GAS AND AIR COMPRESSORS- CENTRIFUGAL AND AXIAL COMPRESSORS

COURSE OVERVIEW

This comprehensive training course is designed to provide a solid understanding of the principles, operation, and maintenance of centrifugal and axial compressors used in gas and air compression systems. These compressors are essential in a wide range of industries, including oil and gas, power generation, petrochemicals, and manufacturing. The course focuses on compressor theory, performance characteristics, component design, system integration, troubleshooting, and condition monitoring techniques. Participants will gain practical knowledge to ensure reliable, efficient, and safe compressor operation.

DATES, VENUES AND FEES

28 September – 02 October 2025
- Dubai
(5 Days)

Fees US$ 4500

Note: Fee is per participant + 5% VAT (if applicable).
Groups from the same company can enjoy a **discounted** price.

WHO SHOULD ATTEND?

This course is appropriate for a wide range of professionals but not limited to:

- Mechanical, process, and maintenance engineers
- Operations and production personnel
- Reliability engineers and plant technicians
- Equipment inspectors and field service staff
- Supervisors and team leaders responsible for rotating equipment
- Anyone involved in the operation, maintenance, or management of compressor systems

CONTACT US NOW

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Block 2B, 1st Floor, Office 134, Knowledge Park, Dubai, UAE
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ACCREDITATION

This training course is certified by CPD.

The CPD Certification Service is the leading independent CPD accreditation institution operating across industry sectors to complement the Continuing Professional Development policies of professional institutes and academic bodies. The CPD Certification Service provides support, advice, and recognised independent CPD accreditation compatible with global CPD principles. CPD is the term used to describe the learning activities professionals engage in to develop and enhance their abilities and keep skills and knowledge up to date. CPD Units are only awarded to programmes after each programme is scrutinised to ensure integrity and quality according to CPD standards and benchmarks.

COURSE CERTIFICATE

MSTC certificate will be issued to all attendees completing a minimum of 80% of the total tuition hours of the course.

CPD internationally recognized certificate will be issued for all participants who will meet the course requirements.
CPD certificates will be issued within a month of the successful completion of the course.

TRAINING METHODOLOGY

- Expert-led sessions with dynamic visual aids
- Comprehensive course manual to support practical application and reinforcement
- Interactive discussions addressing participants' real-world projects and challenges
- Insightful case studies and proven best practices to enhance learning

LEARNING OBJECTIVES

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

- Understand the working principles and differences between centrifugal and axial compressors.
- Identify the key components and configurations of these compressors.
- Analyze compressor performance curves and operational parameters.
- Apply best practices for compressor operation, control, and protection.
- Diagnose common faults and implement troubleshooting procedures.
- Understand maintenance practices and condition monitoring methods for long-term reliability.

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COURSE OUTLINE

DAY 1

Fundamentals of Compression and Compressor Types

- Pre test
- Principles of gas and air compression
- Overview of compressor types: positive displacement vs. dynamic
- Key differences between centrifugal and axial compressors
- Applications and selection criteria in industry
- Introduction to compressor performance terms (pressure ratio, flow, efficiency)

DAY 2

Centrifugal Compressors – Design and Operation

- Centrifugal compressor components: impellers, diffusers, volutes, bearings, seals
- Operating principles and flow characteristics
- Compressor maps and performance curves
- Surge and stall phenomena and control strategies
- Multistage centrifugal compressor design

DAY 3

Axial Compressors – Design and Operation

- Axial compressor components: rotors, stators, blades, casings
- Flow dynamics in axial stages
- Efficiency and pressure ratio considerations
- Operating limitations and performance curves
- Comparison with centrifugal compressors in terms of use and application

DAY 4

Control, Protection, and Troubleshooting

- Compressor control systems (anti-surge control, load control)
- Start-up and shutdown procedures
- Instrumentation and monitoring systems
- Common failure modes: surge, vibration, overheating, seal failures
- Troubleshooting techniques and root cause analysis

DAY 5

Maintenance, Reliability, and Case Studies

- Preventive and predictive maintenance strategies
- Lubrication, alignment, and vibration analysis
- Condition monitoring tools (temperature, vibration, oil analysis)
- Case studies of operational failures and lessons learned
- Review and Q&A
- Post test

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