A LDI Training Course

Applied Reservoir Engineering

by

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Introduction

The course is designed to teach you the basic and important concepts of oil and gas reservoir engineering. You will also learn the calculations which are commonly applied in reservoir engineering. This is course is ideal for those who want to understand the behaviors of petroleum reservoirs and factors that affect their performance.

Learning is done with extensive use of PC. Upon completion of the course, participants should know:

- How basic reservoir rock and fluid properties are specified and measured in the lab
- How these properties affect reservoir fluid flow and distribution of fluids within the reservoir
- Perform basic material balance calculations for natural pressure depletion, water and gas drive reservoirs
- How reservoir drive mechanisms affect overall reservoir performance
- Calculate displacement efficiency and oil recovery factors
- Calculate oil and gas properties at reservoir conditions
- Calculate static pressure distribution in a reservoir containing oil, water and gas zones
- Estimate well production rates
- Interpret well test data

5 Crucial Benefits of Attending:

- Equip yourself with a basic understanding of the principles and practices of reservoir engineering
- Determine the critical aspects that influence the reservoir performance
- Acquire the knowledge and confidence to perform reservoir analysis
- Gain a practical ability to perform material balance calculations
- Learn how to estimate production rates and analyze well test results

Course Content

Reservoir Description

- Basic rock properties
- Laboratory measurement of porosity and permeability
- Properties of reservoir fluids
- PVT phase behavior
- Laboratory measurement of PVT properties
- Fluid density, gas gravity and properties of multi-component mixtures

Capillary Pressure

- Calculation of oil, water and gas gradients
- Pressure distribution in reservoirs
- Calculation of the position of contacts from pressure data
- Gravity-capillary pressure equilibrium
- Calculation of initial water saturation and initial oil-in-place volume

Basic Material Balance Equations

- Material balance calculations for natural pressure depletion drive, and closed gas reservoir
- Water influx calculations
- Reservoir drive indexes and reservoir performance, Darcy's Law and Well Inflow
- Equations
- Steady-state, pseudo-steady-state

The Concept Of Relative Permeability

- Effect of wettability on relative permeability
- The Buckley-Leveret theory of two-phase displacements
- Calculation of fractional flow curves and displacement efficiency
- Estimation of recovery factors
- Typical recovery factors for different drive mechanisms

Pressure Transient Well Testing

- Pressure build-up test theory
- Interpretation of pressure build-up test data
- Estimation of formation permeability and wellbore damage
- Description of drill-stem testing (DST's)
- Interpretation of DST data
- Introduction to computer based interpretation of well test pressure data
- Type curve analysis and pressure derivative interpretation methods

Who Should Attend

- Petroleum engineers
- Engineering assistants
- Geologists
- Reservoir engineers
- Production engineers and supervisors
- Engineers with no petroleum background

Your Course Leader

Taufan Marhaendrajana obtained PhD degree from Texas A&M university in 2000, MS degree from Texas A&M University in 1995 and BS degree from Institute Technology Bandung in 1991.

Taufan Marhaendrajana is currently a lecturer of Petroleum Engineering at Institute Technology Bandung, He was a Production Engineer at Conoco Indonesia in 1991. He worked at Schlumberger Product Center, Sugar Land, Texas, USA 1999 - 2002).

He also performs consulting works for oil and gas industries in Indonesia on plan of field development, reserves certification, production optimization, fluid modeling, pressure transient analysis, reservoir simulation, water flood and surfactant & polymer floods.

Taufan Marhaendrajana has published more than fifty technical papers including peer reviewed international/national journals and conference proceedings.