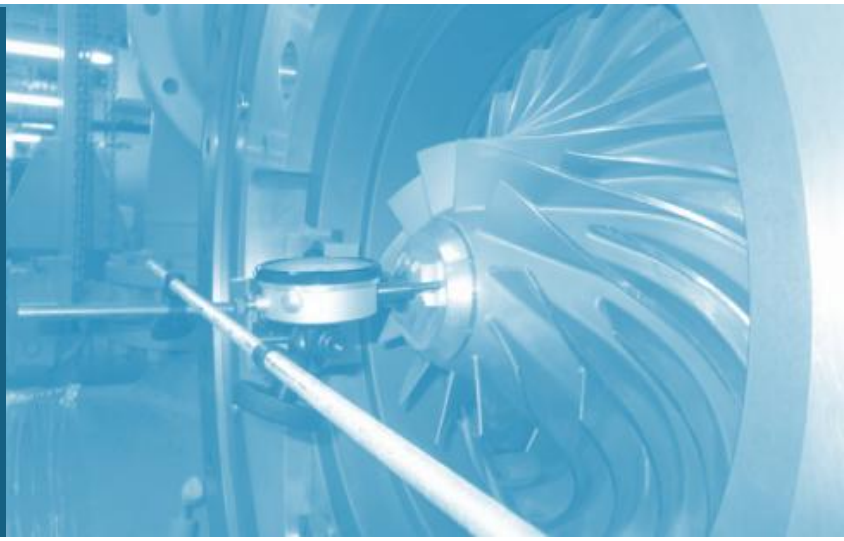
CENTRIFUGAL COMPRESSOR OPERATION AND MAINTENANCE



COURSE OVERVIEW

This comprehensive training course is designed to provide participants with a deep understanding of the principles, operation, and maintenance of centrifugal compressors. These compressors are critical components in various industrial applications, particularly in oil and gas, petrochemical, and power generation industries. Through theoretical concepts, real-world case studies, and practical insights, participants will learn how to effectively operate, troubleshoot, and maintain centrifugal compressors to enhance reliability, safety, and performance.

DATES, VENUES AND FEES

21 – 25 December 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, maintenance, and reliability engineers
- Plant and operations personnel
- Technical supervisors and foremen
- Rotating equipment engineers
- Technicians responsible for compressor maintenance
- Engineering consultants and contractors involved in plant operations

CONTACT US NOW

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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 fundamental principles of centrifugal compression and gas dynamics.
- Identify the components, design features, and performance characteristics of centrifugal compressors.
- Operate compressors efficiently within their design parameters.
- Diagnose and troubleshoot common operational problems and failures.
- Implement effective inspection and maintenance strategies.
- Apply vibration analysis and condition monitoring techniques.
- Ensure safe startup, shutdown, and emergency handling procedures.

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COURSE OUTLINE

DAY 1

Introduction and Fundamentals

- Pre test
- Overview of centrifugal compressors and applications
- Thermodynamics and gas laws relevant to compression
- Operating principles and flow dynamics
- Types and configurations of centrifugal compressors
- Performance characteristics and curves

DAY 2

Compressor Components and Design

- Major components: impellers, diffusers, volutes, bearings, seals
- Materials of construction and corrosion resistance
- Driver types (electric motors, turbines)
- Lubrication systems and auxiliary systems
- Surge and stall phenomena: causes and prevention

DAY 3

Operation and Control

- Startup and shutdown procedures
- Capacity control methods (IGV, blow-off valves, variable speed)
- Compressor performance monitoring
- Process integration and control systems
- Case studies of operational incidents and lessons learned

DAY 4

Maintenance and Troubleshooting

- Preventive and predictive maintenance practices
- Condition monitoring: vibration, temperature, pressure
- Troubleshooting common issues (surge, vibration, fouling, leakage)
- Maintenance planning and scheduling
- Root cause failure analysis (RCFA)

DAY 5

Inspection, Safety, and Best Practices

- Inspection techniques (boroscope, NDT)
- Overhaul and repair procedures
- Safety precautions and emergency handling
- Compressor standards and best practices (API 617, ISO, etc.)
- Final review, and group discussion
- Post test

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