

Pipeline Pigging Operations

Professional Training Course

Skillslab Training Provider

Skills for Tomorrow's World 



Course Description

Introduction

Pipeline Pigging Operations is a specialized professional training program designed to develop advanced technical and operational capabilities in pipeline cleaning, inspection, maintenance, integrity management, and flow assurance. The course provides a comprehensive understanding of pigging principles, pig selection, launcher and receiver systems, operational procedures, safety controls, troubleshooting, and intelligent pigging technologies used across oil, gas, petrochemical, water, and industrial pipeline networks.

Effective pipeline pigging is essential for maintaining throughput, controlling corrosion, removing deposits, improving hydraulic efficiency, supporting inspection activities, and extending pipeline service life. Poorly planned pigging operations can result in stuck pigs, pressure disturbances, equipment damage, production interruptions, environmental incidents, and significant operational losses. This program equips participants with the knowledge required to plan and execute pigging activities safely, efficiently, and in alignment with pipeline integrity and maintenance objectives.

From an executive and organizational perspective, the course delivers measurable value by supporting pipeline reliability, reducing unplanned shutdowns, improving asset availability, optimizing maintenance expenditure, enhancing inspection effectiveness, and strengthening operational risk management. Participants will examine real-world pigging challenges and learn how effective pigging programs contribute to safer operations, higher production efficiency, improved pipeline condition, and stronger lifecycle asset performance.

The program is particularly valuable for organizations seeking to strengthen pipeline operations, improve maintenance and inspection strategies, enhance flow assurance, reduce corrosion-related risks, and develop competent technical teams capable of managing routine, cleaning, gauging, batching, displacement, and inspection pigging activities.

Course Objectives

By the end of the Pipeline Pigging Operations course, participants will be able to:

- Understand the principles, purposes, and applications of pipeline pigging.
- Identify different types of pipeline pigs and their operational applications.
- Select suitable pigs based on pipeline condition, service, diameter, and operational objectives.
- Understand pig launcher and receiver configurations and operating requirements.
- Plan safe and efficient pigging operations.
- Evaluate pipeline operating conditions before launching a pig.
- Apply correct pig launching and receiving procedures.
- Understand cleaning, gauging, batching, displacement, and inspection pigging.
- Recognize common causes of stuck, damaged, or lost pigs.
- Apply systematic troubleshooting techniques during abnormal pigging operations.
- Understand intelligent pigging and in-line inspection technologies.
- Support pipeline integrity management through effective pigging programs.
- Identify hazards associated with pressure, hydrocarbons, trapped fluids, and mechanical systems.
- Improve coordination between operations, maintenance, integrity, inspection, and control room teams.
- Develop practical pigging plans that support pipeline reliability and production objectives.

Course Content

Day 1: Pipeline Pigging Fundamentals and System Configuration

- Introduction to pipeline pigging operations.
- Role of pigging in pipeline operation and maintenance.
- Pipeline design considerations affecting piggability.
- Main objectives of pipeline pigging.
- Cleaning and debris removal applications.
- Product separation and batching applications.
- Liquid displacement and dewatering operations.
- Pipeline gauging and geometry verification.

- Corrosion control and integrity support.
- Pipeline flow assurance considerations.
- Overview of pig types and configurations.
- Foam pigs and their applications.
- Cup and disc pigs.
- Brush and magnetic cleaning pigs.
- Bi-directional pigs.
- Specialty pigs and customized designs.
- Pig compatibility with pipeline fittings and components.
- Understanding bends, tees, valves, reducers, and diameter changes.

Day 2: Pig Selection, Launching and Receiving Operations

- Criteria for selecting the correct pig.
- Pipeline diameter and internal geometry considerations.
- Product properties and operating conditions.
- Pig material compatibility.
- Differential pressure requirements.
- Pig velocity and its operational significance.
- Launcher and receiver design principles.
- Main components of pig traps.
- Quick-opening closure systems.
- Kicker lines and bypass arrangements.
- Venting and draining requirements.
- Preparing a pipeline for pig launching.
- Pig loading and launcher preparation.
- Safe pressurization procedures.
- Pig launching sequence.
- Monitoring pig movement through the pipeline.

- Pig receiving and depressurization procedures.
- Safe removal and inspection of received pigs.

Day 3: Cleaning, Flow Assurance and Routine Pigging Programs

- Pipeline contamination and deposit formation.
- Wax deposition in crude oil pipelines.
- Scale, rust, sludge, and solids accumulation.
- Liquid holdup in gas pipelines.
- Condensate and water management.
- Cleaning pig selection strategies.
- Progressive cleaning programs.
- Managing heavily contaminated pipelines.
- Pigging frequency determination.
- Differential pressure monitoring.
- Controlling pig speed.
- Managing debris during cleaning operations.
- Chemical cleaning and pigging integration.
- Pipeline drying and dewatering applications.
- Product batching and separation.
- Flow assurance improvement through pigging.
- Evaluating cleaning effectiveness.
- Establishing routine pigging schedules.

Day 4: Intelligent Pigging, Inspection and Pipeline Integrity

- Introduction to intelligent pigging.
- Role of in-line inspection in pipeline integrity management.
- Geometry and caliper inspection tools.
- Magnetic flux leakage inspection principles.

- Ultrasonic inspection principles.
- Crack detection technologies.
- Corrosion detection and sizing.
- Detection of dents, ovality, and deformation.
- Pipeline mapping and positional information.
- Preparing pipelines for intelligent pigging.
- Cleaning requirements before inspection runs.
- Pipeline suitability assessment.
- Inspection tool launching and receiving.
- Data collection and validation.
- Understanding inspection reports.
- Interpreting corrosion and anomaly information.
- Prioritizing defects for further assessment.
- Integrating inspection data with integrity management programs.
- Planning maintenance based on inspection findings.

Day 5: Safety, Troubleshooting and Pigging Performance Optimization

- Hazards associated with pigging operations.
- Pressure and stored-energy risks.
- Hydrocarbon and toxic gas exposure.
- Venting, draining, and depressurization hazards.
- Permit-to-work requirements.
- Isolation and lockout procedures.
- Gas testing and atmospheric monitoring.
- Safe operation of quick-opening closures.
- Communication between field and control room teams.
- Tracking and locating pigs.
- Pig signalers and tracking technologies.

- Causes of stuck pigs.
- Responding to a stopped pig.
- Managing excessive differential pressure.
- Handling damaged pigs.
- Troubleshooting unsuccessful launches and receipts.
- Emergency response considerations.
- Root cause analysis of pigging incidents.
- Pigging performance indicators.
- Documentation and operational reporting.
- Developing a pipeline pigging improvement plan.

Target Audience

The Pipeline Pigging Operations course is designed for professionals responsible for pipeline operation, maintenance, inspection, integrity, production, flow assurance, and technical management, including:

- Pipeline engineers.
- Pipeline operators.
- Pipeline maintenance engineers.
- Mechanical engineers.
- Process engineers.
- Production engineers.
- Pipeline integrity engineers.
- Inspection engineers.
- Corrosion engineers.
- Flow assurance engineers.
- Reliability engineers.
- Maintenance supervisors.
- Operations supervisors.
- Pipeline technicians.

- Control room personnel.
- Asset integrity professionals.
- Oil and gas maintenance planners.
- HSE professionals involved in pipeline operations.
- Technical managers responsible for pipeline assets.
- Personnel involved in pigging contractors and service providers.

Course Requirements

Participants should ideally possess a basic understanding of pipeline systems, oil and gas operations, mechanical equipment, maintenance, inspection, or process operations. Previous experience in pipeline pigging is beneficial but not mandatory, as the course progresses from fundamental concepts to advanced operational and integrity applications.

Participants from multidisciplinary backgrounds are encouraged to attend because successful pigging programs require close coordination between operations, maintenance, inspection, integrity, corrosion, production, and safety teams.

Training Methodology

The course uses a practical, application-focused training methodology designed to connect technical concepts with real-world pipeline pigging operations. Participants will analyze operational scenarios, pig selection decisions, launcher and receiver procedures, cleaning strategies, inspection challenges, and common pigging failures.

The training methodology includes:

- Expert-led technical presentations.
- Pipeline pigging system illustrations.
- Pig selection exercises.
- Launcher and receiver operating scenarios.
- Cleaning program case studies.

- Intelligent pigging examples.
- Pipeline integrity discussions.
- Troubleshooting exercises.
- Stuck pig scenarios.
- Operational risk assessments.
- Group problem-solving activities.
- Root cause analysis exercises.
- Real-world industry case studies.
- Practical development of pigging plans and procedures.

This methodology ensures that participants gain practical knowledge that can be transferred directly to pipeline operations, maintenance departments, inspection activities, and asset integrity programs.

Learning Outcomes

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

- Explain the operational principles of pipeline pigging.
- Select suitable pigs for different pipeline applications.
- Understand the configuration and operation of pig launchers and receivers.
- Plan and execute pigging operations using structured procedures.
- Apply appropriate cleaning strategies for different pipeline conditions.
- Improve pipeline flow efficiency through effective pigging.
- Support corrosion control and integrity management activities.
- Understand intelligent pigging technologies and inspection objectives.
- Prepare pipelines for in-line inspection activities.
- Interpret key information from pigging and inspection results.
- Identify operational hazards associated with pig launching and receiving.
- Apply appropriate safety and isolation procedures.
- Diagnose common pigging problems and operational failures.
- Respond effectively to stuck or stalled pigs.

- Improve communication and coordination during pigging campaigns.
- Develop more reliable and cost-effective pipeline pigging programs.
- Contribute to improved pipeline availability, safety, and lifecycle performance.

Instructor Profile

An internationally certified expert with extensive practical and consulting experience.

The instructor brings extensive expertise in pipeline operations, pigging systems, maintenance, pipeline integrity, inspection technologies, corrosion management, flow assurance, and operational risk management.

The training approach combines recognized industry practices with practical field experience, enabling participants to understand both the technical foundations and the real-world implementation of safe, reliable, and efficient pipeline pigging operations.

Contact Us

For registration inquiries, upcoming dates, or group pricing, please contact us:

Websitewww.skillslab-training.com**Email**info@skillslab-training.com**WhatsApp**[+966 559 653 447](https://wa.me/966559653447)

Generated by Skillslab Training

info@skillslab-training.com | WhatsApp: +966 559 653 447

www.skillslab-training.com