JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Solar Photovoltaic Plant Preventive and Corrective Maintenance Training Course

18 – 22 January 2027
Madrid

Solar Photovoltaic Plant Preventive and Corrective Maintenance Training Course

Ref: 3259_124143 **Date:** 18 – 22 January 2027 **Location:** Madrid **Fees:** 6200 GBP

Solar Photovoltaic Plant Preventive and Corrective Maintenance is a 1-week training course for solar operations and maintenance technicians and maintenance engineers, built around a photovoltaic plant maintenance schedule and fault response log. As plants age, soiling, connector wear and inverter faults erode yield. Jupiter Prime Training links solar photovoltaic plant preventive and corrective maintenance to the way modules, strings, inverters and trackers actually fail.

Why Solar Photovoltaic Plant Preventive and Corrective Maintenance Matters Now

Three pressures shape upkeep on solar plants today. Many early plants now show module degradation, backsheet cracking and inverter wear together. Availability clauses turn lost kilowatt-hours into contract disputes. Monitoring platforms now produce string-level alarms faster than crews can visit them, which forces choices about what to fix first. Disciplined routines protect yield and warranties; reacting only to breakdowns costs output and call-outs.

Who Gains Most from Solar Photovoltaic Plant Preventive and Corrective Maintenance

- Field technicians who clean modules, tighten terminations and replace failed components on site
- Maintenance engineers who plan routines, investigate recurring faults and approve spare part orders
- Monitoring room staff who read string and inverter alarms and dispatch crews
- Tracker and mechanical specialists who keep drives, bearings and controllers in alignment

An operations and maintenance contractor that sends technicians and engineers from the same plant gains most, since diagnosis and repair pass between both groups.

Solar Photovoltaic Plant Preventive and Corrective Maintenance Capabilities

Participants link each component to its failure signs and the routine that corrects them.

- Test strings with current-voltage curve tracing and interpret mismatch, shading and resistance signatures — engineers deciding replacements
- Apply thermographic inspection to modules, combiners and connections — technicians prioritising hot spots
- Calculate soiling losses against water and labour use — plant managers setting cleaning cycles
- Diagnose inverter faults from event codes, insulation readings and fan or filter condition — crews choosing repair or swap
- Build tracker inspection routines for drives, dampers and angle sensors — mechanical specialists planning shutdowns
- Assess performance ratio and availability trends to locate losses — owners and operators reviewing contract performance

Key Solar Photovoltaic Plant Preventive and Corrective Maintenance Terms

- Current-voltage curve — a plot of current against voltage for a string, revealing shading, cell damage or wiring resistance.
- Hot spot — a local area of a module running hotter than its neighbours, often caused by cell cracks or bypass diode failure.
- Soiling loss — the drop in energy output caused by dust, sand or other deposits on module glass.
- Performance ratio — measured energy divided by the energy expected from irradiance, independent of plant size.
- Insulation resistance — a test value showing how well conductors are isolated from earth, used to locate leakage.
- Corrective maintenance — repair or replacement carried out after a fault, alarm or inspection finding.

Solar Photovoltaic Plant Preventive and Corrective Maintenance Day by Day

Day 1: How Photovoltaic Plant Components Work and Fail

- Cell, Module and Bypass Diode Behaviour — Recognising Degradation Mechanisms
- String and Combiner Configuration — Tracing Where Losses Accumulate
- Central and String Inverter Architecture — Locating Common Failure Points
- Single-Axis Tracker Drives and Controllers — Mechanical Wear Patterns
- Failure Mode Records From Desert and Coastal Plants — Setting Inspection Focus

Day 2: Preventive Maintenance Routines

- Visual Inspection Checklists for Modules and Mounting — Defect Classification
- Torque Checks on Terminations and Connectors — Preventing Resistive Heating
- Module Cleaning Methods and Water Quality — Choosing Frequency and Technique
- Vegetation and Drainage Control Around Arrays — Reducing Shading and Erosion
- Inverter Filter, Fan and Cooling Upkeep — Extending Power Electronics Life

Day 3: Diagnostic Testing

- Current-Voltage Curve Tracing Procedure and Irradiance Correction — Comparing Strings Fairly
- Thermographic Inspection by Handheld and Drone Camera — Ranking Hot Spots
- Insulation Resistance and Earth Leakage Tests — Finding Damaged Cable Runs
- Electroluminescence Imaging for Cracked Cells — Supporting Warranty Claims
- Inverter Event Code Interpretation — Separating Grid, Internal and String Faults

Day 4: Corrective Action and Performance Losses

- Fault Triage From Monitoring Alarms — Ordering Crew Visits by Lost Yield
- Module, Connector and Fuse Replacement Practice — Restoring String Output
- Inverter Repair or Swap Decisions — Balancing Downtime and Spare Stock
- Performance Ratio and Availability Calculation — Quantifying Plant Losses
- Spare Parts Criticality Ranking — Stocking Components for Fast Recovery

Day 5: Practising the Photovoltaic Plant Maintenance Schedule and Fault Log

- Underperforming String Case — Applying Day 3 Test Methods
- Soiling Loss Versus Cleaning Cost Exercise — Applying Day 2 Routines
- Inverter Trip Investigation — Applying Day 4 Triage and Repair Choices
- Annual Inspection Calendar Drafting — Aligning Tasks With Weather Seasons
- Photovoltaic Plant Maintenance Schedule and Fault Response Log — Final Version and Peer Review

Applying Solar Photovoltaic Plant Preventive and Corrective Maintenance After the Course

- Run current-voltage curve tracing on the ten lowest-yield strings and record the signature behind each loss.
- Compare the current cleaning cycle with measured soiling losses and propose a revised frequency to the plant manager.

Solar Photovoltaic Plant Preventive and Corrective Maintenance Questions FAQ

What is solar photovoltaic plant preventive and corrective maintenance and why does it matter now?

It is the planned upkeep and fault repair that keeps modules, inverters and trackers producing. It matters now because ageing plants show more wear, contracts penalise lost availability and monitoring raises more alarms than crews can chase.

Which roles gain most from solar photovoltaic plant preventive and corrective maintenance training?

Field technicians and maintenance engineers gain most. Monitoring and tracker staff also benefit, turning alarms and test results into repairs.

How does solar photovoltaic plant preventive and corrective maintenance differ from solar plant design training?

It concentrates on plants already in service. Rather than sizing arrays, you study how installed equipment fails, which tests reveal it and which repair restores output.

What do you bring back from solar photovoltaic plant preventive and corrective maintenance training?

You bring back a working upkeep and fault record for your plant. It sets inspection, cleaning and test intervals and how each alarm type is closed.

Solar Photovoltaic Plant Preventive and Corrective Maintenance: The Way Forward

The photovoltaic plant maintenance schedule and fault response log first decides which strings, inverters and trackers receive attention in the coming month. Technicians, engineers and monitoring staff work from it daily, and owners see its loss figures. After its first season, revisit cleaning intervals and spare stock levels against the yield actually recovered.