# (8) Reservoir Modeling

**WHO SHOULD ATTEND**

This course is intended for all engineers engaged in the oil and gas industry, in particular for those engineers involved with reservoir modeling

**COURSE OBJECTIVES**

The course provides an overview of the frequently used tools in the petroleum industry to quantify the reserves using different oil and gas reservoir modeling. It is recommended to conduct a material balance evaluation prior to a simulation study. The results should be integrated into a 3D model for a better simulation. The Monte Carlo simulation was used to compute oil and gas using petrophysical parameters, which always involve a magnitude of uncertainty and, as such should be treated as random variables with distinct probability distributions.

**CONTENT**

*Model Types: 1-D (Buckley Leverett), 2-D (cylindrical coordenates) and 3-D.*Field Examples.*Analytical Methods *Havlena-Odeh Methodology. *Black-Oil Reservoirs: Solution-gas-drive, Gas-cap-drive, Water-drive. *Aquifer Models: Pot, Schilthus & Felkovitch. *Gas Reservoirs: Water Influx, No-Water Influx.*Material Balance: History Matching, Analytical Method, Graphical Method, Drive mechanisms.*Voidage Calculations.*Material Balance Field Examples.* Monte Carlo Simulation: PDF&CDF.*Simulation Models: Black-oil, Compositional & Dual Porosity.* Material Balance Compared to Reservoir Simulation. *PVT compositional model.

**INTENDED FOR**

Reservoir Engineers, Simulation Engineers, Reservoir Study Leaders, Geologists and Geophysicists.