



*Training Course:
Reservoir Simulation And Modeling : Advanced
Techniques*

*27 April - 1 May 2026
Cape Town (South Africa)
DoubleTree by Hilton Cape Town - Upper Eastside*

Training Course: Reservoir Simulation And Modeling : Advanced Techniques

Training Course code: EN236411 From: 27 April - 1 May 2026 Venue: Cape Town (South Africa) - DoubleTree by Hilton Cape Town - Upper Eastside Training Course Fees: 7500 € Euro

Introduction

Reservoir simulation and modeling are critical tools in the oil and gas industry, enabling engineers and geoscientists to predict reservoir behavior, optimize production strategies, and enhance recovery. With increasing complexity in reservoir structures and production challenges, advanced simulation techniques are essential for accurate forecasting and decision-making.

This program, developed by [Global Horizon Training Center](#), provides an in-depth and practical understanding of advanced reservoir simulation and modeling techniques. It integrates geological, petrophysical, and engineering data to build reliable models and improve reservoir management strategies.

Participants will gain hands-on insights into dynamic modeling, history matching, uncertainty analysis, and optimization techniques, enabling them to enhance reservoir performance and maximize hydrocarbon recovery.

Course Objectives

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

- Understand advanced concepts in reservoir simulation and modeling
- Build and calibrate dynamic reservoir models
- Perform history matching and production forecasting
- Analyze reservoir performance under different scenarios
- Apply enhanced oil recovery EOR simulation techniques
- Evaluate uncertainties and risks in reservoir modeling
- Optimize production strategies using simulation tools
- Integrate multidisciplinary data into simulation workflows

Target Audience

This program is designed for:

- Reservoir Engineers
- Petroleum Engineers
- Geoscientists and Geologists
- Production Engineers
- Simulation and Modeling Specialists
- Professionals working in oil and gas field development

Outline

Day 1: Advanced Reservoir Modeling Fundamentals

- Overview of reservoir simulation principles
- Types of reservoir models black oil, compositional
- Data integration geological, petrophysical, fluid data
- Grid design and model construction
- Introduction to simulation software ECLIPSE, PETREL

Day 2: Dynamic Simulation and History Matching

- Fluid flow equations and numerical methods
- Running dynamic simulations
- History matching techniques and workflows
- Model calibration and validation
- Case studies on field data

Day 3: Production Forecasting and Optimization

- Forecasting production scenarios
- Sensitivity analysis and scenario planning
- Well placement and production optimization
- Reservoir management strategies
- Decision-making based on simulation results

Day 4: Enhanced Oil Recovery EOR and Advanced Techniques

- EOR methods water flooding, gas injection, chemical EOR
- Simulation of EOR processes
- Fractured reservoir modeling
- Unconventional reservoirs simulation
- Advanced recovery strategies

Day 5: Uncertainty Analysis and Integrated Reservoir Management

- Uncertainty quantification techniques
- Risk analysis in reservoir modeling
- Integrated asset modeling
- Digital oilfield and AI applications
- Final workshop: Building and optimizing a reservoir model

Registration form on the Training Course: Reservoir Simulation And Modeling : Advanced Techniques

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