

Chemical Process and Refining Technology

Professional training programme



SPARK TRAINING

Professional training courses for leaders, specialists, and organizations seeking practical capability development.

info@sparktraining.eu

+31 85 115 0004 | sparktraining.eu

— Workshop Overview

This Chemical Process and Refining Technology training course delves into the intricacies of chemical process engineering within refinery operations. Participants will explore the transformation of crude oil into valuable end products such as gasoline, diesel, and jet fuel. By focusing on the technological advancements in distillation, cracking, reforming, and hydroprocessing, the course emphasizes the balance between maximizing yield, ensuring operational safety, and adhering to environmental regulations. The participants will also gain knowledge on how to integrate advanced processes to optimize refinery efficiency while reducing carbon footprints.

Why Attend

This course uses instructor-led sessions, guided discussion, and practical exercises built around Day one: Fundamentals of Refining and Chemical Processes, Day two: Advanced Distillation and Separation Technologies, Day three: Catalytic Processes and Hydroprocessing Technologies, and day four: refinery-petrochemical integration

Who Should Attend

Chemical Engineers
Process Engineers
Refinery Operators and Technicians
Environmental Engineers
Energy Consultants
Petrochemical Technologists

— Learning Objectives

- Develop a profound understanding of chemical processes in modern refining
- Explore various refining technologies and their role in product enhancement
- Learn to address environmental challenges and safety issues in refinery operations
- Enhance capabilities in applying cutting-edge technologies for yield optimization and process efficiency
- Understand the integration of refining with petrochemical production for added value

Course Outline

**DAY
1****Day one: Fundamentals of Refining and Chemical Processes**

- Introduction to refinery operations: key units and process flow diagrams
- Core chemical reactions: cracking, hydroprocessing, reforming, and coking
- Fundamental refining technologies: thermal cracking, catalytic cracking, and distillation processes

**DAY
2****Day two: Advanced Distillation and Separation Technologies**

- Atmospheric and vacuum distillation: design and operation
- Detailed exploration of separation processes: fractionation, strippers, and absorption
- Introduction to new separation technologies: molecular distillation and membrane separation

**DAY
3****Day three: Catalytic Processes and Hydroprocessing Technologies**

- Principles of catalysis and catalyst behavior in refining
- Hydroprocessing fundamentals: hydrotreating and hydrocracking processes
- Catalytic reforming and its effect on enhancing octane number and yield

**DAY
4****Day four: Refinery-Petrochemical Integration and By-Product Management**

- Integration between refinery and petrochemical units for maximized productivity
- Handling refinery by-products: sulfur recovery, hydrogen production, and LPG separation
- Economic, logistical, and technological challenges in integrated operations

**DAY
5****Day five: Environmental, Health, and Safety Challenges in Refining**

- Key environmental regulations and their impact on refining operations
- Process safety management: risk assessment, hazard identification, and incident prevention
- Sustainable refining practices: carbon capture, emission reduction, and waste minimization strategies

— Upcoming Classroom Dates

DATE	LOCATION	FEE
19 - 23 October 2026	London - United Kingdom	€2,100
2 - 6 November 2026	Rome - Italy	€2,125
21 - 25 December 2026	Munich - Germany	€1,725
18 - 22 January 2027	Frankfurt - Germany	€1,625
15 - 19 February 2027	Barcelona - Spain	€1,925
15 - 19 March 2027	Frankfurt - Germany	€1,625
19 - 23 April 2027	Rome - Italy	€2,125
17 - 21 May 2027	Kuala Lumpur - Malaysia	€1,400

— Certificate and Registration

Participants who attend and complete the full programme receive a SPARK Training Certificate of Completion. For registration, in-house delivery, or availability questions, contact info@sparktraining.eu or +31 85 115 0004.