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COURSE BROCHURE

PVT Analysis and Reservoir Fluid Properties Training Course

28 June – 2 July 2027
Vienna

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Registered in the United Kingdom and Saudi Arabia

PVT Analysis and Reservoir Fluid Properties Training Course

Ref: 1702_62423 **Date:** 28 June – 2 July 2027 **Location:** Vienna **Fees:** 6600 GBP

PVT Analysis and Reservoir Fluid Properties is a 1-week training course for reservoir and production engineers who sample, test and model oil and gas fluids, and who leave with a validated fluid characterisation dossier for one of their own fields. Every reserves estimate and production forecast rests on the fluid description, so weak PVT data distorts field decisions. Jupiter Prime Training presents PVT Analysis and Reservoir Fluid Properties as the link between the laboratory and the development plan.

Why PVT Analysis and Reservoir Fluid Properties Matters Now

Three forces shape fluid work today. Operators are developing more volatile oils and gas condensates, where phase behaviour changes sharply with pressure. Integrated asset teams expect one consistent fluid description across material balance, simulation and process design. An organisation that handles fluid data well avoids mis-sized facilities, wrong recovery factors and failed gas injection schemes; one that handles it badly carries hidden errors into every forecast. The course rests on black-oil formulations, cubic equations of state EOS and standard laboratory test procedures.

Who Gains Most from PVT Analysis and Reservoir Fluid Properties

- Engineers who plan sampling campaigns and judge sample representativity
- Engineers who commission laboratory studies and check the quality of returned reports
- Engineers who build fluid tables and EOS models for reservoir simulation
- Engineers who run material balance and decline studies that depend on formation volume factors
- Engineers who set separator conditions and forecast gas-oil ratio behaviour at surface

Asset teams gain most when reservoir, production and facilities engineers from the same field attend together and agree one fluid description.

PVT Analysis and Reservoir Fluid Properties Capabilities

Participants move from reading a laboratory report to defending the fluid model that a field plan depends on.

- Assess sample representativity from sampling conditions and wellbore history — the decision to accept or resample
- Apply consistency checks to constant composition expansion and differential liberation data — the laboratory contractor
- Calculate formation volume factors and solution gas-oil ratio adjusted to separator conditions — material balance studies
- Build and tune a cubic EOS model against measured data — the simulation engineer
- Weigh black-oil against compositional modelling for a given fluid type — the development plan

- Communicate fluid uncertainty and its effect on forecasts — asset managers and partners

Key PVT Analysis and Reservoir Fluid Properties Terms

- Bubble point pressure — the pressure at which the first gas bubble leaves an undersaturated oil as pressure falls.
- Formation volume factor — the ratio of a fluid volume at reservoir conditions to its volume at stock-tank conditions.
- Solution gas-oil ratio — the volume of gas dissolved in a unit volume of stock-tank oil at a given pressure.
- Constant composition expansion — a laboratory test that lowers pressure on a fixed sample to find saturation pressure and relative volume.
- Differential liberation — a stepwise test that removes released gas at each pressure stage, mimicking depletion below bubble point.
- Equation of state — a mathematical relation between pressure, volume, temperature and composition used to predict phase behaviour.

PVT Analysis and Reservoir Fluid Properties Day by Day

Day 1: Fluid Types and Phase Behaviour

- Phase Envelope Diagrams — Classifying Black Oil, Volatile Oil and Condensate
- Hydrocarbon Composition and Plus Fractions — Choosing Characterisation Detail
- Gas Properties and Z-Factor Correlations — Estimating Gas in Place
- Oil Viscosity and Density Trends — Screening Flow Performance Early
- Water and Brine Properties — Accounting for Aquifer Compressibility

Day 2: Sampling for Representative Fluids

- Bottomhole and Surface Recombination Sampling — Selecting the Sampling Route
- Well Conditioning Procedures — Avoiding Two-Phase Flow at the Sample Point
- Sample Validation Checks — Accepting or Rejecting Field Cylinders
- Contamination From Drilling Fluids — Correcting Oil-Based Mud Filtrate
- Compositional Grading With Depth — Deciding the Number of Fluid Regions

Day 3: Laboratory PVT Tests

- Constant Composition Expansion — Fixing Saturation Pressure and Compressibility
- Differential Liberation Test — Deriving Depletion Behaviour Below Bubble Point
- Multistage Separator Tests — Setting Surface Conditions for Stock-Tank Yield
- Constant Volume Depletion for Condensates — Forecasting Liquid Dropout
- Material Balance Checks on Laboratory Reports — Flagging Inconsistent Results

Day 4: Black-Oil and EOS Fluid Models

- Separator-Adjusted Black-Oil Tables — Feeding Material Balance and Simulation
- Empirical PVT Correlations — Filling Gaps When Laboratory Data Is Thin
- Cubic Peng-Robinson Equation of State — Predicting Compositional Behaviour
- EOS Regression and Pseudo-Component Lumping — Matching Measured Data Efficiently
- Black-Oil Versus Compositional Selection — Matching Model Detail to Recovery Process

Day 5: Practising the Fluid Characterisation Dossier

- Field Sample Screening Exercise — Applying Day 2 Validation to Real Reports
- Laboratory Data Quality Review — Reconciling Day 3 Test Results
- Fluid Tables for Forecasting — Linking Day 4 Models to Production Profiles
- Uncertainty Ranges on Key Fluid Properties — Informing Reserves Sensitivities
- Fluid Characterisation Dossier — Documenting the Agreed Fluid Description

Applying PVT Analysis and Reservoir Fluid Properties After the Course

- Screen the latest laboratory report for one field with the consistency checks taught.
- Rebuild the separator-adjusted black-oil table used in the current simulation model.

PVT Analysis and Reservoir Fluid Properties Questions FAQ

What is PVT analysis and reservoir fluid properties work, and why does it matter now?

It is the measurement and modelling of how oil, gas and water change with pressure and temperature. It matters now because integrated asset models leave less tolerance for fluid errors.

Which roles gain most from PVT analysis and reservoir fluid properties training?

Reservoir and production engineers gain most. You benefit if you plan sampling, commission laboratory studies or build simulation fluid tables.

How does PVT analysis and reservoir fluid properties training differ from a general reservoir engineering course?

It goes deeper into one input. A general reservoir engineering course covers drive mechanisms and decline analysis broadly; this one concentrates on sampling, laboratory tests and fluid models.

What do you bring back from PVT analysis and reservoir fluid properties training?

You bring back a fluid characterisation dossier for a field you know. It holds validated samples, screened laboratory results, a tuned fluid model and uncertainty ranges.

PVT Analysis and Reservoir Fluid Properties: The Way Forward

The fluid characterisation dossier first informs whether the current simulation model uses the right fluid description. Reservoir engineers use it to update tables, production engineers to reset separator targets and planners to revise forecasts. After its first use, revisit the sampling plan as new wells and pressure decline reveal compositional grading.