Gas Processing and Conditioning Plant Operations Training Course

OGT-1103 · 5 days · 15 CPD hours · English

OVERVIEW

The **Gas Processing and Conditioning Plant Operations Training Course** provides a comprehensive understanding of natural gas processing systems, plant operations, process equipment, conditioning technologies and operational optimisation. As natural gas plays an important role in global energy supply, industrial production and petrochemical manufacturing, the efficient operation of gas processing and conditioning facilities is essential for maintaining product quality, operational reliability, safety and commercial performance.

This professional training course within **Process Engineering and Operations** focuses on the fundamental and advanced principles of gas processing, covering the entire process from raw gas reception and inlet separation to gas sweetening, gas dehydration, natural gas liquids (NGL) recovery, dew point control, compression, product handling and export. Participants will develop a practical understanding of how individual processing units operate, how they interact within an integrated plant and how process conditions influence plant efficiency and product specifications.

The programme explores essential gas processing technologies, including amine treating, glycol dehydration, hydrocarbon separation, refrigeration, adsorption, fractionation, gas compression, pressure control and process monitoring. It also examines common operational challenges, equipment performance, process disturbances, troubleshooting techniques and process safety considerations associated with gas processing facilities.

Delivered through practical discussions, technical exercises, operational case studies and process-based learning, the course enables participants to strengthen their technical understanding and operational decision-making capabilities. The **Oil & Gas Training Institute** develops this programme to support professionals in improving gas processing performance, maintaining operational stability, managing process risks and applying effective engineering and operating practices across modern gas processing and conditioning facilities.

OBJECTIVES

By the end of this course, participants will be able to:

- Explain the composition, physical properties, phase behaviour and processing requirements of natural gas streams.
- Identify the major process units, equipment, operating systems and process flow arrangements used in gas processing and conditioning plants.
- Analyse inlet separation systems, separator performance, gas-liquid separation principles and operational challenges.

- Evaluate gas sweetening processes, including amine treating systems, acid gas removal techniques and solvent performance.
- Apply gas dehydration principles using glycol absorption, adsorption and other dehydration technologies to meet gas moisture specifications.
- Assess hydrocarbon dew point control, refrigeration systems and NGL recovery processes for improving gas quality and hydrocarbon recovery.
- Interpret process flow diagrams, piping and instrumentation diagrams, operating parameters, process trends and equipment performance indicators.
- Identify common operational problems involving compressors, separators, dehydration systems, sweetening units and gas conditioning equipment.
- Apply process troubleshooting, monitoring and operational optimisation techniques to improve plant reliability, efficiency and product quality.
- Evaluate operational risks, process safety requirements and practical strategies for maintaining safe and reliable gas processing operations.

TRAINING METHODOLOGY

The Gas Processing and Conditioning Plant Operations Training Course adopts a practical, technical and interactive approach to developing operational knowledge and process engineering capabilities. The methodology combines instructor-led learning with plant-based scenarios, process analysis, technical exercises and collaborative problem-solving.

- **Interactive presentations and technical discussions:** Participants explore gas processing fundamentals, plant configurations, process technologies, operating principles and equipment functions through structured presentations and discussions.

- **Process flow diagram interpretation:** Practical sessions examine gas processing flow diagrams, PFDs, P&IDs, equipment arrangements, control loops and process interconnections.

- **Operational case studies:** Realistic plant scenarios are used to examine separation efficiency, gas sweetening performance, dehydration challenges, dew point control and NGL recovery.

- **Process troubleshooting workshops:** Participants analyse process deviations, equipment malfunction scenarios, operating parameter changes and production constraints to identify practical corrective approaches.

- **Technical exercises:** Exercises involving process parameters, gas specifications, equipment performance, dehydration requirements, pressure control and process optimisation reinforce the application of engineering

principles.

- **Scenario-based learning:** Participants work through simulated operational challenges involving process instability, equipment performance deterioration, gas quality deviations and abnormal operating conditions.

- **Group activities and collaborative learning:** Small groups discuss operational strategies, evaluate process alternatives and develop practical solutions to gas processing challenges.

- **Experience sharing and knowledge exchange:** Participants share professional experiences, operational insights and lessons learned from different gas processing facilities and operating environments.

ORGANISATIONAL IMPACT

Organisations operating gas processing and conditioning facilities can benefit from improved operational knowledge, better process control practices and enhanced technical capabilities across their engineering and operations teams. This course supports organisational development through the following areas:

- **Improved plant operational efficiency:** Strengthens understanding of process systems, operating parameters and equipment interactions, supporting more efficient plant operations and reduced operational inefficiencies.

- **Enhanced gas quality management:** Improves awareness of gas specification requirements, dehydration, sweetening, dew point control and hydrocarbon recovery, helping organisations maintain product quality and export requirements.

- **Reduced operational disruptions:** Develops troubleshooting capabilities for identifying and addressing process deviations, equipment problems and performance deterioration before they significantly affect plant operations.

- **Better process optimisation:** Supports informed decisions regarding operating conditions, energy consumption, separation efficiency, solvent circulation, refrigeration performance and NGL recovery.

- **Strengthened operational risk management:** Enhances understanding of process safety considerations, operational hazards, equipment limitations, abnormal operating conditions and safe operating practices.

- **Improved equipment reliability:** Develops knowledge of the operational requirements and performance characteristics of compressors, separators, dehydration units, sweetening systems, refrigeration equipment and associated process components.

- **Enhanced technical decision-making:** Equips engineering and operations personnel with a stronger technical foundation for evaluating operating changes, process constraints and equipment performance.

- **Improved teamwork and communication:** Encourages collaboration between process engineers, operators, maintenance personnel, production teams and supervisors through shared technical knowledge and problem-solving.

- **Support for production and commercial objectives:** Helps organisations improve gas processing performance, maintain gas and NGL specifications, optimise production activities and support reliable delivery of processed gas.

- **Strengthened workforce competency:** Develops the technical capabilities of personnel involved in gas processing operations, facility supervision, process engineering, maintenance support and operational improvement

initiatives.

PERSONAL IMPACT

Participants attending this course can strengthen their professional capabilities and develop practical knowledge relevant to gas processing, process engineering and facility operations.

- **Advanced technical knowledge:** Develop a deeper understanding of gas processing technologies, conditioning systems, equipment functions and process operating principles.

- **Improved operational understanding:** Gain the ability to recognise how process units interact and how operational adjustments can affect plant performance.

- **Enhanced troubleshooting capabilities:** Develop a structured approach to analysing process deviations, identifying potential causes and evaluating corrective actions.

- **Greater confidence in technical decisions:** Strengthen the ability to interpret operating data, process parameters, equipment performance and gas quality requirements.

- **Improved process analysis skills:** Learn to assess separation, dehydration, sweetening, refrigeration, compression and NGL recovery processes from an operational perspective.

- **Better workplace application:** Apply course knowledge to daily plant operations, process monitoring, equipment performance evaluation and operational improvement activities.

- **Enhanced professional versatility:** Develop technical knowledge relevant to multiple gas processing units and operational responsibilities.

- **Career development opportunities:** Strengthen professional capabilities for roles in gas plant operations, process engineering, production supervision, commissioning support, process optimisation and technical management.

- **Improved communication with technical teams:** Develop the ability to discuss process conditions, equipment limitations, operating challenges and improvement opportunities more effectively with colleagues and stakeholders.

WHO SHOULD ATTEND

This course is designed for professionals involved in gas processing, natural gas conditioning, plant operations, process engineering and the technical management of oil and gas facilities.

- **Gas Processing Plant Operators:** Develop practical knowledge of process units, operating parameters, equipment functions and troubleshooting techniques to support safe and efficient plant operations.

- **Process Engineers:** Strengthen their understanding of gas processing technologies, process integration, operating conditions, performance analysis and optimisation opportunities.

- **Production Engineers:** Improve their understanding of gas conditioning systems, production constraints, gas quality requirements and facility performance.

- **Operations Supervisors and Shift Leaders:** Enhance their ability to supervise plant operations, assess operational problems, guide personnel and support operational stability.

- **Plant Managers and Operations Managers:** Develop a broader understanding of gas processing operations, operational performance, process risks and improvement strategies.

- **Maintenance Engineers and Technicians:** Gain insight into process equipment functionality, operating requirements, common performance issues and the relationship between maintenance activities and process reliability.

- **Instrumentation and Control Engineers:** Understand the process requirements, control systems, operating parameters and instrumentation applications associated with gas processing units.

- **Commissioning and Start-up Engineers:** Develop knowledge of gas processing systems, start-up requirements, process sequencing, equipment readiness and operational considerations.

- **Process Safety Professionals:** Strengthen their understanding of process hazards, operating conditions, gas processing equipment and operational safety considerations.

- **Technical Consultants and Oil & Gas Specialists:** Expand their technical knowledge of gas processing and conditioning technologies to support consulting, project development and operational improvement assignments.

- **Graduate Engineers and Newly Appointed Technical Professionals:** Establish a foundational and practical understanding of gas processing systems, process equipment and plant operations.

COURSE OUTLINE

Fundamentals of Natural Gas Processing and Plant Operations

Gas Sweetening and Acid Gas Removal Operations

Gas Dehydration, Hydrate Prevention and Dew Point Control

NGL Recovery, Refrigeration and Gas Conditioning

Integrated Plant Operations, Process Optimisation and Troubleshooting

SCHEDULED DATES

Dates	Venue	Format	Fee
25 - 29 Jan 2027	Abu Dhabi, United Arab Emirates	In person	On request
25 - 29 Jan 2027	Abuja, Nigeria	In person	On request

Dates	Venue	Format	Fee
25 - 29 Jan 2027	Accra, Ghana	In person	On request
25 - 29 Jan 2027	Addis Ababa, Ethiopia	In person	On request
25 - 29 Jan 2027	Al Ain, United Arab Emirates	In person	On request
25 - 29 Jan 2027	Al Khobar, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Alberta, Canada	In person	On request
25 - 29 Jan 2027	AlUla, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Amman, Jordan	In person	On request
25 - 29 Jan 2027	Amsterdam, The Netherlands	In person	On request
25 - 29 Jan 2027	Athens, Greece	In person	On request
25 - 29 Jan 2027	Baku, Azerbaijan	In person	On request
25 - 29 Jan 2027	Barcelona, Spain	In person	On request
25 - 29 Jan 2027	Berlin, Germany	In person	On request
25 - 29 Jan 2027	Boston, USA	In person	On request
25 - 29 Jan 2027	Brussels, Belgium	In person	On request
25 - 29 Jan 2027	Budapest, Hungary	In person	On request
25 - 29 Jan 2027	Cairo, Egypt	In person	On request
25 - 29 Jan 2027	Cape Town, South Africa	In person	On request
25 - 29 Jan 2027	Casablanca, Morocco	In person	On request
25 - 29 Jan 2027	Dammam, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Dhahran, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Doha, Qatar	In person	On request
25 - 29 Jan 2027	Dubai, United Arab Emirates	In person	On request
25 - 29 Jan 2027	Edinburgh, United Kingdom	In person	On request
25 - 29 Jan 2027	Edmonton, Canada	In person	On request
25 - 29 Jan 2027	Frankfurt, Germany	In person	On request
25 - 29 Jan 2027	Geneva, Switzerland	In person	On request

Dates	Venue	Format	Fee
25 - 29 Jan 2027	Houston, USA	In person	On request
25 - 29 Jan 2027	Istanbul, Turkey	In person	On request
25 - 29 Jan 2027	Jakarta, Indonesia	In person	On request
25 - 29 Jan 2027	Jeddah, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Jubail, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Khamis Mushait, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Kigali, Rwanda	In person	On request
25 - 29 Jan 2027	Kuala Lumpur, Malaysia	In person	On request
25 - 29 Jan 2027	Lisbon, Portugal	In person	On request
25 - 29 Jan 2027	Liverpool, United Kingdom	In person	On request
25 - 29 Jan 2027	London, United Kingdom	In person	On request
25 - 29 Jan 2027	Los Angeles, USA	In person	On request
25 - 29 Jan 2027	Luanda, Angola	In person	On request
25 - 29 Jan 2027	Madrid, Spain	In person	On request
25 - 29 Jan 2027	Manama, Bahrain	In person	On request
25 - 29 Jan 2027	Marbella, Spain	In person	On request
25 - 29 Jan 2027	Marrakech, Morocco	In person	On request
25 - 29 Jan 2027	Miami, USA	In person	On request
25 - 29 Jan 2027	Milan, Italy	In person	On request
25 - 29 Jan 2027	Munich, Germany	In person	On request
25 - 29 Jan 2027	Muscat, Oman	In person	On request
25 - 29 Jan 2027	Nairobi, Kenya	In person	On request
25 - 29 Jan 2027	New York, USA	In person	On request
25 - 29 Jan 2027	Nice, France	In person	On request
25 - 29 Jan 2027	Oslo, Norway	In person	On request
25 - 29 Jan 2027	Paris, France	In person	On request

Dates	Venue	Format	Fee
25 - 29 Jan 2027	Port Louis, Mauritius	In person	On request
25 - 29 Jan 2027	Prague, Czech Republic	In person	On request
25 - 29 Jan 2027	Pretoria, South Africa	In person	On request
25 - 29 Jan 2027	Riyadh, Saudi Arabia	In person	On request
25 - 29 Jan 2027	Rome, Italy	In person	On request
25 - 29 Jan 2027	Sarajevo, Bosnia and Herzegovina	In person	On request
25 - 29 Jan 2027	Sharm El Sheikh, Egypt	In person	On request
25 - 29 Jan 2027	Singapore, Singapore	In person	On request
25 - 29 Jan 2027	Stockholm, Sweden	In person	On request
25 - 29 Jan 2027	Tokyo, Japan	In person	On request
25 - 29 Jan 2027	Toronto, Canada	In person	On request
25 - 29 Jan 2027	Tromso, Norway	In person	On request
25 - 29 Jan 2027	Vienna, Austria	In person	On request
25 - 29 Jan 2027	Zagreb, Croatia	In person	On request
25 - 29 Jan 2027	Zurich, Switzerland	In person	On request
25 - 29 Jan 2027	Online, Virtual	Online	On request

CERTIFICATE