multisoft
Systems

ASME B31.4 Liquid Pipelines - Design and Operations Training

COURSE CONTENT

GET IN TOUCH

Multisoft Systems
B - 125, Sector - 2, Noida

(+91) 9810-306-956

info@multisoftsystems.com

www.multisoftsystems.com

About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

The ASME B31.4 Liquid Pipelines – Design and Operations training by Multisoft Systems is designed to provide engineers and industry professionals with a thorough understanding of the code requirements governing liquid petroleum and hazardous liquid pipeline systems. This course focuses on practical application of ASME B31.4, ensuring participants can confidently design, construct, operate, and maintain compliant pipeline systems.

Module 1: Introduction to ASME B31.4

- ✓ Overview of ASME B31 code series
- ✓ Scope and applicability of ASME B31.4
- ✓ Types of liquid pipelines covered
- ✓ Key definitions and terminology
- ✓ Responsibilities of owner, designer, and operator

Module 2: Pipeline Design Basis

- ✓ Design philosophy and safety considerations
- ✓ Pipeline routing and right-of-way considerations
- ✓ Design pressures and temperature limits
- ✓ Design factors and location classes

Module 3: Materials and Components

- ✓ Pipe materials and specifications
- ✓ Material properties and selection criteria
- ✓ Fittings, flanges, valves, and appurtenances
- ✓ Material toughness and fracture control

Module 4: Pressure Design and Wall Thickness

- ✓ Internal pressure design requirements
- ✓ Wall thickness calculations
- ✓ Allowances for corrosion, erosion, and manufacturing tolerances
- ✓ Design for external pressure and vacuum conditions

Module 5: Stress Analysis and Flexibility

- ✓ Longitudinal and hoop stresses
- ✓ Thermal expansion and contraction effects
- ✓ Flexibility analysis methods

- ✓ Design for restrained and unrestrained pipelines

Module 6: Construction and Installation

- ✓ Construction methods and best practices
- ✓ Welding requirements and procedures
- ✓ Qualification of welders and welding operators
- ✓ Field fabrication and assembly guidelines

Module 7: Inspection, Testing, and Commissioning

- ✓ Visual and non-destructive examination (NDE)
- ✓ Hydrostatic and pressure testing requirements
- ✓ Test documentation and acceptance criteria
- ✓ Pre-commissioning and commissioning activities

Module 8: Corrosion Control and Protection

- ✓ Internal and external corrosion mechanisms
- ✓ Coating systems and cathodic protection
- ✓ Corrosion monitoring and mitigation techniques
- ✓ Maintenance of corrosion protection systems

Module 9: Operations and Maintenance

- ✓ Operational requirements as per ASME B31.4
- ✓ Routine inspection and monitoring practices
- ✓ Leak detection and emergency response
- ✓ Maintenance strategies and repair methods

Module 10: Safety, Integrity, and Compliance

- ✓ Pipeline integrity management principles
- ✓ Risk assessment and hazard identification

- ✓ Regulatory compliance and documentation
- ✓ Case studies and lessons learned from industry incidents