Training Title
PIPING SYSTEMS - MECHANICAL DESIGN AND SPECIFICATIONS

Training Duration
5 days

Training Venue and Dates

REF ME011	Piping Systems - Mechanical Design and Specifications	5	09-13 September 2024	$6,500	Prague, Czech Republic

In any of the 5-star hotels. The exact venue will be informed once finalized.

Training Fees
- **$6,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch.**

Training Certificate
Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION
In this course, foundation level course for engineers and piping system designers reviews the key areas associated with the design of piping systems for oil and gas facilities. The course is focused on four areas: codes and standards, pipe materials and manufacture, piping components, and piping layout and design. Applicable piping codes for oil and gas facilities (ISO, B31.3, B31.4, B31.8, etc.), pipe sizing calculations, pipe installation, and materials selection are an integral part of the course. The emphasis is on proper material selection and specification of piping systems.

TRAINING OBJECTIVES
1. Gain a comprehensive understanding of the principles governing the design and specification of piping systems.
2. Acquire proficiency in selecting appropriate materials and components for piping applications.
3. Develop skills in interpreting design codes, standards, and regulatory requirements.
4. Learn techniques for optimizing piping layouts for efficiency, safety, and maintenance.
5. Apply theoretical knowledge to solve practical piping design challenges through case studies and simulations.

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WHO SHOULD ATTEND?

This training course is ideal for mechanical, facilities, plant, or pipeline engineers and piping system designers who are involved in the design of in-plant piping systems for oil and gas facilities

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivate everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on a daily basis to examine the effectiveness of delivering the course.
Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

DAILY OUTLINE

Day 1

Introduction to Piping Systems:

- **Overview of piping systems and their significance in mechanical engineering.**
- **Types of piping systems and their applications.**
- **Historical development and evolution of piping systems.**

Fundamentals of Fluid Mechanics:

- **Principles of fluid flow relevant to piping systems.**
- **Fluid properties and their impact on piping design.**
- **Analysis of flow regimes and pressure drop calculations.**

Day 2

Piping Materials and Components:

- **Selection criteria for piping materials (metals, plastics, composites).**
- **Overview of piping components (pipes, fittings, valves, flanges, etc.).**
- **Material compatibility and corrosion considerations.**

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Day 3

Piping System Design Principles:

- **Design codes and standards applicable to piping systems (ASME, ANSI, API, etc.).**
- **Piping system classification and design considerations.**
- **Stress analysis and piping support design.**

Piping Layout and Routing:

- **Basics of piping layout and routing.**
- **Factors influencing piping layout (space constraints, accessibility, safety).**
- **Techniques for optimizing piping layouts for efficiency and maintenance.**

Day 4

Piping Specification and Documentation:

- **Development of piping specifications.**
- **Interpretation of engineering drawings and schematics.**
- **Documentation requirements for piping systems (BOMs, P&IDs, isometrics).**

Codes and Regulations Compliance:

- **Understanding regulatory requirements for piping systems (OSHA, ASME, local codes).**
- **Compliance with environmental and safety standards.**
- **Risk assessment and mitigation strategies.**

Day 5

Case Studies and Practical Applications:

- **Analysis of real-world piping design challenges.**
- **Case studies illustrating successful piping system implementations.**
- **Hands-on exercises and simulations using industry-standard software.**

NOTE:
Pre & Post Tests will be conducted.

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Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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