

€ TRAINING

Advanced Process Equipment and Piping
Systems





Advanced Process Equipment and Piping Systems

Introduction:

This training program focuses on providing participants with essential knowledge and skills for the effective application, design, and operation of process equipment and piping systems. It empowers them to optimize process performance and enhance operational safety.

Program Objectives:

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

- Understand the fundamentals of process equipment and piping systems.
- Gain proficiency in designing and specifying process equipment and piping layouts.
- Learn techniques for the efficient operation and maintenance of process equipment.
- Develop skills in troubleshooting and resolving common issues in piping systems.
- Implement best practices to enhance system performance and safety.

Target Audience:

- Process engineers and mechanical engineers.
- Maintenance and reliability engineers.
- Plant operators and technicians.
- Project managers and design engineers.
- Professionals involved in the design, operation, and maintenance of process equipment and piping systems.

Program Outline:

Unit 1:

Fundamentals of Process Equipment and Piping Systems:

- Introduction to Process Equipment Types and Functions.
- Overview of Piping Systems and Components.

- Material Selection for Process Equipment and Piping.
- Basic Principles of Fluid Dynamics and Thermodynamics.
- Standards and Codes for Process Equipment and Piping.

Unit 2:

Design and Specification of Process Equipment:

- Design Considerations for Process Equipment Heat Exchangers, Pumps, Compressors.
- Sizing and Selection Criteria for Equipment.
- Equipment Layout and Piping Arrangements.
- Pressure Vessel Design and ASME Code Requirements.
- Computational Tools and Software for Equipment Design.

Unit 3:

Piping System Design and Layout:

- Piping Design Principles and Best Practices.
- Piping Stress Analysis and Flexibility Considerations.
- Pipe Support and Hanger Design.
- Piping Isometrics and Drawing Interpretation.
- Integration of Piping Systems with Process Equipment.

Unit 4:

Operation and Maintenance of Process Equipment:

- Operating Principles of Key Process Equipment.
- Maintenance Strategies and Techniques for Equipment Reliability.
- Predictive and Preventive Maintenance Practices.
- Troubleshooting Common Operational Issues.
- Safety Considerations in Equipment Operation and Maintenance.

Unit 5:

Best Practices and Case Studies:

- Process Optimization Techniques.
- Energy Efficiency in Process Equipment and Piping Systems.
- Implementation of Reliability-Centered Maintenance RCM.
- Case Studies of Successful Equipment and Piping Projects.
- Future Trends and Innovations in Process Equipment and Piping.