

Scandinavian Academy
Training Center

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Riyadh - Al Khaleej District - Sheikh Abdul Aziz Bin Abdul Rahman Bin Bishr Street - 13223 - Office No. 5 | P.O.BOX : 13224

Course: Process Engineering Essentials

Code	City	hotel	Start	End	price	Language - Hours
CM-567SA	Al Khobar	Hotel Meeting	2027-09-05	2027-09-09	12950 SR	En - 25

Why Choose this Course?

This course is well-matched to those professionals and practitioners who require familiarity not only with chemical engineering principles, but also with many of the other engineering disciplines including mechanical, electrical and instrumentation. This is essential since Process Engineering is at the heart of much of the chemical, oil, gas, and petrochemical industries. Process Engineers are interested in the transportation and transformation of solids, liquids and gases. In the oil and gas sector, of specific importance are separation processes including distillation, heat transfer, hydraulics and fluid flow, reaction engineering, but also process control and economics. This seminar focuses on the central areas of process engineering and guides the delegates in developing both fundamental and practical understandings of key issues.

This course will feature:

- A practical introduction to the fundamentals of process engineering
- Key areas applicable to major process industries especially oil, gas & petrochemical
- Process Engineering influence on Safety and Risk
- Optimisation of process design and control.
- Costs and project costing

What are the Goals?

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

- Understand fundamental principles used in processes and facilities.

- Apply practical understanding of hydraulics and fluid flow.
- Apply learning from historical safety incidents.
- Perform relevant calculations & analyses to assist in operation, sizing, & troubleshooting.
- Develop perspective & focus from a company viewpoint of interaction of different engineering disciplines.

Who is this Course for?

This course is suitable to a wide range of professionals but will greatly benefit Technical and non-technical personnel in the chemical, petrochemical, oil and process industries with a need to understand and discuss fundamental process engineering issues:

- Plant/Operations Personnel and Managers
- Petroleum Engineers
- Production Engineers
- Trainee Process Engineers
- R&D Chemists, Plant Chemists
- Economists and Business Managers

How will this be Presented?

This course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes formal lectures and discussions, active participation through the use of problem-solving exercises, videos, group discussions, analysis of real-life case studies, and industry best practices. Case studies and examples will cover a range of levels, making the course also suitable non-technical staff.

The Course Content

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

The Scandinavian Academy for Training Center 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 Center.

Program Timings: 9:00 AM to 2:00 PM

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.
- A closing ceremony on the final day to distribute certificates and celebrate participants achievements.
- **Note: All prices are exclusive of 15% Value Added Tax (VAT).**

Our Success Partners

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