Introduction to Petroleum Refinery Processing

Course general description:

Petroleum refining is the complex process of converting crude oil into valuable products like fuels, lubricants, and petrochemicals. This course offers a deep dive into the entire refining journey, from crude oil distillation to advanced conversion processes. Participants will explore key technologies, equipment, and operational strategies essential for efficient and safe refinery operations.

Audience:

This course is designed for:

1. Chemical & Process engineers
2. Operation & Production Engineers
3. Mechanical Engineers
4. Technical and Managerial Staff those seeking to enhance their knowledge in Petrochemical Processing Fundamentals.

Course objectives:

By end of the course participants will gain:

1. Understand essential petrochemical processes.
2. Knowledge about critical equipment design, operation, and maintenance in petrochemical plants.
3. Skills on controlling operation and quality control parameters for high-quality production.
4. Apply theoretical knowledge through real-world case studies to solve operational challenges.

Course duration:

5 days

Course location:

Dubai

Course contents:

Day-1

- Pretest
- Overview of the oil refining industry
- Refinery Process flow diagrams (PFD) & layout
- Crude oil composition, properties, and classifications
- Key refinery products & by-products.

Day-2

- Crude oil distillation processes
- Distillation equipment & operating parameters.
- Fractionation: yield optimization and control.

Day-3

- Conversion Processes
- Processing technologies for heavier fractions
- Equipment involved: reactors, compressors, furnaces
- Impact on product slate and value-added products.

Day-4

- Treatment and Finishing Processes
- Desulfurization (Hydrotreating, Hydrodesulfurization)
- Sweetening, reforming, and isomerization
- Removal of impurities and contaminants.

Day-5

- Heat integration and energy efficiency
- Product specifications and testing methods & standards
- Environmental impact of refining processes
- Waste management and pollution control technologies
- Health, safety, and environmental (HSE) practices in refineries.
- Posttest

Methodology:

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

Course code: (TPRS005)