

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: Pumps, compressor and turbine: Selection, Operation & Maintenance

Code	City	hotel	Start	End	price	Language - Hours
MA-516SA	Al Khobar	Hotel Meeting	2027-09-05	2027-09-09	12950 SR	En - 25

Why Choose this Course?

The course will feature the importance of fluid movers such as pumps, compressors of various designs and applications, which are encountered throughout chemical and process industries, including oil refineries, gas production facilities, power generation and other fields of engineering. The course is intended to familiarize engineers, technicians and operators with the guidelines and best practices employed in utilizing this equipment, including installation, operation, maintenance and repair.

A thorough understanding of fluid flow in pumps, compressors and turbines is a prerequisite for successful operation of entire system as advances in construction and application of this equipment have presented numerous problems in everyday operation: mechanical, hydraulic, chemical, etc.

The course will feature:

- Principles of selection of right pump, compressor and turbine for the given application
- Practical issues related to trouble-free functioning of pumps, compressors and turbines
- Explanation of basic principles of fluid flow and valuable industrial experience
- Guidelines for installation, operation, maintenance and troubleshooting
- Economic issues: cost and benefit analysis

What are the Goals?

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

- Understand technical features of pumps, compressors and turbines
- Select optimal type and size of equipment for a given industrial application
- Use methods of estimating the degree of deterioration and inefficiency of equipment
- Apply best practices and techniques of pinpointing the root cause of problems
- Choose the most efficient remedies and troubleshooting techniques in operation

Who is this Course for?

This course is designed to benefit all levels of Technical Personnel in the oil and gas industry as well as in chemical and process industries but will greatly benefit:

- Chemical, Process and Mechanical Engineers
- Product Engineers and Technologists
- Operation, technical service and maintenance professionals
- Engineers, Consultants and Sales professionals
- Technical professionals responsible for interdisciplinary energy projects

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 lectures with active delegate participation including discussions and workshops. Several numerical examples and calculations will be included, and the focus will be on physical principles and clear technical reasoning.

Workshops will include case studies related to pumps, compressors and turbines will be presented with explanation on operation and maintenance problem solving

methodology. Various numerical examples from real-life technical practice will be included in several workshops and will help to gain confidence in making right decision regarding efficient functioning and long operational life.

The Course Content

Day One

Centrifugal Pumps

- Overview of various types of pumps based on design and application
- World standards and codes related to pump design
- Main elements of centrifugal pump construction
- Design of pump-suction piping
- Selection and sizing of centrifugal pump
- Solving problems in operation

Day Two

Positive Displacement Pumps

- Positive displacement pumps: reciprocating and rotary
- Pump requirements for chemical, process and oil industry, power generation
- Pumps for special applications
- Guidelines for pump installation and operation
- Pump inspection, control and performance testing
- Maintenance and troubleshooting of pumps

Day Three

Centrifugal Compressors

- Overview of the main features of various types of compressors
- Classification of compressors based on design and application
- World standards and codes related to compressor design
- Main elements of centrifugal compressor construction
- Analysis of centrifugal compressor efficiency
- Guidelines for trouble-free centrifugal compressor operation

Day Four

Positive Displacement Compressors

- Positive displacement compressors: Reciprocating and Rotary
- Basic criteria for selecting the optimum cost-effective compressor
- Compressor loadings and speeds; noise control and protection
- Compressors for special applications
- Guidelines for compressor installation and operation
- Compressor inspection, maintenance, control, performance testing and troubleshooting

Day Five

Industrial Gas Turbines

- Main elements and technical characteristics of gas turbine design
- Radial and Axial-flow gas turbines
- Combustor performance – types of fuels, combustion and pollution control
- Gas turbine deterioration – corrosion and erosion prevention
- Mechanical vibrations – monitoring, measurements, diagnostics and analysis
- Installation , operation, maintenance and troubleshooting of gas turbines

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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