



# THE CHEMICAL ENGINEERING MAJOR

**Oil & Gas Business Management  
International Best Practices**

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## **COURSE OVERVIEW**

The Oil & Gas sector is considered to be one of the important areas of the global economy liable for about 2.5% of world GDP. Oil & Gas is a vital source of energy for the world and will be expected remain so for many decades, even under assumptions about the growth in alternative energy sources. It is highly desirable that non-technical personnel that works in the petroleum industry or in related activities acquire a practical basic understanding of the petroleum industry in an interesting and effective manner.

The course provides a non-technical review of upstream (exploration and production), midstream (gas processing and transportation) and downstream (refining and marketing) operations. Further, the course comprehensively covers the oil and gas supply chains from exploration through field development, valuation, and risk, production, transportation, processing and refining, marketing, contracts, trading, retailing, logistics, emerging markets and competition with alternative energies. As such, it provides understanding and insight into the processes, drivers, threats, and opportunities associated with the core industry activities.

Participants will gain an appreciation of the principal activities in the international upstream and downstream petroleum industry and an understanding of how this inter-relate, as well, an awareness of the impact of external influences and the ways in which the industry is adapting to increase its competitiveness and to meet new challenges.

## **LEARNING OBJECTIVES**

Upon the successful completion of the course, participants will:

- Identify where petroleum comes from and how and where it accumulates
- Recognize and understand basic geology and its relation to the formation and exploration of petroleum
- Identify the stakeholders in the energy supply chain
- Explore the global oil and gas industry to date and understand different type of oil companies

- Understand exploration and production techniques and their associated risks
- Gain insight to petroleum economic, fiscal and project planning issues
- Become aware of development, transport and market options for oil and gas

## TARGET AUDIENCE

- Those seeking a broader knowledge of the oil, gas and energy industry and markets
- New recruits to oil, gas and energy companies
- Oil & gas field personnel
- Operations, maintenance and engineering professionals
- Finance, Procurement & Supply Chain Staff
- Other support staff who have an interest in increasing their understanding of the oil & gas production operations: analysts, planners, traders, sales, marketing, engineering, refining, communications and commercial personnel
- Ministerial, governmental, industry bodies and development agency staff

## COURSE CONTENTS

### ***Module 1 - Introduction - Oil Production Life Cycle***

- **KeyTopics:**
  - Overview of oil and gas operations
  - The nature of crude oil and natural gas
  - Oil and gas in energy supply and demand
  - Descriptions of the distinct oil and gas supply chains
  - Origin and distribution of oil and gas
  - Upstream production, reserves and price trends
  - Petroleum product consumption trends
  - Supply, demand to license and bidding

### ***Module 2 - Petroleum Geology and Drilling Operations***

- **KeyTopics:**
  - Petroleum geology
  - Exploration technologies and activities
  - Reservoir Rock Properties
  - Properties of Reservoir Fluids
  - Drilling operations and Engineering
  - Well Completions

## ***Module 3 - Reservoir and Well Dynamic Behavior***

- **KeyTopics:**

- Reservoir Drive Mechanisms
- Estimation of Reserves and Prediction of Reservoir Performance
- Field Appraisal & Volumetric Estimation
- Project planning and managing field developments
- Upstream fiscal terms, contractual and project finance

## ***Module 4 - Field Development and Production Operations***

- **KeyTopics:**

- Secondary Recovery and Pressure Maintenance
- Introduction to Enhanced Oil Recovery Techniques
- Role and Tasks of Production Technology
- Inflow Performance
- Artificial Lift Systems
- Well Stimulation

## ***Module 5 - The Role of Technology in Hydrocarbon Processing***

- **KeyTopics:**

- Surface Facilities Operations
- Introduction to Oil & Natural Gas Processing
- Gas treatment Operations and Products
- Pipeline transportation of oil and gas
- Refined products
- Case Studies