# Hydrocarbon Exploration and Production

**Focus on:** The Manager ☐ The Specialist ☑ Spotlight Programme ☐ Hands-on Skills ☑

## Course Overview

This Hydrocarbon Production Operations training course offers a comprehensive understanding of oil and gas production, focusing on production facilities and reservoir lifecycle management. Participants will explore current and emerging technologies that enhance efficiency in today's competitive, low carbon environment. The course covers oilfield equipment used in exploration and production, fluid behaviour in reservoirs, and the extraction, processing, and refining of marketable products. Key topics include reserves calculation, fluid properties, surface facility configurations, and cost-effective field operations. Enhanced Oil Recovery (EOR) technologies will also be discussed, emphasizing their impact on reserve valuation and production optimization.

| Course Objectives | | This Course is Ideal For: | |
|---|---|---|---|
| 1 | **Understanding the Oil and Gas Supply Chain**: Gain insights into upstream, midstream, and downstream operations, including related facilities and processes. | ✓ | **Operations Personnel**: Professionals involved in the day-to-day management of oil and gas production activities. |
| 2 | **Exploration, Production, and Transportation Methods**: Learn the latest technologies and methods for exploring, drilling, producing, treating, and transporting oil, gas, and their products. | ✓ | **Maintenance Teams**: Staff responsible for the upkeep and reliability of oil and gas facilities and equipment. |
| 3 | **Global Oil and Gas Statistics**: Stay updated on global reserves, production, consumption, and export trends. | ✓ | **Engineering Professionals**: Engineers focused on designing, optimizing, and troubleshooting production systems. |
| 4 | **Economic Drivers of the Oil and Gas Value Chain**: Explore the key factors influencing the international oil and gas market. | ✓ | **Oil & Gas Field Staff**: On-site personnel engaged in exploration, drilling, and production operations. |
| 5 | **Crude Oil Valuation**: Understand how crude oil value is determined based on product market prices, retail, and distribution. | ✓ | **Corporate Planning and Business Development Managers**: Professionals strategizing growth, investments, and market opportunities in the energy sector. |
| 6 | **Enhanced Oil Recovery (EOR) Technologies**: Stay informed on the latest EOR techniques and their impact on production. | ✓ | **Business Analysts**: Individuals transitioning into the oil and gas field who need a foundational understanding of production operations. |
| 7 | **Processing Facility Configurations**: Examine the structure and design of processing facilities, from simple to complex setups. | ✓ | **Energy Journalists and Reporters**: Media professionals covering the oil and gas industry who seek deeper insights into production processes. |



 

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| 8 | **International Supply and Transportation**: Learn the essentials of global oil and gas supply, economics, and transportation logistics. | ✓ | **Support and Professional Staff**: Legal, banking, insurance, and finance experts dealing with oil supply, refining, and transportation logistics. |

## Course Content

| Day | Theme | Coverage |
|---|---|---|
| 1 | **Overview of the Hydrocarbon Industry**: Fundamentals of upstream, midstream, and downstream sectors. | • Global Oil & Gas Statistics:<br>  ○ Reserves, production, and consumption<br>• Filed Development<br>• Petroleum Economics<br>• Production Operations Phases<br>• Petroleum Geology<br>• for Oil & Gas Exploration<br>• Drilling & Completion Operations |
| 2 | **Hydrocarbon Recovery Techniques**: Methods for extracting oil and gas, including primary, secondary, and tertiary recovery. | • Rock Types<br>• Fluid Properties<br>• Hydrocarbon Recovery Methods<br>• Drive Mechanisms<br>• EOR Technologies & Applications |
| 3 | **Oil Production Processes**: Operational strategies and technologies for efficient oil extraction and handling. | • Hydrocarbon Production System:<br>  ○ Natural Flow and Artificial Lift Systems<br>• Surface Production Operations<br>• Gas-oil Separation Technologies<br>• Separator Safety Devices<br>• Crude Oil Stabilization<br>• Crude Oil Dehydration, Desalting & Emulsion Treatment<br>• Crude Oil Refinery Operations |
| 4 | **Gas Production Processes**: Techniques and systems for natural gas extraction, treatment, and processing. | • Condensate and Water Removal<br>• Acid Gas Removal – Amine Systems<br>• Sulphur Recovery/ Claus Unit<br>• Natural Gas Dehydration<br>• Mercury Removal Technologies<br>• Nitrogen Removal/ Rejection<br>• NGL Recovery<br>• Fractionation<br>  ○ Dethanizer, Depropanizer, Debutanizer |



 

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| 5 | **Advanced Technologies and Field Development Planning**: Integration of cutting-edge technologies and strategic planning for optimizing field development and production. | • LNG specs and markets<br>• Gas value chain<br>• Advanced Technologies in the EOR<br>• Recent Technologies in the Artificial Lift Systems<br>• Surface Facilities Configurations and Technologies<br>• Project Phases<br>• Transportation/ Flow assurance<br>• Course Summary and Completions |

| Course Assessment | Certification |
|---|---|
| **Participants will be assessed on:**<br>Participation in sessions<br>Completion of exercises & case studies<br>Performance in assessments | Upon successful completion of the course, participants will receive a **Certificate of Successful Completion**, along with a **Transcript of Marks** showing the performance by grade in each element of assessment and overall. |

## Course Instructor

With BSc and PhD degrees from the UK, and with over 30 years of refinery technology, operations, and management expertise for several famous-name oil companies, this speaker is now an internationally-famous chemical engineering consultant.
As a Chartered Chemist, a Member of the Royal Society of Chemistry and a Member of the American Institute of Chemical Engineers, he holds honorary appointments at a number of European universities and conducts cutting-edge research into vacuum distillation, gas recovery, absorption and pyrolysis.



 