

ASME B31.3 Process Piping Application Training Course

31 January – 4 February 2027
Cape town

AGILE LEADERS
Training Center

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Ref: 1939_243942 **Date:** 31 January – 4 February 2027 **Location:** Cape town **Fees:** 6000 Euro

Overview

ASME B31.3 Process Piping Application Training Course is a one-week advanced course for piping, mechanical, stress, inspection, construction, and assurance functions who leave with an ASME B31.3 Process Piping Compliance and Design Review File. Participants apply ASME B31.3 process piping scope, pressure design, piping flexibility analysis, fabrication requirements, process piping inspection, and leak testing records to traceable decisions. The course uses authorized extracts and simulated records without reproducing controlled text. Agile Leaders Training Center presents ASME B31.3 application practice.

Who Should Attend

- Engineering functions responsible for process piping design bases and calculations
- Stress functions responsible for flexibility, loads, supports, and equipment interfaces
- Materials and welding functions responsible for code-compatible selections and fabrication controls
- Inspection and quality functions responsible for examination, testing, and acceptance evidence
- Construction and maintenance functions responsible for assembly, erection, repair interfaces, and records
- Project and assurance functions responsible for queries, deviations, and requirement traceability

The course assumes participants can read piping drawings, line lists, specifications, and basic calculations, and it leaves out introductory code navigation, proprietary stress-software operation, welding qualification, and authority to issue code interpretations.

Departments and Industries

The course supports departments and industries that design, fabricate, inspect, construct, or maintain process piping.

- Refining, petrochemical, chemical, and gas-processing facilities
- Pharmaceutical, hydrogen, semiconductor, and cryogenic plants
- Power generation and industrial utility systems
- Piping, mechanical, process, stress, and materials engineering
- Inspection, quality, construction, maintenance, and technical assurance

Learning Objectives

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

- Apply scope and fluid-service boundaries to piping systems
- Build design-condition and pressure-design calculations
- Analyze component, branch, flexibility, support, and load requirements
- Evaluate material, fabrication, welding, and heat-treatment evidence
- Compare examination, inspection, and leak-testing routes
- Build traceable code-query, deviation, and review records

Course Agenda

Day 1: Establish Scope and Design Basis

- ASME B31.3 Scope and System Boundary Map
- Fluid Service Classification Decision Sheet
- Owner, Designer, Manufacturer, Inspector, and Examiner Responsibility Matrix
- Design Pressure, Temperature, and Coincident Condition Register
- Process Piping Design Basis and Code Edition Record

Day 2: Apply Pressure Design Requirements

- Straight Pipe Wall-Thickness Calculation Sheet
- Listed and Unlisted Component Acceptance Matrix
- Fitting, Flange, Valve, and Joint Rating Review
- Branch Connection Reinforcement Calculation Method
- Pressure Design Case and Allowance Verification Checklist

Day 3: Evaluate Flexibility and Loads

- Sustained, Displacement, and Occasional Load Case Map
- Allowable Stress and Stress-Range Calculation Record
- Piping Flexibility Screening and Analysis Decision Tree
- Support, Restraint, and Movement Review Matrix
- Equipment Nozzle Load and Interface Action Log

Day 4: Control Fabrication and Acceptance

- Material Identification and Allowable-Stress Traceability Register
- Welding, Brazing, and Joint Control Checklist
- Forming, Bending, and Heat-Treatment Evidence Sheet
- Examination, Inspection, and Acceptance Planning Matrix
- Leak Test Method, Boundary, and Record Review

Day 5: Practice ASME B31.3 Review

- Suggested Exercise: Classify Scope and Fluid Service
- Suggested Exercise: Verify Wall Thickness and Branch Reinforcement
- Suggested Exercise: Challenge Flexibility, Supports, and Nozzle Loads
- Suggested Exercise: Review Fabrication, Examination, and Leak-Test Evidence
- Capstone Exercise: Complete the ASME B31.3 Process Piping Compliance and Design Review File

Practical Exercises

The course uses suggested activities to turn piping documents and calculations into traceable ASME B31.3 decisions.

- Suggested activity: define the code boundary, fluid service, responsibilities, and design conditions for a process unit.
- Suggested activity: verify wall thickness, component ratings, allowances, and branch reinforcement for selected lines.
- Suggested activity: screen flexibility and review load cases, supports, movements, and equipment interfaces.
- Suggested activity: assess fabrication, heat treatment, examination, inspection, and leak-test records against acceptance needs.

FAQs

Who suits ASME B31.3 process piping training, and what does it assume?

ASME B31.3 process piping training suits engineering, stress, materials, welding, inspection, construction, maintenance, quality, and assurance functions. It assumes participants can interpret piping drawings, specifications, line data, and basic calculations.

How does ASME B31.3 application training differ from a general mechanical codes course?

ASME B31.3 application training concentrates on process piping scope, design, flexibility, fabrication, examination, inspection, and testing decisions. A general mechanical codes course concentrates on document families, hierarchy, applicability, editions, and requirements traceability across equipment types.

How is ASME B31.3 process piping scope established?

ASME B31.3 process piping scope is established by defining system boundaries, facilities and services, exclusions, fluid-service classification, owner requirements, interfaces, and the applicable code edition before calculations or acceptance planning begins.

What evidence supports an ASME B31.3 design review?

An ASME B31.3 design review uses design conditions, calculations, component ratings, material records, flexibility and load evidence, fabrication controls, examination and inspection plans, leak-test records, technical queries, and approved deviations.

Conclusion

Participants take back an ASME B31.3 Process Piping Compliance and Design Review File linking scope, calculations, loads, materials, fabrication, examination, inspection, testing, queries, and deviations. It changes scattered engineering evidence into one traceable review record. The file supports design assurance, construction acceptance, maintenance interfaces, and technical decisions.