JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Remote Telemetry and SCADA Maintenance Training Course

21 – 25 March 2027
Muscat

jupiterprime.uk

info@jupiterprime.uk

Registered in the United Kingdom and Saudi Arabia

Remote Telemetry and SCADA Maintenance Training Course

Ref: 1756_64454 **Date:** 21 – 25 March 2027 **Location:** Muscat **Fees:** 6500 GBP

Remote Telemetry and SCADA Maintenance is a 1-week training course for instrumentation and control technicians and automation engineers who keep dispersed outstations, radio and cellular links and supervisory servers running, and who leave with a telemetry outstation maintenance plan for their own network. Pumping stations, wellheads and substations now depend on unattended sites reporting reliably. Jupiter Prime Training delivers this course on remote telemetry and SCADA maintenance.

Why Remote Telemetry and SCADA Maintenance Matters Now

Three forces shape remote telemetry and SCADA maintenance today. Water and pipeline operators are adding hundreds of unmanned outstations, each a small control room with no one on site. Ageing radio networks are being replaced by cellular and fibre links that behave differently under fault. Operations staff expect live data around the clock, so a silent outstation quickly becomes a missed leak or an unplanned trip. The course rests on IEC 61131-3 for controller languages and the IEC 62443 series for industrial security.

Who Gains Most from Remote Telemetry and SCADA Maintenance

- Field technicians responsible for commissioning and repairing remote terminal units and programmable logic controllers at outstations
- Telemetry engineers responsible for radio, cellular and fibre links between sites and the control centre
- SCADA support staff responsible for servers, historians and operator displays
- Instrument specialists responsible for transmitters, analysers and flow meters feeding outstation inputs
- Maintenance planners responsible for scheduling site visits and spares across a dispersed network

A utility or pipeline maintenance group gains most when its field, communications and control-centre members attend together and agree one fault-handling route.

Remote Telemetry and SCADA Maintenance Capabilities

Participants trace a value from field sensor to operator screen, finding where it can be lost or delayed.

- Diagnose outstation input, output and power faults from local and remote evidence — first-visit repair decisions
- Test radio and cellular link budgets and polling performance — communications upgrade choices
- Apply controller backup, version control and change records — site engineering leads
- Assess SCADA server, historian and time-stamp health — control-centre supervisors
- Specify preventive routines and spares for unmanned sites — maintenance planners

- Build an escalation route for communication failures — operations and on-call engineers

Key Remote Telemetry and SCADA Maintenance Terms

- Remote Terminal Unit RTU — a rugged field controller that gathers site signals, runs simple logic and reports to a master station over a link.
- Polling — the master station requesting data from each outstation in turn, setting how fresh the displayed values are.
- Report by Exception — an outstation sending data only when a value changes beyond a set deadband, saving link capacity.
- Link Budget — the calculation of transmitter power, antenna gain and path losses that shows whether a radio link has enough margin.
- Sequence of Events — time-stamped records of state changes captured at the outstation, used to rebuild the order of a trip.
- Store and Forward — buffering data at the outstation during a link outage and sending it once communication returns.

Remote Telemetry and SCADA Maintenance Day by Day

Day 1: Dispersed Network Architecture

- Master Station, Outstation and Link Layers — Fault Boundary Ownership
- RTU Versus PLC at Unmanned Sites — Hardware Selection for Repairs
- Utility and Pipeline Outstation Examples — Criticality of Each Site
- Polling Versus Report by Exception — Data Freshness Expectations
- Site Power, Solar and Battery Backup — Outage Survival Time

Day 2: Outstation Hardware and Logic

- Input and Output Card Testing — Signal Loss Root Causes
- IEC 61131-3 Logic Inspection — Safe Online Change Limits
- Controller Backup and Version Records — Restore After Failure
- Sensor Loop Checks at Outstations — Instrument Versus Controller Faults
- Surge, Earthing and Enclosure Condition — Lightning and Heat Damage Prevention

Day 3: Communication Links and Protocols

- Licensed Radio Link Budget Checks — Antenna and Path Margin
- Cellular and Fibre Backhaul Diagnostics — Carrier Versus Site Fault
- Telemetry Protocol Frame Analysis — Polling Timeout Diagnosis
- Store and Forward Buffering — Data Gap Recovery After Outages
- IEC 62443 Zones and Conduits for Links — Remote Access Hardening

Day 4: Master Station and Data Integrity

- SCADA Server Redundancy Tests — Failover Readiness
- Historian Gaps and Time Synchronisation — Sequence of Events Accuracy
- Alarm Floods from Communication Loss — Operator Display Filtering
- Patch and Antivirus Routines for SCADA Hosts — Downtime Windows
- Telemetry Performance Indicators — Availability and Truck Roll Trends

Day 5: Practising the Outstation Maintenance Plan

- Fault Tree for a Silent Outstation — Applying Day 1 to Day 3 Methods
- Preventive Visit Routines and Checklists — Site Interval Setting
- Spares and Swap-Unit Strategy — Mean Time to Restore
- Communication Failure Escalation Route — On-Call Responsibilities
- Telemetry Outstation Maintenance Plan — Network-Wide Priorities and Schedule

Applying Remote Telemetry and SCADA Maintenance After the Course

- Run a link budget and polling review on the five weakest outstations.
- Audit controller backups and version records across all sites and close any missing restore files.

Remote Telemetry and SCADA Maintenance Questions FAQ

What is remote telemetry and SCADA maintenance and why does it matter now?

It is the upkeep of outstations, links and supervisory servers that report unmanned sites to a control centre. It matters now because networks are growing, radio is being replaced by cellular and fibre, and operators expect continuous data from every site.

Which roles gain most from remote telemetry and SCADA maintenance training?

Field technicians, telemetry engineers and SCADA support staff gain most. Instrument specialists and maintenance planners also benefit, since many outstation faults start in a sensor loop.

How does remote telemetry and SCADA maintenance differ from a general PLC and SCADA course?

It focuses on keeping dispersed, unmanned sites alive rather than designing plant automation. It covers link budgets, outstation repair, data gaps and planning for remote sites.

What do you bring back from remote telemetry and SCADA maintenance training?

You bring back a maintenance plan for your outstation network. It sets visit routines, spares, escalation for link failures and priorities for the weakest sites.

Remote Telemetry and SCADA Maintenance: The Way Forward

The telemetry outstation maintenance plan first informs which sites receive the next round of preventive visits and link upgrades. Field and control-centre staff use it to share one view of risk. After its first quarter in use, revisit the restore times and data gaps it recorded to decide whether polling or report by exception suits each site.