

Petroleum Economics and Risk Analysis

The course will provide a structured approach to defining and analysing petroleum risks in the upstream business.

It will introduce decision-making tools and the supporting software, using case study material taken from oil and gas field examples to ensure direct applicability of the techniques covered.

The initial Petroleum Economics element of the course provides knowledge of the role of petroleum economics in decision making for both exploration and production ventures. It gives participants the skills to perform economic evaluations using a selection of indicators derived from discounted cashflow forecast, to rank projects against alternatives, and investigate economic robustness.

The objectives of the Risk Analysis section are achieved through the use of a case study taken from an offshore oil field development to identify, express and analyse technical and commercial uncertainties. This allows continuity between the various subjects covered. This element will ensure that participants are fully familiar with techniques such as Monte Carlo simulation, Decision Tree Analysis, Parametric Analysis, sensitivity analysis, and that they have the software skills to support the application of these methods. Participants will be working with Crystal Ball and Decision Tree analysis software. Broader issues such as Portfolio Management are also introduced.

Petroleum Economics - the basis of project evaluation

- Introduction
- Development Economics: Constructing a project cashflow; Profitability indicators; Inflation and types of money; Project ranking and screening; Sensitivity analysis
- Exploration Economics: Probability and expectation curves; Expected monetary value (EMV); Introduction to Decision Tree analysis;
- Incremental Economics: Typical incremental projects during the field life cycle; Evaluating of incremental projects with negligible risk; Operational decision making under risk

Risk Analysis

- Introduction; Defining risk and uncertainty; Identifying uncertainties in the E&P business; Expressing uncertainty -probability distributions
- Combining uncertainties: Dependant and independent variables; The Monte Carlo method using Crystal Ball software; The Parametric Method; Three-point distributions
- Tools for Quantifying Risk: Sensitivity analysis; Decision three analysis using commercial software; Simulation
- Technical Uncertainties and their Management: Exploration; Appraisal and feasibility studies; Development planning; Production
- Commercial Uncertainties and their Management: Market factors; Human factors
- Portfolio Management: Overview; The budget line; Indifference curves; Market taste combined; The efficient frontier with respect to risk and value; Impact of diversification on total portfolio risk

 Duration

Full day 5 days

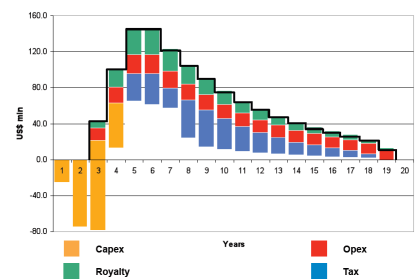
 Learning Level

Skills   
Knowledge   
Awareness   

Designed for:

The course is designed for staff working in geoscience, engineering, finance, or commercial departments of oil and gas companies, or companies which supply finance or services to the oil and gas industry.

Field Capex, Royalty, Opex, and Tax(es)



Course Tutors



Mark Cook BSc, MBA
40+ years - reservoir engineering, economics and risk analysis
Mark develops and runs courses in Early Development, Business, Uncertainty & Risk and Reservoir Engineering series. With a career at Shell, TRACS and AGR. Author of 'Petroleum Economics and Risk Analysis' and 'Hydrocarbon Exploration and Production', an SPE distinguished lecturer, guest lecturer at Heriot-Watt University



Jerry Hadwin BSc, MEng
35+ years - reservoir engineering
Jerry mainly tutors courses in the Reservoir, Business, Early Development, and Open Air Series. He has a career background at Shell, AGR, RPS and TRACS. Jerry is co-author of 'Adventure Trekking in Oman'.



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