DUBAI-UAE

03-07 Nov 2025

Advance Refinery Operations Plants Process and Troubleshooting

Course Description

INTRODUCTION

Refinery processes consist of many complex apparatuses involving both moving and static parts as well as interconnecting pipes, control mechanisms and electronics, mechanical and thermal stages, heat exchangers, waste and side product processing units, power ducts and many others. Bringing such a complicated unit online and ensuring its continued productivity requires substantial skill at anticipating, detecting and solving acute problems. Failure to identify and resolve these problems quickly can lead to lost production, off-spec product, equipment loss, and even catastrophic accidents. Therefore, the ability to troubleshoot refinery operations is one of the most valuable skills operations personnel can possess.

OBJECTIVES

- Apply and gain an in-depth knowledge on advanced refinery operations plants process and troubleshooting
- Discuss petroleum refinery process including crude processing, desalting, atmospheric distillation and vacuum distillation
- Explain heavy oils processing and bottom of the barrel upgrading covering the cocking and thermal processes, delayed coking, fluid coking, flexicoking and visbreaking
- Carry out process of production that covers the fluid catalytic cracking, hydrocracking, cat cracking, isomerization, alkylation, hydrotreating and catalytic reforming

- Review process operations key operational conditions and factors as well as discuss blending for product specifications, hydrogen production, refinery gas plants and acid gas treating
- Identify process troubleshooting including troubleshooting concepts and techniques, troubleshooting tools, typical problems, flooding and its detection
- Determine refinery economics comprising of residue reduction, asphalt and residual fuel, refinery complexity and netback

WHO SHOULD ATTEND?

- Production Engineers
- Operations Engineers
- Refinery Team Leaders
- Process Engineers
- Process Technical Staff
- Plant Supervisors, Lead Operators Control Room Operators & Shift Supervisors

COURSE OUTLINE

Day 1

- Petroleum Refinery Process
- Crude Processing
- Desalting
- Atmospheric Distillation
- Vacuum Distillation
- Heavy Oils Processing/Bottom of the Barrel Upgrading (Cocking & Thermal Processes, Delayed Coking, Fluid Coking, Flexicoking, Vis breaking)
- Process of Production

Day 2

- Fluid Catalytic Cracking
- Hydrocracking
- Cat Cracking
- Isomerization
- Alkylation
- Hydrotreating
- Catalytic Reformin

Day 3

- Process Key Operational Conditions & Factors
- Blending for Product Specifications
- Hydrogen Production
- Refinery Gas Plants
- Acid Gas Treating
- Utilities
- Sulfur Recovery Plants

Day 4

- Oil & Gas Measurement & Control
- Process Troubleshooting Concepts & Techniques
- Troubleshooting Tools
- Typical Problems
- Flooding & its Detection
- Interaction of Process & Equipment

Day 5

- Saltation & Entrapment
- Tower Scan & Inspection
- Refinery Economics
- Residue Reduction
- Asphalt & Residual Fuel
- Refinery Complexity & Netback
- Economic Evaluation
- Cost Estimation

Training Course Daily Schedules:

DAY 1:

9:00 am - 9:15 am: Registration and Welcome

9:15 am - 10:45 am: Course Overview and Petroleum Refinery Process, Crude Processing, Desalting, Atmospheric Distillation, Vacuum Distillation.

-10:45 am - 11:15 am: Morning Break

- Coffee and refreshments provided.

11:15 am - 01:00 pm: Heavy Oils Processing/ Bottom of the Barrel Upgrading (Cocking & Thermal Processes, Delayed Coking, Fluid Coking, Flexicoking, Vis breaking)

- Q&A, and Closing

-1:00 pm: End of Training & Lunch Provided.

DAY 2:

9:00 am - 10:45 am: Fluid Catalytic Cracking, Hydrocracking, Cat cracking, Isomerization.

-10:45 am - 11:15 am: Morning Break

- Coffee and refreshments provided

11:15 am 01:00 pm: Alkylation, Hydrotreating, Catalytic reforming.

- Q&A, and Closing

-1:00 pm: End of Training & Lunch Provided.

DAY 3:

9:00 am - 10:45 am: Process Key Operational Conditions & Factors, Blending for Product Specifications, Hydrogen Production.

-10:45 am - 11:15 am: Morning Break

- Coffee and refreshments provided

11:15 am - 01:00 pm: Refinery Gas Plants, Acid Gas Treating, Utilities, Sulfur Recovery Plants.

- Q&A, and Closing

-1:00 pm: End of Training & Lunch Provided

DAY 4:

9:00 am - 10:45 am: Oil & Gas Measurement & Control, Process Troubleshooting Concepts & Techniques.

- 10:45 am - 11:15 am: Morning Break

-Coffee and refreshments provided

11:15 am - 01:00 pm: Troubleshooting Tools, Typical Problems, Flooding & its Detection, Interaction of Process & Equipment.

- Q&A, and Closing

-1:00 pm: End of Training & Lunch Provided

DAY 5:

9:00 am - 10:45 am: Saltation & Entrapment, tower scan & inspection, Refinery economics, residue reduction.

-10:45 am - 11:15 am: Morning Break

-Coffee and refreshments provided.

11:15 am - 01:00 pm: Asphalt & Residual fuel, refinery complexity & netback, economic evaluation, cost estimation.

- Q&A, and Closing

-1:00 pm: End of Training & Lunch Provided.

-Hands-on exercises (workshops, interactive sessions)
-Opportunities for Q&A, shared experiences, feedback, and typically course wrap-ups.

Training Course Prices:

Number of Participants	Course Price
1 participant	KWD 1450.000
2 participants	KWD 1400.000
3 participants	KWD 1350.000
4 participants	KWD 1300.000
5 participants	KWD 1250.000
6 and above participants	KWD 1200.000
