Investment Profitability Studies in the Oil & Gas Industry

Overview

LEVEL
Foundation

PURPOSE
This course provides a better understanding of the concepts behind the theory of capital budgeting, thus helps improving the analysis in investment profitability studies. A number of computer case studies will be treated all along the course to apply the principles that are presented succinctly, which makes this course a very practical one.

LEARNING OBJECTIVES
Upon completion of the course, participants will be able to:
- develop advanced computer models for the economic evaluation of Oil & Gas projects,
- incorporate specific financing plan through equity profitability analysis,
- analyze the economic results and carry out sensitivity analysis,
- incorporate the risk and uncertainty in the economic evaluation of Oil & Gas projects.

WAYS AND MEANS
Case studies simulated on computers.

LEARNING ASSESSMENT
Participants will be evaluated during the training through quizzes and case studies.

PREREQUISITES
Participants need to be comfortable with the use of Microsoft Excel.

Agenda

ECONOMIC EVALUATION CRITERIA
Corporate finance, capital costs and discount rate of the company.
Construction of project cash flows schedule.
Economic criteria for project evaluation: net present value (NPV), internal rate of return (IRR), payback period, etc.
Case studies: development of an oil field under concession.

GLOBAL PROFITABILITY ANALYSIS
Methodology for assessing the global profitability of capital invested.
Impact of taxation and inflation in profitability investment studies.
Choosing an investment program with a limited budget, scarcity cost of capital.
Case studies: accelerating production project (EOR) project of upgrading a refinery (Hydrocracking unit).

ECONOMIC COST ANALYSIS
Accounting cost vs. economic cost, after-tax cash outflows.
Total discounted cost, annual economic cost.
Economic depreciation, unit economic cost, optimal economic lifetime.
Cases studies: issues related to purchasing of equipment and definition of an optimal economic lifetime.

**EQUITY PROFITABILITY ANALYSIS**
Financing Oil & Gas projects, project finance and B.O.T. structures.
Various financing plans and debt repayment.
Analysis of equity cash flows, return on equity capital, financial leverage.
Case studies: construction of LNG plant and gas pipeline projects with specific financing.

**RISK ANALYSIS**
Introduction to risk analysis and risk discount rate: sensitivity analysis, Spider and Tornado diagrams.
Probability of success, economic risk analysis in oil exploration.
Economic study of an exploration project using Min, Mode and Max scenarios.
Case studies: valuation of a decision to acquire information (seismic or drilling) and pricing of an exploration bloc.

**CASE STUDIES**
Oil field development project.
Acceleration of production project with or without EOR (Enhanced Oil Recovery).
Isomerization vs. alkylation project.
FCC project (Fluid Catalytic Cracking).
Project of upgrading a refinery.
Hydrocracking unit project.
Polypropylene Plant Project.
LNG plant project with specific financing.
Gas pipeline project with specific financing.
Service station modernization project.
Gas-fired power plant project.
Valuation of a decision to acquire information (seismic or drilling).
Pricing of an exploration bloc.