



Chemical, Mechanical Engineering Training Courses

Course: Process & Mechanical Engineering Essentials

Code	City	hotel	Start	End	Hours	price
511	Bangkok (Thailand)	Hotel Meeting Room	2026-01-05	2026-01-16	50	9450 €

The Course Content

Module 1: Process Engineering Essentials: Upstream & Downstream

Process Control & Optimisation

Day One

Introduction and Fundamentals of Process Engineering

- Mass and energy balances
- Reactor types
- Process & Engineering Diagrams
- Flammability
- Electrical area classification
- Risk Management and Hazard Studies

Day Two

Hydraulics and Fluid flow

- Pressure and head & Bernoulli's theorem
- Flow of liquids, Reynolds number and pressure drop in pipes



- Two-phase and multi-phase flow
- Enthalpy and thermodynamics
- Principle of process relief devices and process design of relief systems
- Mechanical Equipment - Pumps, Compressors & Mixers

Day Three

Heat Transfer and Reaction Engineering

- Heat Transfer Mechanisms
- Heat transfer coefficients and calculation
- Heat exchangers, type and sizing
- Catalysis and Reaction Engineering
- Chemical reactions & kinetics
- Green Chemistry & Engineering and Sustainability

Day Four

Distillation Processes and Equipment

- Phase behavior and vapour/liquid equilibria
- Gas/Liquid separation
- Distillation equipment - Columns and vessels
- Troubleshooting of process equipment
- Overview of Other Separation Processes
- Effluent treatment [in refinery and petrochemical] industries

Day Five

Process Control and Economics



- Classification of control systems
- Measured variables
- Simple feedback control
- Preliminary economic analysis
- Fixed and variable costs, break even analysis
- Estimating the cost of process equipment and plants

Module 2: Mechanical Engineering Essentials: Rotating & Static Equipment & Structural Integrity

Day Six

Introduction & Fundamentals of Materials Selection, Types & Failures

- Engineering Material Properties and Selection
- Materials Testing
- Types of Metals
- Static Strength and Fitness For Service
- Materials Failure Mechanisms
- Mechanical Design, Standards and Codes

Day Seven

Static Equipment, Valves, Piping & Fitness for Service

- Valves Types and Characteristics
- Valve Selection
- Valve Actuators
- Piping Systems and Pipe Supports
- Overview of API 570 - Inspection & repair of Pipelines & Piping



- Fitness for Service, API 579 overview

Day Eight

Rotating Equipment, Pumps & Compressors

- Pump Types, Positive Displacement and Dynamic
- Pump curves
- Pump Selection
- Types of Compressors
- Compressor Performance Curves

Day Nine

Corrosion & Corrosion Protection

- Corrosion Fundamentals
- Types of Corrosion
- Corrosion Inspection and Monitoring
- Corrosion Minimization
- Corrosion Protection

Day Ten

Mechanical Maintenance

- Strategies & Philosophies
- Code and Standards
- Condition Monitoring

Non Destructive Inspection techniques



The Scandinavian Academy for Training and Development adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training and Development.

Program Timings:

- 9:00 AM to 2:00 PM in Arab cities.
- 10:00 AM to 3:00 PM in European and Asian cities.

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.