MERCURY

ASME B31.3 Process Piping Design Code Course

13 – 17 September 2027
Lisbon (Portugal)



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Ref: 9139_310738 **Date:** 13 – 17 September 2027 **Location:** Lisbon (Portugal) **Fees:** 6200 Euro

Introduction:

This ASME B31.3 process piping design code course will focus on learning ASME B31.3 for Pressure process piping, including design, materials examination, testing, and nonmetallic piping.

This ASME B31.3 process piping design code course further introduces the different parts of the ASME B31.3 Standard. It will cover all requirements for safe design, construction, inspection, testing, operation, and maintenance of liquid pipeline systems.

The ASME B31.3 Code focuses on the requirements for process piping related to the design, construction, fabrication, inspection, and examination of a safe and economical piping system.

Targeted Groups:

- QA/QC inspectors.
- Maintenance Engineers.
- Inspection and testing professionals.
- Fabrication Engineers.
- QA/QC reliability professionals for oil and gas Petrochemical and Refining operations.
- Fresh graduates, piping engineers, and designers.

Course Objectives:

At the end of this ASME B31.3 process piping design code course, the participants will be able to:

- Gain knowledge and skills related to process piping ASME B31.3.
- Identify the design of piping flanges and blankets.
- Understand the Welding and Brazing Qualification, procedures, and Specifications.
- Explain the Fabrication, Assembly, and Erection and identify the required inspection and testing. Define hydrostatic pressure and hydrostatic-pneumatic tests.
- Receive enough information about the Fluid Service Requirements for Materials.
- Explain nonmetallic piping design, Fluid Service Requirements, inspection, and testing.
- Employ pre and post-weld heat treatment and identify the Charpy impact testing.

Targeted Competencies:

At the end of this ASME B31.3 process piping design code training, the target competencies will:

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- Design Considerations and Criteria.
- Pressure Design of Piping Components.
- Fluid service requirements for piping components.
- Flexibility and Support.
- General requirements of materials.
- Fabrication, Assembly, and Erection of piping system.
- Inspection, Examination, and Testing of the piping system.
- Nonmetallic Piping and Piping Lined with Nonmetals.
- Piping for Category of Fluid Services.

Understanding ASME B31.3 Process Piping Design Code:

The ASME B31.3 process piping design code course provides comprehensive training on the ASME B31.3 standard, which governs the design, fabrication, inspection, and maintenance of process piping systems.

This course covers critical aspects of the ASME B31.3 code, ensuring participants understand its requirements and applications deeply. By completing this ASME B31.3 training, individuals can obtain ASME B31.3 certification, demonstrating proficiency in process piping design according to industry standards.

The course explores materials selection, stress analysis, piping layout, and safety considerations in line with the ASME B31.3 process piping guidelines. Participants learn to accurately interpret and apply the ASME B31.3 process piping code, enhancing their ability to design and manage compliant piping systems for various industrial applications.

This ASME B31.3 process piping course is essential for engineers, designers, and professionals in the oil and gas, chemical, pharmaceutical, and power generation sectors. It ensures that they meet regulatory requirements and industry best practices.

Course Content:

Unit 1: Introduction and History of ASME Codes:

- Scope and Definitions.
- Content, Coverage, and Exclusions.
- Design includes Design Pressure and design Temperature.
- Listed Components Unlisted Components.
- Allowances for Pressure and Temperature Variations.
- Allowable Stresses and Other Stress Limits.
- Bases for Design Stresses.
- Casting Quality Factor, Ec and Weld Joint Quality Factor, Ej.
- Pressure design of components.
- Branch Connections.
- Pressure Design of Flanges and Blanks.
- Fluid service requirements for piping components and piping joints.
- Flexibility and support.

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Unit 2: Chapter III Materials:

- Listed Materials, Unlisted Materials. Unknown Materials. Reclaimed Materials.
- Lower Temperature Limits.
- Impact Testing Methods and Acceptance Criteria.
- Fluid Service Requirements for Materials.
- Chapter IV Standards for Piping Components.
- Chapter V Fabrication, Assembly, and Erection.
- Welding and Brazing Qualification, procedures Specifications.
- Preheating.
- Heat treatment requirements.
- Bending and forming.
- Assembly and erection.

Unit 3: Chapter VI Inspection, Examination, and Testing:

- Responsibility and qualifications for Inspection and examination.
- Extent of Required Examination.
- Radiographic and Ultrasonic Examination.
- Testing Required Leak Test.
- Hydrostatic Leak Test.
- Pneumatic Leak Test.
- Hydrostatic-Pneumatic Leak Test.

Unit 4: Chapter VII Nonmetallic Piping and Piping Lined with Nonmetals:

- Pressure design of piping components.
- Fluid service requirements for nonmetallic materials.
- Materials general requirements.
- Fabrication, assembly, and erection.
- Inspection, examination, and testing.
- Chapter viii Piping for Category M Fluid Service.

Unit 5: Chapter IX High-Pressure Piping:

- Chapter X High Purity Piping.
- Review codes appendix.
- Review of code tables.

Conclusion:

In the ASME B31.3 Process Piping Design Code Course, participants are equipped with a thorough understanding of the ASME B31.3 piping code and its applications in process piping design. This comprehensive training prepares individuals for ASME B31.3 certification, validating their expertise in adhering to the ASME B31.3 code throughout the lifecycle of piping systems.

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Participants of this course gain proficiency in interpreting and implementing the ASME B31.3 standard, covering key topics such as material selection, stress analysis, layout considerations, and safety protocols. By mastering the ASME B31.3 process piping guidelines, professionals are empowered to design, inspect, and maintain piping systems in compliance with industry standards and regulatory requirements.

This ASME B31.3 process piping design code training course is invaluable for engineers, designers, and industry professionals seeking to enhance their skills and advance their careers in oil and gas, chemical processing, pharmaceuticals, and power generation.