JUPITER PRIME
Consulting • Training • Advisory
جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

# Power Station Electrical Installation and Maintenance Training Course

22 – 26 March 2027
Munich

# Power Station Electrical Installation and Maintenance Training Course

**Ref:** 3216_122346 **Date:** 22 – 26 March 2027 **Location:** Munich **Fees:** 6200 GBP

Power Station Electrical Installation and Maintenance is a 1-week training course for power plant engineers, maintenance supervisors and project engineers, and each participant builds a station maintenance and installation checklist. Stations now run longer between outages beside ageing plant, so electrical faults cost more output. Jupiter Prime Training presents Power Station Electrical Installation and Maintenance.

## Why Power Station Electrical Installation and Maintenance Matters Now

Three forces shape station electrical work today. Frequent unit cycling ages switchgear, cables and motor windings faster than steady running. Owners extend older stations while adding new units, so installation and maintenance crews share boards and outage windows, while retiring staff take station knowledge with them. A station that installs and maintains its electrical plant well keeps auxiliaries running through grid disturbances; one that does not suffers trips and unsafe switching. The course rests on recognised engineering practice for earthing, insulation testing, protection testing and safe isolation.

## Who Gains Most from Power Station Electrical Installation and Maintenance

- Engineers responsible for the auxiliary power system, unit transformers and station switchboards
- Supervisors who plan electrical maintenance work and allocate crews during unit outages
- Project engineers who oversee electrical installation contractors on new units and retrofits
- Commissioning staff who energise new equipment and hand it over to operations
- Reliability staff who track electrical failures and set inspection intervals

A station electrical department gains most when its installation, commissioning and maintenance engineers attend together.

## Power Station Electrical Installation and Maintenance Capabilities

Participants follow electrical plant from cable tray to energised switchboard and its first maintenance cycle.

- Assess the station auxiliary single-line diagram for supply redundancy and transfer arrangements — outage planning
- Specify cable routing, segregation and earthing for new station circuits — installation contractors
- Apply pre-energisation tests to transformers, switchgear and motors — commissioning handover
- Design condition-based inspection intervals for station electrical assets — maintenance budget holders
- Build safe isolation and permit sequences for electrical work — shift operations
- Communicate defect findings and repair priorities clearly — station management

## Key Power Station Electrical Installation and Maintenance Terms

- Unit auxiliary transformer — the transformer fed from the generator terminals that supplies the station loads of that unit while it runs.
- Station service board — a switchboard distributing power to pumps, fans, mills and other auxiliaries of a unit.
- Fast bus transfer — automatic changeover of an auxiliary board to a standby supply fast enough to keep motors running.
- Insulation resistance test — a direct voltage measurement of resistance between conductors and earth that reveals moisture or ageing.
- Earthing grid — the buried network of conductors that limits touch and step voltages and carries fault current.
- Punch list — the record of incomplete or defective installation items closed before acceptance.

## Power Station Electrical Installation and Maintenance Day by Day

## Day 1: Station Layout and Electrical Systems

- Generator, Step-Up and Unit Transformer Arrangement — Choice of Auxiliary Supply Routes
- Station Single-Line Diagram Reading — Redundancy of Medium and Low Voltage Boards
- Essential and Emergency Supplies — Black Start and Safe Shutdown Needs
- Direct Current Batteries and Chargers — Protection and Control Supply Security
- Station Earthing and Lightning Protection — Personnel Safety Across the Site

## Day 2: Installation of Station Electrical Plant

- Cable Tray Routing and Segregation — Fire Spread and Interference Between Circuits
- Cable Pulling, Jointing and Termination — Long-Term Joint Reliability
- Switchgear and Motor Control Centre Erection — Alignment and Access Clearances
- Transformer Placement, Oil Handling and Bunding — Environmental and Fire Exposure
- Installation Inspection Records and Punch Lists — Contractor Acceptance Decisions

## Day 3: Testing and Commissioning

- Insulation Resistance and Polarisation Index Tests — Readiness to Energise
- Transformer Ratio, Winding Resistance and Vector Group Checks — Connection Errors
- Protection Relay Secondary Injection — Correct Trip and Alarm Response
- Motor Run Checks and Direction of Rotation — Driven Equipment Protection
- Energisation Sequence and Handover Certificate — Transfer of Ownership to Operations

## Day 4: Planned Maintenance of Electrical Assets

- Thermographic Surveys of Boards and Connections — Hot Joint Repair Priority
- Circuit Breaker Timing and Contact Resistance — Overhaul or Replace Choice
- Transformer Oil Sampling and Dissolved Gas Trends — Internal Fault Warning
- Motor Winding and Bearing Condition Monitoring — Rewind Planning
- Safe Isolation, Locking and Permit to Work — Electrical Work Authorisation

## Day 5: Practising the Station Maintenance and Installation Checklist

- Auxiliary Supply Transfer Walk-Through — Applying Day 1 Redundancy Review
- Installation Audit of a Sample Circuit — Applying Day 2 Inspection Records
- Commissioning Test Sheet Review — Applying Day 3 Acceptance Criteria
- Outage Work Package Ranking — Applying Day 4 Condition Findings
- Station Maintenance and Installation Checklist — Completed for the Home Station

## Applying Power Station Electrical Installation and Maintenance After the Course

- Lead a thermographic and insulation resistance survey of one auxiliary board and rank the defects for the next outage.
- Run a punch list review with the installation contractor on a current retrofit before equipment is energised.

## Power Station Electrical Installation and Maintenance Questions FAQ

### What is Power Station Electrical Installation and Maintenance and why does it matter now?

It is the work of erecting, testing and keeping in service the electrical plant that runs a generating station. It matters now because units cycle more, older stations run longer and experienced staff are leaving, so faults cost more output.

### Which roles gain most from Power Station Electrical Installation and Maintenance training?

Station electrical engineers, maintenance supervisors, project engineers and commissioning staff gain most. You benefit if you plan outages, oversee contractors or set inspection intervals.

## How does Power Station Electrical Installation and Maintenance differ from a power system protection course?

It covers the whole life of station electrical plant rather than relay settings alone. A protection course studies coordination across the network, while this course follows installation, testing and maintenance inside the station.

## What do you bring back from Power Station Electrical Installation and Maintenance?

You bring back a checklist that covers installation inspection, commissioning tests and planned maintenance for your own station.

## Power Station Electrical Installation and Maintenance: The Way Forward

The station maintenance and installation checklist first informs which electrical defects enter the next outage work package. Maintenance supervisors use it to brief crews, project engineers use it to accept contractor work, and commissioning staff use it before energisation. After its first outage, revisit inspection intervals and test limits against what crews found on the boards and motors.