COURSE OVERVIEW FE0169
Asset Integrity Management System (AEIMS) and Monitoring

Course Title
Asset Integrity Management System (AEIMS) and Monitoring

Course Date/Venue
Session 1: June 23-27, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: November 02-06, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Dubai, UAE

Course Reference
FE0169

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

The Oil and Gas Industry is full of challenges which can consume large amounts of time, money and resources. A better understanding of the problems associated with trying to operate a successful Asset Integrity Management system can go a long way to making the whole industry safer and environmentally friendlier.

Asset Integrity Management (AIM) outlines the ability of an asset to perform its required function effectively and efficiently whilst protecting health, safety and the environment and the means of ensuring that the people, systems, processes, and resources that deliver integrity are in place, in use and will perform when required over the whole lifecycle of the asset. A proper Integrity Management System should address the quality at every stage of the asset life cycle, from the design of new facilities to maintenance management to decommissioning. Inspections, auditing/assurance and overall quality processes are just some of the tools designed to make an integrity management system effective.

The AIM should also endeavour to maintain the asset in a fit-for-service condition while extending its remaining life in the most reliable, safe, and cost-effective manner. The AIM programs attempt to meet API-580, API-581, and PAS 55 requirements, as applicable. The AIMS document will stipulate the requirements for subsequent Integrity Management Plans. Asset Integrity management improves plant reliability and safety whilst reducing unplanned maintenance and repair costs.

This course is designed to provide participants with a detailed and up-to-date overview of asset integrity management. It covers the introduction and major incident review including the failure of asset integrity of equipment; the various codes, standards and guidelines for asset integrity management (AIM); the design integrity, operational integrity, technical integrity and asset integrity management (AIM); and the attributes of successful AIM program and the effective AIM written procedure.

Further, participant of the course will be able to analyse the essential components of asset integrity elements; implement different stages of asset integrity lifecycle and identify the asset integrity barriers; recognize the safety critical elements and equipment and asset degradation and damage; employ risk based inspection and pipeline integrity management; and carryout key performance indicators, emergency repairs, and asset integrity review process.

Course Objectives

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

- Apply and gain an in-depth knowledge on asset integrity management
- Address the main challenges in asset management and manage effectively the equipment to achieve long term plant reliability, efficiency, safety and profitability
- Review the major incident history including the lesson learned due to failure of asset integrity of equipment
- Discuss the various codes, standards and guidelines for asset integrity management (AIM)
- Define the design integrity, operational integrity, technical integrity and asset integrity management (AIM)
- Recognize the attributes of successful AIM program as well as the effective AIM written procedure and policy
- Analyse the essential components of asset integrity elements
- Implement different stages of asset integrity lifecycle and identify the asset integrity barriers
- Identify safety critical equipment (SCE) as well as the asset degradation and damage
- Employ risk based inspection and pipeline integrity management
- Carryout key performance indicators, emergency repairs and asset integrity review process

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**.*

Who Should Attend

This course provides a wide understanding and deeper appreciation of asset integrity management for facility integrity engineers, inspection engineers, corrosion engineers, facility engineers, reliability engineers, design engineers, maintenance engineers, safety engineers, loss prevention engineers, managerial personnel and section heads and those engaged in the development and implementation of mechanical integrity programs for critical process equipment.

Course Certificate(s)

(1) Internationally recognized Competency Certificates and Plastic Wallet Card Certificates will be issued to participants who have successfully completed the course and 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 Middle East

Continuing Professional Development (HTME-CPD)

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CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-19

HTME No. 8667-2014-9020-2555

Participant Name: Abdulsatar Al Otaibi

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
RE0230	Asset Integrity Management	November 10-14, 2019	30	3.0

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

TRUE COPY

Maricel De Guzman
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: -

- 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.

- 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.

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 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. Andrew Ladwig is a **Senior Process & Mechanical Engineer** with over **25 years** of extensive experience within the **Oil & Gas**, **Refinery**, **Petrochemical & Power** industries. His expertise widely covers in the areas of **Ammonia Manufacturing & Process Troubleshooting**, **Distillation Towers**, **Crude Oil Distillation**, **Fundamentals of Distillation** for Engineers, **Distillation** Operation and Troubleshooting, **Advanced Distillation** Troubleshooting, **Distillation** Technology, Vacuum **Distillation**, **Ammonia Storage & Loading** Systems, **Ammonia Plant** Operation, Troubleshooting & Optimization, **Ammonia Recovery**, **Ammonia Plant Safety**, Hazard of **Ammonia Handling**, Storage & Shipping, **Operational Excellence** in **Ammonia Plants**, **Fertilizer Storage** Management (Ammonia & Urea), **Fertilizer Manufacturing** Process Technology, **Sulphur Recovery**, Phenol Recovery & Extraction, **Wax Sweating & Blending**, **Petrochemical & Fertilizer** Plants, **Nitrogen Fertilizer** Production, **Petroleum Industry Process** Engineering, **Refining Process & Petroleum Products**, **Refinery Planning & Economics**, Safe **Refinery Operations**, **Hydrotreating & Hydro-processing**, **Separators** in **Oil & Gas** Industry, **Gas Testing & Energy** Isolations, Gas Liquor Separation, **Industrial Liquid Mixing**, **Wax Bleachers**, **Extractors**, **Fractionation**, Operation & Control of **Distillation**, Process of **Crude ATM & Vacuum Distillation** Unit, **Water Purification**, **Water Transport** & Distribution, **Steam & Electricity**, **Flame Arrestors**, **Coal Processing**, **Environmental Emission Control**, R&D of **Wax Blending**, **Wax** Molding/Slabbing, **Industrial Drying**, Principles, Selection & Design, **Process Safety** Design, Certified **Process Plant** Operations, Control & Troubleshooting, **Operator** Responsibilities, **Storage Tanks Operations** & Measurements, **Tank Design**, Construction, Inspection & Maintenance, **Atmospheric Tanks**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Plant Performance**, Efficiency & Optimization, Continuous Improvement & Benchmarking, **Process Troubleshooting** Techniques, Oil & Gas Operation/Introduction to **Surface Facilities**, **Pressure Vessel** Operation, **Plant & Equipment Integrity**, **Process Equipment** Performance & Troubleshooting, **Plant Startup & Shutdown**, **Startup & Shutdown** the Plant While Handling Abnormal Conditions, **Flare & Relief** System, **Process Gas Plant** Start-up, Commissioning & Problem Solving, **Process Liquid** and **Process Handling & Measuring** Equipment. Further, he is also well-versed in **Compressors & Turbines** Operation, Maintenance & Troubleshooting, **Heat Exchanger** Overhaul & Testing Techniques, Balancing of **Rotating Machinery** (**BRM**), **Pipe Stress** Analysis, **Valves & Actuators** Technology, Inspect & Maintain **Safeguarding Vent & Relief System**, Certified Inspectors for **Vehicle & Equipment**, Optimizing **Equipment Maintenance** & Replacement Decisions, Certified Maintenance Planner (**CMP**), Certified Planning and Scheduling Professional (**AACE-PSP**), **Material Cataloguing**, Specifications, Handling & Storage, **Steam Trap** Design, Operation, Maintenance & Troubleshooting, **Steam Trapping & Control**, **Column**, **Pump** Technology, **Pump** Selection & Installation, **Centrifugal Pumps** Troubleshooting, **Pumps** Design, Selection & Operation, **Pump & Exchangers**, Troubleshooting & Design, **Rotating Equipment** Operation & Troubleshooting, **Control & ESD** System, **Detailed Engineering Drawings**, Codes & Standards, **Budget** Preparation, Allocation & Cost Control, Root Cause Analysis (**RCA**), **Production Optimization**, Permit to Work (**PTW**), Project Engineering, **Data** Analysis, **Process Hazard** Analysis (**PHA**), **HAZOP** Study, Sampling & Analysis, **Training** Analysis, **Job Analysis** Techniques, Storage & Handling of **Toxic Chemicals & Hazardous Materials**, **Hazardous Material** Classification & Storage/Disposal, **Dangerous Goods**, Environmental Management System (**EMS**), Supply Chain, Purchasing, Procurement, **Logistics** Management & **Transport** & **Warehousing** & **Inventory**, **Risk** Monitoring Authorized Gas Tester (**AGT**), Confined Space Entry (**CSE**), Personal Protective Equipment (**PPE**), Fire & Gas, First Aid and Occupational Health & Safety.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Mechanical Engineer**, **Project Engineer**, **Reliability & Maintenance Engineer**, **Maintenance Support Engineer**, **Process Engineer**, **HSE Supervisor**, **Warehouse Manager**, **Quality Manager**, **Business Analyst**, **Senior Process Controller**, **Process Controller**, **Safety Officer**, **Mechanical Technician**, **Senior Lecturer** and **Senior Consultant/Trainer** for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig has a **Bachelor's** degree in **Chemical Engineering** and a **Diploma** in **Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and has delivered various trainings, workshops, seminars, courses and conferences internationally.

Course Fee

US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), 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 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 & Major Incident Review*** *Integrity Threat Brainstorming Session • Review of a Major Incident • Incident History including Lesson Learned due to Failure of Asset Integrity of Equipment*
0900 – 0930	***Codes, Standards & Guidelines for Asset Integrity Management (AIM)***
0930 – 0945	*Break*
0945 – 1130	***Codes, Standards & Guidelines for Asset Integrity Management (AIM) (cont'd)***
1130 - 1230	***What is Design Integrity, Operational Integrity, Technical Integrity & Asset Integrity Management (AIM)***
1230 -1245	*Break*
1245 – 1420	***What is the Attributes of Successful AIM Program***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0800	***Methods of Assets Selection & Determination of Safety Critical of Equipment (SCE) for AIM Program***
0800 – 0930	***Leadership Roles & Responsibilities for AIM***
0930 – 0945	*Break*
0945 – 1130	***Contracts & Procurement Management for AIM***
1130 - 1230	***Attributes of Effective AIM Written Procedure & Policy***
1230 -1245	*Break*
1245 – 1420	***Industrial Best Practices Internationally***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0800	***Asset Integrity Elements*** *Integrity Elements & their Dependency on each other • History of Integrity Elements & their Role • Leadership Roles & Responsibilities for AIM • Importance of Integrity Elements*
0930 – 0945	*Break*
0945 – 1100	***Asset Integrity Elements (cont'd)*** *Integrity Element Definition & Implementation • Contracts & Procurement Management for AIM • Industrial Best Practices Internationally*
1100 – 1200	***Asset Integrity Management Lifecycle*** *The Integrity lifecycle • Concept Selection & Definition • Detailed Engineering & Design • Construction & Commissioning • Operation, Modification & Maintenance • Acquisition & Decommissioning*
1200 - 1230	***Asset Integrity Barriers*** *Integrity Barrier Definition & Introduction • Hard & Soft Barriers • The Swiss Cheese & Bow Tie Models • Barrier Threats & Mitigation Measures*
1230 – 1245	*Break*
1245 – 1420	***Safety Critical Elements & Equipment*** *SCE & Operational Integrity Management • Methods of Assets Selection & Determination of Safety Critical of Equipment (SCE) for AIM Program • Safety Critical Element vs Safety Critical Equipment • Major Accident Hazards • Identifying SCE & Performance Standards • Verification, Assurance & ICP*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Asset Degradation & Damage*** *Degradation, Damage & Its Impact • The Bath Tub Curve • Time Independent vs. Time Dependent Failures • Key Degradation & Damage Threats • Design Concepts, Identification & Mitigation Measures*
0930 – 0945	*Break*
0945 – 1130	***Risk Based Inspection*** *Introduction & the History of RBI • Benefits & Limitations • RBI Methodology & Implementation*
1130 - 1230	***Risk Based Inspection (cont'd)*** *Written Schemes of Examination • Inspection Scheduling*
1230 -1245	*Break*
1245 – 1420	***Pipeline Integrity Management*** *Pipeline Integrity Process & Elements • Pipeline Threats & Anomalies • Pipeline Mitigation Techniques & Overview • Risk Based Pipeline Integrity Methodology*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

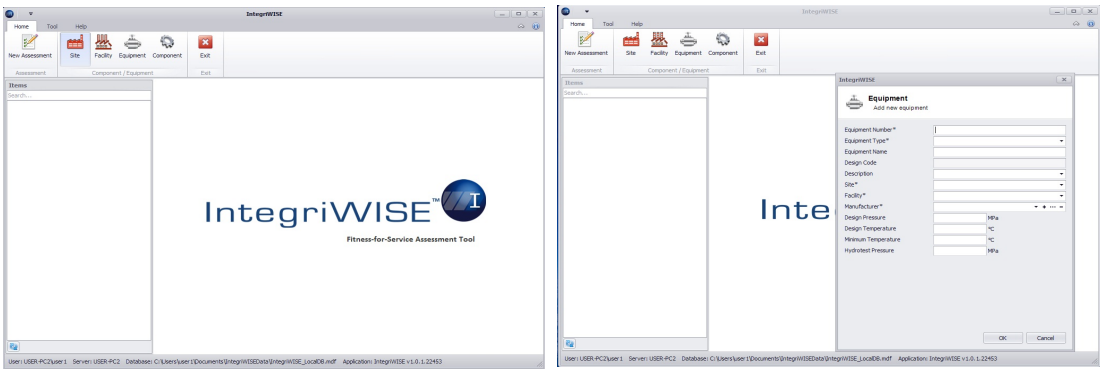
Day 5

0730 – 0930	***Key Performance Indicators*** *KPI's & their Function • Lagging & Leading KPI's • KPI Tiers & Setup • Using KPIs to Drive Integrity*
0930 – 0945	*Break*

0945 – 1130	***Emergency Repairs*** *Emergency Repair & Loss of Containment • Fitness for Service & Defect Assessment • Sleeves, Clamps & Mechanical Connectors • Composites & Clock Spring • Mechanical Replacement • Line Stopping & Hot Tapping*
1130 - 1230	***Asset Integrity Review Process*** *The Asset Integrity Review Team • The Review Process • Integrity Review Strategy & Preparation*
1230 – 1245	*Break*
1245 – 1300	***Asset Integrity Review Process (cont'd)*** *Implementing A Review • Reporting & Evaluation of Results*
1300 – 1315	***Course Conclusion***
1315 – 1415	***COMPETENCY EXAM***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the simulator "IntegriWISE™".



IntegriWISE™

Course Coordinator

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