Best Technology Soultions **(BTS)**

Training Program

Process Piping Code Fundamentals (ASME B31.3)

Training program

Introduction:

This comprehensive course provides an introduction to the ASME 31.3 Process Piping Code. It covers the requirements of B31.3 for design, analysis, materials, fabrication, testing and inspection of process piping systems. It explores the rules for various components including fittings, connections, bends, valves and specialty components. Other topics include dimensions and ratings of components, fluid service requirements for joints, piping flexibility and support, welding, heat treatment, bending and forming, brazing and soldering, assembly, erection, examination and inspection.

Who Should Attend?

Pipeline, Piping engineers, managers and quality personnel who are involved in the design, manufacturing, fabrication and examination of process piping that is being built to the requirements of ASME Codes & Standards

Course Objectives:

By the end of this course delegates will be able to:

- Explain how to apply Code rules to common design and fabrication situations

- Identify pipe stress calculations for various loading situations
- Describe inspection and testing requirements
- Describe the structure and proper use of Section IX
- Identify welding requirements
- Explain how to create a PQR, WPS, and WPQ
- Develop the required skills to review welding documents
- Use design calculations for various loading situations
- Identify Inspection and testing requirements

Course Outline:

Introduction to B31.3

- Aims, objectives, and outcomes of the course

B31.3 Scope and Definitions

- General Statements
- Fluid Service Categories

Design Considerations & Criteria

- Design Conditions
- Design Criteria

Pressure Design of Piping Components

- General
- Pressure Design of Components
- Case Study: Pipe Wall Thickness

Design: Fluid Service Requirements & Standards for Piping Components Standards

- Pipe
- Fittings, Bends, Mitres, Laps and Branch Connections
- Valves and Specialty Components
- Flanges, Blanks, Flange Facings and Gaskets
- Bolting
- Dimensions and Ratings of Components
- Case Studies: Branch connection & Flanges

Design: Fluid Service Requirements for Piping Joints

- General
- Welded Joints
- Expanded Joints
- Threaded Joints
- Tubing Joints
- Caulked Joints
- Soldered and Brazed Joints
- Special Joints

Design: Flexibility and Support

- Piping Flexibility, Piping Support
- Case Study: Piping Flexibility
- Case Study: Specification of Spring Support

Bellows Expansion Joints

Systems Design

- Specific Piping Systems
- Pressure Relieving Systems

Materials

- General Requirements
- Materials: Miscellaneous
- Case Study: Selection of Materials for Low Temperature Service

Fabrication, Assembly & Erection

- General, Welding
- Preheating
- Heat Treatment
- Bending and Forming
- Brazing and Soldering
- Assembly and Erection

Inspection, Examination & Testing

- Inspection
- Examination
- Examination Personnel
- Examination Procedures
- Types of Examination
- Testing
- Records

Pressure Testing

- Precautionary Considerations
- Safeguarding
- Summary
- Development of a Piping System