



Distillation Technology

Consultant / Trainer:

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The **Petrogenium**. Distillation course is the basic building block to provide awareness on the fundamentals of Distillation and its application in oil refining. The course will introduce the fundamentals and theory behind distillation as well as provide an overview of industrial distillation equipment. The key focus of the course is on the most important distillation processes of the (atmospheric) crude oil distillation unit and the vacuum distillation unit. Secondary applications like 2-cut splitters and stabilizers will also be addressed.

Participants

This **Petrogenium**. course can be tailored for awareness/inexperienced staff, for intermediate and for experienced personnel. Furthermore, the course can be customized for a specific refinery, plant or unit. The option for post-course consultancy/help-desk support is also available.

Participants may include: operational staff and (process) engineers on all levels on crude oil and vacuum distillation units or other distillation sections.

Learning Objectives

This course will provide understanding, raise awareness of design aspects and provide guidance to refinery staff on optimal operation of their distillation units.

Programme

Day 1

- Introduction and basics: distillation basics and theory
 - Modelling of vapour-liquid equilibria, Raoult's law, partial pressure
 - Column modelling, tray efficiency, rate based models
 - Setting of operating conditions: pressure & temperature limits, operating window
- Distillation equipment, types, features and limitations
 - Distillation trays, valves and downcomers. Random and structure packing.
 - Inlet and outlet devices, distributors and draw-off trays.
- Exercise 1
- Crude Distillation Units
 - Types and line-ups, operation, monitoring and optimisation
 - Product specifications: Flash point, cloud points, distillation (initial/final) boiling points

Day 2

- Miscellaneous equipment (vacuum sets, liquid ring pumps, drums & accumulators)
- Vacuum Distillation Units
 - Types and line-ups, operation, monitoring and optimization, Maxwell-Bonnell Temperature
 - Product specifications: Cloud Points, Conradson Carbon Residue
- Exercise 2
- Troubleshooting
 - Jet flooding, foaming, entrainment, downcomer limitations
 - Column turndown

Day 3

- Others distillation units
 - Stabilizers, LPG splitters, stripper-dryer columns
- Process control schemes
- Exercise 3
- Distillation Open Clinic