



# Refinery Introduction Course

**ppPLUS offers the following in-house course for those interested in getting a solid broad awareness of the refinery business:**

Title: Refinery Introduction Course

Level, Duration, Place: Basic, 3 days, in-house class room or VILT (remote).

Purpose:

- Getting a broad awareness of the refinery business.
- Providing a global perception of the refinery as a business, by providing basic technical information on refining processes, the place of the refinery in the value chain and future trends.
- Getting awareness of the basic tools and techniques used for economic evaluations in refineries.

Target Audience:

- Non-refinery professionals in the Oil & Gas industry or related sectors, such as consultants, contractors, suppliers and other interrelated companies interested in the oil refining business.
- Newly-hired refinery personnel and current semi-technical personnel who require introductory training to acquire the broader perspective.

- Employees of Private Equity firms and other investors interested in the refinery business.
- Environmental professionals, insurance representatives, government officials, energy industry journalists & reporters and other professionals who desire a better understanding of the subject matter.

Learning Objectives:

- State the role of the main refining processes, operating characteristics, crude and products quality parameters, economics and planning.
- Describe the place of the refinery in the value chain from 'well to wheels', including petrochemicals.
- Recognize the need for performance monitoring, Quality & Assurance.
- Explain the challenges (including environmental), opportunities and future trends in the refining industry.
- Understand and use the crude oil refining terminology.

This course includes presentations, short video's, exercises, interactive sessions (participants can propose relevant topics upfront to discuss in class) and an (optional) examination with certification. Full 3-day program in the picture attached below.

## Refinery Introduction Course Program (3 days)

### Day 1

#### 0. Safety & Introduction

- 0.1 Welcome, Safety & In-house arrangements
- 0.2 Introduction of participants
- 0.3 Program
- 0.4 Course objectives

#### 1. Introduction

- 1.1 Global energy demand
- 1.2 Global crude oil and product demands
- 1.3 Crude oil reserves (incl. video)
- 1.4 Refinery position in the value chain

#### 2. Crude Oil and Products

- 2.1 Crude oil origin, types and movements (incl. video)
- 2.2 Crude oil products
- 2.3 Crude oil product specifications
- 2.4 Crude oil pricing (incl. video)
- 2.5 Crude oil product pricing

#### 3. The Refinery

- 3.1 Refinery segments
- 3.2 Simple refinery
- 3.3 Semi-complex refinery
- 3.4 Complex refinery (incl. exercise)
- 3.5 Main refinery units (incl. videos, exercise)
- 3.6 The role of catalysts

### Day 2

#### 3. The Refinery (Continued)

- 3.7 Utilities
- 3.8 Refinery fuel
- 3.9 Refinery slops
- 3.10 Blending (incl. video)
- 3.11 Costs of petroleum processing plants
- 3.12 Refinery lay-out

#### 4. Refinery Economics

- 4.1 Refinery Margin
- 4.2 Yield & Expense Statement (incl. exercise)
- 4.3 Linear Programming model
- 4.4 Crude oil selection
- 4.5 Crude oil WC, Exposure, Natural Length

#### 5. Refinery Planning

- 5.1 Long-term planning
- 5.2 Short-term planning
- 5.3 Scheduling
- 5.4 Appraisal

#### 6. Environmental Regulations

- 6.1 Restrictions & opportunities
- 6.2 IMO2020 (incl. video)

#### 7. Hydrocarbon Mass Balance and Loss

- 7.1 Hydrocarbon mass balance
- 7.2 Hydrocarbon loss
- 7.3 Ocean loss

### Day 3

#### 8. Maintenance and Turnarounds

- 8.1 Maintenance & Reliability
- 8.2 Turnarounds (incl. video)

#### 9. Oil-Chemicals Interface

- 9.1 Petrochemicals
- 9.2 Products exchange

#### 10. Refinery Process Control

- 10.1 Drawings
- 10.2 DCS
- 10.3 APC (incl. video)

#### 11. Performance Monitoring

- 11.1 Key Performance Indicators
- 11.2 Review meetings
- 11.3 Benchmarking

#### 12. Quality & Assurance

- 12.1 Management System
- 12.2 Auditing

#### 13. Trends

- 13.1 Future of fossil fuels
- 13.2 Future of refineries

#### 14. Miscellaneous

- 14.1 Participants topics
- 14.2 Further reading
- 14.3 Video inventory

#### 15. Questions and Answers

#### 16. Examination & Certification

#### 17. Feedback, Appendices