Refineries and Petrochemical Industries: Core Principles

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London (UK)



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Why This Course

A strong understanding of petroleum refining and petrochemical processes is essential for professionals in the energy and chemical sectors. This intensive 1-week program provides a comprehensive overview of refinery operations, process technologies, and petrochemical production. Through practical exercises, real-world examples, and industry insights, participants will gain the knowledge and skills needed to optimize operations, ensure safety, and make informed economic decisions.

What You'll Learn and Practice

By attending this course, you will be able to:

- Understand the fundamental principles of petroleum refining and petrochemical production.
- Analyze key refinery processes and equipment for operational efficiency.
- Apply safety and environmental best practices in refinery operations.
- Evaluate economic factors affecting the refining and petrochemical industries.
- Optimize refinery operations and improve product quality.

The Program Flow

Day 1: Introduction to Petroleum Refining

- Overview of the petroleum industry and global context
- Crude oil composition, properties, and quality considerations
- Refinery configurations and major processing steps
- Product specifications, quality control, and industry standards

Day 2: Refinery Process Units

- Atmospheric and vacuum distillation
- Conversion processes: catalytic cracking and hydrocracking
- Treating processes: hydrotreating, sweetening
- Blending and product finishing techniques



Day 3: Petrochemical Production

- Introduction to petrochemical products and applications
- Olefin production via steam cracking
- Aromatics production processes
- Polymer manufacturing and downstream processing

Day 4: Refinery Operations and Safety

- Process control, instrumentation, and automation
- Refinery utilities and offsites management
- Safety management systems and protocols
- Environmental regulations and compliance considerations

Day 5: Economics and Future Trends

- Refinery economics, optimization, and cost considerations
- Market trends and demand forecasting for refined products
- Emerging technologies in refining and petrochemicals
- Sustainability initiatives and alternative fuel developments

Individual Impact

Participants will leave this course with:

- Practical skills to analyze and optimize refinery operations.
- In-depth understanding of petrochemical production processes.
- Enhanced ability to make informed decisions on refinery economics.
- Knowledge of safety, environmental, and regulatory best practices.

Organizational Impact

Organizations will benefit from:

- Improved operational efficiency and product quality.
- Strengthened safety and environmental compliance.
- Better-informed strategic and economic decisions.
- Enhanced technical capabilities within refinery and petrochemical teams.



Training Methodology

- Interactive lectures and real-world industry examples
- Hands-on exercises and process simulations
- Case studies on refinery optimization and petrochemical production
- Group discussions and scenario-based problem-solving

Beyond the Course

By the end of this 1-week program, participants will be ready to:

- Analyze complex refinery and petrochemical processes confidently.
- Apply best practices to optimize operations and product quality.
- Make strategic decisions informed by economic, safety, and environmental considerations.
- Stay ahead of industry trends and emerging technologies in refining and petrochemicals.

