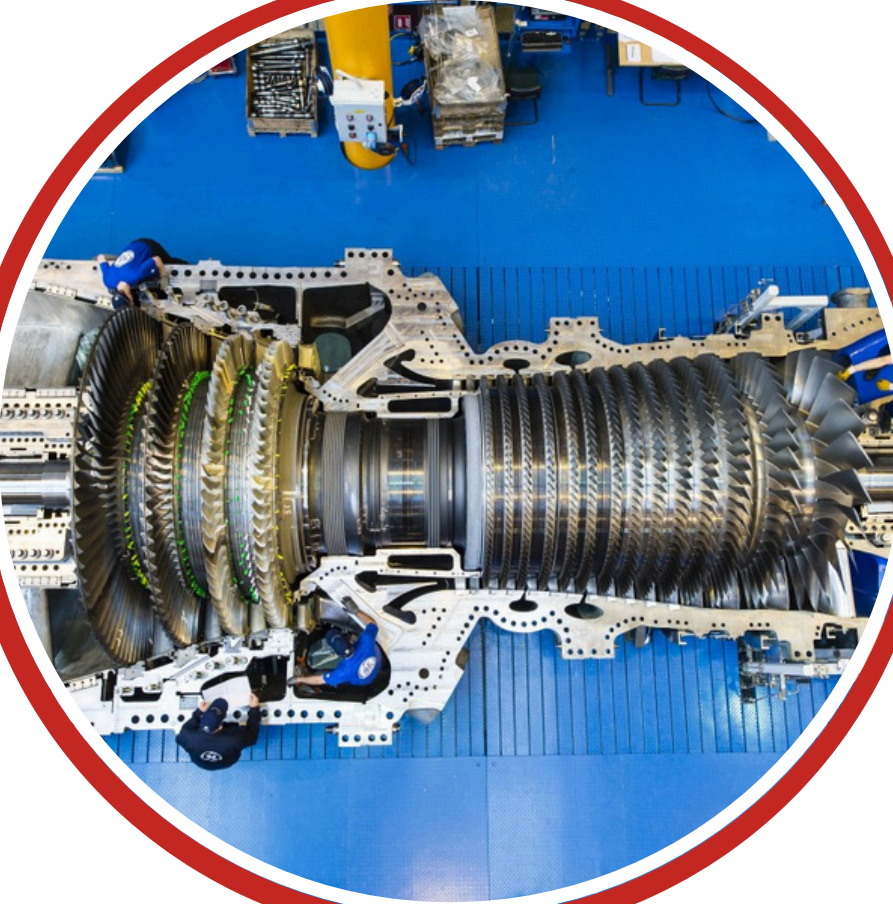


Pumps, Compressors, Turbines & Troubleshooting

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Energy Milestones Corporation Advancing Professionals to the next level

Energy Milestones is proud to be accredited, partner and associated with the following association bodies:



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Pumps, Compressors, Turbines & Troubleshooting



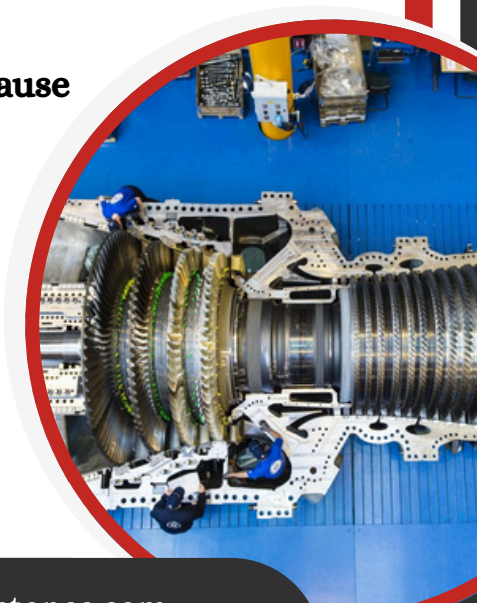
Overview

The course will highlight the importance of fluid movers, including pumps and compressors of various designs and applications, which are commonly encountered throughout the chemical and process industries, such as oil refineries, gas production facilities, power generation, and other fields of engineering. The course is intended to familiarise engineers, technicians and operators with the guidelines and best practices employed in utilising this equipment, including installation, operation, maintenance and repair. A thorough understanding of fluid flow in pumps, compressors, and turbines is essential for the successful operation of the entire system, as advances in the construction and application of this equipment have presented numerous challenges in everyday operation, including mechanical, hydraulic, and chemical issues.

Course Objectives

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

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



Pumps, Compressors, Turbines & Troubleshooting

Course Content

1. 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

2. Positive Displacement Pumps

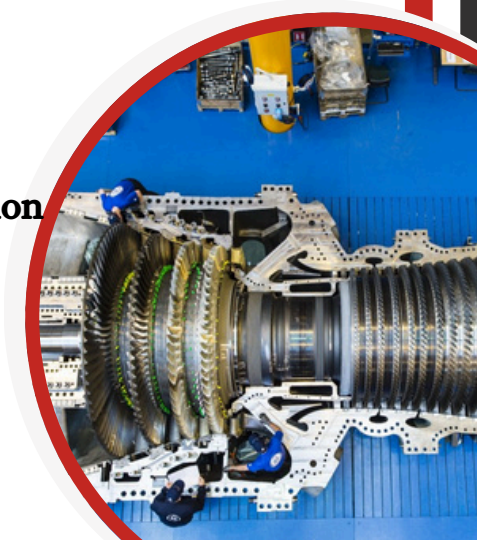
- Positive displacement pumps: reciprocating and rotary
- Pump requirements for chemical, process and oil industry, power generation
- Pumps for special applications
- Guidelines for pump installation and operation
- Pump inspection, control and performance testing
- Maintenance and troubleshooting of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

3. 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

4. Positive Displacement Compressors

- Positive displacement compressors: Reciprocating and Rotary
- Basic criteria for selecting the optimum cost-effective compressor



Pumps, Compressors, Turbines & Troubleshooting

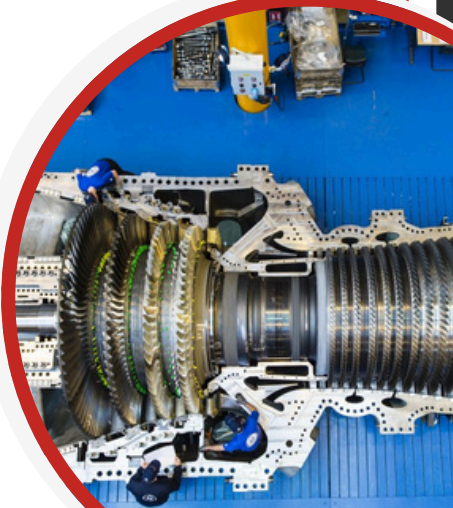
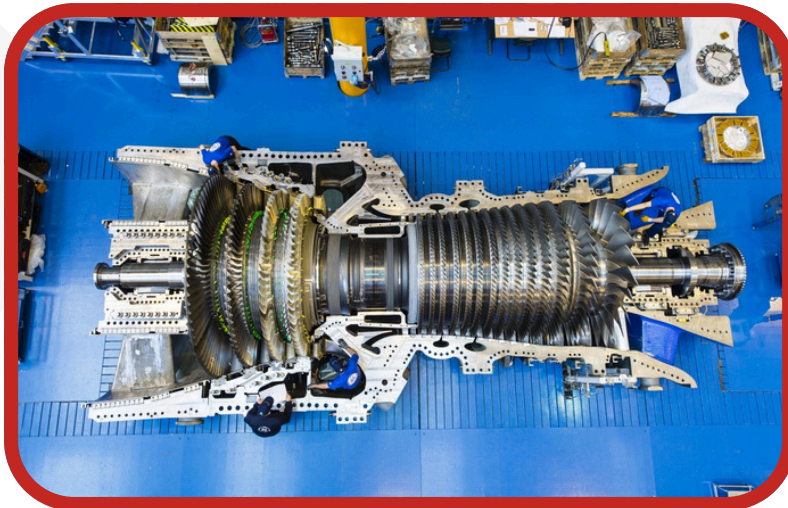
Course Content

4. Positive Displacement Compressors

- 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

5. 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



Pumps, Compressors, Turbines & Troubleshooting



Targeted Audience

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

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be employed before and during the course, as applicable. These methods are aimed at enhancing individual and group interaction while maximising learning. Some of these methods are:

- Online Pre-post Test
- Colourful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role-plays
- Indoor & Outdoor games

