Advanced Enhanced Oil Recovery Techniques for Modern Production Training Course

09 - 13 Nov 2026

Cape town

4600 € (Per Person)

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Course Introduction / Overview:

In today's energy landscape, maximizing production from existing oil fields is more crucial than ever. As primary and secondary recovery methods become less effective, enhanced oil recovery (EOR) techniques are essential for unlocking billions of barrels of remaining oil. This comprehensive training course, presented by BIG BEN Training Center, is designed to give professionals a deep understanding of EOR methods and their practical application. We explore the full spectrum of EOR techniques, from conventional gas and water injections to more complex thermal and chemical methods. The curriculum covers the fundamental science behind EOR, including reservoir characterization and fluid dynamics, and provides practical insights into implementing these projects. We also examine the economic drivers and environmental considerations that influence EOR decisions. This program integrates insights from leading experts, such as Dr. Larry W. Lake, a renowned authority and co-author of Enhanced Oil Recovery. By combining theoretical knowledge with real-world case studies, this course offers a holistic view of modern EOR strategies and their role in sustainable hydrocarbon production.

Target Audience / This training course is suitable for:

- Reservoir engineers.
- Production and petroleum engineers.
- Geologists and geophysicists.
- Operations managers in oil and gas.
- Research and development professionals.
- Corporate strategists and planners.
- Academics and students in petroleum engineering.

Target Sectors and Industries:

- Upstream oil and gas exploration and production.
- Energy technology and services.
- Research and development institutions.
- Government agencies and energy regulatory bodies.
- Consulting firms specializing in oil and gas.
- Financial institutions focused on energy.
- Oil field service companies.

Target Organizations Departments:

- Reservoir engineering.
- Production operations.
- Research and development.
- Corporate planning.
- Business development.
- Geology.
- Subsurface engineering.

Course Offerings:

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

- Analyze a reservoir to determine the best EOR method.
- Design a gas injection project for a specific field.
- Explain the principles and application of chemical flooding.
- Evaluate the economic and technical feasibility of a thermal recovery project.
- Understand the role of reservoir simulation in EOR.
- Identify and mitigate risks associated with EOR operations.
- Apply best practices in EOR project implementation.

Course Methodology:

This training course uses an intensive and highly practical methodology to ensure a thorough understanding of enhanced oil recovery techniques. Our approach combines expert-led lectures with hands-on workshops and interactive case studies. Participants will engage in detailed analysis of real-world EOR projects, examining both their successes and failures to understand the key factors that drive performance. We use reservoir simulation software demonstrations to illustrate how different EOR methods impact fluid flow and recovery rates. Group exercises will challenge participants to work collaboratively to design an EOR project for a hypothetical reservoir, from initial screening to project implementation. Our instructors, who are experts in the field, provide personalized feedback and guidance throughout the course. This program is designed to provide participants with the practical skills and theoretical knowledge needed to tackle complex EOR challenges in their own work.

Course Agenda (Course Units):

Unit One: Fundamentals of Oil Recovery the Why and What of EOR.

- Introduction to primary and secondary recovery.
- The science behind enhanced oil recovery.
- Types of EOR methods: thermal, chemical, and gas.
- Reservoir properties and fluid dynamics.
- EOR screening criteria and selection.
- Economic drivers for EOR projects.
- The role of EOR in mature fields.

Unit Two: Gas Injection EOR Immiscible and Miscible Flooding.

- Principles of miscible gas injection.
- CO2 EOR: mechanisms and projects.
- Nitrogen and hydrocarbon gas injection.
- Immiscible gas injection and its applications.
- Gas-oil systems and phase behavior.
- Project design and management.
- Case studies of gas injection projects.

Unit Three: Chemical EOR Polymers, Surfactants, and Alkaline Flooding.

- Chemical flooding mechanisms.
- Polymer flooding for mobility control.
- Surfactant flooding for interfacial tension reduction.
- Alkaline flooding and its combinations.
- Selection and design of chemical formulations.
- Injection strategies and well patterns.
- Screening for chemical EOR.

Unit Four: Thermal EOR Steam and Combustion.

- Principles of thermal recovery.
- Steam injection: cyclic and continuous.
- Steam-assisted gravity drainage (SAGD).
- In-situ combustion.
- Operational challenges and equipment.
- Environmental considerations.
- Case studies of thermal projects.

Unit Five: EOR Project Implementation Simulation and Management.

- Reservoir simulation for EOR design.
- Project planning and financial modeling.
- Monitoring and performance evaluation.
- Risk management in EOR projects.
- The role of data analytics in optimizing EOR.
- New technologies and future trends.
- Final project review and discussion.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each day session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As the industry moves toward a lower-carbon future, how can advanced EOR techniques, particularly those using CO2, be effectively integrated into a broader strategy for carbon capture and storage?

What unique qualities does this course offer compared to other courses?

This training course provides a focused and comprehensive exploration of enhanced oil recovery, which is essential for extending the life and profitability of oil fields. Unlike more general programs, our curriculum is specifically tailored to the technical and operational complexities of EOR methods. We combine the foundational principles of reservoir engineering with practical, real-world case studies of successful projects, giving you a complete understanding of how to screen, design, and implement EOR programs. Our hands-on approach allows you to work with reservoir simulation concepts and apply them directly, which bridges the gap between theory and practice. The course also addresses the economic and environmental considerations that are vital for making sound business decisions. This program equips professionals with advanced, specialized knowledge that can lead to significant increases in oil production and asset value.