

## Reservoir Engineering Fundamentals

*Dubai (UAE)*

*17 - 28 November 2024*

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# Reservoir Engineering Fundamentals

Code: OG28 From: 17 - 28 November 2024 City: Dubai (UAE) Fees: 7800 Pound

## Introduction

Welcome to the Advanced Reservoir Engineering Fundamentals course! This intensive program is designed to provide you with a comprehensive understanding of modern reservoir engineering principles and practices. As technology evolves and reservoirs become increasingly complex, it is crucial for reservoir engineers to stay updated with the latest advancements in the field. This course aims to equip you with the knowledge and skills necessary to tackle contemporary challenges in reservoir engineering and to excel in advanced reservoir engineering practices.

## Course Objectives

- Understand the fundamental concepts of reservoir engineering, including fluid flow in porous media, reservoir rock properties, and fluid behavior.
- Explore advanced reservoir characterization techniques, such as geostatistics, petrophysics, and seismic interpretation, to optimize reservoir development strategies.
- Gain proficiency in reservoir simulation software and learn how to use it effectively for reservoir performance prediction, history matching, and optimization.
- Analyze different enhanced oil recovery EOR methods, including gas injection, water flooding, chemical flooding, and thermal recovery, to maximize hydrocarbon recovery from reservoirs.
- Develop skills in reservoir management, including reservoir surveillance, production forecasting, and reserve estimation, to optimize field development plans and maximize economic returns.
- Learn about emerging trends and technologies in reservoir engineering, such as machine learning, data analytics, and digital oilfield initiatives, and their applications in reservoir management.

## Course Outlines

### Day 1: Introduction to Reservoir Engineering

- Overview of reservoir engineering principles
- Properties of reservoir fluids
- Basics of fluid flow in porous media

### Day 2: Reservoir Rock Properties

- Types of reservoir rocks
- Porosity and permeability
- Capillary pressure and wettability

### Day 3: Reservoir Characterization



- Geostatistical methods for reservoir characterization
- Petrophysical analysis techniques
- Seismic interpretation for reservoir characterization

#### Day 4: Reservoir Simulation Fundamentals

- Introduction to reservoir simulation software
- Building and history-matching reservoir models
- Sensitivity analysis and uncertainty quantification

#### Day 5: Advanced Reservoir Simulation Techniques

- Compositional and black-oil reservoir simulation
- Fluid flow phenomena in complex reservoirs
- Upscaling techniques for large-scale simulations

#### Day 6: Enhanced Oil Recovery EOR Methods

- Overview of EOR techniques
- Gas injection methods CO<sub>2</sub> and nitrogen
- Water flooding and chemical flooding
- Thermal recovery techniques steam and in-situ combustion

#### Day 7: Reservoir Management

- Reservoir surveillance and data acquisition
- Production forecasting techniques
- Reserves estimation and reporting

#### Day 8: Integrated Reservoir Management

- Integrated asset modeling
- Field development optimization
- Decision-making under uncertainty

#### Day 9: Emerging Trends in Reservoir Engineering

- Applications of machine learning and artificial intelligence in reservoir engineering
- Digital oilfield technologies
- Advanced data analytics for reservoir management

#### Day 10: Case Studies and Practical Applications

- Real-world case studies illustrating the application of reservoir engineering principles
- Hands-on exercises using reservoir simulation software
- Group discussions and presentations on contemporary reservoir engineering challenges

#### Conclusion



By the end of this course, participants will have gained an advanced understanding of reservoir engineering principles and practices. They will be equipped with practical knowledge in the design, simulation, and management of reservoir systems. Participants will also be able to leverage the latest technologies and techniques to optimize reservoir development and maximize hydrocarbon recovery. Whether you are a reservoir engineering technician, principal reservoir engineer, or a reservoir engineer intern, this course will provide you with the necessary skills and insights to excel in the dynamic and evolving field of reservoir engineering.

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