Applied Reservoir Engineering and Management Training Course

Professional Development Training Course Outline

Category	Engineering	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

An effective and efficient oil and gas industry depends on the **Applied Reservoir Engineering and Management Training** course. The course provides professionals with the skills and knowledge to address complex reservoir challenges and optimize hydrocarbon recovery. Participants gain a strong understanding of practical methods used in reservoir engineering, from primary recovery to cutting-edge **Enhanced Oil Recovery (EOR)** techniques. The curriculum emphasizes integrating data from various disciplines, including **geoscience**, **petrophysics**, and **production engineering**, to make informed decisions throughout the entire reservoir lifecycle.

Applied Reservoir Engineering and Management Training Course focuses on **hydrocarbon reserves estimation**, **reservoir simulation and modeling**, and **production optimization**. It is designed to bridge the gap between theoretical principles and real-world field applications. Participants will learn how to analyze reservoir performance, forecast production, and implement **data-driven strategies** to maximize recovery factors and improve profitability. The course integrates **advanced technologies** and **industry best practices**, ensuring that attendees are equipped to manage both conventional and unconventional assets efficiently in today's dynamic energy landscape.

Programme Curriculum

Applied Reservoir Engineering and Management Training Course

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Course Duration

5 days

Course Objectives

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

1. Accurately describe reservoir rock and fluid properties for effective subsurface modeling.
2. Apply material balance and volumetric analysis to estimate hydrocarbon reserves and resources.
3. Understand and model fluid flow in porous media using principles like Darcy's Law.
4. Use decline curve analysis and well performance data to forecast and optimize production rates.
5. Build, calibrate, and run reservoir simulation models for performance prediction and history matching.
6. Develop and manage waterflooding strategies to enhance reservoir pressure and sweep efficiency.
7. Select and apply advanced enhanced oil recovery (EOR) methods like gas injection and thermal recovery.
8. Synthesize geological, geophysical, and engineering data for integrated reservoir management.
9. Perform cost-benefit analysis and economic screening for field development projects.
10. Apply proven strategies for redeveloping and optimizing mature oil and gas fields.
11. Incorporate uncertainty analysis and risk management into reservoir decisions.
12. Use industry-standard software and digital tools for data analysis and modeling.
13. Formulate and execute comprehensive field development plans to maximize Net Present Value (NPV).

Organizational Benefits

- Boost recovery factors and ultimate reserves by implementing optimized field development and **EOR strategies**.
- Minimize drilling and production risks through accurate **reservoir performance forecasting** and **subsurface characterization**.
- Enable data-driven, holistic decisions by integrating diverse technical data and a **multidisciplinary approach**.
- Increase profitability by optimizing production, reducing capital expenditures (CAPEX) and operating costs (OPEX), and improving investment decisions.
- Develop a highly skilled and capable team of reservoir engineers and geoscientists, fostering a **culture of continuous improvement** and innovation.

Target Audience

1. Reservoir Engineers seeking to advance their skills.

2. Petroleum and Production Engineers looking to expand their subsurface knowledge.
3. Geoscientists and Geologists involved in reservoir characterization and modeling.
4. Field Development Planners and Asset Managers who make strategic decisions.
5. Technical Consultants and Researchers in the oil and gas sector.
6. Engineers new to the petroleum industry.
7. Government Officials and regulators involved in resource management.
8. Project Managers overseeing E&P projects.

Course Modules

Module 1: Reservoir Engineering Fundamentals

- Core Concepts: Understanding reservoir rock and fluid properties
- Fluid Flow: Principles of single-phase and multi-phase fluid flow in porous media.
- Hydrocarbon in Place
- Reservoir Drive Mechanisms
- **Case Study:** Volumetric estimation and drive mechanism analysis for a newly discovered gas reservoir.

Module 2: Reserves Estimation & Production Forecasting

- Reservoir Performance Analysis.
- Decline Curve Analysis (DCA)
- Well Testing.
- Reserves Classification: Understanding and applying industry standards like the Petroleum Resources Management System (PRMS).
- **Case Study:** Using DCA and well test data to forecast reserves and predict future production from a mature oil field.

Module 3: Integrated Reservoir Management (IRM)

- IRM Principles.
- Data Integration
- Cross-Functional Teamwork
- Surveillance & Monitoring.
- **Case Study:** Developing an IRM plan for a complex, heterogeneous reservoir.

Module 4: Secondary Recovery & Waterflooding

- Secondary Recovery Concepts.
- Waterflood Design.
- Sweep Efficiency.
- Waterflood Management
- **Case Study:** Designing and evaluating a five-spot waterflood pattern for a depleted oil reservoir.

Module 5: Enhanced Oil Recovery (EOR)

- EOR Screening: Criteria for selecting the most suitable EOR method.
- Thermal Methods: Principles of steam injection and in-situ combustion for heavy oil recovery.
- Miscible Gas Injection: Using CO_2, nitrogen, or hydrocarbon gases to improve displacement.
- Chemical Flooding: Applying polymer, surfactant, and alkali flooding techniques.
- **Case Study:** Feasibility study and economic analysis of a CO_2 miscible flood project.

Module 6: Reservoir Simulation & Modeling

- Fundamentals: Principles of static geological modeling and dynamic simulation.
- Model Building: Constructing a reservoir simulation model from integrated data.
- History Matching.
- Prediction & Scenarios.
- **Case Study:** Building and history matching a simulation model for a brownfield development project to identify infill drilling opportunities.

Module 7: Unconventional and Special Reservoir Topics

- Unconventional Resources: Reservoir engineering principles for shale oil/gas and tight gas reservoirs.
- Fractured Reservoirs: Modeling and managing naturally fractured reservoirs.
- Gas Condensate Reservoirs: Understanding phase behavior and production challenges.
- Heavy Oil: Recovery mechanisms and advanced techniques for heavy oil.
- **Case Study:** Analyzing a hydraulic fracturing program in a shale gas reservoir to optimize well spacing and recovery.

Module 8: Economic Evaluation & Field Development Planning

- Economic Metrics: Calculating key economic indicators like NPV, IRR (Internal Rate of Return), and Payback Period.
- Cost & Revenue Analysis: Estimating capital and operational costs, and forecasting revenue streams.
- Risk & Uncertainty Analysis: Using Monte Carlo simulation and sensitivity analysis to quantify risk.
- Project Evaluation: Selecting the optimal development plan based on technical and economic factors.
- **Case Study:** Economic evaluation of a multi-phase field development plan, from primary to EOR.

Training Methodology

This course employs a **blended learning approach** that combines theoretical knowledge with practical application. The methodology includes:

- Interactive Lectures & Presentations: Expert-led sessions covering core concepts.
- Hands-on Exercises & Problem-Solving
- Real-world Case Studies
- Group Discussions & Workshops.
- Q&A Sessions.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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