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COURSE BROCHURE

Petroleum Project Economics and Risk Analysis Advanced Training Course

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Registered in the United Kingdom and Saudi Arabia

Petroleum Project Economics and Risk Analysis Advanced Training Course

Petroleum Project Economics and Risk Analysis is a 2-week advanced training course for petroleum engineers, economists and planners who evaluate upstream investments, and each participant builds a petroleum investment decision model for one exploration or development opportunity. Volatile prices, uncertain subsurface volumes and tougher capital rationing mean boards expect probabilistic cases, not single-point forecasts. Jupiter Prime Training presents Petroleum Project Economics and Risk Analysis for exploration, development and portfolio teams.

Why Petroleum Project Economics and Risk Analysis Matter Now

Three forces raise the bar for upstream investment cases: price cycles that turn yesterday's attractive prospects into marginal ones, investors and partners demanding disciplined capital allocation as energy transition shortens asset lives, and subsurface uncertainty that single deterministic cases hide. Companies that rank projects on optimistic point estimates drill dry holes they should have screened out and under-invest in robust developments; those that quantify uncertainty spend capital where expected value and resilience are highest. The course anchors volume uncertainty in the Petroleum Resources Management System PRMS and links cost assumptions to facilities built to American Petroleum Institute API standards.

Who Gains Most from Petroleum Project Economics and Risk Analysis

- Reservoir and petroleum engineers who generate production profiles and volume ranges for economic cases
- Petroleum economists who build cash flow models and fiscal calculations for investment proposals
- Exploration geoscientists who risk prospects and estimate chance of success
- Portfolio and planning analysts who rank opportunities for capital allocation
- Development planners who compare concept options for field development plans

An asset or exploration team that sends its engineers, geoscientists and economists together gains most, because volumes, risk and money finally sit in one model owned by all three.

Petroleum Project Economics and Risk Analysis Capabilities

Participants learn to turn subsurface ranges, cost estimates and fiscal terms into probability-weighted value that a board can compare across prospects and fields.

- Build an upstream cash flow model with capital, operating cost, fiscal take and abandonment — investment proposals
- Calculate net present value, internal rate of return and capital efficiency — project ranking committees
- Apply probabilistic volume ranges and chance of success — exploration and appraisal decisions
- Design decision trees and calculate expected monetary value — drill, appraise or walk-away choices
- Assess value of information from seismic, appraisal wells and pilots — data acquisition budgets
- Weigh portfolio combinations against risk and capital limits — executive capital allocation

Key Petroleum Project Economics and Risk Analysis Terms

- Net present value — the sum of a project's future cash flows discounted to today, used to judge whether it creates value.
- Chance of geological success — the estimated probability that a prospect contains a flowing hydrocarbon accumulation.
- Expected monetary value — the probability-weighted average of all outcomes of a decision, including dry-hole and success cases.
- Decision tree — a diagram mapping choices, uncertain events and outcomes so expected values of alternatives can be compared.
- Value of information — the increase in expected value from collecting data before deciding, compared with its cost.
- P10, P50 and P90 volumes — high, best and low estimates of recoverable hydrocarbons from a probabilistic distribution.

Petroleum Project Economics and Risk Analysis Day by Day

Day 1: Upstream Investment Context

- Exploration, Appraisal and Development Value Chain — Where Capital Is Committed
- Price Scenarios and Long-Term Planning Assumptions — Setting the Economic Base
- Investor and Partner Hurdle Criteria — What Boards Expect From Cases
- Energy Transition Effects on Asset Life — Shorter Horizons and Carbon Costs
- Decision Quality Principles — Separating Good Decisions From Good Outcomes

Day 2: Volumes and Production Profiles

- Reserves and Resources Classes Under PRMS — Matching Maturity to Economic Use
- Probabilistic Volume Estimation — Building P10, P50 and P90 Ranges
- Production Profile Generation — Plateau, Decline and Type Curves
- Well Count and Recovery Factor Sensitivities — Linking Subsurface to Cash
- Aggregation of Field Volumes — Avoiding Arithmetic Summation Errors

Day 3: Cost Estimation for Upstream Projects

- Drilling and Completion Cost Estimates — Per-Well Ranges and Learning Curves
- Facilities Capital Estimates by Concept — Platforms, Subsea Tie-Backs and Onshore Plants
- Operating Cost Build-Up — Fixed and Variable Components per Barrel
- Abandonment Cost Estimates — Timing and Uncertainty of Decommissioning
- Cost Inflation and Escalation — Real Versus Nominal Modelling

Day 4: Cash Flow Modelling and Fiscal Terms

- Upstream Cash Flow Model Structure — Revenue, Costs, Take and Net Cash
- Royalty and Tax Calculations — Concession Fiscal Mechanics
- Production Sharing Fiscal Calculations — Cost Oil and Profit Oil in Models
- Working Interest and Carried Interest Effects — Company Share of Value
- Model Integrity Checks — Audit Trails and Spreadsheet Error Control

Day 5: Economic Indicators and Ranking

- Net Present Value at Company Discount Rate — Base Value Measure
- Internal Rate of Return and Its Pitfalls — Multiple Roots and Scale
- Profitability Index and Capital Efficiency — Ranking Under Budget Limits
- Payback, Maximum Exposure and Breakeven Price — Resilience Measures
- Incremental Economics — Infill Wells, Workovers and Phase Two Projects

Day 6: Sensitivity and Probabilistic Economics

- Spider and Tornado Diagrams — Identifying Dominant Value Drivers
- Scenario Cases — Low, Base and High Price and Volume Worlds
- Monte Carlo Economic Simulation — Distributions of Net Present Value
- Correlation Between Inputs — Price, Cost and Volume Dependencies
- Interpreting Probabilistic Results — Mean, P90 and Probability of Loss

Day 7: Exploration Risk and Decision Trees

- Prospect Risking Elements — Source, Reservoir, Trap and Seal
- Chance of Success and Dependent Prospects — Risking Prospect Clusters
- Decision Tree Construction — Drill, Farm Out or Relinquish Choices
- Expected Monetary Value Calculation — Risked Value of Exploration Wells
- Risk Attitude and Utility — Company Size and Risk Tolerance

Day 8: Value of Information and Flexibility

- Value of Information Analysis — Seismic, Appraisal Wells and Production Tests
- Appraisal Programme Design — Reducing Uncertainty Before Sanction
- Real Options Thinking — Phased Development and Expansion Rights
- Pilot Projects and Staged Commitments — Limiting Downside Exposure
- Decision Gates and Stopping Rules — When to Exit an Opportunity

Day 9: Portfolio Analysis and Capital Allocation

- Portfolio Value and Risk Measures — Combining Projects Coherently
- Efficient Frontier Concepts — Trading Expected Value Against Variance
- Capital Constraint Optimisation — Selecting Projects Within Budgets
- Balancing Exploration, Development and Low-Carbon Options — Strategic Mix
- Presenting Investment Cases to Boards — Clear Uncertainty Communication

Day 10: Practising the Petroleum Investment Decision Model

- Volume and Profile Inputs — Applying Days 2 and 3 to a Case Project
- Fiscal Cash Flow and Indicators — Applying Days 4 and 5
- Probabilistic and Decision Tree Layer — Applying Days 6 and 7
- Information and Portfolio Fit Test — Applying Days 8 and 9
- Petroleum Investment Decision Model — Recommendation to a Mock Investment Committee

Applying Petroleum Project Economics and Risk Analysis After the Course

- Rebuild one current investment proposal with probabilistic volumes and a tornado chart, then present the dominant value drivers to the planning team.
- Run a value of information study on a planned appraisal well or seismic survey and recommend whether to proceed.

Petroleum Project Economics and Risk Analysis Questions FAQ

What is petroleum project economics and risk analysis and why does it matter now?

It is the evaluation of upstream investments using cash flow models, fiscal terms and probabilistic risk methods. Price volatility, capital discipline and subsurface uncertainty make probability-weighted cases essential for choosing which prospects and fields to fund.

Which roles gain most from petroleum project economics and risk analysis training?

Reservoir and petroleum engineers, petroleum economists, exploration geoscientists, portfolio analysts and development planners gain most. Together they supply the volumes, risks and economics behind every upstream investment decision.

How does petroleum project economics and risk analysis differ from a capital project risk course?

It focuses on whether to invest rather than how to execute. A capital project risk course quantifies schedule and cost overruns during construction, while this course values prospects and fields using chance of success, decision trees, expected monetary value and portfolio ranking.

What do you bring back from petroleum project economics and risk analysis training?

You bring back an investment decision model for one petroleum project. It combines probabilistic volumes, costs, fiscal cash flows, decision trees and value of information tests, ready to support your next investment committee proposal.

Petroleum Project Economics and Risk Analysis: The Way Forward

The petroleum investment decision model gives each participant a working, auditable link between subsurface uncertainty and economic value for one opportunity. Its first use is the next investment or portfolio review, where planners and executives decide to drill, appraise, develop or exit. After that decision, revisit the price scenarios and value of information sections as new data and market signals arrive.