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COURSE BROCHURE

Advanced Gas Handling and Faults Rectification Training Course

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Registered in the United Kingdom and Saudi Arabia

Advanced Gas Handling and Faults Rectification Training Course

Gas Handling and Faults Rectification is a 2-week training course for gas plant operators, maintenance engineers and process supervisors who build a fault rectification casebook for their compression, dehydration and metering trains. Ageing gas plants, leaner shift crews and tighter flaring limits mean a fault left to recur now costs throughput, emissions and trust. Jupiter Prime Training delivers this course on gas handling and faults rectification.

Why Gas Handling and Faults Rectification Matters Now

Three pressures shape gas handling today: compressors and glycol units running well past their original design life, fewer experienced technicians on each shift, and closer scrutiny of flaring, venting and fugitive releases by owners and communities. A plant that traces faults to their cause restores capacity quickly and stops repeat trips; a plant that only resets alarms sees the same surge event, hydrate blockage or meter drift return. The course rests on Failure Mode and Effects Analysis FMEA, which ranks how equipment can fail, and Root Cause Analysis RCA, which traces a failure back to the condition that allowed it, applied to gas processing plants and to fuel gas systems in power generation.

Who Gains Most from Gas Handling and Faults Rectification

- Operators who run compressor trains and respond first to trips and alarms
- Engineers who diagnose mechanical, process and instrument faults on gas equipment
- Supervisors who decide when to isolate, bypass or restart a unit
- Technicians who maintain valves, seals, analysers and flow meters
- Specialists who own reliability records and repeat-failure reports

The strongest results come when an operations shift and its maintenance counterparts attend together, so field symptoms and workshop findings are joined into one diagnostic routine.

Gas Handling and Faults Rectification Capabilities

Participants move from reading how gas equipment behaves under normal and upset conditions to proving the cause of a fault and specifying a rectification that holds.

- Assess compressor performance curves, surge margin and anti-surge response — restart decisions
- Diagnose glycol dehydration upsets, hydrate formation and water dew point drift — pipeline quality
- Test meter, analyser and transmitter readings against reference checks — custody transfer parties
- Apply FMEA ranking to valves, seals and instruments — maintenance priorities
- Build an RCA timeline with evidence and causal factors — reliability reviews
- Specify rectification and verification steps for recurring faults — plant management

Key Gas Handling and Faults Rectification Terms

- Surge — flow reversal in a centrifugal compressor when discharge pressure exceeds what the machine can deliver at low flow.
- Hydrate — an ice-like solid of water and light hydrocarbons that forms at high pressure and low temperature and blocks lines.
- Water dew point — the temperature at which water vapour in gas starts to condense at a stated pressure.
- Meter factor — the correction applied to a flow meter reading after proving it against a reference.
- Dry gas seal — a non-contacting compressor shaft seal that uses a thin gas film between rotating and stationary faces.
- Causal factor — a human, equipment or process condition which, if removed, would have prevented or reduced the failure.

Gas Handling and Faults Rectification Day by Day

Day 1: Gas Plant Behaviour and Fault Patterns

- Gas Composition and Phase Envelope Reading — Condensation Risk Points
- Process Flow Diagram Walkdown — Fault Propagation Paths
- Alarm and Trip History Mining — Recurring Event Ranking
- Normal Operating Envelope Definition — Deviation Thresholds
- Bad Actor Equipment List — Focus of Rectification Effort

Day 2: Centrifugal Compressor Performance

- Head, Flow and Efficiency Curves — Performance Degradation Detection
- Surge Line and Anti-Surge Valve Response — Control Margin Settings
- Fouling and Washing Indicators — Cleaning Interval Choice
- Lube Oil and Dry Gas Seal Systems — Seal Failure Precursors
- Vibration Spectra and Bearing Temperatures — Shutdown Thresholds

Day 3: Reciprocating Compressors and Drivers

- Pressure-Volume Card Analysis — Valve and Ring Leakage
- Rod Load and Crosshead Pin Reversal — Mechanical Limits
- Capacity Control With Unloaders and Pockets — Load Step Choice
- Gas Turbine and Electric Motor Driver Faults — Trip Classification
- Pulsation and Piping Vibration Surveys — Bracing and Orifice Fixes

Day 4: Dehydration and Hydrate Control

- Glycol Contactor and Regenerator Operation — Dew Point Targets
- Glycol Foaming, Losses and Degradation — Filtration and Reclaim Choices
- Hydrate Prediction Curves — Inhibitor Injection Rates
- Molecular Sieve Bed Cycling — Regeneration Fault Signs
- Hydrate Blockage Recovery Methods — Safe Depressurisation Sequence

Day 5: Separation, Scrubbing and Liquid Handling

- Inlet Separator and Slug Catcher Sizing — Liquid Carryover Causes
- Scrubber Demister Fouling — Compressor Damage Prevention
- Level Control Loop Tuning — Gas Blow-By Risk
- Condensate Stabilisation Upsets — Vapour Pressure Limits
- Produced Water Handling Faults — Discharge Quality Decisions

Day 6: Metering and Analysers

- Ultrasonic and Orifice Meter Diagnostics — Measurement Uncertainty
- Meter Proving and Meter Factor Trends — Allocation Disputes
- Gas Chromatograph Calibration Drift — Calorific Value Accuracy
- Moisture and Hydrogen Sulphide Analysers — Specification Compliance
- Flow Computer Configuration Audits — Custody Transfer Corrections

Day 7: Valves, Instruments and Control Loops

- Control Valve Signature Testing — Stiction and Sizing Faults
- Pressure Safety Valve Chatter and Leakage — Relief Path Integrity
- Transmitter Drift and Impulse Line Blockage — False Reading Detection
- Emergency Shutdown Valve Partial Stroke Tests — Proof of Function
- Control Loop Performance Monitoring — Retuning Priorities

Day 8: Structured Fault Diagnosis

- Symptom-Cause Matrices for Gas Trains — Hypothesis Ranking
- FMEA Worksheets for Critical Equipment — Risk Priority Choices
- Half-Split Troubleshooting Method — Faster Fault Isolation
- Data Historian Trend Overlays — Event Sequence Reconstruction
- Field Verification and Isolation Plans — Safe Testing Access

Day 9: Root Cause Analysis and Rectification

- RCA Timelines and Evidence Preservation — Investigation Scope
- Why-Because and Fault Tree Methods — Causal Factor Proof
- Failed Component Inspection — Metallurgical or Wear Origin
- Rectification Options and Management of Change — Lasting Fix Selection
- Repeat Failure Tracking Indicators — Reliability Reporting

Day 10: Practising the Fault Rectification Casebook

- Compressor Trip Case Diagnosis — Restart Recommendation
- Dehydration Upset Case Resolution — Dew Point Recovery
- Meter Drift Case Correction — Allocation Adjustment Note
- RCA Presentation to Plant Leadership — Corrective Action Approval
- Fault Rectification Casebook Assembly — Shift Handover Reference

Applying Gas Handling and Faults Rectification After the Course

- Run a bad actor review of the top recurring compressor and dehydration trips using the symptom-cause matrix and FMEA ranking from Day 8
- Lead an RCA on the next significant gas handling trip, applying the timeline and why-because method, and report causal factors to the reliability meeting

Gas Handling and Faults Rectification Questions FAQ

What is gas handling and faults rectification, and why does it matter now?

Gas handling and faults rectification is the discipline of diagnosing and permanently fixing faults in compression, dehydration, separation and metering equipment. Older plants and thinner crews make repeat trips more costly, so tracing causes rather than resetting alarms now matters more.

Which roles gain most from gas handling and faults rectification training?

Gas plant operators, maintenance engineers and process supervisors gain most. Operators read symptoms earlier, engineers prove causes with FMEA and RCA, and supervisors make better isolation and restart decisions.

How does gas handling and faults rectification differ from a gas processing design course?

It works on running plant rather than sizing new equipment. Design limits appear only as references for diagnosis; the focus stays on fault patterns, evidence, root causes and rectifications that keep existing trains online.

What do you bring back from gas handling and faults rectification training?

You bring back a fault rectification casebook built from worked cases on compressor trips, dehydration upsets and meter drift, with symptom-cause matrices, RCA timelines and verified corrective actions ready for shift handover.

Gas Handling and Faults Rectification: The Way Forward

The fault rectification casebook first informs the decision on which bad actor equipment receives a lasting fix rather than another reset. Shift operators and maintenance engineers consult it at handover and during trips. After its first use on a live event, the symptom-cause matrices deserve revisiting against what the field evidence actually showed, so the casebook grows with each new fault.