



# THE CHEMICAL ENGINEERING MAJOR

## Refining Technology and Economics

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# Refining Technology and Economics

## Course Description:

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The course is designed as a comprehensive and practical refining overview covering a range of complexities from simple topping units to extremely complex high-conversion refineries with aromatics production and recovery technologies.

## Who Should Attend?

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- Marine Terminal Managers, Superintendents, Supervisors and Engineers
- Facility Managers and Facility Training Coordinators
- Safety and Environmental Managers, Engineers and officers.
- Spill Management Team Members
- Transfer Supervisors
- Marine Shipping Coordinators
- Dock Maintenance Planners

## Objective:

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You will learn how to incorporate the fundamentals of each refining process and refinery configurations from simple to highly complex.

- You will summarize the function, characteristics, strengths and limitations of principle refining processes.
- Key characteristics of each refining process are addressed in a fast-paced and varied program based on a course manual that represents more than 4 decades of experience in refinery operations, troubleshooting, laboratory, engineering and construction, and economics.
- You will use refinery economics to determine how alternative processing schemes are assessed.
- You will be able to evaluate crude types and understand yields and product properties and determine what factors influence crude selection.
- You will learn how to assess the effect of properties on blending.
- You will learn how to recognize metallurgy considerations.
- You will solve debottlenecking issues.
- You will use engineering and construction fundamentals.
- You will learn how to solve operation challenges.
- The course instruction combines classroom presentations with selected exercises and syndicate work.
- The course is intended to be accessible to attendees with a variety of backgrounds.

## Contents:

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- Introduction/General Refining Overview
- Refinery Economics
- Crude and Vacuum Distillation
- Distillate Hydro processing incl. H<sub>2</sub> production: Naphtha, Jet/Kero, Diesel, and Gas Oil.
- Middle Distillate Conversion; FCC, Gas Oil Hydrocracking
- Alkylation Processes and Butane Isomerization
- Light Ends Recovery; Saturates Gas Plant, Propylene.
- Residue Processing: DE asphaltting, Tiebreaking, Delayed and Flexi coking,
- Residue Hydrocracking, ARDS and VRDS, Technology Comparison.
- Lube Oil Production.
- Aromatics Recovery: including Para xylene Adsorption and Crystallization, Xylene Isomerization, Disproportionation & Trans alkylation.
- Amine, Sulfur, SWS, Taigas (see also RF-61 specifically for these four topics)