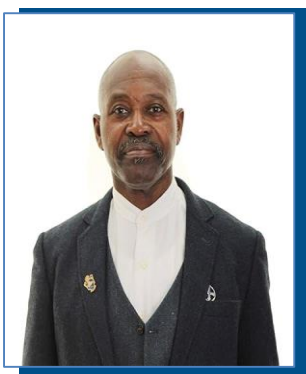


**" PLANNING TODAY FOR TOMORROW'S
PROSPERITY"**

FUNDAMENTALS OF PETROLEUM REFINING PROCESSES WITH CARBON CAPTURE AND UTILIZATION



Principal Course Leader Professor A. Kayode Coker

- ✓ More than 30 years 'experience in the field oil & gas, Refineries
- ✓ A former Engineering Coordinator at Saudi Aramco Shell Refinery Company and (SASREF) and Chairman of the department of Chemical Engineering Technology at Jubail Industrial College, Saudi Arabia.
- ✓ Fellow of the Institution of Chemical Engineers, U.K. (C. Eng .,FIChemE), and a senior member of the American Institute of Chemical Engineers (AIChE)
- ✓ He is an author of twelve books in chemical/petroleum engineering covering pipeline and process risk assessment
- ✓ An Honorary Research Fellow at the University of Wolverhampton,U.K



1st -5th July 2024



Dubai, Millennium Hotel, Business Bay



AED 7400 / \$ 2000 + VAT per person



Early Bird Registration: 1st June 2024

International Organizer



www.matgroup.org

FUNDAMENTALS OF PETROLEUM REFINING PROCESSES WITH CARBON CAPTURE AND UTILIZATION

“FUNDAMENTALS OF PETROLEUM REFINING PROCESSES WITH CARBON CAPTURE AND UTILIZATION Course” has been designed to improve the scientific and professional level of engineers. This course will be held over 5 days starting on Monday 1st July 2024 from 8:30 AM to 5:00 PM in Dubai, UAE..

Course Objectives

This course provides an overview of the fundamental concepts, principles, and processes involved in petroleum refining. Participants will gain a comprehensive understanding of the key stages of refining crude oil into valuable products, including production, separation, conversion, and purification. Through lectures, discussions, and practical examples, participants will explore the various refining units, technologies, and environmental considerations associated with the refining industry. The course reviews the production of grey hydrogen, carbon capture and utilization (CCU) from the refinery facilities for petrochemical products as methanol, urea and so on.



Course Requirements:

❑ Prerequisites:

- Basic knowledge of chemistry, thermodynamics, and fluid mechanics may be recommended as prerequisites to ensure participants have the foundational understanding required for the course.

❑ Computer and Technical Skills:

- Proficiency in basic computer skills and the ability to use software tools (e.g., Excel Spreadsheet for data analysis and simulation) may be beneficial.

Who Will Benefit:

- Refinery supervisors
- Engineers and professionals in the petroleum industry
- Environmental scientists and researchers
- Regulatory and compliance professionals
- Energy consultants
- Graduate students and researchers in related fields

Learning Outcomes:

By the end of the course, participants should be able to:

- Understand the fundamental principles of petroleum refining processes.
- Identify and evaluate the various technologies involved in carbon capture and utilization.
- Analyze the economic and environmental implications of implementing CCU in refining.
- Discuss regulatory frameworks and compliance requirements related to carbon emissions in the petroleum industry.
- Apply knowledge gained to propose sustainable and efficient refining processes with CCU integration.

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COURSE OUTLINE

Chapter 1: Introduction to Petroleum Refining

- Overview of the petroleum industry
- Importance of petroleum refining
- Historical development of refining processes
- Crude oil composition and properties

Chapter 2: Crude Oil Properties and Characterization

- Types of crude oil
- Physical and chemical properties of crude oil
- Crude oil assays and characterization methods

Chapter 3: Separation Processes

- Distillation and fractional distillation
- Atmospheric and vacuum distillation units
- Crude oil fractionation
- Role of separation in refining

Chapter 4: Conversion Processes

- Catalytic cracking
- Hydrocracking
- Fluid catalytic cracking (FCC)
- Thermal cracking
- Isomerization

Chapter 5: Reforming Processes

- Catalytic reforming
- Naphtha upgrading
- Role of reforming in gasoline production

Chapter 6: Hydrotreating and Desulfurization

- Hydroprocessing units
- Desulfurization techniques
- Importance of sulfur removal
- Environmental considerations

Chapter 7: Alkylation and Polymerization

- Alkylation process and its significance
- Polymerization and its role in product improvement
- Production of high-octane gasoline and other products

Chapter 8: Downstream Processing and Product Distribution

- Overview of downstream activities
- Product blending and formulation
- Storage, transportation, and distribution of refined products

Chapter 9: Environmental and Safety Considerations

- Air and water pollution control
- Waste management in refining
- Safety measures and accident prevention
- Regulatory frameworks and sustainability in refining

Chapter 10: Emerging Technologies in Petroleum Refining

- Residue upgrading
- Carbon capture and utilization
- Renewable feedstocks in refining
- Future trends and innovations

Chapter 11: Case Studies and Industry Examples

- Real-world examples of refinery processes
- Analysis of refinery configurations
- Optimization and troubleshooting in refining operations

Chapter 12: Future Challenges and Opportunities

- Changing energy landscape
- Role of refining in a sustainable future
- Economic and geopolitical influences on the industry

FUNDAMENTALS OF PETROLEUM REFINING PROCESSES WITH CARBON CAPTURE AND UTILIZATION

Assessment:

- Quizzes / exams to assess understanding of concepts
- Homework assignments to apply theoretical knowledge



Principal Course Leader Professor A. Kayode Coker

A. Kayode Coker PhD is Engineering Consultant for AKC TECHNOLOGY, an Honorary Research Fellow at the University of Wolverhampton, U.K. a former Engineering Coordinator at Saudi Aramco Shell Refinery Company (SASREF) and Chairman of the department of Chemical Engineering Technology at Jubail Industrial College, Saudi Arabia. He has been a chartered chemical engineer for more than 30 years.

He is a Fellow of the Institution of Chemical Engineers, U.K. (C. Eng., FIChemE), and a senior member of the American Institute of Chemical Engineers (AIChE). He holds a B.Sc. honors degree in Chemical Engineering, a Master of Science degree in Process Analysis and Development and Ph.D. in Chemical Engineering, all from Aston University, Birmingham, U.K. and a Teacher's Certificate in Education at the University of London, U.K. He has directed and conducted short courses extensively throughout the world and has been lecturer at the university level. His articles have been published in several international journals.

He is an author of twelve books in chemical/petroleum engineering, a contributor to the Encyclopaedia of Chemical Processing and Design, Vol. 61, and certified train –the mentor trainer. A Technical Report Assessor and Interviewer for Chartered chemical engineers (IChemE) in the U.K. He is a member of the International Biographical Centre in Cambridge, U.K. (IBC) as Leading Engineers of the World for 2008. Also, he is a member of International Who's Who for Professionals™ and Madison Who's Who in the U.S.

He has recently received 3000 reads of his joint authorship with Professor Rahmat Sotudeh Gharebagh in Chemical Process Engineering Volumes 1 & 2 published by Wiley-Scrivener, 20,000 reads of his research activities in ResearchGate.net and about 3000 citations of his works in Academia.edu. has provided expert testimony in numerous hearings and trials in many jurisdictions in Canada and internationally. In addition he provides training courses in chemical/petroleum engineering.

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