

(10) Petroleum Reservoir Engineering

WHO SHOULD ATTEND

- Engineers (production engineers, reservoir engineer and field engineer), and well-site geologist, and other staffs from an operating and/or service and/or consultant and engineering company involved in oil and gas production and engineering process.
- Engineers and technical personnel involving with appraisal or field development project, and/or reservoir management team intending to enhance their technical skills and level of confidence in decision making by identifying reservoir problems issues, etc.
- Front line engineers from an operating and/or service and/or consultant and engineering company requires improving their technical skills with high level of confidence to adapt appropriate technology to optimize the production performance and better reservoir management.
- Engineers or geoscientists who will occupy the position of reservoir engineer, any other technically trained individual that desires a more in-depth foundation in reservoir engineering.
- Geologists, geophysicists, engineers, engineering trainees, technical managers, technical assistants, technicians, chemists, physicists, technical supervisors, service company personnel, sales representatives, data processing personnel, and support staff working with reservoir definition, development and production.
- Reservoir engineers, production engineers, chemical engineers, chemists and senior operators who work in oil and gas industry.

COURSE OBJECTIVES

- Calculate the flow of oil and gas wells in oil and gas reservoirs.
- Determine critical properties of reservoir rocks Fluid (oil, water, and gas) PVT relationships
- Calculate hydrocarbons initially in place using several methods
- Assess reservoir performance with dynamic techniques
- Determine the parameters that impact well/reservoir performance over time
- Analyse well tests using standard well testing principles and techniques
- Characterize aquifers
- Determine reservoir drive mechanisms for both Oil and Gas reservoirs
- Apply oil and gas field development planning principles
- Forecast production decline
- How reservoirs are characterized by fluid type and drive mechanisms
- How oil and gas in place can be estimated and recovery predicted
- How to estimate net hydrocarbon volume as a function of depth
- How the density, sonic, and neutron logs are sensitive to porosity
- Calculate the water saturation for a producing interval from its water-oil ratio performance
- Calculate the pressure difference between the oil and water phases in an oil reservoir
- How to apply the material balance techniques
- How to derive the basic differential equation for radial flow in a porous medium

CONTENT

Reservoir fluid and rock properties; Coring practices and rock properties; Fundamentals of fluid flow; Reservoir fluid distribution; Reservoir classification; Reservoir drive mechanisms; Oil and gas well performance; Pressure build-up analysis; Reservoir fluid displacement concepts; Formation Damage; Geology and Reservoir Volume; Fundamental of Reservoir Description; Coring and Core Analysis; Volumetric Behavior; Material (volumetric) Balance Equations; Fluid Flow in Porous Medium; Oil Well productivity; Water and Gas Coning; Gas and Gas Condensate

INTENDED FOR

The aim of the course is to provide with necessary knowledge in oil and gas reservoir engineering that introduces evaluation techniques to define characters and properties of a petroleum reservoir and helps formulate engineering solution of petroleum field related problems. Numerous engineering practices are covered. This course will help the development of a more complete "understanding" of the characteristics of oil and gas reservoirs. Data collection, integration and application directed toward maximizing recovery are stressed. Reservoir engineering equations are introduced with emphasis directed to parameter significance and an understanding of the results.