

Sub-Saharan African Perspectives of Refining Technology, Operations and Economics



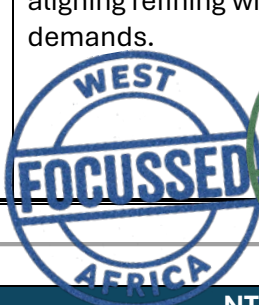
Focus on: **The Manager** ☒ **The Specialist** ☐ **Spotlight Programme** ☒ **Hands-on Skills** ☐

Course Overview

This course provides a comprehensive foundation in petroleum refining technology, tailored to the sub-Saharan African refining landscape. Participants will learn about crude oil properties, refining processes, and product specifications while exploring regional challenges such as low refinery utilization, reliance on imports, and the transformative impact of the Dangote Refinery and regional upgrades.

Through case studies and practical exercises, attendees will connect global refining technologies with local realities in Nigeria, Ghana, and Côte d'Ivoire. The course equips participants with both technical knowledge and economic insights to optimize refinery operations, evaluate investment opportunities, and align with regional energy security goals.

Course Objectives		This Course is Ideal For:	
1	Understand Sub-Saharan Crude Oils – Profiles of Bonny Light, Qua Iboe, Jubilee, Dalia, Girassol, Kole, Djeno, and condensates.	✓	Refining technologists & process engineers
2	Gain Insights into Refinery Technologies – Atmospheric/vacuum distillation, cracking, coking, hydroprocessing, and blending.	✓	Operations staff, shift supervisors & plant managers
3	Evaluate Regional Refining Capacity & Utilization – Lessons from Port Harcourt, Warri, Tema, Abidjan, Luanda, Pointe-Noire, Cape Town/Mossel Bay, and Dar es Salaam.	✓	Corporate planners & analysts in refining and trading
4	Apply Real-World Case Studies – Analyze refining economics in import-dependent and landlocked African fuel markets.	✓	Project managers, engineers, and schedulers
5	Explore Refinery Economics – Cost estimation, product pricing, residue reduction, and synthetic fuels economics.	✓	Bankers, lawyers, and service providers in refining projects
6	Develop Industry-Relevant Skills – Troubleshooting, process optimization, and aligning refining with market and policy demands.	✓	Policy makers & regulators engaged in downstream oil & gas



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Course Content

Day	Theme	Coverage
1	Refinery Technology & Sub-Saharan Crude Characteristics	<ul style="list-style-type: none"> Origins & properties of crude oils (West African Transform Margin & Central African Rift) Crude assays: Bonny Light vs Dalia, Girassol, Djeno, Kole, Jubilee Refinery complexity and configurations across Sub-Saharan Africa Product specifications: gasoline, diesel, jet fuel, LPG, fuel oil Case Study 1: Why most Sub-Saharan refineries operate below capacity
2	Crude Processing Technologies	<ul style="list-style-type: none"> Desalting, atmospheric & vacuum distillation Heavy oil processing: visbreaking, delayed coking, flexicoking Thermal vs catalytic processes in African contexts Case Study 2: Port Harcourt vs Dangote vs Luanda – processing capabilities compared
3	Motor Fuel & Clean Fuel Production	<ul style="list-style-type: none"> Fluid catalytic cracking (FCC) & hydrocracking Isomerization, alkylation & catalytic reforming Hydrotreating for Euro IV/V diesel & gasoline standards Synthetic fuels (Sasol CTL, GTL) and their regional role Case Study 3: South Africa's clean fuels transition & blending imports with local refining
4	Supporting & Ancillary Operations	<ul style="list-style-type: none"> Blending operations to meet local specifications Hydrogen production and refinery gas plants Acid gas treatment and sulfur recovery units (SRUs) Storage, pipelines, and import terminals (e.g., Tanzania, Mozambique) Case Study 4: Tema, Abidjan & Dar es Salaam – regional lessons in operations & upgrading
5	Refining Economics & Market Integration	<ul style="list-style-type: none"> Refinery economics in Sub-Saharan Africa: cost drivers & product pricing Residue reduction strategies & asphalt/fuel oil markets Economic evaluation of refinery upgrades vs imports Regional cooperation opportunities (ECOWAS, SADC, CEMAC) Case Study 5: Dangote & Sasol – impact on African fuel imports, pricing, and energy security Group discussions and course wrap-up

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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>	

