

Optimizing Oil and Gas Production in West Africa's Energy Landscape

Hydrocarbon Exploration and Production



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



Course Overview

This 5-day training program provides a comprehensive understanding of oil and gas production operations with a strong emphasis on West Africa's hydrocarbon sector. Participants will explore upstream, midstream, and downstream operations while examining the latest technologies shaping efficiency, profitability, and sustainability in a low-carbon environment.

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 integration in West Africa.	✓	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 with a West African lens.	✓	Engineering Professionals: petroleum, process, chemical, mechanical.
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	Apply EOR Technologies – To optimize production from mature Niger Delta fields	✓	Business Analysts: Individuals transitioning into the oil and gas field who need a

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			foundational understanding of production operations.
7	Processing Facility Configurations: Examine the structure and design of processing facilities, from simple to complex setups.	✓	Media Professionals covering African oil & gas
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. 	<ul style="list-style-type: none"> Overview of upstream, midstream, and downstream sectors Global & African oil and gas statistics (reserves, production, exports, imports) Petroleum geology of the Niger Delta & West African basins Field development and project phases Drilling & completion operations (onshore vs offshore) Petroleum economics – cost and revenue drivers in African operations Case Study 1: Nigeria LNG and its role in monetizing Nigeria's gas reserves
2	Hydrocarbon Recovery Techniques: Methods for extracting oil and gas, including primary, secondary, and tertiary recovery.	<ul style="list-style-type: none"> Rock types and reservoir characteristics in West Africa Fluid properties and drive mechanisms Primary, secondary, and tertiary recovery methods Enhanced Oil Recovery (EOR): gas injection, water flooding, chemical methods Application of EOR in maturing Niger Delta fields Case Study 2: EOR applications in Nigeria – challenges and opportunities
3	Oil Production Processes: Operational strategies and technologies for efficient oil extraction and handling.	<ul style="list-style-type: none"> Natural flow vs. artificial lift systems (gas lift, ESPs, rod pumps) Surface production facilities and separation trains Gas-oil separation technologies and safety systems Crude oil stabilization, dehydration, desalting & emulsion treatment Refinery operations and economics in West Africa Case Study 3: Nigeria LNG – value chain, exports, and global positioning

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4	Gas Production Processes: Techniques and systems for natural gas extraction, treatment, and processing.	<ul style="list-style-type: none"> • Condensate and water removal in gas streams • Acid gas removal (amine systems) & sulphur recovery • Gas dehydration methods (glycol, molecular sieve) • Mercury and nitrogen removal • NGL recovery and fractionation (dethanizer, depropanizer, debutanizer) • LNG specifications, production, and markets (focus on NLNG) • Case Study 4: Nigeria GTL Project (Escravos GTL) – lessons and economic impact
5	Advanced Technologies and Field Development Planning: Integration of cutting-edge technologies and strategic planning for optimizing field development and production.	<ul style="list-style-type: none"> • New artificial lift technologies • Advanced EOR applications for African basins • Surface facility design for cost-effective production • LNG and GTL integration in the gas value chain • Project planning from appraisal to decommissioning • Transportation & flow assurance challenges in Africa • Course wrap-up & strategic discussion: Can West Africa become a global gas hub? • Case Study 5: Future outlook: Expanding LNG & GTL capacity in Nigeria and the region

Course Assessment	Certification
Participants will be assessed on: Participation in sessions Completion of exercises & case studies 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
<p>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.</p> <p>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.</p>

