



Introduction to Oil Refining

Consultant / Trainer:

Selwyn Maduro

The **Petrogenium**. Introduction to Oil Refining course is a basic skill course for professionals starting to work in the refining business. The course is taught on awareness level and will be invaluable to all professionals, who started their career in or recently joined the refining industry.

Participants

All **Petrogenium**. courses 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: new oil refining personnel and professionals who work in the downstream Supply & Trading, Marketing, IT, Legal, Finance and Human Resources functions; staff from other industries (e.g. catalyst manufacturers, equipment manufacturers, IT service suppliers, business consultants) who have business interface with the oil refining sector will also highly benefit from this course.

Learning Objectives

After completion of the course participants will have solid understanding of:

- who refinery customers are and what products they require
- to identify the main and speciality products manufactured and describe their main characteristics, composition, etc.
- understand the flow of oil/gas from well via manufacturing plants to finished products in the market
- to explain various refinery types/configurations and be able to construct a refinery flow scheme by clearly indicating product flows to and from the process units
- the origin of crude oil, characterise the different types of crude oils, explain the concept of crude oil valuation and identify different types of crude oil pricing

- explain the concepts of refinery costs and margins and be able to give indications of these costs and margins
- identify the main refinery processes (which include distillation, treating, platforming, cracking and product blending), explain the main interfaces between these process units and identify the main elements which may have an impact on the quality of the manufactured products
- determine and explain the influence of feedstock and refinery configuration on product yields, margins (Hydrocarbon and Gross Refining Margin) and product qualities by using a Refining Simulation Model
- identify different Health, Safety and Environmental (HSE) aspects in a refinery

Programme

Day 1

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| • Products | • Refinery costs and margins |
| • Developments in main fuel qualities | • Exercise: Refinery Simulation |
| • Overview on refinery configuration | • Introduction to crude quality |
| • Yield/expense statement | • Valuation of crude oil |

Day 2

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| • Distillation theory | • Alkylation |
| • Primary and vacuum distillation | • Exercise: Refinery Flow scheme |
| • Conversion technologies | • Visbreaking / Thermal Cracking / Coking |
| • Crude oil blending | • Exercise: V50 |
| • Exercise: Crude oil blending | |
| • Reforming / Isomerisation | |

Day 3

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| • Fluid Catalytic Cracking | • Exercise: Optimum Refinery Programme |
| • Hydrocracking | |
| • Gas and Liquid treating | • Utilities and Energy Management |
| • Hydrotreating | • Lubricating oils |
| • Sulphur Recovery / Claus / Off gas treating | |