XCELERATE TRAINING INSTITUTE

your learning & development partner

MECHANICAL ENGINEERING

# Piping Engineering and Pipe Stress Analysis Training Course

| DURATION | LANGUAGE | FORMAT |
|---|---|---|
| **5 days** | **English** | **Classroom / Online** |

## Upcoming dates

| Dates | Venue | Format | Fee |
|---|---|---|---|
| 4 – 8 ????? 2027 | Amman | Classroom | **€5?500** |
| 28 ????? – 2 ????? 2027 | Live online | Online (live) | **€1?200** |
| 6 – 10 ?????? 2027 | Live online | Online (live) | **€1?200** |

### Register or ask a question

Online: staging.x8ti.com/course/piping-engineering-and-pipe-stress-analysis-…

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# Piping Engineering and Pipe Stress Analysis Training Course

## Introduction

Introduction

Piping engineering and stress analysis play a vital role in the safe and secure design of pressurized systems. It also impacts the decision-making on piping specifications, layouts, support arrangements, and determines the requirements for flexible joints and other design elements.

Although piping engineering has been well-known for its extremely complex models and monograms to establish secure configurations, the analysis software available in today's times makes it a lot less time-consuming and a lot more accurate.

This course provides delegates with the required background to comply with piping codes, carry out stress analysis, and solve any design issues after evaluating the requirements for pipe stress analysis and an efficient process workflow within organizations.

How can individuals make the most of this "Piping Engineering and Pipe Stress Analysis Certification Course"? To get the full benefit of the use of this training program, delegates should expect to obtain a good understanding of piping systems, their components, the behavior of mechanical components, engineering models, and any rules that form the requirements of a pipe stress analysis.

This Xcelerate Training Institute course will empower you with an insight into the world of piping engineering and stress analysis, piping components, responsibilities of piping professionals, piping engineering deliverables, and interfaces with other departments.

Learning Objectives

- Understand the fundamental methods of pipe engineering and stress analysis
- Learn how to solve any design issues in pipe engineering
- Perform calculations to code for pressure situations in piping design
- Set out an efficient and capable process for pipe stress analysis
- Determine the requirement for formal analysis tools
- Understand what are the loads that normally act on a piping system
- Learn about the types of stresses that foster in pipes and piping components
- Understand the engineering approaches to mitigate thermal stresses in pipes
- Practice how to calculate thermal expansion and thermal stresses in a pipe
- Check models for errors and revise layouts to solve these issues
- Present findings and potential risks
- Identify the different types of supports and basic guidelines of how to use them in piping systems

Training Methodology

- Lectures
- Videos
- Seminars & Presentations
- Group Discussions
- Assignments
- Case Studies & Functional Exercises

Benefits for Your Organization

- Benefit from training your employees on the definition and importance of mechanical information, along with the different roles played within the Piping Engineering and Pipe Stress Analysis guidelines
- Document your Piping Engineering and Pipe Stress Analysis information systematically and efficiently
- Improve productivity by teaching your staff about the Piping Engineering and Pipe Stress Analysis work process and how it fits into the overall organizational work processes
- Achieve improved Piping Engineering and Pipe Stress Analysis, higher employee morale, increased productivity, and reduced costs of damage control
- Assess your Piping Engineering and Pipe Stress Analysis rating by evaluating its effectiveness to reduce injuries and illnesses and identifying and eliminating workplace hazards
- Reduce the damages caused by inadequate Piping Engineering and Pipe Stress Analysis processes

Benefits for You

- Master the knowledge and techniques to see the future of an effective Piping Engineering and Pipe Stress Analysis
- Learn how to do a good job with your machines and why it is important to do so
- Learn tips, tricks, and concepts to help you succeed as a mechanical analyst
- Make a valuable contribution to your organization by being in a position to determine if you should implement a program at your site, or better understand an existing program
- Get an opportunity to work through hands-on exercises in detail to gain the skills needed to facilitate a Piping Engineering and Pipe Stress Analysis
- Gain the skills to plan, manage, facilitate, and scribe for Piping Engineering and Pipe Stress Analysis

Target Audience

- Piping Design Engineers
- Designers
- Mechanical Engineers
- Project Engineers
- Engineering Analysts
- Technicians
- Those who are involved in the calculation, selection, design, manufacturing, quality, safety, and maintenance of equipment and mechanical systems

Course Outline

INTRODUCTION TO PIPING ENGINEERING

- Introduction to Piping Engineering

- Understanding various piping components
- Typical EPC organogram
- Major duties, responsibilities & deliverables of piping discipline
- Piping interface with other disciplines (Input & outputs)

MORE ABOUT PIPING SYSTEMS

- What is a piping system?
- What is pipe stress analysis?
- Why is a piping stress analysis required?
- Challenges of piping stress analysis

BASICS OF STRENGTH OF MATERIALS

- Stress and strain
- Engineering stress/strain versus true stress/strain
- The ductile material stress-strain relationship
- Poisson’s ratio
- Modulus of elasticity
- Linear coefficient of thermal expansion
- Stresses due to forces and moments
- Normal and shear stresses over inclined planes
- Modes of failures

ASME B31 PIPING DESIGN CODES

- Introduction to design codes
- Code sections
- Overview and specifications of piping codes

PIPING LOADS AND PIPING STRESSES

- Primary loads in piping systems
- Secondary loads in piping systems
- Principal stresses in piping systems
- Pipe stresses due to pressure
- Pipe stresses owing to forces and moments
- Combined loads in piping systems
- Total stresses in piping systems
- Failure theories
- Stress categories

FLEXIBILITY ANALYSIS AND STRESS LIMITS

- Basics of thermal stress
- Techniques to mitigate thermal stresses in piping systems
- When is formal flexibility analysis required?
- Stress intensification factors and flexibility factors

- Allowable thermal stress range and piping codes
- Displacement stress range and piping codes
- Sustained stress limits and piping codes
- Occasional stress limits and piping codes

PIPING SUPPORTS AND RESTRAINTS

- Supports classifications
- Selection of pipe support locations
- MSS pipe hangers and supports standards

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# Registration Form

## Piping Engineering and Pipe Stress Analysis Training Course

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

### Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

### Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

### Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Email: .....

### Payment

☐ Please invoice me ☐ Please invoice my company

Signature: ..... Date: .....

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Open the course page