

TRAINING TITLE

REFINERY UNITS (OPERATIONS AND ENGINEERING) – BASICS

Training Duration

5 day

Training Venue and Dates

REF. No. RE094	Refinery Units (Operations and Engineering) - Basics	5	08-12 Sep. 2025	\$5,500	ABU DHABI
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

The refining industry is at the heart of converting crude oil into valuable products such as gasoline, diesel, jet fuel, and petrochemical feedstocks. Understanding the fundamentals of refinery units and their operations is critical for professionals involved in refining processes. This 5-day introductory course is designed to provide participants with a foundational understanding of refinery operations and engineering principles, focusing on the essential units, processes, and systems that ensure efficient and safe refining operations.

TRAINING OBJECTIVES

Upon the successful completion of this course, participants will be able to:-

1. Understand the basic structure and functions of a refinery.
2. Explain the key processes in refining, including separation, conversion, and treatment.
3. Identify the roles and operational principles of major refinery units.
4. Apply basic engineering principles to support efficient refinery operations.
5. Recognize safety and environmental considerations in refining operations.

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WHO SHOULD ATTEND?

This course is designed for individuals seeking foundational knowledge in refinery operations and engineering, including:

- **Process Operators and Technicians**
- **Junior and Entry-Level Engineers**
- **Maintenance Personnel**
- **Supervisors and Team Leaders in Refinery Operations**
- **Health, Safety, and Environment (HSE) Professionals**
- **Trainees and Graduates** entering the oil and gas industry

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

COURSE PROGRAM:

Day 1: Introduction to Refining and Overview of Refinery Units

- **Introduction to the refining industry: purpose, processes, and products.**
- **Overview of refinery configurations and key units.**
- **Basic principles of crude oil refining: separation, conversion, and treatment.**
- **Overview of crude distillation unit (CDU) and vacuum distillation unit (VDU).**
- **Key operational considerations for primary distillation processes.**
- **Case study: Crude oil composition and its impact on refining processes.**

Day 2: Conversion Processes

- **Introduction to conversion processes: cracking, reforming, and hydroprocessing.**
- **Fundamentals of fluid catalytic cracking (FCC) and hydrocracking.**
- **Role of conversion units in producing high-value products.**

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- Overview of catalytic reforming and its importance in gasoline production.
- Introduction to coking and its applications in heavy oil processing.
- Analyzing product yields from different conversion processes.

Day 3: Supporting Systems and Utilities

- Importance of utility systems in refinery operations: steam, electricity, and water.
- Overview of refinery heating and cooling systems.
- Basics of hydrogen production and consumption in refineries.
- Introduction to sulfur recovery and gas treatment systems.
- Environmental considerations: emissions control and effluent treatment.
- Designing a basic utilities plan for a refinery unit.

Day 4: Refinery Operations and Engineering Principles

- Fundamental concepts of heat and mass transfer in refining.
- Role of process control systems in refinery operations.
- Equipment overview: pumps, compressors, heat exchangers, and reactors.
- Operational challenges and troubleshooting in refinery units.
- Introduction to refinery optimization and process improvement techniques.
- Diagnosing and resolving common operational issues.

Day 5: Safety, Maintenance, and Future Trends in Refining

- Safety protocols and risk management in refinery operations.
- Maintenance strategies for refinery equipment: preventive and predictive approaches.
- Emergency response planning and incident management.
- Emerging trends in refining technology: digitalization, energy efficiency, and renewable feedstocks.
- Developing an operational plan for a basic refinery unit.
- Course review, Q&A, and certification distribution.

NOTE:

www.definettraining.com

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.

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