Introduction to Petroleum Engineering for Non-Engineers

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Barcelona (Spain)

UK Traininig
PARTNER



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Introduction

This course provides non-engineers with a clear, structured, and accessible introduction to the fundamental principles of petroleum engineering. Without requiring any technical background, the program explains how oil and gas reservoirs are formed, discovered, evaluated, drilled, and produced.

Using simplified technical modules, visual aids, practical examples, and guided discussions, participants will gain a solid understanding of the key concepts and terminology used throughout the upstream oil and gas sector.

This course is ideal for professionals in administration, finance, HR, procurement, commercial operations, and management who work closely with technical teams and wish to enhance their understanding of petroleum engineering fundamentals to improve communication and support decision-making.

Course Objectives

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

- Understand the basics of petroleum geology and how hydrocarbon reservoirs form.
- Identify the main stages of exploration, drilling, and production.
- Recognize essential engineering terms, tools, and technologies used in oilfield operations.
- Understand reservoir behavior, well performance, and basic production optimization concepts.
- Communicate more effectively and confidently with petroleum engineers and technical specialists.
- Interpret technical discussions, project documents, and operational reports with greater clarity.

Course Outlines

Day 1: Fundamentals of Petroleum Geology

- Introduction to petroleum systems and hydrocarbon formation.
- Types of oil and gas reservoirs.
- Understanding source rocks, traps, and seals in simple terms.
- How geologists identify, predict, and map potential reservoirs.
- Exploration tools: seismic surveys, geological modeling, and interpretation basics.



Day 2: Reservoir Engineering Basics

- Key factors determining how much oil and gas can be recovered.
- Porosity, permeability, and essential fluid properties.
- Reservoir drive mechanisms: water drive, gas cap drive, solution gas drive.
- Basic concepts of reservoir pressure, flow behavior, and production decline.
- A simplified introduction to reservoir simulation and decline curve analysis.

Day 3: Drilling Engineering for Non-Engineers

- Overview of drilling rigs, equipment, and major system components.
- How wells are drilled: a step-by-step explanation of the drilling process.
- Types of drilling fluids and their key functions.
- Casing, cementing, and maintaining well integrity explained in simple terms.
- Introduction to directional drilling and horizontal wells.
- Common drilling challenges and essential safety practices.

Day 4: Production Engineering & Surface Facilities

- How oil and gas flow from the reservoir to the surface.
- Overview of artificial lift systems: ESPs, gas lift, and rod pumps.
- Production optimization techniques and common field challenges.
- Surface facilities: separators, compressors, heaters, flowlines, and their functions.
- Basics of well testing, production measurement, and performance indicators.
- Group activity: Production System Troubleshooting Simulation.

Day 5: Field Development, Operations & Emerging Technologies

- Field development planning: from exploration results to full production.
- Key engineering documents and project workflows.
- Enhanced Oil Recovery EOR explained in simple terms.
- Risk management and HSE considerations in upstream operations.
- Emerging technologies: digital oilfields, automation, and data analytics.
- Course review, open Q&A discussion, and knowledge assessment.

Why Attend This Course: Wins & Losses!

- A strong understanding of petroleum engineering concepts—instead of feeling lost in technical discussions.
- Improved communication with engineers—instead of recurring misalignment across teams.
- Clear insight into how reservoirs, drilling, and production operations work—instead of struggling to interpret daily operations.
- Enhanced credibility and confidence when working within the upstream oil and gas sector.
- The ability to read and understand technical documents, reports, and terminology—instead of remaining unsure about engineering content.



Conclusion

This course provides non-engineers with the essential knowledge needed to understand petroleum engineering in a practical and engaging way. Participants will leave with a strong foundation in geology, reservoir fundamentals, drilling operations, and production systems, enabling them to communicate confidently with technical teams and contribute more effectively to upstream projects and decision-making processes.

By bridging the gap between technical and non-technical professionals, this program empowers participants to play a more informed and strategic role in their organizations' operations and future development.

