

COURSE OVERVIEW

To perform reservoir simulation studies, it is essential to have profound knowledge of PVT properties and PVT behavior of hydrocarbons. To give an insight into this area, this course covers the theoretical issues and the experimental processes applied in PVT laboratories. The practical application of the PVT data on reservoir simulation studies is also reviewed. The theoretical teachings are supported by carefully designed workshop sessions to discuss the direct application of PVT data in field development studies. The course is also important for laboratory staff involved in PVT analysis.

WHO SHOULD ATTEND

Reservoir engineers, PVT laboratory staff, development geologists, and Scientists who are involved in PVT analysis, PVT modelling, or reservoir simulation studies.

COURSE CONTENT

Introduction:

- Definition of PVT properties.
- Reservoir pressures and Temperatures.
- PVT in simulation Studies.
- Effect of reservoir fluid types on selection of the simulation tools.
- Effect of PVT properties on Field Development strategies.

PVT Sampling methods and associated problems:

- Well Conditioning.
- Surface Sampling.
- Subsurface sampling.

Volumetric and phase behavior:

- Origin and Composition of Oil
- Phase Envelopes.
- Black Oil parameters.
- Difference between Black-Oil, Volatile oil, Retrograde gases, and wet gases.
- Oil and Gas Mixtures.
- Cubic EOS.
- Saturation pressure.

Equation of State (EOS):

- EOS Generation & result matching.
- Characterization of heavy ends, splitting and grouping
- Regression.
- PVT Correlations.

PVT Analysis:

- Laboratory tests: CCE, CVD, DL, Separator Calculations.
- Conversion of PVT Parameters to field conditions.
- Traditional and Modified Black-Oil Formulations.

PVT data for Simulation:

- Black oil Models.
- Compositional Models.

QC of the PVT data:

- Black Oil.
- Condensate.
- Comparison with Standing or Local correlations.

Discussion and Review of example problem.