



OIL AND GAS | OG-033

Crude Oil Refining Processes and Operations

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Course content

Why Attend

Refineries convert crude oil into fuels, lubricants and petrochemical feedstocks through a complex series of separation, conversion and treating processes. Understanding how these units work and interact is essential for engineers, operators and commercial staff alike.

This Aractech course explains crude oil characteristics, refinery configurations and the main processing units, including distillation, catalytic reforming, fluid catalytic cracking, hydrocracking, hydrotreating, alkylation and blending. Participants also examine refinery economics, product specifications, utilities, safety and the energy transition challenges facing refiners.

Course Methodology

- Process explanation with refinery flow diagrams
- Crude assay and blending exercises
- Case studies on unit operations
- Refinery economics workshop
- Group discussions

Course Objectives

- Describe crude oil properties and assays
- Explain refinery configurations and process flows
- Understand the main separation and conversion units
- Describe treating and blending to meet product specifications
- Understand refinery economics and margins
- Recognise operational, safety and environmental challenges

Course content

Target Audience

- Refinery engineers and operators
- Process and planning engineers
- Commercial, trading and supply staff
- Technical sales professionals

Course outline

Detailed course outline

Day-by-day outline for Crude Oil Refining Processes and Operations.

Day 1 - Crude Oil and Refinery Basics

- 09:00-09:39 | Crude oil composition and classification
- 09:39-10:18 | Crude assays and quality
- 10:18-10:57 | Refined products and specifications
- 10:57-11:00 | Refinery configurations
- 11:00-11:30 | Coffee break
- 11:30-12:05 | Refinery configurations (continued)
- 12:05-12:43 | Refinery margins and economics
- 12:43-14:00 | Exercise: Interpreting a crude assay

Day 2 - Separation Processes

- 09:00-09:39 | Desalting
- 09:39-10:18 | Atmospheric distillation
- 10:18-10:57 | Vacuum distillation
- 10:57-11:00 | Gas plant and LPG recovery
- 11:00-11:30 | Coffee break
- 11:30-12:05 | Gas plant and LPG recovery (continued)
- 12:05-12:43 | Operating variables
- 12:43-14:00 | Case study: Distillation unit troubleshooting

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Day 3 - Conversion Processes

- 09:00-09:39 | Fluid catalytic cracking
- 09:39-10:18 | Hydrocracking
- 10:18-10:57 | Catalytic reforming
- 10:57-11:00 | Coking and residue upgrading
- 11:00-11:30 | Coffee break
- 11:30-12:05 | Coking and residue upgrading (continued)
- 12:05-12:43 | Alkylation and isomerisation
- 12:43-14:00 | Exercise: Comparing conversion options

Day 4 - Treating, Blending and Utilities

- 09:00-09:39 | Hydrotreating and sulphur removal
- 09:39-10:18 | Product blending
- 10:18-10:57 | Hydrogen and sulphur plants
- 10:57-11:00 | Utilities and energy systems
- 11:00-11:30 | Coffee break
- 11:30-12:05 | Utilities and energy systems (continued)
- 12:05-12:43 | Product quality control
- 12:43-14:00 | Workshop: Gasoline blending exercise

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Day 5 - Operations, Safety and the Future

- 09:00-09:45 | Refinery planning and optimisation
- 09:45-10:30 | Process safety in refineries
- 10:30-11:00 | Environmental performance and emissions
- 11:00-11:30 | Coffee break
- 11:30-11:45 | Environmental performance and emissions (continued)
- 11:45-12:30 | Biofuels and co-processing
- 12:30-13:15 | Energy transition strategies for refiners
- 13:15-14:00 | Capstone: Refinery improvement proposal

Seminar dates

Available seminar dates

Live dates and pricing for Crude Oil Refining Processes and Operations generated from the course details page.

Date	Location	Format	Fee
2 - 6 November 2026	Paris	Classroom	€3,825
21 - 25 December 2026	Frankfurt	Classroom	€1,875
18 - 22 January 2027	Munich	Classroom	€3,225
15 - 19 February 2027	Amsterdam	Classroom	€2,830
15 - 19 March 2027	London	Classroom	€2,315
19 - 23 April 2027	Istanbul	Classroom	€1,978
17 - 21 May 2027	Vienna	Classroom	€3,225
21 - 25 June 2027	Barcelona	Classroom	€2,815
19 - 23 July 2027	Cape Town	Classroom	€1,625
16 - 20 August 2027	Frankfurt	Classroom	€1,875

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Date	Location	Format	Fee
20 - 24 September 2027	Munich	Classroom	€3,225
18 - 22 October 2027	Amsterdam	Classroom	€2,830
15 - 19 November 2027	London	Classroom	€2,315
20 - 24 December 2027	Istanbul	Classroom	€1,978
2 - 6 November 2026	Online / Live	Online / Live	€1,815
21 - 25 December 2026	Online / Live	Online / Live	€1,815
18 - 22 January 2027	Online / Live	Online / Live	€1,815
15 - 19 February 2027	Online / Live	Online / Live	€1,815
15 - 19 March 2027	Online / Live	Online / Live	€1,815
19 - 23 April 2027	Online / Live	Online / Live	€1,815

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Date	Location	Format	Fee
17 - 21 May 2027	Online / Live	Online / Live	€1,815
21 - 25 June 2027	Online / Live	Online / Live	€1,815
19 - 23 July 2027	Online / Live	Online / Live	€1,815
16 - 20 August 2027	Online / Live	Online / Live	€1,815
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