

# Fundamentals of Refining

This course starts with basics of crude oil origin and production, explains refining processes to meet gasoline and diesel specifications. Effect of crude oil properties on refining processes and operation will be presented. A virtual tour of a refinery will be provided with hundreds of photographs and videos. Basic information on refinery organization and rule of thumbs about refinery economics will be provided.

This course is designed for people dealing with refineries and seeking a detailed overview of a refinery, from crude oil properties, product requirements, refining processes, organization and economics. Each attendee will get a booklet of more than 200 slides on topics listed below along with glossary of refining terms, naming conventions, abbreviations and Jargon.

## **Contents and Agenda:**

### **1. Crude Oil**

- Origin and Discovery of Oil
- Production and Cleaning at Site for Pipeline Specs
- Classification of crude oils
- Crude oil Properties – Full Assay

### **2. Product Specifications**

- Gasoline
- Diesel, Kerosene, Jet Fuel, Heating Oil
- Residual Fuel Oil #6, Asphalt

### **3. Refining Concept – Physics and Chemistry**

- Solids and Salts
- Carbon Number Concept
- Hetero atoms (S & N) distribution in oil
- Molecular Modifications for Octane

### **4. Oil Refining Processes and Flow Diagrams**

- Crude Units
- Hydrotreating/Hydrocracker Units
- Fluid Catalytic Cracking Unit
- Coking Units
- Reforming Units
- Alkylation Units
- Other Units and Utilities

Refinery Flow Diagram – Step by Step

## **5. Refinery Organization and Economics**

Small and Large Refinery Org Charts

Simple Economics of Oil Refining

Glossary – Naming Conventions and Abbreviations

### **Instructor:**

Dr. Shri K. Goyal - President

Coking Solutions Inc. Houston TX 77082-5643

Phone +1 (281) 496-9555, Cell/Mobile +1 (713) 857-2718

Email - [shri.goyal@cokingsolutions.com](mailto:shri.goyal@cokingsolutions.com) , Web - <http://www.cokingsolutions.com>