

# 16PL308 PETROLEUM ECONOMICS AND ASSET MANAGEMENT



Hours Per Week :

L	T	P	C
3	-	-	3

Total Hours :

L	T	P	WA/RA	SSH/HSH	CS	SA	S	BS
45	-	-	15	45	-	5	5	5

## Course Description and Objectives:

Understand the importance of petroleum sector in the world economy, both the macro and micro-economic environment and as applicable to India

## Course Outcomes:

The student will be able to :

- To have an overview of the regulatory frame related to exploration as per NELP
- Understand geopolitical risks and opportunities and hedging strategies to mitigate market and price risks

## SKILLS:

- ✓ Carry out a project risk evaluation, breakeven and sensitivity analysis and develop a model to know which petroleum projects is viable and relative priority.

**UNIT - 1**

**L-9**

**Macro-Economic Approach of Petroleum Industry:** Political environment related to petroleum industry and issues related to government and corporate interests, Need for understanding petroleum economics required to make investment decisions; Introduction, Role and value of Oil & Gas, Evolution of national oil companies, Organization of petroleum exporting countries.

**UNIT – 2**

**L-9**

**Principles, Methods and Techniques of Petroleum Engineering Economics:** Introduction, outline and key terminologies and generic issues of micro-economic analysis applicable to all sectors of the oil and gas supply chain, Capital budgeting and capital efficiency, Sources of revenue and cost and profitability analysis, Operating expenditures (opex) and their fixed, variable and marginal components, Economic indicators and yardsticks used to rank asset values (NPV, IRR, etc.).

**UNIT – 3**

**L-9**

**Managing and Mitigating Uncertainty and Risk:** Risk, uncertainty and decision analysis, Analysis of alternative selections and replacements, Managing and Mitigating uncertainty and Risk-Break even and sensitivity analysis, Optimization Techniques, Geopolitical risks and opportunities and hedging strategies to mitigate market and price risks, Asset valuation process: fair market value, probability and risk.

**UNIT – 4**

**L-9**

**Application and Project Evaluation:** Project lifecycles, optimum economic life and multi-year cash flows, Oil fields exploration and drilling operations, Oil fields' estimation of oil reserves and evaluation of an oil property, Project financial analysis, Project development and Joint development utilization oil fields production operations, Oil transportation, Crude oil processing.

**UNIT – 5**

**L-9**

**Valuing Petroleum Assets, Portfolios and Companies:** Asset valuation process: fair market value, probability and risk, Risk adjustments when valuing petroleum reserve categories, The portfolio approach to asset and corporate management, Portfolio characterization, balance and diversification.

**Demand and Marketing of Petroleum Products:** Crude oil fundamentals, Price of crude, Crude oil prices in transactions, Internal Markets and Prices, Marketing and sale of Motor, Aviation, Lubricant, Asphalt and Propane;. Transportation: Fundamentals of transportation, Pipelines, Oil tankers, Downstream transportations, Distribution of petroleum products.

**TEXT BOOKS:**

1. Petroleum Economics and Engineering, Third Edition, Hussein K. Abdel-Aal, Mohammed A. Alsahlawi, CRC Press, 2013. (ISBN: ISBN; 1466506660, 9781466506664)
2. The Global Oil & Gas Industry: Management, Strategy and Finance, Andrew Inkpen & Michael H. Moffett, 2011. (ISBN-10: 1593702396, ISBN-13: 978-1593702397)

**REFERENCEBOOK:**

1. SPetroleum Economics, Jean Masseron, Technip; 4<sup>th</sup> revised Edition, 2000. (ISBN-10:2710805979; ISBN-13: 978-2710805977).

**ACTIVITY:**

- o Case study on crude oil market analysis.