarification log

## Key Switchgear Specification Review and Selection Terms

- Rated short-time withstand current — the fault current a board and its busbars carry for a stated time undamaged.
- Breaking capacity — the highest fault current a circuit breaker can interrupt.
- Making capacity — the peak current a switching device can close onto safely when a fault already exists.
- Internal arc classification — a tested rating describing how an enclosure protects people at defined sides during an internal fault.
- Form of separation — the way barriers divide busbars, functional units and terminals inside a low voltage assembly.
- Transient recovery voltage — the voltage that appears across breaker contacts immediately after current interruption.

## Switchgear Specification Review and Selection Day by Day

### Day 1: Switchgear Types, Duties and Ratings

- Metal-Enclosed and Metal-Clad Construction — Matching Board Type to Duty
- Rated Voltage, Insulation Level and Frequency — Setting Board Ratings Correctly
- Single-Line Diagram Reading — Locating Incomers, Couplers and Feeders
- Normal Current and Temperature Rise Limits — Sizing Panels for Load Growth
- Service Conditions and Altitude Derating — Adjusting Ratings for Site Climate

### Day 2: Fault Levels and Circuit Breaker Interruption

- Prospective Fault Current Calculation — Fixing Breaking Capacity at Each Board
- Vacuum and Gas Interruption Principles — Choosing Interrupter Technology for Duty
- Transient Recovery Voltage Review — Confirming Breaker Suitability for Capacitive Switching
- Making Capacity and Peak Withstand — Protecting Equipment During Fault Closure
- Operating Mechanism and Endurance Classes — Planning Maintenance Intervals and Spares

## Day 3: Busbars, Compartments and Arc Containment

- Busbar Sizing and Short-Time Withstand — Securing Mechanical Strength Under Fault
- Forms of Separation in Low Voltage Assemblies — Enabling Safe Partial Shutdown
- Internal Arc Classification Ratings — Defining Accessible Sides and Room Layout
- Pressure Relief Ducts and Absorbers — Routing Arc Gases Away from Operators
- Arc Detection and Fast Tripping Schemes — Reducing Incident Energy at Boards

## Day 4: Interlocks, Earthing and Application Choices

- Mechanical and Key Interlock Schemes — Preventing Unsafe Switching Sequences
- Earthing Switches and Voltage Indication — Proving Dead Before Access
- Withdrawable Versus Fixed Breaker Designs — Balancing Downtime Against Cost
- Instrument Transformer and Relay Space Allocation — Fitting Protection Into Panels
- Gas-Insulated Versus Air-Insulated Selection — Weighing Footprint, Environment and Lifecycle

## Day 5: Practising the Specification Review

- Technical Schedule and Data Sheet Drafting — Applying Day One Ratings
- Supplier Offer Comparison Matrix — Scoring Bids Against Fault Level Findings
- Deviation List Clarification — Resolving Gaps in Arc and Interlock Requirements
- Factory Acceptance Test Witness Plan — Confirming Ratings Before Dispatch
- Switchgear Specification Review Document — Completing the Purchase Recommendation

## Applying Switchgear Specification Review and Selection After the Course

- Re-check the fault level and breaking capacity of one existing board against recent network additions.
- Lead a deviation review of the next switchgear offer using the comparison matrix and interlock checklist practised on the course.

## Switchgear Specification Review and Selection Questions FAQ

### What is switchgear specification review and selection, and why does it matter now?

It is the disciplined checking of ratings, interruption duty, busbars, interlocks and arc containment before switchgear is bought. It matters now because rising fault levels and higher arc protection expectations make a poor choice expensive to correct after installation.

### Which roles gain most from switchgear specification review and selection?

Electrical engineers who write data sheets, check supplier offers, calculate fault levels or approve interlocking gain most. Utility and oil and gas engineers apply the same steps.

## How does switchgear specification review and selection differ from a switchgear maintenance course?

This course works before purchase, on ratings, technology and enclosure choices. A maintenance or safe switching course works on equipment already in service.

## What do you bring back from switchgear specification review and selection?

You bring back a completed review of a switchgear specification, with fault level checks, a bid comparison matrix, a deviation log and a witness test plan.

## Switchgear Specification Review and Selection: The Way Forward

The switchgear specification review first informs whether a supplier offer can be accepted, clarified or rejected. Project engineers use it at bid evaluation, and asset engineers use it again when boards are extended. After its first use, revisit the fault level assumptions, because network changes can push boards beyond their rated breaking capacity.