



# **COURSE TITLE: FUNDAMENTALS OF OIL AND GAS PRODUCTION**

**Course Duration:** 4 days

**Course Level:** Foundation

## **Overview of Course:**

This course is a broad introduction to oil and gas development. It conveys a background understanding of the origins of oil and gas, how subsurface developments are decided and how these link with the selection of the surface facilities development.

Primary surface oil and gas production systems are covered including export systems from pipelines to oil terminals and tankers.

Both onshore and offshore production systems are described and the offshore systems include fixed structures, floating systems and subsea systems.

The course includes an introduction to the basic principles of project development including handling uncertainties, HSE and managing risk. It also provides a basic understanding of the role of Operations in managing the reservoir, wells and facilities through field life.

## **DESIGNED FOR YOU, IF YOU ARE...**

- A Facilities or Process Engineer, either a Graduate or a more experienced Technical Professional looking to develop theoretical competence
- A Project Manager who seeks greater understanding of the process and mechanical design of plants
- An Operations Engineer looking to deepen your knowledge of the design principles of the plants
- A Sub-Surface Engineers seeking to broaden your technical knowledge

## **HOW WE BUILD YOUR CONFIDENCE**

The course links theory to application. It reinforces this through real industry problems and examples which are solved by the participants as part of the sessions.

The course is highly interactive and participants are encouraged to share their own experiences and problems to the benefit of all.

## **THE BENEFITS FROM ATTENDING**

By the end of the course you will have a basic understanding of the different types of oil and gas reservoirs and how they can be developed from a subsurface perspective. You will be able to link the selection of the subsurface development to the choices for the surface handling and product export facilities.

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You will appreciate the technical differences between the major concepts for offshore production systems; fixed structures, floating systems and subsea systems. You will also have seen examples of typical onshore production systems and learnt about pipelines, export terminal and tanker transport.

You will also have an introduction to the principles of project development including handling uncertainties and risk and the basics of HSE management. You will also appreciate the important role of Operations and managing the wells and reservoir production throughout field life.

## **TOPICS**

- Origins of Oil & Gas, Exploration Techniques and Subsurface Development
- Primary Surface Production Systems
- Offshore and Onshore Production Systems including Pipelines, Export Terminals and Tankers
- Offshore Structures
- Floating Production Systems, Subsea Engineering & Flow Assurance
- Basic Project Development principles including handling Uncertainties, HSE and Managing Risk
- Operations and Well & Reservoir Management

## **DAILY AGENDA**

Day 1: Oil & Gas Origins, Exploration and Subsurface Development

- Origins of Oil & Gas
- The Oil & Gas Lifecycle
  - Cash Flow for an Oil & Gas Project
- Exploration & Appraisal
  - Seismic Acquisition
  - Exploration Drilling
  - Appraisal & Prospect Evaluation
- Sub-Surface Development
  - Estimating Volumes of Reserves
  - Reservoir Recovery Mechanisms
  - Artificial Lift
  - Secondary, Tertiary & Enhanced Oil Recovery

Day 2: Surface Facilities

- Surface Facilities
  - Primary Production Systems

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- Oil Processing (Stabilisation, Dehydration & Desalting)
- Water Processing
- Water Injection
- Gas Processing

Day 3: Offshore Production Systems

- Offshore Structures
- Floating Systems
- Basics of Flow Assurance
- Subsea Engineering

Day 4: Onshore Systems and Project Development

- Onshore Plants
- Export Systems
  - Pipelines
  - Export Terminals
  - Tankers
- Project Development
  - Health Safety & Environment
  - Handling Uncertainties
  - Managing Risk
- Introduction to Operations & Maintenance
- Introduction to Well & Reservoir Management

**INSTRUCTOR:**

Phil Tudhope is currently Director of a consulting company, specialising in technical and project management training for graduates and more senior technical staff. He has a first class honours B.Sc. in Mechanical Engineering from Bristol University and is a Chartered Engineer, Fellow of the Institution of Mechanical Engineers and Associate Member of the Institution of Chemical Engineers.

Phil has 40 years' experience in Project Management, Technical Development and Change Management in the oil & gas industry and proven technical and managerial capabilities to achieve results with a strong business focus and to effect significant positive change. He is a specialist in front-end (feasibility & concept selection) phases of upstream oil & gas developments with midstream (LNG) experience and project execution experience and has the ability to perform analysis and development work as well as lead and motivate teams.

Amongst other roles, he was Specialist Front End Advisor at Petronas Carigali, Chief Process Engineer at BG Group and Head of Upstream Engineering at Shell Technology India. He has

experience worldwide in differing political, social and remote environments, having worked overseas for 28 years including the Far East, USA, Europe, the Middle East and India.

Phil is an experienced instructor including the development and delivery of technical and project management courses.