Training Course on Advanced Pipeline Integrity Management

Professional Development Training Course Outline

Category	Oil and Gas	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Pipeline systems are the backbone of the energy industry, facilitating the safe and efficient transportation of oil, gas, and other critical materials. As global energy demand intensifies and infrastructure ages, pipeline integrity management has emerged as a strategic priority. Training Course on Advanced Pipeline Integrity Management empowers engineers, safety officers, and energy professionals with expert-level skills in predictive maintenance, regulatory compliance, and advanced inspection technologies to ensure operational safety, sustainability, and environmental stewardship.

This industry-leading course leverages data analytics, artificial intelligence (AI), non-destructive testing (NDT), and digital twins to revolutionize how pipeline operators assess risks, detect anomalies, and respond to failures. Participants will engage with cutting-edge case studies, explore global standards like API 1160 and ASME B31.8S, and develop hands-on capabilities in threat assessment, inline inspection, and integrity verification. This training is designed to help organizations reduce unplanned downtime, extend asset life, and achieve operational excellence in line with ESG and net-zero goals.

Programme Curriculum

Training Course on Advanced Pipeline Integrity Management

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Course Objectives

1. Understand the fundamentals of pipeline integrity management systems (PIMS).
2. Learn risk-based inspection (RBI) strategies for proactive maintenance.
3. Apply inline inspection (ILI) technologies for early anomaly detection.
4. Master fitness-for-service (FFS) evaluations and pipeline defect assessment.
5. Implement digital twin technology in integrity monitoring and prediction.
6. Understand corrosion growth modeling and mitigation planning.
7. Analyze regulatory compliance with PHMSA, API, and ASME standards.
8. Use data analytics and AI for predictive pipeline integrity.
9. Develop pipeline integrity verification plans (IVPs) aligned with safety goals.
10. Apply root cause analysis (RCA) to pipeline failures.
11. Interpret non-destructive testing (NDT) results for pipeline assets.
12. Understand the integration of GIS and SCADA in integrity management.
13. Develop and lead pipeline integrity audits and assessments.

Target Audiences

This course is specifically designed for professionals involved in the pipeline lifecycle, including:

1. Pipeline Engineers
2. Inspection & Maintenance Specialists
3. Pipeline Integrity Managers
4. Corrosion Engineers
5. Compliance & Regulatory Officers
6. Data Analysts & IT Professionals
7. Health, Safety & Environment (HSE) Officers
8. Senior Executives & Decision Makers

Course Duration: 5 days

Course Modules

Module 1: Pipeline Integrity Fundamentals

- Overview of pipeline systems and integrity threats
- Lifecycle and degradation mechanisms
- API 1160 and ASME B31.8S standards
- Pipeline failure modes and indicators
- Documentation and integrity records
- **Case Study:** Pipeline failure due to stress corrosion cracking in Canada

Module 2: Inline Inspection (ILI) & Smart Pigging

- ILI technologies and tool selection
- Magnetic flux leakage (MFL) and ultrasonic testing (UT)
- Pigging schedule development
- Data interpretation and defect categorization
- Compliance with inspection codes

- **Case Study:** Smart pigging saves offshore pipeline from rupture

Module 3: Risk-Based Integrity Assessment

- Risk modeling frameworks
- Probability and consequence analysis
- Consequence areas and high consequence area (HCA) mapping
- Dynamic risk scoring
- Risk mitigation planning
- **Case Study:** Implementing RBI on a large multi-state pipeline

Module 4: Corrosion Threat Management

- Types of corrosion in pipelines
- Coating inspections and cathodic protection
- Corrosion rate prediction modeling
- Internal vs. external corrosion assessment
- Mitigation through inhibitors and technology
- **Case Study:** Corrosion-induced failure in Middle East desert pipelines

Module 5: Regulations and Compliance

- Overview of global regulatory frameworks
- PHMSA and environmental compliance
- Regulatory reporting and documentation
- Pipeline Safety Management System (PSMS)
- Audits and corrective action planning
- **Case Study:** Regulatory breach leading to $20 million fine

Module 6: Digital Twin & AI for Integrity

- Digital twin modeling for predictive analytics
- SCADA and real-time monitoring integration
- AI-driven defect prediction
- Machine learning for anomaly detection
- Big data visualization in pipeline operations
- **Case Study:** AI-driven digital twin prevents pipeline leak

Module 7: Emergency Response and Failure Analysis

- Incident investigation protocols
- Root Cause Analysis (RCA) tools
- Emergency response planning
- Environmental impact mitigation
- Legal and stakeholder communication
- **Case Study:** Explosion response plan in Texas pipeline facility

Module 8: Strategic Integrity Management & ESG

- Linking integrity management with business strategy
- Cost-benefit analysis of pipeline upgrades
- ESG integration in pipeline projects
- Asset lifecycle extension strategies
- Investor and stakeholder reporting on safety metrics
- **Case Study:** ESG-compliant pipeline development in Norway

Training Methodology

- Instructor-led interactive lectures with real-world visuals and demonstrations
- Group workshops using actual pipeline data and defect scenarios
- Case-based learning tailored to current industry challenges
- Simulation exercises for hands-on inspection and monitoring tools
- Post-training assessments and practical evaluations
- Access to digital training resources and global standards library

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com