

# ADVANCED REFINING PROCESSES

## Hydro-treating, Catalytic Reforming, and Fluid Catalytic Cracking (FCC)

**RFP004**

### COURSE OVERVIEW

This intensive 5-day course is tailored for professionals seeking an in-depth understanding of critical refining processes, including Hydro-treating, Catalytic Reforming, and Fluid Catalytic Cracking (FCC). Participants will delve into the fundamental principles, cutting-edge technologies, and operational intricacies of these processes. The course integrates theoretical knowledge, practical applications, and case studies to equip attendees with the expertise needed to optimize refinery operations, ensure product quality, and meet environmental standards.

### COURSE OBJECTIVES

By the end of the course, participants will be able to:

- Develop a comprehensive understanding of the principles and mechanisms underlying Hydro-treating, Catalytic Reforming, and Fluid Catalytic Cracking.
- Explore the latest advancements in catalysts, reactor design, and optimization strategies for Hydro-treating, Catalytic Reforming, and FCC units.
- Acquire skills to optimize process parameters, troubleshoot common issues, and ensure the efficient and safe operation of Hydro-treating, Catalytic Reforming, and FCC units.
- Learn techniques to produce high-quality, low-sulfur fuels through effective Hydro-treating, achieve optimal octane levels in gasoline via Catalytic Reforming, and maximize valuable product yields in the FCC process.
- Analyze real-world case studies to understand practical challenges and solutions encountered in Hydro-treating, Catalytic Reforming, and FCC operations, fostering critical thinking and problem-solving abilities.
- Emphasize the importance of safety protocols and compliance with environmental regulations in Hydro-treating, Catalytic Reforming, and FCC operations.

### WHO SHOULD ATTEND

This course is suitable for professionals and engineers working in the petroleum refining industry, including but not limited to:

- Refinery process engineers
- Operations and maintenance personnel
- Technical managers and supervisors
- Chemical engineers involved in refining processes
- Environmental and safety specialists in the refining sector.

## COURSE DURATION

5 Working Days

## COURSE OUTLINES

### 1. Introduction to Refining and Hydro-treating

- Overview of petroleum refining
- Introduction to hydro-treating
- Types of feedstocks and impurities
- Hydro-treating unit processes and configurations

### 2. Hydro-treating Technologies

- Catalysts and catalytic reactions
- Reactor design and operation
- Process optimization and control
- Case study: Troubleshooting in hydro-treating units

### 3. Catalytic Reforming Fundamentals

- Introduction to catalytic reforming
- Reaction mechanisms
- Catalyst types and selection
- Process variables and optimization

### 4. Fluid Catalytic Cracking (FCC) Basics

- Principles of FCC
- Catalyst cracking reactions
- FCC reactor design and components
- Feedstock considerations for FCC

### 5. FCC Operation, Optimization, and Integration

- FCC unit operation and control
- Optimization strategies for FCC
- Integration of FCC with other refining processes
- Case study: FCC unit performance improvement

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