

TRAINING TITLE

WATER, GAS AND OIL TREATMENT PROCESS DESIGN

Training Duration

5 day

Training Venue and Dates

Ref. No. PE244	Water, Gas and Oil Treatment Process Design	5	22-26 Sep 2025	\$5,500	DUBAI, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

Efficient separation and treatment of water, gas, and oil are critical processes in the oil and gas industry. These operations ensure the quality of the hydrocarbons produced, protect downstream equipment, and meet stringent environmental and regulatory standards. From field development to facility operations, designing effective treatment processes is essential for optimizing performance, reducing costs, and mitigating environmental impact.

This 5-day course offers a deep dive into the principles, technologies, and methodologies required for designing and optimizing water, gas, and oil treatment systems. Through a combination of theoretical knowledge, and case studies, participants will gain actionable skills to improve treatment processes in upstream, midstream, and downstream operations.

TRAINING OBJECTIVES

By the end of the course, participants will be able to understand

- Understand the principles and challenges of water, gas, and oil treatment.
- Learn the design and operation of essential equipment such as separators, treaters, and filters.
- Explore advanced technologies like gas sweetening, NGL recovery, and produced water treatment.

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- Develop skills in process design, equipment sizing, and optimization.
- Gain insights into environmental compliance and risk mitigation strategies.
- Work on real-world case studies to apply their knowledge to practical scenarios.

WHO SHOULD ATTEND?

This course is ideal for:

- ⊙ Process and production engineers.
- ⊙ Facility designers and operators.
- ⊙ Maintenance and reliability professionals.
- ⊙ Environmental and regulatory compliance specialists.
- ⊙ Professionals seeking to enhance their expertise in oil and gas treatment processes.

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

COURSE PROGRAM:

Day 1: Fundamentals of Treatment Processes

- Overview of Water, Gas, and Oil Treatment in the Oil and Gas Value Chain
- Basic Principles of Separation and Treatment: Physical, Chemical, and Thermal Processes
- Key Process Equipment: Separators, Filters, and Scrubbers
- Process Flow Diagrams (PFDs) and Piping and Instrumentation Diagrams (P&IDs) in Treatment Design
- Overview of Regulatory and Environmental Standards for Oil, Gas, and Produced Water Treatment
- Case Study: Basics of Oil-Water Separation in Production Facilities

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Day 2: Oil Treatment Processes

- Crude Oil Stabilization and Conditioning
- Emulsion Breaking and Desalting Processes
- Heat Exchangers and Heater-Treaters in Oil Treatment
- Designing and Sizing Oil Processing Equipment
- Case Study: Optimizing Oil Dehydration in a Crude Oil Facility
- Troubleshooting Oil Treatment Issues

Day 3: Gas Treatment Processes

- Overview of Gas Processing: Compression, Dehydration, and Sweetening
- Acid Gas Removal Processes (Amine Treating and Alternatives)
- Natural Gas Liquids (NGL) Recovery
- Sulfur Recovery and Tail Gas Treatment
- Process Simulation for Gas Treatment Using Tools (e.g., Aspen HYSYS)
- Case Study: Gas Sweetening Design and Challenges

Day 4: Water Treatment Processes

- Overview of Produced Water Treatment: Primary, Secondary, and Tertiary Processes
- Technologies for Oil Removal from Produced Water (e.g., Skimmers, Hydrocyclones)
- Advanced Treatment Methods: Membranes, Reverse Osmosis, and Biological Processes
- Design Considerations for Produced Water Treatment Systems
- Environmental Considerations and Disposal Strategies
- Case Study: Designing a Produced Water Treatment Facility

Day 5: Integrated Process Design and Optimization

- Integrating Oil, Gas, and Water Treatment Systems for Facility Design
- Process Optimization and Debottlenecking Techniques
- Risk Assessment and HAZOP Studies in Treatment Facilities
- Developing a Treatment Process Design for a Hypothetical Facility
- Review of Key Concepts and Best Practices
- Course Assessment, Feedback, and Wrap-Up

NOTE:

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.

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