Crude Oil Separation, Stabilisation and Desalting Training Course

OGT-1104 · 5 days · 15 CPD hours · English

OVERVIEW

Crude oil separation, stabilisation and desalting are fundamental processes in oil and gas production, ensuring produced hydrocarbons meet transportation, processing, storage and commercial quality requirements. Efficient separation of oil, gas, water and solids is essential for maintaining production performance, reducing operational losses, protecting downstream equipment and delivering crude oil within specified quality limits.

The **Crude Oil Separation, Stabilisation and Desalting Training Course** provides professionals with comprehensive technical knowledge and practical skills in oil and gas separation, separator design, crude stabilisation, desalting systems, emulsion treatment and process optimisation. It explores the physical principles and operational techniques used to separate well fluids, control vapour pressure, remove unwanted water and salts, and improve crude oil quality across upstream production and processing facilities.

As part of the **Process Engineering and Operations** category, this programme examines the design, operation, monitoring and troubleshooting of oil separation facilities, including two-phase and three-phase separators, multi-stage separation systems, crude oil stabilisation units and electrostatic desalters. Participants explore the influence of pressure, temperature, fluid composition, residence time, droplet size and chemical treatment on separation efficiency and plant performance.

Delivered by the Oil & Gas Training Institute, the course combines technical instruction, practical exercises, engineering case studies and operational scenarios to develop a deeper understanding of separation equipment and processing systems. Participants learn how to evaluate separator performance, identify operational bottlenecks, manage emulsions, improve desalting efficiency and apply effective process control strategies to real-world oil and gas facilities.

The training equips engineers, operators, supervisors and technical professionals with the knowledge required to enhance hydrocarbon recovery, maintain crude oil quality, improve facility reliability and support safer, more efficient oil and gas operations.

OBJECTIVES

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

- Explain the fundamental principles of oil, gas and water separation, including fluid phase behaviour, gravity separation, droplet settling and coalescence.

- Evaluate the operating principles, configurations and applications of two-phase and three-phase separators in oil and gas production facilities.
- Analyse separator design parameters, including vessel dimensions, gas capacity, liquid retention time, pressure, temperature and separation efficiency.
- Apply engineering principles to assess separator sizing requirements, internal components and operating conditions for different production scenarios.
- Explain crude oil stabilisation mechanisms and evaluate multi-stage separation arrangements for controlling hydrocarbon vapour pressure.
- Identify the causes of emulsions and assess chemical, mechanical, thermal and electrostatic approaches to emulsion treatment.
- Describe crude oil desalting processes, including wash-water injection, mixing, electrostatic coalescence and salt removal.
- Diagnose separator and desalting operational problems, including foaming, liquid carry-over, water carry-under, poor dehydration and excessive salt content.
- Evaluate process monitoring, instrumentation, control systems and operating strategies for improving separation and stabilisation performance.
- Develop practical recommendations for improving separation efficiency, crude oil quality, equipment reliability and overall facility performance.

TRAINING METHODOLOGY

The Crude Oil Separation, Stabilisation and Desalting Training Course adopts a practical, engineering-focused learning approach that combines technical knowledge with operational application. The programme is designed to help participants understand separation technologies and develop the analytical skills needed to address production and processing challenges.

- **Interactive Presentations and Technical Discussions:** Instructor-led sessions introduce separation fundamentals, equipment configurations, crude oil properties, stabilisation processes and desalting technologies, supported by engineering explanations and industry examples.
- **Engineering Workshops:** Participants work through practical separator sizing concepts, retention-time calculations, separation capacity evaluations, pressure and temperature considerations and process performance

assessments.

- **Operational Case Studies:** Realistic oil and gas facility scenarios examine separator inefficiencies, emulsion problems, excessive water content, salt contamination, poor stabilisation and equipment limitations.
- **Process Troubleshooting Exercises:** Learners analyse operating data, process symptoms and equipment behaviour to identify causes of separation failures and develop appropriate corrective actions.
- **Group Activities and Collaborative Learning:** Participants discuss operating strategies, compare equipment configurations, review chemical treatment approaches and exchange experiences from different production environments.
- **Scenario-Based Learning:** Simulated operational situations help participants assess separator performance, evaluate desalting conditions, respond to process disturbances and make informed engineering decisions.
- **Knowledge Sharing and Professional Discussion:** The training encourages participants to share technical insights, operational experiences and improvement strategies relevant to crude oil processing facilities.

ORGANISATIONAL IMPACT

Effective crude oil separation, stabilisation and desalting directly influence production efficiency, equipment reliability, product quality, operating costs and facility performance. This course supports organisations in developing technical capabilities that contribute to more reliable and optimised oil and gas processing operations.

- **Improved Separation Efficiency:** Develop a better understanding of separator performance, operating conditions and process limitations to improve oil, gas and water separation and minimise hydrocarbon losses.
- **Enhanced Crude Oil Quality:** Improve dehydration, desalting and stabilisation practices to help maintain crude oil specifications, reduce salt contamination and control vapour pressure.
- **Reduced Operational Costs:** Support more efficient chemical usage, lower reprocessing requirements, reduced equipment inefficiencies and improved utilisation of processing resources.
- **Optimised Production Performance:** Identify separator bottlenecks, inefficient operating conditions and process limitations that may restrict production capacity or recovery.
- **Improved Equipment Reliability:** Strengthen operational understanding of separator internals, control systems, electrostatic desalters and associated equipment to support reliable operation and maintenance.
- **Better Process Safety and Risk Management:** Develop greater awareness of pressure containment, process instability, equipment operating limits, hazardous fluid handling and safe operating procedures.

- **More Effective Technical Decision-Making:** Strengthen engineering assessment capabilities for equipment selection, process modifications, chemical treatment programmes and facility optimisation.
- **Enhanced Team Competence:** Improve technical collaboration among process engineers, production operators, maintenance teams and supervisors involved in separation and processing operations.
- **Support for Operational Standards:** Encourage consistent process monitoring, quality control, troubleshooting and operational practices that support facility requirements and applicable industry standards.

PERSONAL IMPACT

Attending this training course enables participants to strengthen their technical expertise in crude oil processing and develop practical competencies relevant to production, process engineering and facility operations.

- **Advanced Technical Knowledge:** Gain a deeper understanding of oil and gas separation, separator operating principles, crude oil stabilisation and desalting processes.
- **Improved Engineering Skills:** Develop the ability to analyse separator operating parameters, evaluate equipment performance and understand engineering considerations influencing separation efficiency.
- **Stronger Troubleshooting Capabilities:** Learn to identify and investigate common separation problems, including emulsions, foaming, poor dehydration, salt contamination and hydrocarbon carry-over.
- **Better Operational Decision-Making:** Improve the ability to assess process conditions, identify operational risks and recommend appropriate corrective actions.
- **Greater Confidence in Process Operations:** Build confidence in understanding separator systems, electrostatic desalters, stabilisation units and associated process control equipment.
- **Enhanced Practical Application:** Apply technical knowledge to operational scenarios, process improvement exercises and production facility challenges.
- **Professional Career Development:** Strengthen technical credentials, professional competence and career opportunities in upstream production, oil processing, process engineering and oil and gas facilities management.
- **Broader Industry Understanding:** Develop a more comprehensive understanding of the relationship between separation efficiency, crude oil quality, production performance and downstream processing requirements.

WHO SHOULD ATTEND

The Crude Oil Separation, Stabilisation and Desalting Training Course is designed for professionals involved in oil and gas production, processing, engineering, operations, maintenance and facility management.

- **Process Engineers:** Professionals responsible for process design, equipment performance, separation systems, operating optimisation and technical evaluation.
- **Production Engineers:** Engineers involved in production performance, well fluids processing, hydrocarbon recovery and production facility optimisation.
- **Facilities Engineers:** Professionals responsible for the design, operation, modification and performance of oil and gas processing facilities.
- **Oil and Gas Operations Supervisors:** Supervisors overseeing production facilities, separation equipment, process performance, operating procedures and personnel.
- **Production Operators and Senior Technicians:** Technical personnel operating separators, stabilisation systems, desalting equipment and associated processing units.
- **Petroleum Engineers:** Engineers involved in production engineering, wellstream processing, hydrocarbon handling and production system performance.
- **Process and Plant Technicians:** Technicians supporting separation equipment operation, process monitoring, equipment maintenance and troubleshooting.
- **Maintenance and Reliability Engineers:** Professionals responsible for maintaining separation vessels, process equipment, instrumentation, valves, electrostatic systems and related assets.
- **Commissioning and Start-up Engineers:** Engineers involved in commissioning, start-up, shutdown and operational readiness of separation and crude oil processing facilities.
- **Technical Consultants and Engineering Specialists:** Consultants and specialists supporting oil and gas process design, equipment selection, production optimisation and technical advisory services.
- **Oil and Gas Project Managers:** Managers overseeing process facility development, engineering projects, operational improvement initiatives and technical teams.

COURSE OUTLINE

Fundamentals of Crude Oil Separation and Production Processing

Separator Design, Equipment Selection and Operating Principles

Crude Oil Stabilisation and Emulsion Treatment

Crude Oil Desalting, Electrostatic Treatment and Quality Control

Separation System Troubleshooting, Optimisation and Operational Excellence

SCHEDULED DATES

Dates	Venue	Format	Fee
11 - 15 Jan 2027	Abu Dhabi, United Arab Emirates	In person	On request
11 - 15 Jan 2027	Abuja, Nigeria	In person	On request
11 - 15 Jan 2027	Accra, Ghana	In person	On request
11 - 15 Jan 2027	Addis Ababa, Ethiopia	In person	On request
11 - 15 Jan 2027	Al Ain, United Arab Emirates	In person	On request
11 - 15 Jan 2027	Al Khobar, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Alberta, Canada	In person	On request
11 - 15 Jan 2027	AlUla, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Amman, Jordan	In person	On request
11 - 15 Jan 2027	Amsterdam, The Netherlands	In person	On request
11 - 15 Jan 2027	Athens, Greece	In person	On request
11 - 15 Jan 2027	Baku, Azerbaijan	In person	On request
11 - 15 Jan 2027	Barcelona, Spain	In person	On request
11 - 15 Jan 2027	Berlin, Germany	In person	On request
11 - 15 Jan 2027	Boston, USA	In person	On request
11 - 15 Jan 2027	Brussels, Belgium	In person	On request
11 - 15 Jan 2027	Budapest, Hungary	In person	On request
11 - 15 Jan 2027	Cairo, Egypt	In person	On request
11 - 15 Jan 2027	Cape Town, South Africa	In person	On request
11 - 15 Jan 2027	Casablanca, Morocco	In person	On request
11 - 15 Jan 2027	Dammam, Saudi Arabia	In person	On request

Dates	Venue	Format	Fee
11 - 15 Jan 2027	Dhahran, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Doha, Qatar	In person	On request
11 - 15 Jan 2027	Dubai, United Arab Emirates	In person	On request
11 - 15 Jan 2027	Edinburgh, United Kingdom	In person	On request
11 - 15 Jan 2027	Edmonton, Canada	In person	On request
11 - 15 Jan 2027	Frankfurt, Germany	In person	On request
11 - 15 Jan 2027	Geneva, Switzerland	In person	On request
11 - 15 Jan 2027	Houston, USA	In person	On request
11 - 15 Jan 2027	Istanbul, Turkey	In person	On request
11 - 15 Jan 2027	Jakarta, Indonesia	In person	On request
11 - 15 Jan 2027	Jeddah, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Jubail, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Khamis Mushait, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Kigali, Rwanda	In person	On request
11 - 15 Jan 2027	Kuala Lumpur, Malaysia	In person	On request
11 - 15 Jan 2027	Lisbon, Portugal	In person	On request
11 - 15 Jan 2027	Liverpool, United Kingdom	In person	On request
11 - 15 Jan 2027	London, United Kingdom	In person	On request
11 - 15 Jan 2027	Los Angeles, USA	In person	On request
11 - 15 Jan 2027	Luanda, Angola	In person	On request
11 - 15 Jan 2027	Madrid, Spain	In person	On request
11 - 15 Jan 2027	Manama, Bahrain	In person	On request
11 - 15 Jan 2027	Marbella, Spain	In person	On request
11 - 15 Jan 2027	Marrakech, Morocco	In person	On request
11 - 15 Jan 2027	Miami, USA	In person	On request
11 - 15 Jan 2027	Milan, Italy	In person	On request

Dates	Venue	Format	Fee
11 - 15 Jan 2027	Munich, Germany	In person	On request
11 - 15 Jan 2027	Muscat, Oman	In person	On request
11 - 15 Jan 2027	Nairobi, Kenya	In person	On request
11 - 15 Jan 2027	New York, USA	In person	On request
11 - 15 Jan 2027	Nice, France	In person	On request
11 - 15 Jan 2027	Oslo, Norway	In person	On request
11 - 15 Jan 2027	Paris, France	In person	On request
11 - 15 Jan 2027	Port Louis, Mauritius	In person	On request
11 - 15 Jan 2027	Prague, Czech Republic	In person	On request
11 - 15 Jan 2027	Pretoria, South Africa	In person	On request
11 - 15 Jan 2027	Riyadh, Saudi Arabia	In person	On request
11 - 15 Jan 2027	Rome, Italy	In person	On request
11 - 15 Jan 2027	Sarajevo, Bosnia and Herzegovina	In person	On request
11 - 15 Jan 2027	Sharm El Sheikh, Egypt	In person	On request
11 - 15 Jan 2027	Singapore, Singapore	In person	On request
11 - 15 Jan 2027	Stockholm, Sweden	In person	On request
11 - 15 Jan 2027	Tokyo, Japan	In person	On request
11 - 15 Jan 2027	Toronto, Canada	In person	On request
11 - 15 Jan 2027	Tromso, Norway	In person	On request
11 - 15 Jan 2027	Vienna, Austria	In person	On request
11 - 15 Jan 2027	Zagreb, Croatia	In person	On request
11 - 15 Jan 2027	Zurich, Switzerland	In person	On request
11 - 15 Jan 2027	Online, Virtual	Online	On request

CERTIFICATE