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COURSE BROCHURE

LNG Train Process Technology and Reliability Training Course

29 March – 2 April 2027
New York

LNG Train Process Technology and Reliability Training Course

Ref: 1615_59126 **Date:** 29 March – 2 April 2027 **Location:** New York **Fees:** 9500 GBP

LNG Train Process Technology and Reliability is a 1-week training course for LNG process engineers, control room operators and reliability engineers who keep liquefaction trains running at capacity, and it ends with an LNG Train Availability Improvement Plan for one train. Every lost day of train output is a missed cargo, and ageing plants now compete with newer, more efficient trains for buyers. Jupiter Prime Training delivers LNG Train Process Technology and Reliability for liquefaction plant teams.

Why LNG Train Process Technology and Reliability Matters Now

Three forces shape LNG plant operation today: buyers who expect firm delivery schedules, feed gas that is leaner, richer or more contaminated than design, and pressure to cut fuel use and flaring per tonne produced. A plant that understands its process limits and failure modes runs closer to nameplate and recovers quickly from trips. One that does not suffers freezing in cold sections, compressor trips and long restarts. The course rests on the main liquefaction process families, refrigerant cycle thermodynamics, reliability-centred maintenance RCM and root-cause failure analysis applied to cryogenic plant.

Who Gains Most from LNG Train Process Technology and Reliability

- Process engineers responsible for train performance monitoring and debottlenecking
- Control room operators responsible for start-up, shutdown and steady running
- Reliability engineers responsible for compressor, driver and exchanger availability
- Maintenance planners responsible for turnaround scope and spare parts strategy
- Storage and loading staff responsible for tanks, boil-off handling and jetty transfers

A single train crew gains most when its process engineer, lead operator and reliability engineer attend together and agree one improvement plan.

LNG Train Process Technology and Reliability Capabilities

Participants leave able to trace a production loss from symptom to root cause across pretreatment, refrigeration and storage.

- Assess feed gas pretreatment against contaminant limits — preventing freezing and fouling in cold sections
- Compare liquefaction process families and refrigerant cycles — informing debottleneck options
- Calculate specific power and refrigerant balance — guiding efficiency targets
- Apply reliability-centred maintenance to compressors and drivers — raising train availability
- Specify boil-off and loading controls for storage — protecting cargo schedules
- Build a loss tree from planned and unplanned downtime — serving plant management

Key LNG Train Process Technology and Reliability Terms

- LNG train — one complete liquefaction unit with its own pretreatment, refrigeration and compression, producing LNG independently.
- Mixed refrigerant — a blend of light hydrocarbons and nitrogen whose composition is tuned to match the gas cooling curve.
- Main cryogenic heat exchanger — the large exchanger where natural gas is cooled and condensed against cold refrigerant.
- Specific power — compressor power used per unit of LNG produced, a key measure of liquefaction efficiency.
- Acid gas removal — the pretreatment step that strips carbon dioxide and hydrogen sulphide before cooling.
- Train availability — the share of time a train can produce at rate, reduced by trips, outages and turnarounds.

LNG Train Process Technology and Reliability Day by Day

Day 1: Feed Gas and Pretreatment

- LNG Plant Block Flow — Linking Inlet, Trains, Storage And Jetty
- Feed Gas Composition Changes — Judging Impact On Train Capacity
- Acid Gas Removal Units — Setting Carbon Dioxide Limits
- Dehydration And Mercury Removal — Protecting Cryogenic Equipment
- Heavy Hydrocarbon Removal — Preventing Freeze-Out In Cold Sections

Day 2: Liquefaction Processes and Refrigeration

- Liquefaction Process Families — Cascade, Mixed Refrigerant And Expander Cycles
- Propane Precooling Circuits — Balancing Load Across Stages
- Mixed Refrigerant Composition Control — Matching The Cooling Curve
- Main Cryogenic Heat Exchanger Operation — Avoiding Thermal Stress
- Specific Power And Efficiency Tracking — Setting Performance Targets

Day 3: Machines and Plant Reliability

- Refrigerant Compressors And Gas Turbine Drivers — Reading Health Indicators
- Surge Control And Anti-Surge Valves — Preventing Compressor Trips
- Reliability-Centred Maintenance — Selecting Tasks For Critical Equipment
- Root-Cause Failure Analysis — Stopping Repeat Trips
- Turnaround Scope And Interval Planning — Weighing Downtime Against Risk

Day 4: Storage, Loading and Production Optimisation

- Full Containment Storage Tanks — Managing Rollover And Stratification
- Boil-Off Gas Handling — Choosing Recompression, Fuel Or Flare
- Ship Loading Operations — Coordinating Rate, Vapour Return And Cooldown
- Production Loss Tree — Classifying Planned And Unplanned Losses
- Debottlenecking Studies — Ranking Capacity Improvement Options

Day 5: Practising the LNG Train Availability Improvement Plan

- Pretreatment Review Applied — Testing A Richer Feed Case
- Refrigerant Balance Applied — Tuning A Case Train
- Reliability Review Applied — Building An RCM Task List For One Compressor
- Loss Tree Applied — Prioritising The Largest Losses
- LNG Train Availability Improvement Plan — Completing The Plan For Management

Applying LNG Train Process Technology and Reliability After the Course

- Build a production loss tree for one train from the last year of trip and outage records and present the top five causes.
- Run a root-cause review on the most frequent compressor trip and agree corrective actions with maintenance.

LNG Train Process Technology and Reliability Questions FAQ

What is LNG train process technology and reliability and why does it matter now?

It is the understanding of how pretreatment, refrigeration, machines and storage work together in a liquefaction train and why they fail. It matters now because buyers expect firm cargoes and every trip or slowdown costs output.

Which roles gain most from LNG train process technology and reliability training?

Process engineers, control room operators, reliability engineers and maintenance planners gain most, since each influences train rate, efficiency or uptime.

How does LNG train process technology and reliability differ from an LNG value chain course?

It stays inside the plant fence and goes deep into process and equipment. A value chain course surveys liquefaction, shipping and regasification broadly, while this one works on pretreatment limits, refrigerant cycles, compressor reliability and loss analysis.

What do you bring back from LNG train process technology and reliability training?

You bring back an LNG Train Availability Improvement Plan for one train, with a loss tree, pretreatment checks, refrigerant tuning notes and RCM tasks for critical machines.

LNG Train Process Technology and Reliability: The Way Forward

The LNG Train Availability Improvement Plan first informs the scope of the next turnaround. Process engineers maintain it, reliability engineers track its tasks and plant management funds its actions. After the turnaround, revisit the loss tree, because fixing the largest losses usually exposes the next constraint.