



Reservoirs Training Course

Best Practices of Petroleum Reservoir Engineering

From 23/10/2023 to 27/10/2023

Eden Hotel Amsterdam, Amsterdam, Netherlands

4950 \$

Why Attend?

Best practices of reservoir engineering represents very effective tools for evaluation of oil and gas reserves, primary, secondary, and tertiary recovery mechanisms. This course is designed to provide best practices of reservoir fluid flow in porous medium, characterization of five different reservoir fluids/sampling, reservoir drive mechanisms, material balance equation (MBE), oil well testing, water flooding, and enhanced oil recovery methods (chemical, thermal, and miscible). This course provides best practices of reservoir engineering to maximize oil recovery through a life cycle of an oil field with several examples and exercises plus industry video about all topics involved. This course will feature:

- Routine and Special Core Analysis (RCAL & SCAL) for reservoir rocks.
- Commercial Equations of State (EOS) currently used in the oil industry.
- Material Balance Equation (MBE) technique and its different applications.
- Single and multi-wells oil well testing techniques and their applications.
- Water flooding and Enhanced Oil recovery (EOR) applications.

Course Objectives

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

- Apply volumetric and material balance equations to calculate reserves.
- Understand oil and gas flow equations under different flow regimes.
- Understand main methods of well testing of Draw down and Buildup tests.
- Calculate time and saturation of water breakthrough in water flooding.
- Best practices of main groups of Enhanced Oil Recovery (EOR) techniques.

The Course Content & Outline

Day One: Geology and Reservoir Rock Properties

- Definitions of petroleum engineering and reservoir engineering.
- Responsibilities and required tasks of reservoir engineers.
- Different types of rocks, rock cyclic, and depositional environments.
- Types of oil traps: structural, stratigraphic, and combination.
- Global distribution of oil and gas reserves and top producing countries.
- Routine and Special Core Analysis (RCAL & SCAL) for rock properties.

Day Two: Phase Diagram and Reservoir Drive Mechanisms

- Reservoir fluid properties and their variation with pressure.
- Phase diagram concept and its important applications.
- Five different reservoir fluids, Lab and field identification.
- Applications of ideal and real gas Equation of State (EOS).
- Three phases of oil recovery: primary, secondary, and enhanced.
- Six different primary reservoir drive mechanisms.

Day Three: Material Balance Equation (MBE) Applications

- Definition, classification, and calculation of reserve.
- Application of Material Balance Equation (MBE) Technique.
- Volumetric reservoirs, Havlena, and Odeh Technique.
- Types and purposes of well tests.
- Single well and multi-well testing methods.
- Geological information from well testing.

Day Four: Gas Resources and Water Flooding

- Concepts and global distribution of gas reserve.
- Conventional and unconventional natural gas sources.
- Gas hydrates as an important future energy source.
- Secondary recovery and problems of water flooding.
- Frontal displacement (fractional flow) theory and calculation example.
- Design procedure and an example of how to design a reservoir simulation study.

Day Five: Enhanced Oil Recovery (EOR) Techniques

- Enhanced Oil Recovery (EOR) Methods and need to apply.
- Chemical EOR: polymer, alkaline/surfactant/polymer (ASP).
- Solvent EOR: Carbon Dioxide, and hydrocarbon gas injections.
- Thermal EOR process and heavy oil reserves.
- Steam Assisted Gravity Drainage (SAGD) EOR Process.
- Microbial, Enzyme, and Low Salinity Water (LSW) EOR processes.

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