



## Chemical Engineering and Plant Design

11 - 15 Aug 2024  
Amman (Jordan)



# Chemical Engineering and Plant Design

**Ref.:** 10001\_295146 **Date:** 11 - 15 Aug 2024 **Location:** Amman (Jordan) **Fees:** 3200 **Euro**

## Introduction:

Chemical engineering is a branch of engineering science that deals with physics and chemistry applied mathematics and economics to generate, convert, transport, and use chemicals and energy. This ties in with process plant design from a practical and functional perspective as the delivery of liquids alone is as critical as understanding chemical engineering as an industry professional.

Chemical engineers apply their chemistry and engineering skills to transform raw materials into utilizable goods, like medicines, fuels, chemicals, and plastics. They are also involved in the research. They also design and perform experimental researches to make new and better customs of production of chemicals, controlling harmful effects, conserving the resources

## Targeted Groups:

- Chemical Engineers
- Plant Engineers
- Petrochemical Engineers
- Consulting Engineers
- Engineering Managers
- Maintenance Engineers/Technicians
- Project Engineers
- Process Control Engineers

## Course Objectives:

At the end of this course the participants will be able to:

- Understand the technical concepts involved in chemical engineering and plant layout
- Understand the process and piping design
- Acquire knowledge of chemical engineering theory and concepts

## Targeted Competencies:

- Control valve manifolds
- Common Abbreviations
- Fluid properties
- Volume and velocity
- Symbols used

## Course Content:

### Unit 1: Chemical Process:

- Objectives
- Principles

- Unit operations and Unit processes with examples

## **Unit 2: Pipe Fittings:**

- Purpose
- Fitting end preparations
- Elbows
- Reducers
- Welded Tees
- Threadolet and lateral
- Screwed and socket weld fittings
- Pipe nipples

## **Unit 3: Process Flow Diagrams:**

- Types
- Icons and example
- Steam information table
- Utilities - heating and cooling
- Equipment Specs

## **Unit 4: Chemical Kinetics and Reactor Design:**

- Terminology
- Order of reaction
- Fractional conversion
- Types of reactors
- Design equations for Reactor
- Batch reactor
- Mixed flow CSTR reactor
- Plug flow reactor PFR

## **Unit 5: Process Control and Instrumentation:**

- P&ID Basics and information
- Terminologies
- Instruments abbreviations
- P&ID Legend sources
- Equipment classes
- Locally mounted instruments
- Symbols used
- Remote control
- Control valve manifolds
- Need for process control

## **Unit 6: Plant Layout and Piping Design:**

- Basic concepts
- Processing facilities
- Equipment and piping

## **Unit 7: Design of Process Plant:**

- Factors to be considered
- Design tasks
- Required Qualifications and skills
- Thumb rules
- Common Abbreviations

## **Unit 8: Procedures and The Workflow Methods:**

- Physical quantities and units used in the design
- Associated Organizations

## **Unit 9: Fluid:**

- Basic concepts
- Fluid properties
- Practical problems

## **Unit 10: Fluid Flows:**

- Fluid pressure
- Continuity equation
- Volume and velocity
- Laminar and turbulent flows
- Reynolds number
- Friction factor and Pressure drop
- Bernoulli's equation



**Registration form on the :  
Chemical Engineering and Plant Design**

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