QUEST
Professional Center

PROFESSIONAL TRAINING COURSE

Course No. 1837

Reservoir Management and Production Optimization Training Course

UPSTREAM OPERATIONS, EXPLORATION, DRILLING, RESERVOIR & PRODUCTION
OIL & GAS

DURATION
5 Days

DELIVERY
Classroom

Course Overview

The Reservoir Management and Production Optimization Training Course provides a comprehensive professional program designed to develop the technical and analytical capabilities required to manage hydrocarbon reservoirs efficiently and optimize oil and gas production throughout the reservoir life cycle. The course integrates reservoir engineering, production performance analysis, surveillance, field development, and optimization principles to support technically sound and economically sustainable production decisions.

Participants will examine the relationship between reservoir characteristics, fluid behavior, well performance, pressure changes, production mechanisms, and field operating strategies. The course emphasizes practical methods for understanding reservoir performance, identifying production constraints, evaluating development opportunities, and improving recovery while maintaining reservoir integrity.

A major focus is placed on reservoir surveillance and performance diagnosis. Participants will explore production and pressure data analysis, material balance concepts, well and reservoir performance indicators, decline analysis, water and gas production behavior, and the identification of underperforming wells and production bottlenecks.

The course also addresses production optimization through well interventions, artificial lift considerations, pressure management, water and gas control, well allocation, injection strategies, and integrated reservoir–production decision-making. Practical exercises and field-based scenarios enable participants to translate technical analysis into actionable production optimization strategies.

Objectives

- By the end of the course, participants will be able to:
- Analyze key reservoir properties and their impact on production performance.
- Evaluate reservoir pressure, fluid behavior, and production mechanisms.
- Apply reservoir surveillance techniques to monitor field performance.
- Interpret production, pressure, water-cut, and gas-oil ratio trends.
- Assess well and reservoir performance using relevant technical indicators.

- Identify production constraints, reservoir challenges, and underperforming assets.
- Apply material balance and decline analysis concepts to support reservoir evaluation.
- Evaluate well intervention and production optimization opportunities.
- Develop strategies for water and gas production management.
- Assess injection and pressure-maintenance strategies for improved recovery.
- Optimize well and field production while considering reservoir limitations.
- Integrate reservoir, production, drilling, and facilities considerations into field decisions.

Who Should Attend

This course is designed for reservoir engineers, production engineers, petroleum engineers, well engineers, field development professionals, and technical specialists involved in reservoir surveillance, production performance, field optimization, and hydrocarbon recovery.

It is also suitable for asset managers, reservoir management teams, production supervisors, field operations managers, petroleum engineering specialists, and professionals responsible for monitoring reservoir performance and developing production improvement initiatives.

The program is particularly valuable for technical leaders and decision-makers who require an integrated understanding of reservoir behavior and production performance to evaluate development options, prioritize interventions, improve recovery, and maximize the value of producing assets.

Learning Outcomes

- Upon completion of the course, participants will be able to:
- Interpret fundamental reservoir and fluid properties affecting production.
- Evaluate reservoir drive mechanisms and their influence on field performance.
- Analyze pressure and production trends to identify changes in reservoir behavior.
- Apply systematic reservoir surveillance and performance-monitoring approaches.
- Diagnose well and reservoir underperformance using production data.
- Evaluate water breakthrough, increasing water cut, and gas production behavior.

- Apply material balance and decline analysis techniques to reservoir performance assessment.
- Identify production bottlenecks and opportunities for optimization.
- Evaluate well intervention and stimulation opportunities from a production perspective.
- Assess artificial lift and pressure-management considerations.
- Develop water and gas control strategies to protect production and recovery.
- Evaluate injection strategies and pressure-maintenance opportunities.
- Prioritize production optimization opportunities based on technical and economic considerations.
- Develop integrated reservoir and production optimization plans.

Course Outline

DAY 01

Reservoir Management Fundamentals

- Reservoir types, rock and fluid properties, and their influence on production.
- Reservoir pressure, temperature, fluid behavior, and phase relationships.
- Reservoir drive mechanisms and their impact on recovery and production performance.
- Principles of integrated reservoir management and field life-cycle planning.

> **PRACTICAL APPLICATION**
> Develop a reservoir performance profile using basic geological, pressure, fluid, and production information.

DAY 02

Reservoir Surveillance & Performance Analysis

- Reservoir surveillance objectives, data requirements, and monitoring strategies.
- Analysis of pressure, production rates, water cut, and gas-oil ratio trends.
- Material balance concepts and reservoir performance diagnosis.
- Production decline analysis and identification of changing reservoir conditions.

> **PRACTICAL APPLICATION**
> Analyze a reservoir performance dataset and identify key production and pressure trends.

DAY 03

Well Performance & Production Optimization

- Well performance analysis and identification of production constraints.
- Inflow and outflow performance and production system interactions.
- Well testing, productivity evaluation, and identification of performance deterioration.
- Well intervention, stimulation, and artificial lift considerations for production improvement.

> **PRACTICAL APPLICATION**
> Evaluate an underperforming well and develop a prioritized production optimization plan.

DAY 04

Water, Gas & Pressure Management

- Water breakthrough, water production mechanisms, and water-cut management.
- Gas production behavior, gas breakthrough, and gas-oil ratio management.
- Pressure maintenance, reservoir depletion, and injection strategies.
- Evaluation of water and gas injection performance and optimization opportunities.

> **PRACTICAL APPLICATION**
> Develop a reservoir pressure and water-management strategy for a mature producing field.

DAY 05

Integrated Reservoir Management & Production Optimization

- Integration of reservoir, production, well, facilities, and field operations data.
- Production allocation, optimization priorities, and performance benchmarking.
- Recovery improvement strategies and identification of remaining production potential.
- Technical and economic evaluation of reservoir management and optimization opportunities.
- Final Application: Develop an integrated reservoir management and production optimization plan covering reservoir surveillance, performance diagnosis, well optimization, pressure management, water and gas control, injection strategy, intervention priorities, and long-term recovery improvement.

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Register or Request More Information

Course page: https://quest-training.com/courses/reservoir-management-and-production-optimization-training-course
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