

**TRAINING TITLE**

**OIL DEHYDRATION AND DESALTING – BASIC**

**Training Duration**

5 day

**Training Venue and Dates**

Ref. No. PE313	Oil Dehydration and Desalting - Basic	5	06-10 Oct 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**

In the oil and gas industry, crude oil is often produced with a mixture of water and salts, which can lead to operational challenges such as corrosion, equipment damage, and inefficient refining processes. Oil dehydration and desalting are essential steps to remove these impurities, ensuring that crude oil is suitable for further processing, transportation, and storage. These processes are critical for maintaining the integrity of pipelines, refineries, and storage facilities, as well as meeting quality specifications for product delivery.

This 5-day introductory course is designed to provide participants with a basic understanding of the fundamental principles, technologies, and equipment used in oil dehydration and desalting. The course will cover the key processes used to remove water and salts from crude oil, as well as the design, operation, and troubleshooting of dehydration and desalting systems.

**TRAINING OBJECTIVES**

- A clear understanding of the dehydration and desalting processes and their importance in crude oil treatment.
- Hands-on knowledge of the various techniques used for removing water and salts from crude oil, including heat, electrostatic separation, and chemical treatments.

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- **Exposure to the equipment used in dehydration and desalting units and the factors affecting their performance.**
- **Troubleshooting skills to identify and resolve common problems related to water and salt removal.**
- **Insight into the latest industry trends and best practices to improve the efficiency and effectiveness of dehydration and desalting operations.**

### **WHO SHOULD ATTEND?**

- **Engineers, technicians, and operators** working with crude oil treatment systems, including those involved in the operation, design, or maintenance of dehydration and desalting units.
- **Safety officers and project managers** responsible for ensuring safe, efficient, and environmentally compliant oil treatment operations.
- **New professionals** in the oil and gas industry looking to build foundational knowledge of oil dehydration and desalting processes.
- **Maintenance personnel** working with equipment that plays a role in crude oil processing and treatment.

### **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: Introduction to Oil Dehydration and Desalting**

- **Overview of Crude Oil Composition and the Need for Dehydration and Desalting**
- **Importance of Dehydration and Desalting in Oil Processing**

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- **Common Impurities in Crude Oil: Water, Salts, and Solids**
- **The Impact of Water and Salts on Downstream Processes**
- **Basic Principles of Oil Dehydration and Desalting**
- **Types of Dehydration Methods: Heat, Chemical, and Mechanical Techniques**
- **Types of Desalting Methods: Electrostatic and Chemical Processes**
- **Overview of Equipment Used in Oil Dehydration and Desalting**

## **Day 2: Oil Dehydration Techniques**

- **Principles of Heat-Based Dehydration: The Role of Heat Exchangers and Heaters**
- **The Role of Centrifugal Force in Mechanical Dehydration**
- **Chemical Dehydration: Use of Dehydrating Agents (e.g., demulsifiers)**
- **Practical Applications of Different Dehydration Techniques**
- **Design and Operation of Dehydration Units: Operational Parameters (Temperature, Pressure, Time)**
- **Troubleshooting Common Problems in Dehydration: Emulsion Formation, Foam Control**
- **Key Performance Indicators (KPIs) in Dehydration Processes**
- **Case Study: Design and Operation of a Basic Dehydration System**

## **Day 3: Oil Desalting Techniques**

- **Introduction to Desalting: The Need for Salt Removal in Crude Oil**
- **Electrostatic Desalting: Principles and Equipment**
- **Role of Demulsifiers and Wash Water in Desalting**
- **Desalting Equipment: Desalters, Electrostatic Coalescers, and Filters**
- **Operation and Maintenance of Electrostatic Desalters**
- **Desalting Efficiency and Its Effect on Oil Quality**
- **Case Study: Troubleshooting Desalting Problems (e.g., poor salt removal, emulsion issues)**
- **Factors Affecting Desalting Performance: Temperature, Salt Content, Water Quality**

## **Day 4: Integration of Dehydration and Desalting in Oil Treatment Systems**

- **Combining Dehydration and Desalting: The Role of Integrated Units in Crude Oil Treatment**
- **Flow Diagram of Typical Dehydration and Desalting Systems**
- **Pre-treatment and Post-treatment of Crude Oil: Filtration and Polishing**
- **Key Equipment Integration: Separators, Heaters, Pumps, and Demulsifiers**
- **Process Optimization: Maximizing Efficiency in Dehydration and Desalting**

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- Troubleshooting Combined Systems: Balancing Water Removal and Salt Removal
- Energy and Water Management in Dehydration and Desalting Systems
- Performance Monitoring and Control: Ensuring Consistent Quality

**Day 5: Safety, Environmental Considerations, and Future Trends**

- Safety Protocols in Dehydration and Desalting Units
- Managing Hazardous Materials: Handling Chemicals and Waste Water Disposal
- Environmental Impact: Emission Control, Wastewater Treatment, and Compliance with Regulations
- Safety Instrumented Systems (SIS) and Alarms
- Best Practices in the Operation and Maintenance of Dehydration and Desalting Units
- Emerging Trends: Automation and Digitalization in Oil Treatment Systems
- Case Study: Optimizing Dehydration and Desalting for Environmental and Operational Efficiency
- Course Summary: Key Learnings and Practical Takeaways

**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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