

**COURSE OVERVIEW FE0265**  
**Pipeline Corrosion Management, Risk Assessment,**  
**Technical Integrity, Inspection, Remediation & Repair**

**Course Title**

Pipeline Corrosion Management, Risk Assessment, Technical Integrity, Inspection, Remediation & Repair

**Course Date/Venue**

December 08-12, 2024/Club B Meeting Room, Ramada Plaza by Wyndham Istanbul City Center, Istanbul, Turkey

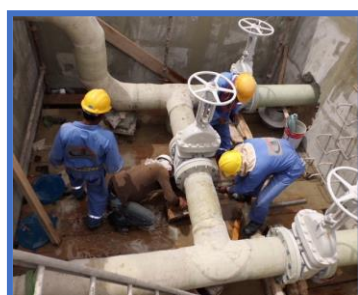
**Course Reference**

FE0265

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**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 designed to provide participants with a detailed and up-to-date overview of Pipeline Corrosion Management, Risk Assessment, Technical Integrity, Inspection, Remediation & Repair. It covers the pipeline integrity, the impact of corrosion on pipelines, other treats to pipeline integrity (non-corrosion related) and purpose of pipeline integrity programs; the public safety, reliability and deliverability of the pipeline system; the asset preservation, maintenance optimization and economics; managing corrosion; the forms of corrosion and corrosion control methods; the time-related pipeline defect types and inspection methods; and the stress corrosion cracking, corrosion monitoring methods, external corrosion and corrosion mediation methods.

Further, the course will also discuss the 49 CFR and integrity requirements; the data collection, verification and integration; the risk assessment, consequence analysis, calculating and quantifying risk, risk minimization through corrosion control and integrity verification; the integrity verification/assessment; the overall assessment on a pipeline system; and the criteria for selecting an integrity method.



During this interactive course, participants will learn the technical challenges to pipeline integrity; material properties and defects, pipe manufacturing, pipeline construction, pipeline operations and service, outside forces and time dependent mechanisms; the remediation activity/repair methods, discovery of anomalies, defect characterizations, development of a repair plan and repair protocol for “high consequence areas” (HCA) pipeline; the inspection and assessment intervals, confirmatory direct assessment, external corrosion confirmatory assessment (EC-CDA) and internal corrosion confirmatory assessment (IC-CDA); the post integrity assessment risk analysis including risk re-assessment in response to management of change processes and in response to changes due to remediation; the need for electronic database for data integration and specific data that shall be integrated into risk assessment plans; and the integrity management plan.

### **Course Objectives**

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

- Apply and gain in-depth knowledge on pipeline corrosion management, risk assessment, technical integrity, inspection, remediation and repair
- Discuss pipeline integrity, the impact of corrosion on pipelines, other treats to pipeline integrity (non-corrosion related) and purpose of pipeline integrity programs
- Carryout public safety, reliability and deliverability of the pipeline system, asset preservation, maintenance optimization and economics
- Manage corrosion, illustrate the forms of corrosion and corrosion control methods and identify the time-related pipeline defect types
- Apply inspection methods, stress corrosion cracking, corrosion monitoring methods, external corrosion and corrosion mediation methods
- Discuss the 49 CFR and integrity requirements
- Employ data collection, verification and integration as well as risk assessment, consequence analysis, calculating and quantifying risk, risk minimization through corrosion control and integrity verification
- Carryout integrity verification/assessment including performing an overall assessment on a pipeline system and criteria for selecting an integrity method
- Identify technical challenges to pipeline integrity covering material properties and defects, pipe manufacturing, pipeline construction, pipeline operations and service, outside forces and time dependent mechanisms
- Apply remediation activity/repair methods including discovery of anomalies, defect characterizations, development of a repair plan and repair protocol for “high consequence areas” (HCA) pipeline
- Inspect and assess intervals, apply confirmatory direct assessment and perform external corrosion confirmatory assessment (EC-CDA) and internal corrosion confirmatory assessment (IC-CDA)
- Apply post integrity assessment risk analysis including risk re-assessment in response to management of change processes and in response to changes due to remediation
- Recognize the need for electronic database for data integration and specific data that shall be integrated into risk assessment plans as well as apply integrity management plan



### **Who Should Attend**

This course provides an overview of all significant aspects and considerations of pipeline corrosion management, risk assessment, technical integrity, inspection, remediation and repair for those who are responsible for implementation and/or management of an integrity program for a pipeline system with an emphasis on integrity verification and maintenance optimization.

### **Training Methodology**

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

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

### **Course Fee**

**US\$ 6,000** per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day

### **Accommodation**

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

**Course Certificate(s)**

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

**Recertification is FOC for a Lifetime.**

**Sample of Certificates**

The following are samples of the certificates that will be awarded to course participants:-



- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*



**Haward Technology Middle East**

Continuing Professional Development (HTME-CPD)

CEUs

## CEU Official Transcript of Records

**TOR Issuance Date:** 16-Nov-22

**HTME No.** 74851

**Participant Name:** Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
FE0265	Pipeline Corrosion Management, Risk Assessment, Technical Integrity, Inspection, Remediation & Repair	November 14-16, 2021	30	3.0

**Total No. of CEU's Earned as of TOR Issuance Date** **3.0**

**TRUE COPY**



Jaryl Castillo  
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 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 Association 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 is accredited by










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## **Certificate Accreditations**

Certificates are accredited 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 **3.0 CEUs** (Continuing Education Units) or **30 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.



### 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. Den Bazley, PE, BSc,** is a **Senior Piping & Pipeline Engineer** with over **25 years** of industrial experience within **Oil, Gas, Petrochemical** and **Power** industries. His specialization widely covers **ASME B31 Piping & Pipeline Design, Construction, Operation, Inspection, Pigging, Maintenance, Repair & Integrity Assessment, Process Equipment, Maintenance Management, Reliability Management, Reliability Centred Maintenance (RCM), Total Plant Maintenance (TPM)** and **Reliability-Availability-Maintainability (RAM), Engineering Drawings, Codes & Standards, P&ID Reading, Interpretation & Developing.** His experience covers **Design, Construction** and **Maintenance of Storage Tank, Hydraulic Control Valves, Rotating and Static Equipment** including **Safety Relief Valves, Boilers, Pressure Vessels, Tanks, Heat Exchangers, Bearings, Compressors, Pumps, Pipelines, Motors, Turbines, Gears, Lubrication Technology** and **Mechanical Seals.** Further, he has experience in **Waste Water Treatment, Water Treatment, Welding, NDT, Vehicle Fleet** and **Budgeting & Cost Control.** He is well-versed in **CMMS** and various International Standards including **ISO 14001.**

During his career life, Mr. Bazley has gained his practical and field experience through his various significant positions and dedication as the **General Manager, Branch Manager, Refinery Chairman, Engineering Manager, Maintenance Engineer, Construction Engineer, Project Engineer, Mechanical Engineer, Associate Engineer, Oil Process Engineer, Mechanical Services Superintendent, Quality Coordinator, Planning Coordinator, Consultant/Instructor, Lecturer/Trainer** and **Public Relations Officer** for numerous international companies like **ESSO, FFS Refinery, Dorbyl Heavy Engineering (VECOR), Vandenberg Foods (Unilever), Engen Petroleum, Royle Trust** and **Pepsi-Cola.**

Mr. Bazley is a **Registered Professional Engineer** and has a **Bachelor's** degree in **Mechanical Engineering.** Further, he is a **Certified Engineer** (Government Certificate of Competency GCC Mechanical Pretoria), a **Certified Instructor/Trainer,** a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management (ILM),** an active member of the **Institute of Mechanical Engineers (IMechE)** and has delivered numerous trainings, courses, seminars and workshops internationally.



**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 Sunday, 08<sup>th</sup> of December 2024**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Pipeline Integrity</b> Pipeline Integrity • Overview of Impact of Corrosion on Pipelines • Other Treats to Pipeline Integrity (Non-Corrosion Related) • Purpose of Pipeline Integrity Programs • Public Safety • Reliability & Deliverability of the Pipeline System • Asset Preservation • Maintenance Optimization • Economics
0930 – 0945	Break
0945 – 1100	<b>Managing Corrosion</b> Forms of Corrosion • Overview of Corrosion Control Methods • Time-Related Pipeline Defect Types • Inspection Methods
1100 – 1215	<b>Managing Corrosion (cont'd)</b> Stress Corrosion Cracking • Corrosion Monitoring Methods • External Corrosion • Corrosion Mediation Methods
1215 – 1230	Break
1230 – 1420	<b>Regulations</b> Overview of 49 CFR & Integrity Requirements
1420 – 1430	<b>Recap</b> 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 Monday, 09<sup>th</sup> of December 2024**

0730 – 0930	<b>Standards</b>
0930 – 0945	Break
0945 – 1100	<b>Data Collection, Verification &amp; Integration</b> Data Collection
1100 – 1215	<b>Data Collection, Verification &amp; Integration (cont'd)</b> Data Validation • Data Integration
1215 – 1230	Break
1230 – 1420	<b>Risk Assessment</b> Risk Assessment • Overview of Risk Assessment Objectives • History of Failure/Probability of Failure • Consequence Analysis
1420 – 1430	<b>Recap</b> 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 Tuesday, 10<sup>th</sup> of December 2024**

0730 – 0930	<b>Risk Assessment (cont'd)</b> Prescriptive & Performance Based • Risk Assessment Models • Calculating & Quantifying Risk • Risk Minimization Through Corrosion Control • Integrity Verification
0930 – 0945	Break
0945 – 1100	<b>Integrity Verification/Assessment</b> Performing an Overall Assessment on a Pipeline System • Criteria for Selecting an Integrity Method
1100 – 1215	<b>Technical Challenges to Pipeline Integrity</b> Material Properties & Defects • Pipe Manufacturing
1215 – 1230	Break
1230 – 1420	<b>Technical Challenges to Pipeline Integrity (cont'd)</b> Pipeline Construction • Pipeline Operations & Service • Outside Forces • Time Dependent Mechanisms
1420 – 1430	<b>Recap</b> 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 Three

**Day 4 Wednesday, 11<sup>th</sup> of December 2024**

0730 – 0930	<b>Remediation Activity/Repair Methods</b> Discovery of Anomalies • Defect Characterizations • Development of a Repair Plan
0930 – 0945	Break
0945 – 1100	<b>Remediation Activity/Repair Methods (cont'd)</b> Repair Protocol for “High Consequence Areas” (HCA) Pipeline • Types of Remediation Activities/Repair Methods
1100 – 1215	<b>Inspection &amp; Assessment Intervals</b> Assessment Intervals • Remaining Life • Growth Rate
1215 – 1230	Break
1230 – 1420	<b>Inspection &amp; Assessment Intervals (cont'd)</b> Confirmatory Direct Assessment • External Corrosion Confirmatory Assessment (EC-CDA) • Internal Corrosion Confirmatory Assessment (IC-CDA)
1420 – 1430	<b>Recap</b> 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 Four

**Day 5 Thursday, 12<sup>th</sup> of December 2024**

0730 – 0930	<b>Post Integrity Assessment Risk Analysis</b> Risk Re-assessment in Response to Management of Change Processes • Risk Re-assessment in Response to Changes due to Remediation
0930 – 0945	Break
0945 – 1100	<b>Post Integrity Assessment Risk Analysis (cont'd)</b> The Need for Electronic Database for Data Integration • Specific Data that Should be Integrated into Risk Assessment Plans
1100 – 1200	<b>Integrity Management Plan</b>





1200 - 1215	Break
1215 - 1300	<b>Management Perspectives</b> Case Studies
1300 - 1315	<b>Course Conclusion</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1315- 1415	<b>COMPETENCY EXAM</b>
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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