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# Well and Production Data Analytics Training Course

15 – 19 August 2027
Kuala Lumpur

# Well and Production Data Analytics Training Course

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Well and Production Data Analytics is a 1-week training course for production, reservoir and maintenance engineers and analysts, in which each participant drafts an analytics use-case brief for one oil and gas asset. Fields now stream pressure, rate and vibration readings by the minute, yet many decisions still rest on monthly spreadsheets and gut feel. Jupiter Prime Training runs this course on well and production data analytics.

## Why Well and Production Data Analytics Matters Now

Three forces shape this discipline today. Downhole gauges, flow meters and pump controllers generate far more readings than surveillance engineers can inspect by eye. Maturing reservoirs make every percentage point of decline and every hour of deferred output a commercial question. Experienced field staff are retiring, taking pattern recognition with them. Assets that read well data early spot water breakthrough and failing pumps; others pay for reactive workovers.

## Who Gains Most from Well and Production Data Analytics

- Those who monitor daily well rates, allocate production and explain shortfalls against forecast
- Those who build reservoir forecasts, decline curves and reserves estimates from well histories
- Those who plan maintenance on pumps, compressors and separators and track equipment run life
- Those who own historian, sensor and allocation records and prepare them for engineers
- Those who build field dashboards and morning reports for operations supervisors

An asset group gains most when a production engineer, a reservoir engineer and a maintenance planner from the same field attend together.

## Well and Production Data Analytics Capabilities

Participants turn noisy field readings into trustworthy trends and decide which wells and machines deserve attention first.

- Build a cleaned, time-aligned well dataset from historian, test and allocation records — surveillance engineers
- Calculate decline rates and compare wells against type curves — reservoir and forecasting leads
- Apply anomaly detection to pressure, rate and vibration signals — control room supervisors
- Assess failure risk for pumps and rotating equipment from run-life records — maintenance planners
- Design a field dashboard that ranks wells by deferred output — operations managers

- Specify an analytics use case with data needs, value and owners — asset leadership

## Key Well and Production Data Analytics Terms

- Production allocation — splitting measured facility output back to individual wells using well tests and metering.
- Decline curve — a fitted trend of falling well rate over time, used to forecast output and remaining volumes.
- Type curve — a typical production profile for a group of similar wells, used as a benchmark for new ones.
- Deferred production — output lost or delayed because a well is shut in, choked back or underperforming.
- Mean time between failures — the average running time of a piece of equipment between breakdowns.
- Data historian — the system that stores time-stamped sensor readings from wells and facilities.

## Well and Production Data Analytics Day by Day

### Day 1: The Field Data Landscape

- Well and Facility Data Sources Map — Historian, Well Tests and Allocation Records
- Production Data Quality Issues — Gaps, Frozen Tags and Unit Mismatches
- Time Alignment and Resampling — Matching Sensor Readings to Daily Reports
- Production Allocation Checks — Reconciling Well Totals With Facility Meters
- Analytics Value Questions — Where Better Insight Moves Barrels or Cost

### Day 2: Decline and Trend Analysis

- Decline Curve Fitting — Exponential, Hyperbolic and Harmonic Trends Compared
- Type Curve Benchmarking — Ranking New Wells Against Peer Groups
- Water Cut and Gas-Oil Ratio Trends — Spotting Breakthrough and Coning Early
- Rate Transient Signatures — Reading Pressure and Rate Together
- Forecast Uncertainty Ranges — Low, Mid and High Cases for Planning

### Day 3: Equipment Failure Prediction

- Run-Life and Failure Records — Building Histories for Pumps and Compressors
- Mean Time Between Failures Analysis — Comparing Equipment Classes and Vendors
- Survival Curves for Artificial Lift — Estimating Remaining Run Life
- Leading Indicator Selection — Motor Current, Temperature and Vibration Signals
- Failure Risk Ranking — Prioritising Workovers and Spare Parts

### Day 4: Sensor Anomalies and Field Dashboards

- Statistical Control Limits on Sensor Signals — Separating Noise From Real Change
- Pattern-Based Anomaly Detection — Flagging Slugging, Plugging and Sensor Drift
- Alarm Thresholds and False Alerts — Balancing Sensitivity Against Operator Fatigue
- Deferred Production Dashboard — Ranking Wells by Lost Output
- Morning Report Redesign — Exception-Based Views for Field Supervisors

## Day 5: Practising the Analytics Use-Case Brief

- Data Readiness Check — Applying Day 1 Quality Tests to One Asset
- Forecast and Decline Review — Applying Day 2 Methods to Selected Wells
- Failure and Anomaly Scenario — Applying Day 3 and Day 4 Signals
- Value and Ownership Case — Estimating Benefit and Naming Accountable Roles
- Analytics Use-Case Brief — Completing and Presenting the Asset Proposal

## Applying Well and Production Data Analytics After the Course

- Lead a data readiness review of one field's historian tags, closing gaps and frozen readings.
- Run a monthly deferred production ranking, linking each top loss to its cause.

## Well and Production Data Analytics Questions FAQ

### What is well and production data analytics and why does it matter now?

It is the practice of cleaning, trending and modelling well, sensor and equipment records to guide field decisions. It matters now because readings arrive faster than engineers can review them, while mature reservoirs leave little room for unnoticed losses.

### Which roles gain most from well and production data analytics training?

Production, reservoir and maintenance engineers and the analysts who support them gain most. They decide which wells to intervene on, how to forecast output and when to service equipment.

### How does well and production data analytics differ from a general data science course?

It works only with field records such as well tests, historian tags and run-life logs. Methods are taught through decline curves, allocation checks and artificial lift failures, with examples from onshore oilfields and offshore gas platforms.

### What do you bring back from well and production data analytics training?

You bring back a use-case brief for one asset. It states the decision to improve, the data needed and its readiness, the method chosen, the expected benefit and who owns each step.

## Well and Production Data Analytics: The Way Forward

The analytics use-case brief first informs which field problem earns analysis time and budget. Asset managers, surveillance engineers and maintenance planners use it to agree data clean-up and ownership. After first use, revisit its data readiness section, since new gauges and renamed tags reopen quality gaps.