



*Training Course:
Piping Systems: Failures, Failure Prevention and
Repairs*

*9 - 20 August 2026
Cairo (Egypt)*

Training Course: Piping Systems: Failures, Failure Prevention and Repairs

Training Course code: EN6039 From: 9 - 20 August 2026 Venue: Cairo (Egypt) - Training Course Fees: 6950 € Euro

Introduction

Piping systems are critical to industrial operations, transporting fluids safely and efficiently across facilities such as oil & gas plants, refineries, and power stations. Failures in piping systems can lead to severe safety hazards, environmental damage, and costly downtime.

This program, designed by Global Horizon Training Center, provides a comprehensive 10-day training that equips participants with the knowledge and practical skills required to identify failure mechanisms, implement prevention strategies, and perform effective repair and maintenance of piping systems.

Course Objectives

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

- Understand common failure mechanisms in piping systems
- Identify causes of corrosion, erosion, fatigue, and mechanical failure
- Apply failure analysis and root cause investigation techniques
- Implement failure prevention and integrity management strategies
- Select appropriate repair and rehabilitation methods
- Apply relevant standards ASME, API
- Improve system reliability and safety
- Develop maintenance and inspection plans

Target Audience

This program is designed for:

- Mechanical and Piping Engineers
- Inspection and Integrity Engineers
- Maintenance and Reliability Engineers
- Oil & Gas and Industrial Professionals
- Quality Control and NDT Personnel
- Technical staff involved in piping systems

Outline

Day 1: Fundamentals of Piping Systems

- Overview of piping systems and applications
- Components pipes, fittings, valves, supports
- Materials and specifications
- Codes and standards ASME B31, API
- Safety considerations

Day 2: Failure Mechanisms in Piping Systems

- Types of failures corrosion, erosion, fatigue, creep
- Mechanical and thermal failures
- Stress-related failures
- Environmental factors
- Case examples

Day 3: Corrosion and Material Degradation

- Corrosion types and causes
- Erosion-corrosion and cavitation
- Microbiologically influenced corrosion MIC
- Material selection and protection
- Corrosion control techniques

Day 4: Stress, Fatigue, and Thermal Effects

- Stress analysis basics
- Thermal expansion and flexibility
- Fatigue failure mechanisms
- Vibration and dynamic loading
- Design considerations

Day 5: Inspection and Monitoring Techniques

- Inspection methods visual, NDT
- Ultrasonic, radiographic, and other techniques
- Corrosion monitoring systems
- Data collection and interpretation
- Risk-based inspection RBI

Day 6: Failure Analysis and Root Cause Investigation

- Failure analysis methodologies
- Root cause analysis RCA
- Failure reporting and documentation
- Case studies
- Preventive recommendations

Day 7: Repair and Rehabilitation Methods

- Welding repairs and procedures
- Mechanical repair techniques clamps, sleeves

- Composite repair systems
- Leak sealing methods
- Repair standards and guidelines

Day 8: Integrity Management and Prevention Strategies

- Asset integrity management systems
- Preventive maintenance strategies
- Corrosion prevention programs
- Risk assessment and mitigation
- Compliance with standards

Day 9: Troubleshooting and Performance Optimization

- Diagnosing piping system issues
- Performance monitoring and improvement
- Energy efficiency considerations
- Reliability enhancement
- Best practices

Day 10: Case Studies and Best Practices

- Real-world failure cases
- Lessons learned
- Industry best practices
- Continuous improvement strategies
- Final assessment and review

Registration form on the Training Course: Piping Systems: Failures, Failure Prevention and Repairs

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