



*Training Course:
Fundamentals of Chemical Engineering*

*27 June - 8 July 2027
Cairo (Egypt)*

Training Course: Fundamentals of Chemical Engineering

Training Course code: EN6027 From: 27 June - 8 July 2027 Venue: Cairo (Egypt) - Training Course Fees: 6950 € Euro

Introduction

Chemical engineering is the discipline that bridges chemistry, physics, mathematics, and engineering to design and operate processes that convert raw materials into valuable products. A strong foundation in core principles is essential for safe, efficient, and economically viable industrial operations.

This program, designed by Global Horizon Training Center, provides a comprehensive 10-day training that equips participants with the essential concepts, analytical tools, and practical understanding required to work effectively in chemical and process industries.

Course Objectives

By the end of this program, participants will be able to:

- Understand core principles of chemical engineering
- Apply material and energy balances to process systems
- Analyze fluid flow, heat transfer, and mass transfer processes
- Identify and operate key process equipment
- Understand reaction engineering fundamentals
- Interpret PFDs and basic P&IDs
- Apply process control and safety principles
- Support efficient and safe plant operations

Target Audience

This program is designed for:

- Chemical and Process Engineering Graduates
- Plant Operators and Technicians
- Maintenance and Operations Personnel
- Engineers transitioning into process industries
- Supervisors in industrial facilities
- Individuals seeking foundational chemical engineering knowledge

Outline

Day 1: Introduction to Chemical Engineering

- Overview of chemical engineering disciplines
- Process industries and applications
- Role of chemical engineers
- Process flow diagrams PFDs
- Safety fundamentals

Day 2: Basic Chemistry and Thermodynamics

- Chemical reactions and stoichiometry
- Phases and properties of matter
- Thermodynamic systems and laws
- Energy and equilibrium concepts
- Industrial applications

Day 3: Material Balances

- Principles of mass balance
- Steady-state and unsteady-state systems
- Single and multiple unit systems
- Recycle and bypass streams
- Practical problem-solving

Day 4: Energy Balances

- Heat and energy balance principles
- Enthalpy and energy calculations
- Heat transfer basics
- Energy efficiency
- Applications in process systems

Day 5: Fluid Mechanics

- Fluid properties and behavior
- Flow regimes and Reynolds number
- Pressure drop and flow measurement
- Pumps and piping systems
- Industrial applications

Day 6: Heat Transfer

- Modes of heat transfer conduction, convection, radiation
- Heat exchangers and thermal systems
- Heat transfer coefficients
- Energy optimization
- Case examples

Day 7: Mass Transfer

- Diffusion and mass transfer principles
- Separation processes distillation, absorption

- Phase equilibrium basics
- Mass transfer equipment
- Industrial applications

Day 8: Reaction Engineering

- Types of chemical reactions
- Reactor design batch, CSTR, PFR
- Reaction kinetics
- Conversion and yield
- Process optimization

Day 9: Process Control and Instrumentation

- Process control fundamentals
- Sensors and measurement devices
- Control loops and PID basics
- Automation systems
- Troubleshooting basics

Day 10: Safety, Integration, and Case Studies

- Process safety management PSM
- Hazard identification HAZOP basics
- Environmental considerations
- Integration of process systems
- Case studies and practical applications

Registration form on the Training Course: Fundamentals of Chemical Engineering

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Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

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