Fundamentals of Petroleum Engineering for New Professionals Training Course

18 - 22 May 2026

Cairo - *

4100 € (Per Person)

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Course Introduction / Overview:.

Petroleum engineering is a broad field that requires a solid grasp of complex scientific and technical principles to navigate the upstream oil and gas industry. For those new to the field, getting a comprehensive overview of the entire process, from exploration to production, can be challenging. This training course, offered by BIG BEN Training Center, is specifically designed to provide a foundational understanding of petroleum engineering concepts. We start with the geology of hydrocarbon reservoirs and move through the entire lifecycle of an oil or gas field. The curriculum covers essential topics like fluid properties, drilling operations, reservoir analysis, and production engineering. This course provides a clear and logical path through the core principles of the field. The program is informed by academic references such as Petroleum Engineering: Principles and Practices by J. A. Jacobs. By providing a holistic overview that connects all key stages, this course equips new professionals with the essential knowledge and context needed to succeed in their roles and effectively communicate with experienced engineers and geoscientists.

Target Audience / This training course is suitable for:.

- New petroleum and reservoir engineers.
- Geoscientists and geologists.
- Analysts and financial professionals.
- Technical sales and business development staff.
- Project coordinators.
- HSE and legal professionals.
- Support staff in oil and gas companies.

Target Sectors and Industries:.

- Upstream oil and gas exploration and production.
- Energy services and equipment providers.
- Financial and investment services.
- Government agencies and regulatory bodies.
- Consulting and professional services.
- Research and development institutions.
- Renewable energy for context.

Target Organizations Departments:.

- Petroleum and reservoir engineering.
- Geosciences.
- Operations and production.
- Corporate planning.
- Business development.
- HSE.
- Finance.

Course Offerings:.

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

- Explain the fundamental concepts of hydrocarbon reservoirs.
- Understand the principles of well drilling and completion.
- Interpret basic reservoir fluid properties and their behavior.
- Analyze reservoir performance using simple models.
- Differentiate between primary, secondary, and tertiary recovery methods.
- Recognize key production engineering challenges.
- Speak the language of petroleum engineers and geoscientists.

Course Methodology:.

This training course uses a clear and structured methodology to make complex petroleum engineering concepts accessible to those new to the field. Our approach is built on interactive lectures, engaging discussions, and illustrative case studies. We use visual aids, such as diagrams and animations, to explain complex subsurface concepts and operational processes. Participants will work through simple problem-solving exercises to reinforce their understanding of key calculations and principles. We use case studies from various global oil and gas fields to provide a real-world context for the concepts. The program encourages a question-and-answer format to ensure that all participants can confidently grasp the material. BIG BEN Training Center is committed to providing a learning environment where new professionals can build a solid and comprehensive foundation in petroleum engineering without prior technical knowledge.

Course Agenda (Course Units):.

Unit One: The Petroleum System from Source to Trap.

- The origin of hydrocarbons.
- The components of a petroleum system.
- Rock properties: porosity and permeability.
- Reservoir fluids: oil, gas, and water.
- Basics of geological exploration.
- Introduction to seismic interpretation.
- Understanding reservoir classification.

Unit Two: Drilling and Well Operations Reaching the Reservoir.

- The drilling process.
- Drilling rig components.
- Drilling fluids and pressure control.
- Casing and cementing.
- Well completion types and functions.
- Well stimulation.
- Safety and environmental considerations.

Unit Three: Reservoir Engineering Understanding the Subsurface.

- Reservoir drives mechanisms.
- Material balance.
- Fluid flows in porous media.
- Decline curve analysis.
- Reservoir simulation basics.
- Introduction to Enhanced Oil Recovery (EOR).
- Reserves estimation and classification.

Unit Four: Production Engineering Bringing Hydrocarbons to Market.

- Wellbore performance.
- Artificial lift methods.
- Surface facilities and separation.
- Pipeline transportation.
- Gas processing and LNG.
- Flow assurance challenges.
- The role of production optimization.

Unit Five: Economics and the Future Business and Strategy.

- Petroleum project economics.
- The role of data analytics and digital oilfields.
- Risk and uncertainty in exploration and production.
- The energy transition and its impact on oil and gas.
- Carbon capture and storage (CCS).
- Future trends in petroleum engineering.
- Summary of the petroleum value chain.

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:.

How will the growing focus on renewable energy and carbon capture and storage (CCS) reshape the fundamental skills and responsibilities of petroleum engineers in the coming decades?.

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

This training course is specifically designed as a comprehensive primer for professionals who are new to the oil and gas industry. Unlike highly specialized engineering courses, this program provides a holistic overview of all key petroleum engineering disciplines, which gives participants the context needed to understand their role within the broader value chain. The course is taught in an accessible way, which makes complex technical topics easy to grasp for those without a technical background. Our curriculum connects the science of the reservoir with the practicalities of drilling and production, providing a clear line of sight from the subsurface to the surface. This program gives new professionals a strategic advantage by equipping them with the foundational knowledge required to communicate effectively and contribute meaningfully from day one.