



PETROLEUM ECONOMICS

Excel Modeling

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ABOUT APTA CONSULTING

APTA provides Financial Modelling, Petroleum Economics Evaluation & Analysis, and Excel training for business modelling and data analysis to range of clients. Ours is a small team of expert Petroleum Economists serving clients with high quality, but cost-effective financial modelling support and training delivered by team of experts around the world.

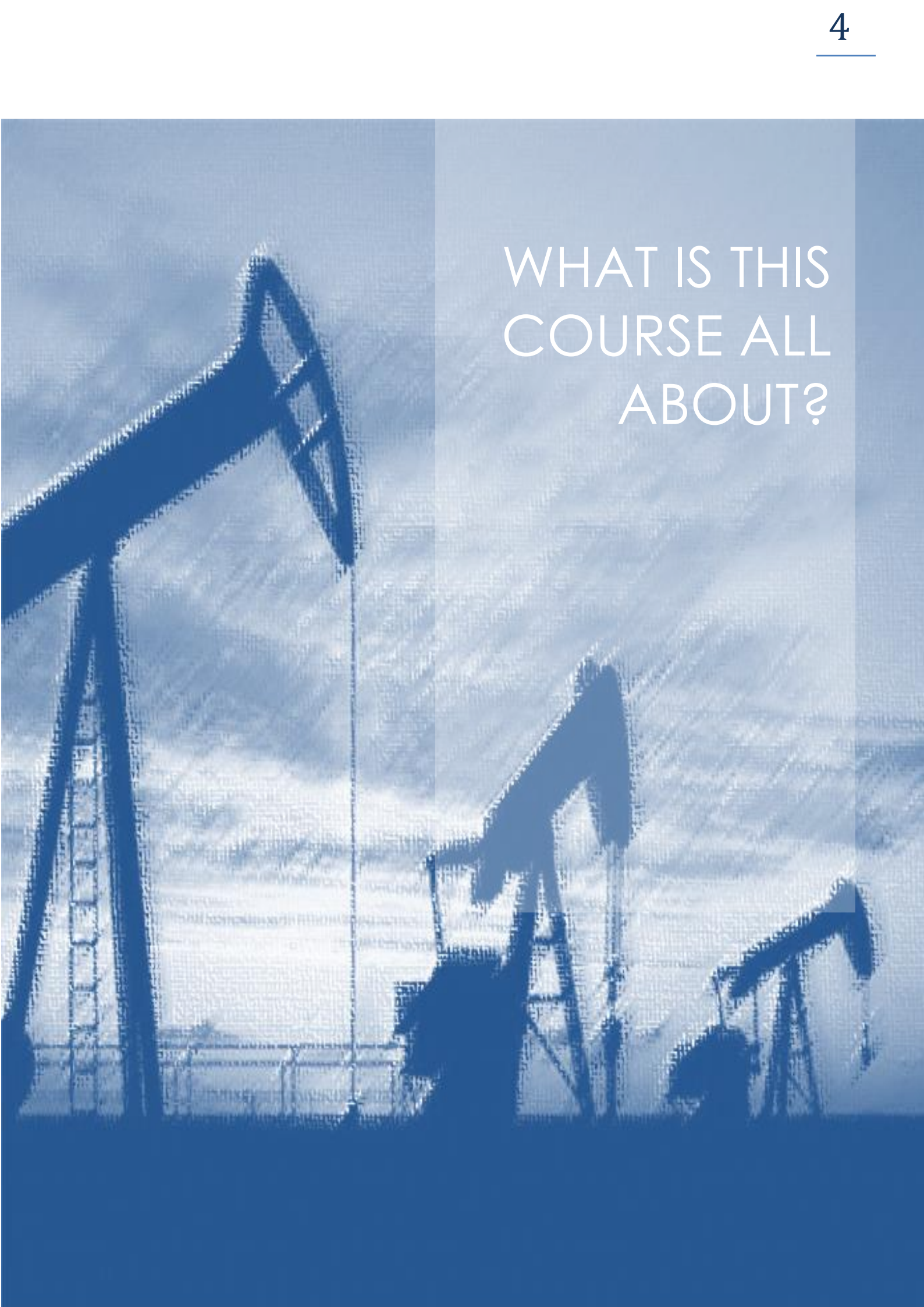
APTA OIL & GAS TEAM

APTA's dedicated Oil & Gas modelling team is led by Santosh Singh. Santosh has more than 15 years of core industry experience. With a technical background in drilling engineering and further qualification in Finance and Economics, he has worked in several technical and commercial functions and gained extensive experience in economics evaluation, business development and commercial agreements.

Santosh's commercial valuation and analysis experience covers Africa, Asia, and Eurasia to name a few. He has a proven ability in the fiscal regime contract review and upstream Oil and Gas project cash flow analysis and providing high quality decision support to management for investment decisions. He also undertakes engagements with universities for guest lectures about petroleum economics and risk analysis.



SANTOSH SINGH
PRINCIPAL CONSULTANT, OIL & GAS TEAM



WHAT IS THIS
COURSE ALL
ABOUT?

ABOUT THIS COURSE

The course is all about making you industry ready in modelling upstream Petroleum Project Economics and decision analysis. If you already have the basic grounding in the subject, you will hugely gain in your investment analysis proficiency using Excel.

Our approach is based on live model building exercise and case studies. Participants will learn to build economic/financial cash flow models in Excel and learn to answer various key questions frequently asked by CEOs/CFOs/management, to aid in the investment decisions.

Participants learn key concepts in petroleum economics and financial modelling by *doing exercises and building sufficiently large numbers of models as well as doing scenario and sensitivity analysis* under the guidance of experienced economist.

They are exposed to various features and functions available within Excel through live examples. They will be required to build models and analyze cases provided to them for these very specific purposes.

WHO IS THIS COURSE FOR?

This program is suitable and highly recommended for students of Oil and Gas discipline, energy managers, new Economist, Reservoir engineers, supervisors and other key employees from Finance, Commercial, Exploration & Production, New Venture Development & Planning, Business Development, Legal etc. who would wish to create an in depth understanding in the subject of petroleum economics and also enhance their Excel/modeling skills of upstream assets.

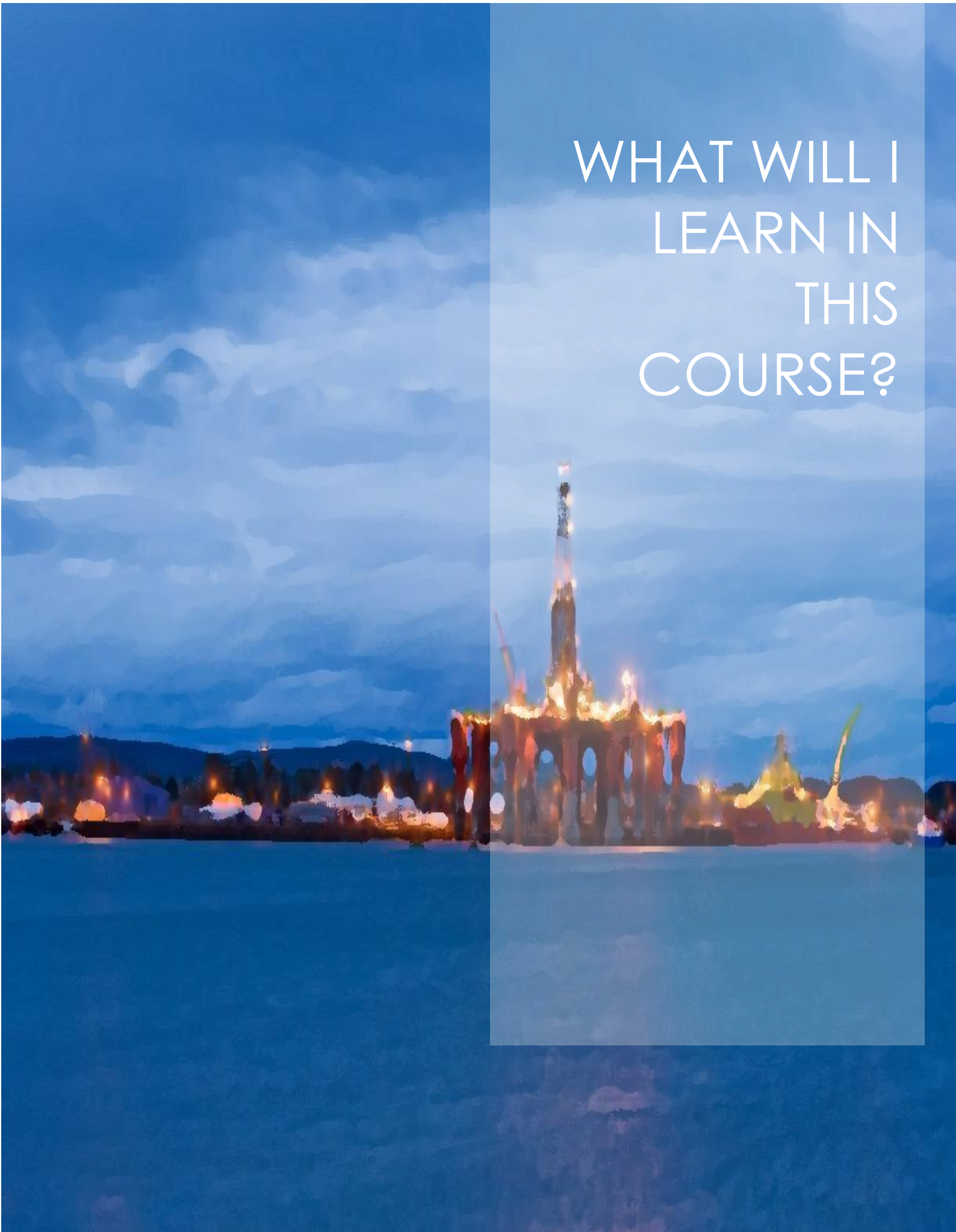
COURSE DURATION & VENUE

This course is usually organized over five days. We offer this course at location of participant's choice; can be in-house, on campus or offsite. Please call us or write to us (info@aptaconsultingltd.com) for more details. We are open for any suggestions.

REQUIREMENTS

Each delegate **must** bring their own Laptop. The Laptop must have Excel (version 2007, 2010, 2013) installed in their Laptop, as this course is Excel intensive and delegates will be doing Excel based exercises.

WHAT WILL I
LEARN IN
THIS
COURSE?



LEARNING OBJECTIVE STATEMENT

Participants will learn how to construct an upstream Oil and Gas projects economic/financial model in a structured and transparent way. They will gain competency in the Economics and financial modelling of fiscal regimes. They will learn how to set up models for running scenarios and sensitivities, farm-in/out cases, etc. in Excel.

This course will strengthen their key concepts in the following area:

CASH FLOW COMPONENTS & ECONOMIC INDICATORS

- Distinguishing cash flow from income and profit
- Sources of revenue and cost
- Treatment of capital expenditures (Capex)
- Depreciation methods and their objectives
- Operating expenditures (Opex) and their fixed, variable and marginal components
- Discounting and time-value considerations
- Inflation, real and nominal (money-of-the-day) values
- Capital budgeting and capital efficiency
- Weighted-average cost of capital (WACC) and discount rates
- Factoring in historic (sunk) costs into cash flow analyses
- Valuing incremental investments
- Economic indicators and yardsticks used to rank asset values (NPV, IRR)
- Hurdle and minimum acceptable rate of return
- Discounted payback, financial exposure and breakeven analysis
- Project lifecycles, optimum economic life and multi-year cash flows

UPSTREAM PETROLEUM ECONOMICS

- Petroleum reserves categories and their valuation
- Oil and gas production profiles and decline forecasts
- International fiscal regime designs and systems
- Regressive and progressive royalties and taxes
- Production sharing contracts and agreements (PSCs and PSAs)
- Cost recovery mechanisms and Profit Oil
- Depreciation, Depletion, and Amortization (DD&A)
- Contractor and government “Takes”: shares of revenues and costs
- Loss carry forwards, limitations upon them including ring fences
- Farm-out, farm-in and joint venture relationships and terms
- Working and carried interests: paying, revenue and earning components
- Project finance and evaluation of equity and debt-supported cash flows

SENSITIVITIES SCENARIOS SIMULATION & DECISION ANALYSIS

- Deterministic versus probabilistic methodologies
- Establishing ranges and cases to test base case assumptions
- Spider diagrams and Tornado charts
- Decision Trees
- Waterfall charts

The primary objective is to apply the theoretical understanding of Petroleum Economics to build Excel models for decision analysis by doing the followings:

- ✓ **Modelling Royalties**
 - ✓ Royalty based on commodity prices
 - ✓ Royalty based on period-end cumulative production
 - ✓ Royalty based on cumulative production throughout the period
 - ✓ Royalty based on production rate
 - ✓ Royalty based on Price and Production Rates
 - ✓ Royalty based on a Measure of Cumulative Profitability: The “R-factor”
- ✓ **Modelling Bonuses**
 - ✓ Commerciality bonuses
 - ✓ Bonuses payable at First Oil
 - ✓ Cumulative production bonuses
 - ✓ Bonuses based on the cumulative value of production
 - ✓ Bonuses based on the production rate for a specified period
- ✓ **Modelling Issues in Taxation**
 - ✓ Understanding different depreciation methods by modelling
 - ✓ Tax losses carry forward (and carry back)
 - ✓ Corporate tax & Petroleum Profits Tax
 - ✓ Tax rate based on date, time value pair etc.
 - ✓ Tax holiday
 - ✓ Capital allowance and differentiating between expensing and capitalizing
 - ✓ How to account for tax ring-fence
- ✓ **Modelling of PSCs**
 - ✓ Cost Oil/Cost Recovery
 - ✓ “Uplifts” to Cost Oil
 - ✓ PSCs with Explicit Income Tax Provisions
 - ✓ Profit Oil based on commodity prices
 - ✓ Profit Oil based on the production Rate
 - ✓ Profit Oil based on cumulative Production
 - ✓ Profit Sharing based on a measure of cumulative profitability
 - ✓ Understanding concept of “R-factor”, “ROR” etc. by modelling
- ✓ **Developing Analytical Framework for Upstream Projects**
 - ✓ Aggregation and consolidation
 - ✓ How to analyses incremental projects
 - ✓ When to apply Sensitivity analysis and when Scenario analysis
 - ✓ How to build Spider, Tornado diagrams and Waterfall charts
 - ✓ Different ways to model Abandonment payments/relief
 - ✓ Modelling Farm-In and Farm-Out analysis
 - ✓ How to model for ring-fenced regimes
 - ✓ Carry and complex Working Interest
- ✓ calculate minimum economic reserve
- ✓ Break Even calculations and analysis

- ✓ What to look for in Bid Rounds
- ✓ Economics of self-financing, loan, leasing's
- ✓ Hedging and project economics
- ✓ Understanding Lifting scheduling

COURSE TAKEAWAYS

Apart from enhancing their knowledge base and skills in financial modelling in Excel, the enrollee of this program will:

- ✓ Be provided with course manual including all examples Excel files.
- ✓ *Get free assistance in future for any Excel/fiscal regime/financial modelling queries.(subject to a cap on the number of free hours assistance)*

FEES

We can structure fee either as fixed or variable amount depending on number of days and participants for the course. Please call us or write to us to discuss about the fees and payments structure.

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