

New Technologies in Manufacturing Crude Oil





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Course Objective

- ➤ To familiarize and understand the various refinery types and appreciate how refining complexity impacts refining optimization and refining margins
- ➤ Comprehend the importance quality giveaways and learn how use blending calculations to reduce these
- ➤ Use hands on software that allow professionals in the industry to choose different types of crude diets and thus optimize refinery utilization and efficiency
- ➤ Act as a primer into the industry of Petroleum Refining to maximize process fluid yields
- Familiarize industry professionals with all processes associated with the processing of petroleum into finished products
- ➤ Equip new engineers into the industry, with the basic tools for understanding the complex nature of Refining and its operations

Target Audience

- > Refining engineers
- > Operations personnel including shift supervisors
- ➤ Marketers and refinery planners
- ➤ Blending professionals
- ➤ Other engineers who would like a further understanding of the complex refining processes
- Accountants, marketers and other professions who would like to comprehend the advantages and limitations of the various refining processes at their site



Course Outline

- > **DAY 1**
- Crude Oil Yields Refinery Technology
- ➤ Introduction to Crude Oil Origins & Characteristics
- > Crude oil Assay and properties
- > Crude oil products & Product specifications
- > LPG
- ➤ Gasoline
- ➤ Kerosene/ Jet Fuel
- > AGO / Diesel Fuel Oil
- > Petrochemical Feedstocks
- ➤ Overall refinery flow: Interrelationship of processes

> DAY 2

- ➤ Petroleum Refinery Processes
- Crude Processing
- Desalting
- ➤ Atmospheric distillation
- > Vacuum distillation
- ➤ Heavy Oils Processing / Bottom of the barrel upgrading
- ➤ Cocking and Thermal Processes
- ➤ Delayed Coking
- Fluid Coking
- > Flexicoking
- Visbreaking
- ➤ Case study example



> **DAY 3**

- ➤ Process for Motor Fuel Production
- > Fluid catalytic cracking
- > Hydrocracking
- ➤ Cat Cracking
- > Isomerization
- ➤ Alkylation
- > Hydrotreating
- > Catalytic Reforming
- ➤ Case study example

> DAY 4

- > Supporting Operations
- ➤ Blending for Product Specifications
- > Hydrogen production
- > Refinery Gas Plants
- > Acid Gas Treating
- ➤ Sulfur Recovery Plants
- ➤ Utilities
- ➤ Case study example



- > DAY 5
- ➤ Refinery Economics
- ➤ Residue Reduction
- ➤ Asphalt and Residual Fuel
- ➤ Refinery Complexity and Netback
- ➤ Economic Evaluation
- ➤ Cost Estimation
- > Case Studies
- ➤ Group Discussions
- ➤ Program Evaluation & Summary



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