

Pigging Engineer: Pigging Techniques & Pipeline Integrity



MUE150

COURSE TITLE

Pigging Engineer: Pigging Techniques & Pipeline Integrity

COURSE DATE/ VENUE

08th - 12th Sep 2025

London

COURSE REFERENCE

MUE150

COURSE DURATION

05 Days

DISCIPLINE

Mechanical & Utility Engineering

COURSE INTRODUCTION

This comprehensive 5-day course is designed to provide professionals in the oil and gas, energy, and pipeline industries with the essential knowledge and skills required for effective pigging operations and maintaining pipeline integrity. Through a mix of theory, case studies, and practical exercises, participants will learn about different types of pigs, pigging methods, pipeline inspection techniques, and how to address pipeline issues related to corrosion, blockages, and flow assurance. The course aims to enhance participants' understanding of the role of pigging in maintaining pipeline safety, operational efficiency, and compliance with industry regulations.

COURSE OBJECTIVE

Upon successful completion of this course, the delegates will be able to:

- ☐ **Understand the Fundamentals of Pigging and Pipeline Integrity:**
- ☐ **Master Pigging Techniques and Procedures:**
- ☐ **Learn Advanced Pigging Methods for Complex Pipeline Systems:**
- ☐ **Gain Expertise in Pipeline Inspection and Integrity Assessment:**
- ☐ **Enhance Knowledge of Corrosion Prevention and Mitigation:**

- ☐ **Understand the Regulatory and Safety Aspects of Pigging Operations:**
- ☐ **Apply Environmental and Safety Best Practices in Pigging Operations:**
- ☐ **Optimize Pipeline Integrity Management Plans:**

COURSE AUDIENCE

- Pigging Engineers and Technicians:
- Pipeline Integrity and Maintenance Engineers:
- Pipeline Operations Managers:
- Corrosion Engineers:
- Inspection and Monitoring Specialists:
- Offshore and Subsea Pipeline Specialists:

COURSE CONTENT

Day 1: Introduction to Pigging and Pipeline Integrity

- **Overview of Pipeline Systems**
 - Understanding pipeline infrastructure: components, types, and function
 - Importance of pipeline integrity in the oil, gas, and petrochemical industries
- **Introduction to Pigging**
 - What is pigging and its role in pipeline maintenance
 - Types of pigs (e.g., scraper pigs, sphere pigs, intelligent pigs, etc.)
 - Principles and history of pipeline pigging
 - Why pigging is crucial for operational efficiency, safety, and regulatory compliance
- **Pigging Equipment and Tools**
 - Overview of equipment used in pigging operations: pigs, launchers, receivers, and tracking systems
 - Understanding different materials and designs of pigs
- **Pigging Operations and Applications**

- Different types of pigging operations: cleaning, inspection, gauging, and batching
- Applications of pigging in various pipeline systems, including oil, gas, and water pipelines

Day 2: Pigging Techniques and Methods

- **Pigging Process and Procedures**
 - Step-by-step pigging operation process: preparation, execution, and post-operation checks
 - Safety procedures for pigging operations
- **Types of Pigging Methods**
 - Cleaning pigging: techniques to remove debris, wax, and other buildup from pipeline walls
 - Inspection pigging: using intelligent pigs for internal inspection and monitoring pipeline condition
 - Batch pigging: optimizing pig use for fluid separation in pipelines
- **Flow Assurance and Pigging**
 - Ensuring efficient flow and preventing blockages with effective pigging strategies
 - The relationship between pigging and flow assurance in maintaining pipeline operational stability
- **Design Considerations for Pigging Systems**
 - Factors to consider when designing pigging systems, including pig type selection, pipeline material, and diameter
 - How to tailor pigging operations to specific pipeline conditions and operational goals

Day 3: Pipeline Integrity and Inspection Using Pigging

- **Understanding Pipeline Integrity Management**
 - Introduction to pipeline integrity management programs and regulations (e.g., ASME B31.8, API 1160)

- Identifying the role of pigging in assessing pipeline integrity and ensuring compliance
- **Intelligent Pigging for Pipeline Inspection**
 - What is intelligent pigging? Understanding the advanced technologies used in pipeline inspection
 - Types of intelligent pigs: ultrasonic, electromagnetic, and caliper pigs
 - Data collection and analysis from intelligent pigs for corrosion detection, crack assessment, and wall thickness measurement
- **Corrosion Monitoring and Prevention**
 - The role of pigging in detecting and preventing corrosion in pipelines
 - Managing internal corrosion using pigging and protective coatings
- **Case Studies in Pipeline Integrity Assessment**
 - Analyzing case studies where pigging was used to identify pipeline failures and issues
 - How pigging inspections contribute to risk management and reducing downtime

Day 4: Advanced Pigging Techniques and Troubleshooting

- **Pigging in Complex and Challenging Pipeline Systems**
 - How to handle pigging operations in non-standard pipeline systems: offshore pipelines, multi-phase systems, and pipelines with complex bends or obstructions
 - Dealing with flow restrictions, pressure changes, and velocity variations during pigging operations
- **Troubleshooting Common Pigging Issues**
 - Common challenges faced during pigging operations: pig sticking, launching/receiving difficulties, and line blockages
 - Solutions for handling stuck pigs and unplanned shutdowns
 - Dealing with pipeline debris and the impact of pig wear on performance
- **Innovative Pigging Solutions**

- **Advanced pigging technologies: robotic pigs, advanced sensors, and automated pig tracking systems**
 - **Future trends in pigging technology and pipeline integrity management**
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Day 5: Safety, Environmental Impact, and Regulatory Compliance

- **Safety Considerations in Pigging Operations**
 - **Ensuring the safety of personnel during pigging operations: safety measures, hazard identification, and PPE**
 - **Managing operational risks and maintaining safety standards throughout the pigging process**
- **Environmental Impact of Pigging**
 - **Minimizing environmental risks associated with pigging: fluid spillage, debris management, and hazardous material handling**
 - **Environmental best practices in pigging operations**
- **Regulatory Compliance and Best Practices**
 - **Understanding international and national regulations governing pigging operations and pipeline integrity (e.g., EPA, OSHA, and IMO regulations)**
 - **Developing best practices and maintaining compliance for effective pipeline integrity management**

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

£ 5,500 per Delegate. This rate includes participant's manual, Hand-Outs, lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

