JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Control Technician Field Skills and Loop Fault Finding Training Course

1 – 5 November 2027
Madrid

Control Technician Field Skills and Loop Fault Finding Training Course

Ref: 2966_112443 **Date:** 1 – 5 November 2027 **Location:** Madrid **Fees:** 6200 GBP

Control Technician Field Skills and Loop Fault Finding is a 1-week training course for instrument and control technicians who keep measurement and control loops healthy on running plant, ending with a loop fault-finding checklist. Fewer experienced technicians now cover more loops, so slow or unsafe diagnosis costs production and raises risk. Jupiter Prime Training delivers this course on control technician field skills.

Why Control Technician Field Skills Matter Now

Three pressures shape field control work today. Experienced technicians are retiring, and newer staff inherit loops whose drawings and history are incomplete. Smart transmitters and networked controllers add diagnostic data, yet a technician still has to prove a fault with a meter at the junction box. Operations teams expect faults to be cleared without tripping the unit, which puts safe isolation and permit discipline at the centre of every intervention. Sites that build these skills restore loops quickly; others suffer nuisance trips, spurious alarms and hazardous shortcuts.

Who Gains Most from Control Technician Field Skills

- Technicians who respond to loop faults reported by control room operators
- Staff who calibrate transmitters, switches and analysers against reference instruments
- Technicians who stroke, adjust and set up control valves and actuators
- Staff who check controller input and output cards during maintenance and commissioning
- Technicians who prepare isolations and permits before opening live instrument circuits

A maintenance shift crew gains most when several of its instrument technicians attend.

Control Technician Field Skills Capabilities

Participants move from a reported symptom to a proven cause.

- Interpret loop drawings and instrument data sheets — locating the faulty element quickly
- Calibrate pressure, level, flow and temperature transmitters — measurement trust for operators
- Test control valve stroke, positioner response and fail action — process stability
- Check controller input and output channels with simulated signals — commissioning sign-off
- Apply safe isolation and permit steps on live circuits — personal and plant safety
- Build a structured fault-finding sequence — faster restoration with fewer repeat callouts

Key Control Technician Field Skills Terms

- Loop drawing — A diagram showing every device, terminal and cable in one measurement or control loop.
- Four to twenty milliamp signal — The current range that carries a measured value between field device and controller.
- Calibration error — The difference between an instrument's reading and a reference value at a given point.
- Final control element — The device, usually a valve, that physically changes the process in response to the controller.
- Positioner — A device on a valve actuator that drives the valve to the position the controller signal requests.
- Safe isolation — The steps that remove and lock out energy before a circuit or device is worked on.

Control Technician Field Skills Day by Day

Day 1: Measurement Principles and Loop Documents

- Pressure, Level, Flow and Temperature Sensing — Choosing the Right Test Point
- Loop Drawings and Terminal Schedules — Tracing Signals from Field to Controller
- Instrument Data Sheets — Range, Units and Expected Output Values
- Piping and Instrument Diagrams — Locating Devices Within the Process
- Signal Types and Wiring Practice — Current, Voltage and Switch Contacts

Day 2: Calibration on Site and at the Bench

- Reference Instruments and Test Equipment — Fitness for the Required Accuracy
- Five Point Calibration Checks — As Found and As Left Records
- Differential Pressure Level and Flow Setups — Zero and Span Effects
- Temperature Element and Transmitter Checks — Sensor Versus Electronics Faults
- Handheld Communicators and Device Diagnostics — Configuration Before Replacement

Day 3: Final Control Elements

- Control Valve Construction and Trim — Matching Faults to Symptoms
- Actuator Types and Fail Action — Safe Position on Signal Loss
- Positioner Setup and Stroke Testing — Linearity, Deadband and Response
- Variable Speed Drive Control Signals — Motor Speed as Final Element
- Valve Sticking and Hunting Patterns — Mechanical Versus Tuning Causes

Day 4: Controller Signals, Alarms and Isolation

- Programmable Controller Input and Output Cards — Channel Checks with Simulated Signals
- Analogue Scaling and Signal Forcing Rules — Avoiding Unintended Plant Movement
- Alarm Settings and Trip Functions — Separating Process Upsets from Instrument Faults
- Permit to Work and Lock-Off Steps — Opening Live Instrument Circuits Safely
- Bypass and Override Control — Authorisation and Restoration Records

Day 5: Practising Loop Fault Finding

- Half Split Diagnosis on a Sample Loop — Narrowing the Fault Location
- Combined Calibration and Valve Test Exercise — Confirming the Repaired Loop
- Fault Report and Maintenance Record Writing — Evidence for Recurring Problems
- Handover to Operations After Repair — Returning the Loop to Automatic
- Loop Fault-Finding Checklist — Final Version for Shift Use

Applying Control Technician Field Skills After the Course

- Run the fault-finding sequence on the three loops with the most callouts last quarter and record the root cause of each.
- Audit as found and as left calibration records for one unit and correct gaps in reference instrument traceability.

Control Technician Field Skills Questions FAQ

What are control technician field skills and why do they matter now?

They are the practical abilities to measure, calibrate, test and repair control loops on running plant. They matter now because experienced technicians are leaving, loops are more connected and operations expect faults to be cleared without shutdowns.

Which roles gain most from control technician field skills training?

Instrument and control technicians in maintenance, shutdown and commissioning roles gain most. Electricians moving into instrument work also benefit.

How does control technician field skills training differ from a control system engineering course?

It focuses on hands-on diagnosis and repair at the loop level. An engineering course covers control strategy, tuning theory and system design, while this one keeps to measurement, calibration, valves, signal checks and safe isolation.

What do you bring back from control technician field skills training?

You bring back a repeatable way to locate and confirm loop faults safely. You also return with a fault-finding checklist your shift can adopt and refine on its own plant.

Control Technician Field Skills: The Way Forward

The loop fault-finding checklist first informs how the next reported loop fault is approached at the junction box. Shift technicians use it to choose test points, confirm isolation and record what they find. After its first month in use, revisit which steps technicians skip or repeat, since those reveal where drawings, spares or calibration intervals need attention.