

Mechanical Engineering Essentials Rotating & Static Equipment & Structural Integrity

Date	(\$)Fees
16 March -20 March 2025 Dubai	3200

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Why Choose this Training Course?

This course will enable Technical personnel to familiarise not only with sound engineering principles, but also with other engineering techniques including inspection; monitoring and condition evaluation. This intensive course is designed to allow individuals working in fields such as mechanical, process and petrochemical engineering, and other related fields, an opportunity to update their skills and improve their basic knowledge of modern Mechanical Engineering skills.

Further, this course covers a wide breadth of subjects and concepts and of specific importance are material properties, design, static & rotating equipment design, inspection and repair as well as a sound understanding of maintenance strategies and condition monitoring.

This course will feature:

- Materials selection, testing and failure
- Corrosion principles and protection
- Static equipment including pipes and valves
- Rotating equipment including pumps and compressors
- Condition monitoring, inspection & NDT (Non-Destructive Testing)

What are the Goals?

Mechanical engineering is at the centre of the chemical, oil, gas, and petrochemical industries. The mechanical engineer is, in particular, interested in safe containment and movement of solids, liquids and gases. Hence, this course focuses on the central areas of mechanical engineering and guides the delegates in developing both fundamental and practical understandings of key issues. Workshop examples will be drawn from the oil and gas mechanical equipment.

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

- Understand Failure Mechanisms & Fitness for Service associated with engineering materials.
- Have a sound understanding of corrosion mechanisms and protection against corrosion.
- Develop their knowledge of static equipment related to piping systems and valves.
- Consolidate their understanding of rotating equipment including pumps and compressors.
- Appreciate topics related to condition mentoring, inspection and Non-Destructive Testing.

Who is this Training Course for?

This course is suitable to a wide range of Technical professionals but will greatly benefit:

- Technical & non-technical personnel in the chemical, petrochemical, oil & mechanical industries with a need to understand and discuss fundamental mechanical engineering issues
- Maintenance and project engineers, production engineers, trainee mechanical engineers and plant operators
- Non-experienced personnel needing a basic understanding of Mechanical Engineering concepts

How will this Training Course be Presented?

This course will utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes combined sound engineering principles, methods, and applicable codes & standards and best industry practices. Actual major incidents as well as industry experience will be reviewed in depth to reinforce every topic. Case studies and examples will cover a range of levels, making the course also suitable for non-technical staff.

The course combines structured and focused presentations and discussions of topics covered with relevant examples and question & answer sessions to maximize the benefits to the participants. Participants will be provided with comprehensive course notes and copies of all presentation material. These will be very valuable for detailed study and future reference.

The Course Content

Day One: Introduction & Fundamentals of Materials Selection, Types & Failures

- Engineering Material Properties and Selection
- Materials Testing
- Types of Metals
- Static Strength and Fitness For Service
- Materials Failure Mechanisms
- Mechanical Design, Standards and Codes

Day Two: Static Equipment, Valves, Piping & Fitness for Service

- Valves Types and Characteristics
- Valve Selection
- Valve Actuators
- Piping Systems and Pipe Supports
- Overview of API 570 - Inspection & repair of Pipelines & Piping
- Fitness for Service, API 579 overview

Day Three: Rotating Equipment, Pumps & Compressors

- Pump Types, Positive Displacement and Dynamic
- Pump curves
- Pump Selection
- Types of Compressors
- Compressor Performance Curves

Day Four: Corrosion & Corrosion Protection

- Corrosion Fundamentals
- Types of Corrosion
- Corrosion Inspection and Monitoring
- Corrosion Minimization
- Corrosion Protection

Day Five: Mechanical Maintenance

- Strategies & Philosophies
- Code and Standards
- Condition Monitoring
- Non Destructive Inspection techniques



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