

## Refining Process Training

The subject of petroleum refining is a complex and demanding one. For over 20 years, the professionals at Refining Process Services have been providing refining company and industry supplier personnel with thorough and up-to-date technical programs covering all major aspects of refining crude oil.

### Training Programs

Basic one-day and more advanced two and three-day programs provide an overview of the modern petroleum refinery and the refining process. Advanced two and three day programs are offered in the core refining processes including atmospheric and vacuum crude oil distillation, hydrotreating, catalytic reforming, FCC, alkylation, hydrocracking, delayed coking, amine treating and sulfur recovery and gasoline/diesel blending.

In addition to the courses listed here, we offer a number of other courses including:

- The Economics of Petroleum Refining
- How to Improve Refinery Profit Margins
- Sulfuric Acid Alkylation Process Technology
- Crude Oil Desalting
- FCC Unit Troubleshooting
- Water Treatment for Refineries
- Refinery Troubleshooting

The wide array of technical training programs offered by Refining Process Services provides many opportunities for industry engineers and supplier representatives to enhance their knowledge and improve their job performance. The instructors for these programs are among the most knowledgeable in their fields, providing the best possible learning experience.

More information describing Refining Process Services and all of the courses offered can be obtained by visiting the company website at: [www.petroleumrefining.com](http://www.petroleumrefining.com).

### Basics of Petroleum Refining for Non-Technical Personnel

#### Course RPS100

##### Overview

This program provides a 1-day overview of the petroleum refinery and the crude oil refining process. The course content was developed for class participants who have no formal training in chemistry or engineering. The program is designed for anyone with an interest in the refining industry and is perfect for those in non-technical assignments at petroleum refineries, corporate offices and supplier companies.

##### Topics

- Crude Oil Characteristics; Petroleum Fundamentals; Crude Oil Distillation; Refinery Flow Scheme; Product Blending and Usage; Gasoline Production; Refinery Process Basics; Basic Refining Economics

**Price** \$750

**Location**  
Houston, TX

**Start Dates 2009**  
2/24, 5/12, 9/29

### Fluid Catalytic Cracking Process Technology

#### Course RPS200

##### Overview

This program provides an intensive 3-day practical study of the modern fluid catalytic cracking (FCC) process. For many refiners, FCC represents the foundation of refinery gasoline production. Class participants will have the opportunity to obtain a broad working knowledge of the FCC process from recognized industry experts, to keep abreast of constantly evolving FCC technology and to interact with others currently working in this field. The program is for refinery engineers and operations staff and supplier company personnel providing FCC products.

##### Topics

- Feed & Process Basics; FCC Catalysts & Chemistry; Unit Mass & Heat Balance; Fluidization Fundamentals; Process Variable Interactions; FCCU Unit Equipment; Recovery of Cracked Products; Cracking Heavy Oils; Trends in FCC

**Price** \$1,750

**Location**  
Houston, TX

**Start Dates 2009**  
2/24, 9/14

### Introduction to Petroleum Refining Processing

#### Course RPS110

##### Overview

This program provides an extensive 2 and 1/2-day study of the petroleum refinery and the crude oil refining processes. The course focuses on exploring the core petroleum refining processes in great depth; an understanding of crude oil; refined products and industry economics. It is for those who have formal training in chemistry or engineering, or who have hands-on work experience in refineries and is appropriate for technical/operations staff working in refineries or supplier industry personnel providing products.

##### Topics

- Petroleum Refinery Configuration; Crude Oil Distillation; Refined Products/Clean Fuels; Hydrotreating/Hydrocracking; Isomerization/Catalytic Reforming; Fluid Catalytic Cracking/Alkylation; Gas Plants/Sulfur Recovery; Delayed Coking/Deasphalting; Petroleum Economics

**Price** \$1,700

**Location**  
Houston, TX

**Start Dates 2009**  
3/11, 5/13, 9/30

### Hydrotreating and Hydrocracking Process Technology

#### Course RPS300

##### Overview

This is an extensive 2 and 1/2-day study of the catalytic processes that use hydrogen to upgrade the quality of petroleum fractions. Content focuses on exploring the core refining processes of hydrotreating, hydrocracking and hydrogen production. It is for those in chemistry/engineering or have hands-on work in refineries.

##### Topics

- Chemistry of Hydroprocessing; Sulfur and Nitrogen Removal; Naphtha Pretreating; Feedstock and Process Variable Effects; Distillate and Gas Oil Hydrotreating; Diesel & Jet Fuel Production; Commercial Hydrocracking; Troubleshooting Hydroprocessing Units; Equipment & Design Principles; Hydrogen Production

**Price** \$1,700

**Location**  
Houston, TX

**Start Dates 2009**  
3/10, 9/29

**Catalytic Reforming Process Technology**

**Course RPS400**

**Overview**

This program provides an intensive 2 and 1/2-day practical study of the catalytic reforming process. This process is employed to upgrade the octane characteristics of raw gasoline called naphtha that is distilled from crude oil. Participants will have the opportunity to obtain a broad working knowledge of the naphtha reforming process from recognized industry experts and to learn about monitoring and optimization of commercial units.

**Topics**

- Process Configurations; Chemistry of Reforming; Reforming Catalysts; Process Variables Interactions; Naphtha Hydrotreating; Commercial Reformer Monitoring; Continuous Catalyst Regeneration; Reformer Operating Schemes; Troubleshooting Commercial Units

**Price** \$1,700

**Location** Houston, TX      **Start Dates 2009** 2/25

**Crude Oil Distillation**

**Course RPS500**

**Overview**

This program provides an extensive 3-day study of the distillation of crude oil in a petroleum refinery. The atmospheric and vacuum pipe stills are used to separate crude into the desired fractions so that appropriate feedstocks will be available for the downstream process units. The course content is designed for class participants who have formal training in engineering or who have hands-on work experience in refineries. The program is appropriate for technical and operations staff working in refineries or supplier industry personnel providing products and services to refiners.

**Topics**

- Crude Unit Design; Crude Oil Characteristics; Process Flow Schemes; Impact of Crude Oil Type; Pre-Flash Column; Atmospheric Column; Vacuum Column & Ejector System; Crude Unit Monitoring & Troubleshooting; Revamp & Debottlenecking

**Price** \$1,750

**Location** Houston, TX      **Start Dates 2009** 2/25, 9/16

**Delayed Coking Process Technology**

**Course RPS600**

**Overview**

This program provides an intensive 3-day practical study of the delayed coking process. This process is employed to upgrade the highest boiling fraction of crude oil called vacuum tower bottoms or resid. Participants will have the opportunity to obtain an in-depth working knowledge of the delayed coking process from a noted industry expert and to learn about operation and optimization of a commercial delayed coker. It is for refinery engineers/operations staff/supplier personnel providing technical support to refineries.

**Topics**

- Coking Process Fundamentals; Coker Feed Systems; Feed Preheat Furnace; Coke Drum Operations; Coker Process Variable Effects; Petroleum Coke Quality; Decoking Operations; Coker Fractionator and Gas Plant; Unit Monitoring and Troubleshooting; Trends in Delayed Coking

**Price** \$1,750

**Location** Houston, TX      **Start Dates 2009** 3/10, 9/30

**Amine Treating and Sulfur Recovery Technologies**

**Course RPS120**

**Overview**

This program provides an extensive 2 and 1/2-day study of the refinery processing operations used to remove hydrogen sulfide from refinery gas streams and convert it to elemental sulfur. Content focuses on exploring the refinery processes of amine treating, sour water stripping, Claus units, and tail gas treatment. It is for those who have formal training in chemistry or engineering or who have hands-on work experience in refineries. It is for technical and operations staff working in refineries or supplier industry personnel providing products and services to refiners.

**Topics**

- Hydrogen Sulfide- Refineries; Fundamentals of Sulfur Chemistry; Amine Treating Units; Sour Water Treating; Claus Sulfur Recovery Units; Sulfur Recovery, Loading & Forming; Process Monitoring and Procedures; Tail Gas Treating Processes

**Price** \$1,700

**Location** Houston, TX      **Start Dates 2009** 5/13, 9/29

**Gasoline/Diesel Blending for Refiners and Traders**

**Course RPS800**

**Overview**

This program provides a 3-day discussion of the technology and techniques available to efficiently blend fuels to meet product specifications while minimizing product quality giveaway. Content includes discussion of blend planning, blend orders, quality control, optimization, field equipment, blending software, current and future fuel specifications, and environmental considerations. It is for personnel involved in the petroleum refining, petrochemical, and automotive industries, and those from instrumentation, automation and product marketing companies, product trading groups, and government agencies.

**Topics**

- Types of Blending; Specifications, Components & Additives; Equipment & Software; Demos of Blending Tools; Operation Cycle; Quality Assurance; Clean Fuels & Environmental Issues; Benefits of In-Line Blending

**Price** \$2,000

**Location** Houston, TX      **Start Dates 2009** 3/11, 9/22

To enroll in Refining Process Training courses call 412-826-5440 or email: [seminars@petroleumrefining.com](mailto:seminars@petroleumrefining.com). For additional contact information refer to the appropriate contact on page 119. Updated dates & locations are available on our website at [www.emersonprocess.com/education](http://www.emersonprocess.com/education).