

€ TRAINING

Process Equipment and Piping Systems



6 - 10 April 2025
Cairo (Egypt)



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REF: E404 DATE: 6 - 10 April 2025 Venue: Cairo (Egypt) - Fee: 4465 Euro

Introduction:

Process equipment and piping systems form the backbone of industrial operations, facilitating the movement and transformation of fluids, gases, and solids. They ensure efficient, safe, and reliable processing through well-designed components and interconnected networks. This training program provides a comprehensive understanding of process equipment and piping systems used in industrial operations. Through it, participants will explore the design, operation, maintenance, and integrity management of key process equipment and piping networks.

Program Objectives:

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

- Explore the types and functions of process equipment and piping systems.
- Apply best practices in the design and selection of piping components.
- Implement maintenance and inspection strategies for equipment and piping.
- Ensure compliance with industry codes and safety standards.
- Identify and mitigate common issues in process equipment and piping systems.

Target Audience:

- Process Engineers.
- Maintenance and Reliability Professionals.
- Piping Designers and Engineers.
- Plant Operators and Technicians.
- HSE Professionals.

Program Outline:

Unit 1:

Introduction to Process Equipment and Piping Systems:

- Overview of process equipment pumps, compressors, heat exchangers, vessels.

- Types of piping systems and their applications.
- Key components: pipes, fittings, flanges, valves, and supports.
- Industry standards and codes ASME, API, ANSI.
- Safety considerations in equipment and piping design.

Unit 2:

Design and Selection of Piping Systems:

- Fundamentals of piping design and layout.
- Material selection for pipes and fittings based on process requirements.
- Pipe sizing, pressure ratings, and flow considerations.
- Stress analysis and thermal expansion management.

Unit 3:

Operation and Maintenance of Process Equipment:

- Principles of operation for key process equipment.
- Routine maintenance procedures for pumps, compressors, and heat exchangers.
- Identifying and troubleshooting equipment failures.
- Preventive and predictive maintenance strategies.
- Equipment performance monitoring and optimization.

Unit 4:

Inspection and Integrity Management:

- Inspection techniques for piping systems and process equipment.
- Non-Destructive Testing NDT methods ultrasonic, radiographic, magnetic particle.
- Assessing corrosion, erosion, and mechanical damage.
- Developing inspection schedules and documentation practices.
- Risk-Based Inspection RBI and integrity management programs.

Unit 5:

Common Issues and Mitigation Strategies:

- Identifying leaks, blockages, and pressure anomalies.
- Managing vibration, noise, and thermal stresses.
- Mitigating corrosion and material degradation.
- Implementing repair and replacement strategies.