MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

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ONSHORE PIPELINES ENGINEERING – DESIGN, CONSTRUCTION, INSTALLATION, INSPECTION, MAINTENANCE AND REPAIR

"Mastering the Full Lifecycle of Pipeline Infrastructure with Engineering and Operational Excellence"

Schedule

Date	Venue	Fees (Face-to-Face)
25 – 29 May 2026	London, UK	USD 3495 per delegate

Introduction

Onshore pipelines are critical to the transportation of oil, gas, water, and industrial products. Their integrity and performance directly impact operational efficiency, safety, and environmental sustainability. Given the complexity and risks involved, pipeline professionals must be proficient in design principles, construction methods, regulatory compliance, and long-term maintenance strategies.

This comprehensive 5-day course provides participants with an in-depth understanding of the technical, safety, and operational aspects of onshore pipeline engineering. Covering the entire pipeline lifecycle—from route selection and design through construction, inspection, maintenance, and repair—this training blends international standards (e.g., ASME, API, ISO) with field-proven practices to elevate competency across disciplines.

Objectives

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

- Apply key engineering principles in pipeline routing, design, and construction
- Assess pipeline materials, stress, corrosion, and welding considerations
- Understand construction methods, testing, and quality assurance procedures
- Plan and manage effective inspection, maintenance, and emergency repairs
- Comply with international pipeline codes, safety regulations, and best practices

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Why Attend

- Gain a complete understanding of onshore pipeline systems and their components
- Learn from case studies involving pipeline failures, repairs, and upgrades
- Enhance your decision-making on materials, routing, and construction techniques
- Improve compliance with environmental and regulatory standards
- Strengthen your capability in pipeline lifecycle asset management

Target Audience

This program is designed for:

- Pipeline, mechanical, and civil engineers
- Operations and maintenance professionals
- Project managers and construction supervisors
- Inspection, integrity, and corrosion specialists
- Regulatory, HSE, and QA/QC personnel involved in pipeline projects

Individual Benefits

Key competencies that will be developed include:

- Pipeline system design, route planning, and stress analysis
- Knowledge of construction processes, trenching, welding, and hydrotesting
- Ability to assess pipeline condition using inspection technologies
- Techniques for mitigating corrosion, cracking, and third-party damage
- Planning and execution of repair strategies and emergency interventions

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved pipeline reliability, safety, and operational continuity
- Better project execution and construction risk management
- Reduction in unplanned shutdowns and environmental incidents
- Stronger regulatory compliance and technical documentation
- Optimized asset performance through effective lifecycle management

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Engineering Briefings – Technical design, standards, and stress analysis
- Real-World Case Studies – Pipeline failures, repair campaigns, and upgrades
- Interactive Workshops – Route selection, defect assessment, and weld review
- Visual Simulations – Construction sequencing, inspection methods, and inline tools
- Technical Templates – Checklists, specs, inspection logs, and QA/QC formats

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Course Outline

Training Hours: 7:30 AM – 3:30 PM Daily Format: 3–4 Learning Modules | Coffee Breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Pipeline Design and Route Engineering

- Module 1: Pipeline Systems Overview and Project Lifecycle (07:30 – 09:30) • Onshore pipeline types and applications • Project phases: concept to decommissioning
- Module 2: Route Selection and Alignment Planning (09:45 – 11:15) • Topography, geotechnical, environmental, and social considerations • Use of GIS, LIDAR, and aerial data
- Module 3: Hydraulic and Stress Design (11:30 – 01:00) • Flow, pressure, elevation modeling • Wall thickness, stress, and thermal expansion
- Module 4: Workshop – Select and Justify a Pipeline Route (02:00 – 03:30) • Group scenario for route engineering decision-making

Day 2: Materials, Welding, and Construction Practices

- Module 5: Pipeline Materials and Coatings (07:30 – 09:30) • Carbon steel, HDPE, and composite pipelines • Coating types: FBE, PE, epoxy, and tapes
- Module 6: Welding Techniques and QA/QC (09:45 – 11:15) • Butt welds, girth welds, weld inspections • Qualification procedures and standards
- Module 7: Trenching, Laying, and Backfilling (11:30 – 01:00) • Stringing, bending, lowering-in, padding, and compaction • Crossing roads, rivers, and infrastructure
- Module 8: Workshop – Plan a Construction Sequence and QA Checklist (02:00 – 03:30) • Develop a construction and inspection plan

Day 3: Pressure Testing, Commissioning, and Integrity

- Module 9: Hydrostatic and Pneumatic Testing (07:30 – 09:30) • Test pressure, hold time, and acceptance criteria • Leak detection and dewatering procedures
- Module 10: Commissioning and System Integration (09:45 – 11:15) • Pre-commissioning activities and checklists • Initial startup and operational readiness
- Module 11: Pipeline Integrity Management (11:30 – 01:00) • Integrity threats: corrosion, cracks, geohazards, interference • Designing an integrity management program
- Module 12: Workshop – Evaluate a Test Plan and Integrity Procedure (02:00 – 03:30) • Review pressure test records and integrity workflow

Day 4: Inspection, Monitoring, and Maintenance

- Module 13: In-line and External Inspection Techniques (07:30 – 09:30) • PIGging (smart, cleaning, gauging) • ECDA, ICDA, DCVG, and visual inspections
- Module 14: Cathodic Protection and Corrosion Control (09:45 – 11:15) • CP design and performance criteria • Monitoring and troubleshooting
- Module 15: Routine Maintenance and Risk Monitoring (11:30 – 01:00) • Risk-based maintenance and anomaly tracking • Vegetation control, signage, and patrols
- Module 16: Workshop – Analyze ILI Results and CP Logs (02:00 – 03:30) • Interpret data and recommend corrective actions

Day 5: Repair Techniques and Emergency Response

- Module 17: Pipeline Repair Methods and Strategies (07:30 – 09:30) • Sleeves, clamps, cutouts, hot tapping • In-service vs out-of-service repairs
- Module 18: Emergency Preparedness and Spill Response (09:45 – 11:15) • Incident command, response kits, coordination protocols • Environmental mitigation
- Module 19: Case Studies – Pipeline Failures and Lessons Learned (11:30 – 01:00) • Analysis of major incidents and prevention insights
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Module 20: Final Project – Design a Pipeline Integrity Program (02:00 – 03:30) • Group project: lifecycle plan for inspection and maintenance

Certification

Participants will receive a Certificate of Completion in Onshore Pipelines Engineering – Design, Construction, Installation, Inspection, Maintenance and Repair, validating their competence in managing the full lifecycle of onshore pipeline systems with adherence to technical, safety, and regulatory standards.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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