AMERICAN GLOBAL INSTITUTE FOR PRIVATE TRAINING

External Training Course

Advanced Desalting & Dehydration Operations for Oil & Gas Facilities

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From 29 Dec. 2025 To 02 Jan. 2026
From 12 Jan. 2026 To 16 Jan. 2026
From 02 Feb. 2026 To 06 Feb. 2026

InterContinental Wien by IHG
Vienna, Austria

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External Training Course:

Advanced Desalting & Dehydration Operations for Oil & Gas Facilities

From 29 Dec. 2025 To 02 Jan. 2026 Fees: 1900 KD
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Course Overview

The Advanced Desalting & Dehydration Operations for Oil & Gas Facilities course provides an in-depth and practical understanding of the critical processes used to remove salts and water from crude oil. These operations are essential to protect processing equipment, prevent corrosion and fouling, and ensure crude oil meets quality and safety standards before downstream processing.

This 5-day program focuses on modern desalting and dehydration technologies, operational control, troubleshooting techniques, and process optimization based on real oil and gas facility practices. Participants will gain hands-on insight into system performance, key operating parameters, chemical treatment strategies, and best practices to enhance efficiency, reliability, and operational excellence across oil and gas facilities.

The course is designed for operational and technical professionals seeking to strengthen their practical knowledge, improve decision-making, and apply advanced solutions to real-world desalting and dehydration challenges.

Course Objectives

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

- Understand the fundamental principles of desalting and dehydration processes in oil & gas facilities.
- Identify crude oil contaminants and evaluate their impact on equipment integrity and process performance.
- Explain the design, operation, and control of desalting and dehydration systems.
- Monitor and adjust key operating parameters to achieve optimal salt and water removal efficiency.
- Select and apply appropriate chemical treatments for emulsion breaking and performance improvement.
- Diagnose common operational problems and implement effective troubleshooting solutions.
- Optimize system performance to reduce corrosion, fouling, and operational losses.
- Apply best practices for safety, environmental compliance, and operational excellence in crude oil processing.

Target Audience

This course is intended for professionals involved in the operation, control, and optimization of crude oil processing systems within oil & gas facilities, including:

- Operations Engineers.
- Process Engineers.
- Production & Facility Engineers.
- Plant Operators and Shift Supervisors.
- Maintenance and Reliability Engineers.
- Technical and Field Support Staff.
- Quality Control, Inspection, and Integrity Personnel.

The course is suitable for operational and technical job levels seeking to enhance practical knowledge and improve performance in desalting and dehydration operations.

Training Methodology

The training is delivered using a practical and interactive approach designed to maximize knowledge transfer and real-world application. The methodology includes:

- Instructor-led interactive lectures with practical explanations.
- Use of process diagrams, flow schemes, and operational examples.
- Real-life case studies from oil & gas facilities.
- Group discussions and experience sharing.
- Step-by-step troubleshooting scenarios.
- Practical exercises focused on operational decision-making.
- Best-practice guidelines aligned with industry standards.

This methodology ensures a balanced combination of theoretical understanding and hands-on operational insight applicable to day-to-day oil & gas facility operations.

Organizational Impact

Improved efficiency and reliability of desalting and dehydration units.
Enhanced crude oil quality, meeting downstream processing and refinery requirements.
Reduced corrosion, fouling, and equipment damage.
Lower maintenance costs and unplanned shutdowns.
Improved operational safety and environmental compliance.
Stronger operational control and performance consistency across facilities.

Personal Impact

Increased technical competence in desalting and dehydration operations.
Enhanced ability to troubleshoot and resolve operational problems.
Improved understanding of process optimization and control strategies.
Greater confidence in operational decision-making.
Strengthened professional skills relevant to oil & gas facility operations.
Higher effectiveness in daily operational and technical responsibilities.

Course Content & Outline

Day 1 – Fundamentals of Desalting & Dehydration

- Overview of crude oil processing in oil & gas facilities.
- Role of desalting and dehydration in production and refining operations.
- Crude oil properties and common contaminants.
- Types of salts, water, and solids in crude oil.
- Impact of salts and water on corrosion, fouling, and equipment integrity.
- Basic separation principles and process fundamentals.
- Introduction to desalting and dehydration systems.
- Operational safety considerations and best practices.

Day 2 – Desalting Systems: Design & Operation

- Types of crude oil desalters.
- Single-stage and multi-stage desalting configurations.
- Electrostatic separation principles and equipment.
- Mixing valves and wash water injection systems.
- Key operating parameters:
    - Temperature and pressure.
    - Wash water quality and flow rate.
    - Electrical field strength and control.
- Monitoring desalter performance and efficiency.
- Common desalting problems and operational challenges.

Day 3 – Dehydration Technologies & Emulsion Control

- Water types in crude oil: free water vs. emulsified water.
- Mechanisms of dehydration in oil & gas facilities.
- Dehydration methods:
    - Gravity separation.
    - Electrostatic dehydration.
    - Chemical dehydration.
- Emulsion formation and stability factors.
- Demulsifiers: selection, dosing, and performance evaluation.
- Control of Basic Sediment and Water (BS&W).
- Performance indicators and monitoring techniques.

Day 4 – Troubleshooting, Optimization & Process Control

- Common operational issues:
  - Poor salt removal efficiency.
  - High BS&W levels.
  - Rag layer formation.
  - Electrical field instability.
- Systematic troubleshooting methodologies.
- Optimization of operating conditions.
- Chemical treatment optimization strategies.
- Instrumentation and control systems.
- Integration with upstream and downstream processes.
- Practical case studies and group problem-solving.

Day 5 – Integrity, Safety & Best Practices

- Corrosion mechanisms related to salts and water.
- Impact on heat exchangers, furnaces, and pipelines.
- Inspection, maintenance, and reliability considerations.
- Environmental regulations and discharge requirements.
- Operational safety, risk assessment, and hazard mitigation.
- Key performance indicators (KPIs) and benchmarking.
- Best practices for efficient and sustainable operations.
- Course review, discussion, and knowledge consolidation.

Course Agenda:

1st Day Agenda

8.30	9.00	Opening Remarks (30 Min.)
9.00	11.30	Discuss Major Points Of Course: • Fundamentals of Desalting & Dehydration. • Desalting Systems: Design & Operation. • Dehydration Technologies & Emulsion Control. • Troubleshooting, Optimization & Process Control. • Integrity, Safety & Best Practices.
11.30	12.00	Coffee Break
12.00	14.00	Fundamentals of Desalting & Dehydration: • Overview of crude oil processing in oil & gas facilities. • Role of desalting and dehydration in production and refining operations. • Crude oil properties and common contaminants. • Types of salts, water, and solids in crude oil. • Impact of salts and water on corrosion, fouling, and equipment integrity. • Basic separation principles and process fundamentals. • Introduction to desalting and dehydration systems. • Operational safety considerations and best practices.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

2nd Day Agenda

9.00	11.30	Desalting Systems: Design & Operation: • Types of crude oil desalters. • Single-stage and multi-stage desalting configurations. • Electrostatic separation principles and equipment. • Mixing valves and wash water injection systems.
11.30	12.00	Coffee Break

12.00	14.00	Desalting Systems: Design & Operation:
		• Key operating parameters:
		  ○ Temperature and pressure.
		  ○ Wash water quality and flow rate.
		  ○ Electrical field strength and control.
		• Monitoring desalter performance and efficiency.
		• Common desalting problems and operational challenges.

14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

3rd Day Agenda

9.00	11.30	Dehydration Technologies & Emulsion Control:
		• Water types in crude oil: free water vs. emulsified water.
		• Mechanisms of dehydration in oil & gas facilities.
		• Dehydration methods:
		  ○ Gravity separation.
		  ○ Electrostatic dehydration.
		  ○ Chemical dehydration.

11.30	12.00	Coffee Break
12.00	14.00	Dehydration Technologies & Emulsion Control: • Emulsion formation and stability factors. • Demulsifiers: selection, dosing, and performance evaluation. • Control of Basic Sediment and Water (BS&W). • Performance indicators and monitoring techniques.
15.00	14.30	Questions and Discussion
14.30		Buffet Lunch

4th Day Agenda

9.00	11.30	Troubleshooting, Optimization & Process Control:
		• Common operational issues:
		  ○ Poor salt removal efficiency.
		  ○ High BS&W levels.
		  ○ Rag layer formation.
		  ○ Electrical field instability.
		• Systematic troubleshooting methodologies.
		• Optimization of operating conditions.

11.30	12.00	Coffee Break
12.00	14.00	Troubleshooting, Optimization & Process Control: • Chemical treatment optimization strategies. • Instrumentation and control systems. • Integration with upstream and downstream processes. • Practical case studies and group problem-solving.
15.00	14.30	Questions and Discussion
14.30		Buffet Lunch

5th Day Agenda

9.00	11.30	Integrity, Safety & Best Practices: • Corrosion mechanisms related to salts and water. • Impact on heat exchangers, furnaces, and pipelines. • Inspection, maintenance, and reliability considerations. • Environmental regulations and discharge requirements.
11.30	12.00	
12.00	14.00	Integrity, Safety & Best Practices: • Operational safety, risk assessment, and hazard mitigation. • Key performance indicators (KPIs) and benchmarking. • Best practices for efficient and sustainable operations. • Course review, discussion, and knowledge consolidation.
15.00	14.30	Questions, Discussion & Conclusion Training Course.
14.30		Buffet Lunch