JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

# Practical Reservoir Engineering Training Course

21 – 25 March 2027
Cairo

**jupiterprime.uk**

info@jupiterprime.uk

Registered in the United Kingdom and Saudi Arabia

# Practical Reservoir Engineering Training Course

**Ref:** 1415_52831 **Date:** 21 – 25 March 2027 **Location:** Cairo **Fees:** 4000 GBP

Practical Reservoir Engineering is a 1-week training course for reservoir, petroleum and production engineers who turn well data into a field reserves and recovery estimate. As fields mature and investment choices tighten, organisations depend on engineers who can read pressure, fluid and production signals and defend a volume figure in front of partners and lenders. Jupiter Prime Training delivers this course.

## Why Practical Reservoir Engineering Matters Now

Three forces shape reservoir work today: maturing fields that need tighter depletion choices, partners and financiers who scrutinise every booked barrel, and a thinner pool of experienced engineers able to mentor newcomers. An organisation that reads its reservoirs well sequences infill wells, pressure support and spending with confidence; one that reads them poorly over-books volumes, drills redundant wells and loses credibility. The course rests on the Petroleum Resources Management System PRMS published by the Society of Petroleum Engineers SPE, the shared language for classifying reserves and contingent resources.

## Who Gains Most from Practical Reservoir Engineering

- Engineers responsible for estimating oil and gas in place and recoverable volumes
- Specialists who interpret pressure surveys, fluid samples and well tests
- Production engineers who forecast well rates and decline behaviour
- Petrophysicists and geologists who supply porosity, saturation and net pay inputs
- Planning engineers who feed reservoir forecasts into field budgets

Asset subsurface groups gain most when engineers, geoscientists and planners attend together and agree one set of reservoir assumptions.

## Practical Reservoir Engineering Capabilities

Participants move from rock and fluid measurements to defensible volumes, linking each calculation to the depletion choice it supports.

- Calculate oil and gas in place from volumetric inputs — reserves bookings for partners
- Apply PVT and rock property data to reservoir models — well and facility sizing
- Build material balance plots to identify drive mechanisms — pressure support decisions
- Test decline curve fits against production history — rate forecasts for budgets
- Weigh uncertainty ranges in recovery factors — low, best and high case reporting
- Communicate reserves categories using PRMS terminology — management and auditor reviews

## Key Practical Reservoir Engineering Terms

- Original oil in place — The total volume of oil in a reservoir before production begins, estimated from rock volume, porosity and saturation.
- Formation volume factor — The ratio of a fluid's volume at reservoir conditions to its volume at surface conditions.
- Material balance — A volumetric accounting of fluids withdrawn and expansion energy, used to estimate in-place volumes and drive.
- Drive mechanism — The natural energy, such as solution gas, gas cap or aquifer influx, that pushes fluids towards the wells.
- Decline curve analysis — Fitting exponential, hyperbolic or harmonic trends to production history to forecast rates and remaining volumes.
- Recovery factor — The fraction of in-place hydrocarbons expected to be produced under a given development and drive.

## Practical Reservoir Engineering Day by Day

### Day 1: Rock, Fluids and the Reservoir Picture

- Porosity, Permeability and Saturation Data — Choosing Reliable Inputs for Volumes
- Capillary Pressure and Relative Permeability Curves — Predicting Fluid Movement
- PVT Reports and Fluid Classification — Selecting Oil, Gas or Condensate Methods
- Formation Volume Factor and Solution Gas Ratio — Converting Surface Volumes
- Volumetric In-Place Estimation — Setting the Starting Resource Figure

### Day 2: Pressure and Well Performance Evidence

- Static Pressure Surveys and Gradients — Locating Fluid Contacts and Compartments
- Pressure Build-Up Test Interpretation — Estimating Permeability and Skin
- Productivity Index and Inflow Performance — Setting Realistic Well Rates
- Gas Well Deliverability Testing — Planning Contract and Plateau Rates
- Data Quality Screening of Field Records — Rejecting Misleading Measurements

### Day 3: Material Balance and Drive Mechanisms

- General Material Balance Equation — Cross-Checking Volumetric In-Place Figures
- Havlena-Odeh Straight-Line Plots — Diagnosing the Dominant Reservoir Drive
- Aquifer Influx Models — Judging the Need for Water Injection
- Gas Cap Expansion and Solution Gas Drive — Managing Producing Gas-Oil Ratio
- Gas Reservoir P/Z Plots — Estimating Gas Initially in Place

### Day 4: Forecasting Rates and Recovery

- Arps Exponential, Hyperbolic and Harmonic Declines — Choosing the Forecast Model
- Type Curves and Rate-Normalised Plots — Separating Reservoir from Well Effects
- Recovery Factor Benchmarks by Drive Type — Testing Forecast Plausibility
- Probabilistic Ranges and Monte Carlo Inputs — Framing Low, Best and High Cases
- PRMS Reserves and Resources Classes — Assigning Volumes to Categories

## Day 5: Practising the Field Reserves and Recovery Estimate

- Rebuilding In-Place Volumes from Field Well Data — Reconciling Two Methods
- Selecting the Drive Mechanism from Pressure History — Fixing Depletion Assumptions
- Fitting Decline Forecasts to Producing Wells — Setting Remaining Volumes
- Peer Challenge of Uncertainty Assumptions — Strengthening the Reserves Case
- Field Reserves and Recovery Estimate — Presenting Volumes to Asset Leadership

## Applying Practical Reservoir Engineering After the Course

- Rerun a material balance check on one producing reservoir and compare it with the booked volumetric figure.
- Refit decline curves for the ten largest wells and flag forecasts that sit outside recovery factor benchmarks.

## Practical Reservoir Engineering Questions FAQ

### What is practical reservoir engineering and why does it matter now?

Practical reservoir engineering is the applied use of rock, fluid, pressure and production data to estimate volumes and forecast recovery. It matters now because maturing fields and closer partner scrutiny demand volume figures that engineers can defend with evidence.

### Which roles gain most from practical reservoir engineering skills?

Reservoir, petroleum and production engineers gain most, alongside geoscientists and planners who supply or use reservoir forecasts. You benefit if you estimate volumes, interpret pressure data or turn production trends into budget rates.

### How does practical reservoir engineering differ from a reservoir simulation course?

This practical reservoir engineering course works with analytical methods such as material balance and decline curves rather than numerical grid models. You learn to produce and check volume estimates quickly.

### What do you bring back from practical reservoir engineering training?

You bring back a worked reserves and recovery estimate built from field well data, plus repeatable spreadsheets for material balance and decline analysis. Your asset group can reuse the method for its next reserves review.

## Practical Reservoir Engineering: The Way Forward

The field reserves and recovery estimate becomes the reference for the next reserves review, first informing whether volumes can be booked in a higher category. Reservoir engineers, planners and asset leaders use it to sequence wells and pressure support. After its first use, revisit the drive mechanism assumption once a further year of pressure history is available.