



Petroleum Refining & Petrochemicals
for Non-Technical Personnel



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Introduction:

This petroleum refining and petrochemicals for non-technical personnel course examines the history and use of petroleum, from exploration through refining to petrochemicals. The technology used and production operations of the oil industry are outlined and explained in clear, easy-to-understand language.

Designed for non-technical professionals in the Petroleum Refining and Petrochemicals industry, this course offers insight into chemical processes, plant operations, equipment, and economics.

Targeted Groups:

- Non-technical professionals are assigned positions in refineries, petrochemical plants, corporate offices, suppliers, and other companies.
- Support Personnel, including Environmental professionals, Accountants, Business managers, Administrative and legal staff, Sales and marketing personnel, Insurance representatives, Personnel managers, Financial professionals, and other professionals who desire a better understanding of the subject matter.
- Newly hired refinery plant personnel and current semi-technical personnel require further training.

Course Objectives:

At the end of this petroleum refining and petrochemicals for non-technical personnel course, the participants will be able to:

- Develop an appreciation and understanding of the origins of oil and gas.
- Understand the basics of refining and petrochemicals.
- Appreciate the basic differences between exploration, refining, and petrochemicals.
- Identify the basics of the different building blocks of petrochemicals.
- Examine the basics of different refinery types and complexity.

Targeted Competencies:

This petroleum refining and petrochemicals training course for non-technical personnel provides the essential skills to build a proactive knowledge base of Petroleum Refining and Petrochemicals and the necessary competencies to meet the challenges it faces.

What is the Petroleum Refining and Petrochemicals for Non-technical Personnel?

The petroleum refining and petrochemicals for non-technical personnel course offers a comprehensive introduction to the key aspects of the petrochemical refining process and industry. This course covers the fundamentals of petroleum refining and petrochemicals, providing essential knowledge without technical jargon.

Participants will gain insights into the principles of petroleum refining, exploring the refining process from raw crude oil to valuable products used in everyday life. Topics include the basics of petroleum refining engineering, the role of refineries in producing essential fuels and chemicals, and the relationship between refining and petrochemicals.

By the end of this petroleum refining and petrochemicals course for non-technical personnel, they will clearly understand what petroleum refining entails and its significance within the petrochemical refining industry.

Course Content:

Unit 1: Origin and Nature of Petroleum:

- Chemistry of fossil fuels.
- Basic petroleum geology.
- Origins, Formation, and Trapping of the Oil and Gas.
- Exploration and Production Methods.
- Transportation.

Unit 2: Overview of Refining:

- Classification of hydrocarbons.
- Surface processing of oil and gas.
- Refinery types and complexity.
- Hydroskimming, Cracking, and Coking Refineries.
- Refining Margins and Profitability.
- Netback and Complexity Factors.

Unit 3: Refinery Process Operations:

- Physical Separation - Crude and Vacuum Distillation.
- Chemical Conversion Processes and Gasoline Production.
- Hydrotreating, Catalytic Reforming, Alkylation, and Isomerization.
- Residue Reduction I: Cat Cracking, Hydrocracking, Visbreaking, Hydrocracking.
- Residue Reduction II: Coking, Asphalt, and Residual Fuel.
- Blending.

Unit 4: Petrochemicals I - Production and Uses:

- Olefin-based compounds.
- Ethylene.
- Propylene.
- Butadiene.
- Isobutylene.
- Aromatic-based compounds.
- Benzene.
- Toluene.
- Xylene.

Unit 5: Petrochemicals II - Production and Uses:

- Natural gas-based compounds.
- Ammonia.
- Methanol.
- Gas-to-liquid technologies.
- Case study - Petrochemical production - Major Companies.

Conclusion:

The Petroleum Refining and Petrochemicals for Non-Technical Personnel Course provides a comprehensive overview of the petrochemical refining process and its crucial role in the petroleum refining and petrochemicals industry.

Throughout this petroleum refining and petrochemicals for non-technical personnel course, participants have delved into the fundamentals of petroleum refining, gaining a clear understanding of refining basics and the principles behind this complex engineering discipline.

This course bridges the gap between theory and practice by demystifying the petroleum refining process for non-technical individuals. It empowers learners to grasp the significance of refining and petrochemicals within the broader energy sector.

Participants are equipped to appreciate the intricacies of petroleum refining engineering and its impact on our everyday lives. This petroleum refining and petrochemicals for non-technical personnel course is a vital introduction to petrochemical refining, laying a solid foundation for further exploration in this dynamic industry.