

COURSE OVERVIEW FE0206-4D

Pipeline Pigging, In-Line Inspection & Integrity Assessment

Practical & Operational Aspects (API 1163)

Course Title

Pipeline Pigging, In-Line Inspection & Integrity Assessment: *Practical & Operational Aspects (API 1163)*

Course Reference

FE0206-4D

Course Duration/Credits

Four days/2.4 CEUs/24 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	January 15-18, 2024	Jubail Hall, Signature Al Khobar Hotel, Al Khobar, KSA
2	April 15-18, 2024	Business Center, Concorde Hotel Doha, Doha, Qatar
3	July 08-11, 2024	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
4	October 07-10, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



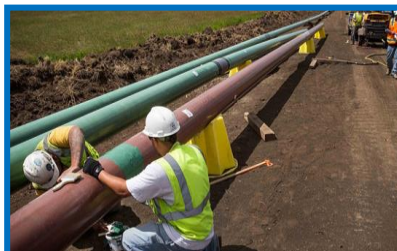
Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.



This course is focused on the practical and operational aspects of pipeline pigging and integrity assessment, including corporate objectives, risk, planning integrity programs, In-Line Inspection (ILI) tools, intelligent pigs, conventional pigs, anomaly identification and analysis, repair, coating, and pressure testing. Participants will be introduced to the technical basis for determining pipeline integrity.



The course will help the participants make the right decisions for the development of new pipeline pigging systems, the operation of existing systems and in the selection of cleaning pigs and In-Line Inspection (ILI) tools. The course details the required follow up from ILI runs in terms of defect disposition and prioritization as well as repair options considering cost efficiencies and regulatory requirements.

The experienced engineer will find an in-depth exploration of pig selection, pigging sequences, preparation for and running an In Line Inspection and above all ensuring safe pigging operations. The new engineer will find an excellent opportunity to learn in a structured and logical sequence of course material as well as from the knowledge and experience of other course participants.

This course will provide information, reinforced by case studies and exercises on pipeline defects, such as corrosion, cracking and third party damage. Methods will be discussed that can be used to make decisions on whether defects are fit for service.

This course will review the various repair techniques, their advantages and shortcomings and the logic to be followed in making repair decisions and selecting the applicable repair. In addition, pressure testing will be studied, including an exercise based on an actual hydrostatic pressure test.

Throughout the course, there are practical class exercises to apply the concepts learned to operational case histories in oil, gas and multiphase pipelines. The course includes calculation techniques for making quantitative decisions in the design and development of pipeline pigging programs and pipeline integrity assessments. Please bring a calculator.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply the practical and operational aspects of pipeline pigging, in-line inspection and integrity assessment process and identify its strategic role in pipeline inspection, integrity assessment and commissioning
- Select and operate an in-line inspection system in accordance with API 1163 standard
- Apply practical aspects, corporate policies, international regulations and standard practices of pipeline integrity assessment
- Analyze pipeline design, construction & maintenance vs. integrity and identify the threats to buried pipeline's integrity
- Define time dependent defects theory and differentiate between various types and forms of corrosion on basis of internal and external
- Develop integrity management program and list the integrity management strategies and internal inspection tools
- Implement the process of pigging during construction and operation of pipelines, utilize the techniques of pigging for general maintenance and repair and identify the procedures of pigging during renovation, rehabilitation and decommissioning
- Identify intelligent pigs and In-Line Inspection (ILI) tools, characterize the various types of pigging equipment including its functions and discuss the launch and receive procedures in pipeline pigging
- Identify the pipeline pre-inspection and post-inspection requirements and evaluate the inspection results

- Illustrate process checklist and qualifications of the in-line inspection systems
- Design and operate a pipeline cleaning programme, apply several techniques on troubleshooting stuck pigs, determine the aspects of pigging velocity in liquid and gas lines and employ the methods of cleaning and inspecting unpiggable lines
- Perform pressure and leak testing and pipeline rehabilitation & repair techniques

Who Should Attend

This course provides an overview of practical and operational aspects of pipeline pigging, in-line inspection and integrity assessment for those who are involved in pipeline integrity, corrosion control, project management, ongoing pipeline operations and pipeline inspection, repair or rehabilitation. The course is also beneficial to service providers or those who need to enhance their knowledge of pipeline pigging and integrity assessment.

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

Training Methodology

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Workshops & Work Presentations
- 30% Case Studies & Practical Exercises
- 20% Software, Simulators & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee


Al Khobar	US\$ 4,500 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	US\$ 5,500 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Abu Dhabi	US\$ 4,500 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	US\$ 4,500 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations


Certificates are accreditation by the following international accreditation organizations:

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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **2.4 CEUs** (Continuing Education Units) or **24 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council for Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Marian Copilet, MSc, BSc is a **Senior Pipeline, Piping & Subsea Umbilicals Engineer** with almost **40 years** of experience and extensive knowledge within the **Oil & Gas, Petrochemical** and **Refinery** industries. His expertise widely covers in the areas of **upstream and downstream sectors**, particularly in **Pipelines, Pipework, Pigging** Foundation, **Pigging of Oil & Gas Line, Pigging** Principles, **Pigging** Procedures, **Subsea Umbilicals, Oil & Gas Pipelines, Welding Technology, NDT Inspection**, Upstream and

Downstream Oil & Gas Industries, **Pipeline Design, Pipeline Isolation & Intervention, Piping Systems** Specification, **Pipeline** Repair, Hot-Tapping, In-line Inspection Technologies, **Pipeline Pigging, Pipeline** Crawlers, Equipment Integrity & Inspection, **Pipeline Design & Integrity** Engineering, **Pipeline** Hydraulic Engineering, **Pipeline** Operation & Maintenance, **Pipeline** Integrity & Rehabilitation, **Pipeline** Systems, **Pipeline** Design & Construction, **Pipeline** System Design, **Pipeline & Piping** Installation, Onshore **Pipeline Repair Methods & Equipment, Pipelines** Defect Identification & **Corrosion** Risk Assessment, Risk Based Inspection (**RBI**), Basic **Pipeline Engineering, Pipeline Inspection & Integrity Assessment**, Pipeline Integrity Management System (**PIMS**), **Facility & Pipeline Integrity Assessment** and **Pipeline & Piping Codes** including ISO 13628-5, DNV Series (OS-F101, OS-F201, RP-F109), ASME B series (B31.3, B31.4 & B31.8, B31.G, B31.8S), BS 8010 Part 3 and Pressure Vessel Codes (PD 5500, ASME VIII Div. 1 & Div. 2). Further, he is also well-versed in Oil & Gas Transportation Pipeline System Reliability, Fundamentals of Pipeline Systems (PL4), Welding Technology, Inspection & Decommissioning, Flange Joint Hydraulic Tensioning & Tightening Control, Inspection of Process Plant Equipment, In-line Inspection Systems Qualification Standards (API 1163), Boiler Operation, Inspection, Maintenance, Safety & Water Treatment Technology, API 579-1, Fitness-for-Service (FFS) of Pressure Vessels, Process Plant Equipment Failure Prevention, Piping & Storage Facilities Maintenance & Repair, Vessel & Tanks Integrity and Rehabilitation, Sales Strategy, Contract Preparation and Bidding, Contract Negotiation, Conflict Resolution, Operational Management, Procurement Management and International Business.

During his career life, Mr. Copilet has gained his practical and field experience through his various significant positions **Pipeline Engineer, Mechanical Engineer, Welding Engineer, Machinery Equipment Engineer, Pipeline Inspector, Proposals Engineer, QA/QC Engineer, Sales Director, Account Development Manager, Technical Solutions Manager, Technical Account Manager, General Sales Manager, Sales Manager** and **University Lecturer** from various companies such as **Oceanering Umbilical Solutions, Oceanering International Services, STATS** Group, **Durham Pipeline Technology (DPT), GD Engineering**, Bucharest Polytechnic University, Vulcan S.A. and Nuclearmontaj (Cernavoda Nuclear Power Station).

Mr. Marian has also worked with major international clients in UK, Europe, Middle East, North Africa and Asia with major international clients including **ADMA-OPCO, Aker Kvaerner, AMEC, Bechtel, BP, British Gas, China Petroleum, Chevron, EnQuest, ExxonMobil, ENPPI, Fluor Daniel, FMC, Foster Wheeler, Framo, Kala, Marathon Oil, National Iranian Gas, PD Oman, Petrojet, Petronas, Qatar Petroleum, QGPC, RasGas, Saudi Aramco, Shell, Single Buoy Moorings, Saipem, Snamprogetti, Sonatrach, Statoil, Subsea 7, TAQA, Technip, Total, Woodside**, etc.

Mr. Copilet has **Master** and **Bachelor** degrees with **Honors** in **Mechanical Engineering (Welding, Machinery & Technology)**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)** and has further delivered numerous trainings, courses, seminars, conferences and workshops globally.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0900	Introduction Pipeline Integrity Assessment • Pipeline Pigging • In-Line Inspection • Corporate Policies • Regulation • Standard Practices • API 1163
0900 – 0930	Pipeline Design, Construction & Maintenance vs. Integrity Pipeline Design • Operation • Economics
0930 – 0945	Break
0945 – 1100	Threats to Buried Pipeline's Integrity Time Dependent • Time Independent • Stable
1100 – 1215	Time Dependent Defects Theory Corrosion Principles • Corrosion Thermodynamics • Corrosion Kinetics • Corrosion Rate Expressions
1215 – 1230	Break
1230 – 1330	Types & Forms of Corrosion Corrosion Monitoring • Corrosion Protection (Including Cathodic Protection) • Internal Corrosion Modelling & Risk Assessment • Fatigue – Heavy Fouling/Clogging • Time Independent & Stable Factors
1330 – 1420	Integrity Management Program Development Integrity Management Strategies • Main Factors Affecting Pipeline Integrity • Integrity Management Program Development
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One

Day 2

0730 – 0830	Internal Inspection Tools Types of Internal Inspection Tools • Preparing to Inspect • Data Assessment • Inspection Reports • Other Issues • API 1163
0830 – 0930	Pipeline Pigging Overview Type of Pigs • Conventional Pigs • Intelligent Pigs
0930 – 0945	Break
0945 – 1045	Pipeline Pigging Operations Practical Applications • Pigging During Construction • Pigging During Operation • Pigging for General Maintenance & Repair • Pigging During Renovation, Rehabilitation & Decommissioning
1045 – 1130	Intelligent & Special Pigs Pipeline Isolation • ILI Tools • API 1163
1130 – 1215	In-Line Inspection System Selection

1215 – 1230	Break
1230 – 1330	Pre-Inspection Requirements
1330 – 1420	Post-Inspection Requirements
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two

Day 3

0730 – 0830	Evaluation & Verification of Inspection Results
0830 - 0930	Process Checklist for In-Line Inspection Systems
0930 – 0945	Break
0945 – 1045	Qualification of In-Line Inspection Systems
1045 – 1130	Pigging Equipment Equipment • Pig Launching Procedure • Pig Receiving Procedure
1130 - 1215	Pipeline Cleaning Program Design • Run • Troubleshooting Stuck Pigs • Pigging Velocity in Liquid Lines • Pigging Velocity in Gas Lines • Unpigging Lines
1215 – 1230	Break
1230 – 1330	Pressure & Leak Testing The Purpose of Hydro Test • Theory • Designing a Pressure Test • How to Conduct a Hydro Test
1330 – 1420	Practical Aspects & Case Histories Microbial Corrosion • A.C. Corrosion • Stray Current Corrosion • Stress Corrosion Cracking
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0830	Pipeline Rehabilitation - Repair Techniques
0830 – 0930	Geological Aspects Aspects Tied with the Pipeline
0930 – 0945	Break
0945 – 1045	Verifying the Integrity of an Old Pipeline A Case History
1045 – 1215	Remote Monitoring & Control of Cathodic Protection Systems
1215 – 1230	Break
1230 – 1345	Quality Control - Reporting
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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