QUEST
Professional Center

PROFESSIONAL TRAINING COURSE

Course No. 1807

# Oil & Gas Processing Facilities Training Course

DOWNSTREAM OPERATIONS, REFINING, PETROCHEMICALS & INDUSTRIAL OPERATIONS
OIL & GAS

DURATION
**5 Days**

DELIVERY
**Classroom**

LOCATION
**Frankfurt, Germany**

DATES
**30 Nov – 4 Dec 2026**

## Scheduled Event Details

| | |
|---|---|
| CITY | Frankfurt, Germany |
| DATE | 30 Nov – 4 Dec 2026 |
| DELIVERY TYPE | Classroom |
| COURSE FEE | €6,200 |

## Course Overview

The Oil & Gas Processing Facilities Training Course provides a comprehensive and practical understanding of the design, operation, control, maintenance, safety, and optimization of oil and gas processing facilities. The course focuses on how raw hydrocarbons are received, separated, treated, conditioned, stabilized, and prepared for transportation, refining, export, or further processing.

Participants will explore the major processing systems and equipment used in upstream and midstream facilities, including separation systems, gas treatment, dehydration, sweetening, stabilization, compression, dehydration and hydrocarbon dew-point control, produced-water treatment, metering, storage, utilities, and flare systems. Emphasis is placed on understanding process interactions and maintaining stable, efficient, and safe facility operation.

The program also addresses operational challenges such as pressure and temperature fluctuations, equipment constraints, process upsets, corrosion, fouling, hydrate formation, liquid carryover, gas quality issues, and production losses. Participants will develop the ability to interpret process conditions and identify opportunities to improve facility reliability, throughput, energy efficiency, and product quality.

The course integrates process safety, asset integrity, operational reliability, energy management, environmental performance, and facility optimization, making it particularly relevant to organizations seeking to strengthen the performance of oil and gas processing assets and improve operational decision-making.

## Objectives

- By the end of the course, participants will be able to:
- Analyze the overall process flow and functional structure of oil and gas processing facilities.
- Evaluate crude oil, natural gas, condensate, and produced-water characteristics and their impact on processing requirements.
- Explain the operating principles of major separation, treatment, compression, stabilization, and conditioning systems.
- Analyze operating parameters including pressure, temperature, flow, level, composition, and process constraints.
- Evaluate the performance of separators, compressors, heat exchangers, pumps, vessels, and other critical processing equipment.
- Apply appropriate approaches to gas dehydration, gas sweetening, hydrocarbon recovery, and product conditioning.
- Assess common operational problems and determine appropriate troubleshooting approaches.
- Strengthen process safety practices through systematic identification of hazards and operational risks.
- Evaluate facility energy consumption and identify opportunities for energy efficiency and loss reduction.
- Analyze production, reliability, quality, and process performance indicators.
- Develop practical approaches for improving facility availability, throughput, reliability, and operating efficiency.
- Apply integrated technical and operational thinking to optimize oil and gas processing facility performance.

## Who Should Attend

This course is designed for professionals involved in the operation, engineering, maintenance, reliability, process optimization, production, inspection, safety, and management of oil and gas processing facilities.

It is particularly suitable for process engineers, production engineers, petroleum engineers, facility engineers, operations engineers, process operators, shift supervisors, production supervisors, maintenance engineers, reliability engineers, mechanical engineers, instrumentation and control

specialists, inspection professionals, HSE personnel, and technical specialists.

The program is also valuable for operations managers, production managers, engineering managers, asset managers, technical managers, project professionals, and decision makers responsible for the performance, reliability, safety, and economic efficiency of oil and gas processing assets.

## Learning Outcomes

- Upon successful completion of the course, participants will be able to:
- Describe the complete processing sequence from raw hydrocarbon reception to stabilized and conditioned products.
- Interpret simplified process flow diagrams and identify major processing systems and equipment.
- Assess the operating principles and performance requirements of oil and gas separators.
- Explain gas dehydration, sweetening, compression, stabilization, and hydrocarbon recovery processes.
- Identify the causes and consequences of common processing problems and operating abnormalities.
- Evaluate key process variables and their relationship to facility performance.
- Identify opportunities to improve production capacity, equipment utilization, and process stability.
- Assess energy consumption and identify practical efficiency improvement opportunities.
- Apply structured approaches to process troubleshooting and operational decision-making.
- Recognize major process safety hazards associated with hydrocarbon processing facilities.
- Evaluate reliability and asset integrity considerations affecting critical processing equipment.
- Use operational and performance indicators to support continuous improvement initiatives.

## Course Outline

DAY 01

### Fundamentals of Oil & Gas Processing Facilities

- Overview of the upstream and midstream oil and gas value chain
- Role and objectives of oil and gas processing facilities

DAY 01 — CONTINUED

- Characteristics of crude oil, natural gas, condensate, and produced water
- Facility configurations and processing philosophies
- Gathering systems and inlet facilities
- Process flow diagrams and major process streams
- Pressure, temperature, flow, level, and composition fundamentals
- Separation principles and phase behavior
- Three-phase separation of oil, gas, and water
- Primary separation equipment and operating considerations
- Process vessels, tanks, piping, valves, and associated systems

**PRACTICAL WORKSHOP**

interpreting a simplified oil and gas processing facility process flow

DAY 02

## Oil & Gas Separation, Treatment & Conditioning

- Fundamentals of oil and gas separation
- Two-phase and three-phase separators
- Separator design and operating parameters
- Inlet separation and liquid handling
- Crude oil stabilization
- Gas dehydration principles and water removal
- Gas sweetening and hydrogen sulfide removal
- Hydrocarbon dew-point control
- Condensate recovery and stabilization
- Produced-water treatment systems
- Filtration, coalescing, and solids removal

**PRACTICAL WORKSHOP**

analyzing processing conditions and identifying separation and treatment problems

DAY 03

## Compression, Heat Transfer & Processing Equipment

- Gas compression systems and compressor operating principles
- Compressor types and applications
- Compressor performance, efficiency, and operating limitations
- Anti-surge systems and compressor protection
- Pumps and liquid transfer systems
- Heat exchangers and process heating/cooling
- Air coolers and cooling systems
- Pressure vessels and process equipment
- Utility systems supporting processing facilities
- Instrumentation and process control fundamentals
- Common equipment failures and operating abnormalities

> **PRACTICAL WORKSHOP**
>
> equipment performance assessment and troubleshooting

DAY 04

## Process Safety, Reliability & Facility Integrity

- Process safety fundamentals in oil and gas facilities
- Identification of major hydrocarbon processing hazards
- Fire, explosion, toxic gas, and pressure-related risks
- Hazard identification and risk assessment
- Emergency shutdown and safety instrumented systems
- Pressure relief and flare systems
- Gas detection and fire protection systems
- Corrosion, erosion, fouling, and material degradation
- Asset integrity and mechanical integrity management
- Reliability of critical processing equipment
- Maintenance strategies and operational reliability

DAY 04 — CONTINUED

**PRACTICAL WORKSHOP**

process safety and asset integrity risk assessment

DAY 05

## Facility Optimization, Energy Efficiency & Operational Excellence

- Oil and gas processing facility performance management
- Production capacity and throughput optimization
- Process bottleneck identification and debottlenecking
- Energy consumption and efficiency improvement
- Fuel gas, steam, electricity, and utility optimization
- Hydrocarbon loss and emissions reduction
- Product quality and specification management
- Key performance indicators for processing facilities
- Reliability, availability, utilization, and production efficiency
- Operational troubleshooting and root-cause analysis
- Continuous improvement and operational excellence

**PRACTICAL WORKSHOP**

developing an integrated Oil & Gas Processing Facility Optimization and Performance Improvement Plan

## Register or Request More Information

Course page: https://quest-training.com/courses/oil-gas-processing-facilities-training-course
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