

PVT Modeling

5 days
Overview

PVTMOD-EN-P

LEVEL

Knowledge

PURPOSE

This course provides an extensive and practical understanding for analyzing PVT reports, handling data and defining PVT models for use in compositional and black oil simulations.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
analyze PVT reports and discuss and handle PVT data,
build a PVT model in order to represent fluid behavior with respect to available and validated PVT data,
match a PVT model.

WAYS AND MEANS

Interactive courses and exercises.
Hands-on practices using dedicated modeling software BEST™ or PVTi™ or PVTFlow™.
Mini-project.
Software used during workshops: with courtesy of Beicip-Franlab and Schlumberger.

LEARNING ASSESSMENT

Knowledge assessment with multiple choice questions and open explanatory questions.

PREREQUISITES

Basic knowledge in PVT (fluids properties, measurement techniques and data, thermodynamics and classical correlation).

Agenda

FLUID PROPERTIES & THERMODYNAMIC MODELING

2 d

Fluid properties:
PVT properties of pure components and mixtures.
Functions and variables.
Properties of reservoir fluids.
Introduction to PVT modeling software.
Thermodynamic models and equilibrium:
Functions and variables.
EOS and algorithms.
Component properties and lumping.
Liquid-vapor thermodynamic equilibrium.

RESERVOIR, FIELD CASES & PROJECT

3 d

Measurements:
Sampling.

Analysis.
Standardization of data.
PVT experiments.
Gas injection specific data.
Fluid modeling:
PVT compositional modeling.
Matching of experimental data.
Physical consistency.
Gravitational segregation.
Miscibility.
Field cases:
Compartmentalization.
Non-classical GOR profile.
Reservoir stripping.
Data for reservoir simulation:
Compositional.
Black oil (standard, extended).
Project and exercises:
From the PVT Report do the PVT model.
Quality check of the data.
Oil fitting.
Gas fitting.
Discussions and conclusions.