COURSE OVERVIEW HE0050
Asset Integrity & Process Safety

Course Title
Asset Integrity & Process Safety

Course Date/Venue
August 10-14, 2025/Meeting Plus 9,
City Centre Rotana, Doha, Qatar

Course Reference
HE0050

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.

This course is designed to provide participants with a detailed and up-to-date overview of asset integrity and engineered safety in process industry. It will provide the participants a comprehensive understanding of the various aspects of asset integrity management and engineered safety in process plants, petrochemical plants, refineries and oil and gas plants.

The course combines the latest industry best practices with engineering methods and applicable codes and standards. The goal of asset management is to effectively manage corporate assets in order to gain maximum value/profitability/returns while safeguarding personnel, the community, and the environment.

During this interactive course, participants will gain enough knowledge that will help them manage their corporate assets (infrastructure and equipment) safely, reliably and cost effectively.

Course Objectives

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

- Apply and gain a comprehensive knowledge on asset integrity and engineered safety in process plants
- Differentiate between industrial failures and catastrophic failures and develop asset integrity management system
- Implement the regulations and legislation as well as management systems and process safety management implementation
- Recognize industry codes, standards, specifications and identify failure statistics, acceptable and tolerable risk as well as probability and consequence of failure
- Illustrate plant design and design of major plant equipment
- Select materials properly and illustrate design of pressure vessels and piping systems
- Identify pressure relief devices, relief valves, pilot valves, rupture disc and buckling pin devices
- Establish safety systems and apply inherent safety and reliability in plant design
- Perform process hazards analysis and recognize failures in pressure vessels, piping, rotating equipment and boilers
- Carryout fabrication and welding as well as bolted joint maintenance
- Discuss metallurgy and corrosion and identify composite materials and hardide coatings
- Explain mechanical integrity and perform proper maintenance and systematic NDE techniques
- Carryout risk based inspection and determine fire-safe valves & testing classification of valves
- Review condition assessment, fitness-for-service, deficiency resolution as well as re-rating piping and pressure vessels
- Perform root cause analysis and recognize change management and carryout technical integrity and safety audits in a professional manner

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 an overview of all significant aspects and considerations of asset integrity and engineered safety for technical managers, inspection and maintenance managers, safety managers, engineers, superintendents, supervisors, foremen and safety staff in refineries, petrochemical plants and oil/gas process plants who are engaged directly or indirectly in engineered safety and/or technical integrity.

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 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.

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. John Taljard is an **International Health**, **Safety & Environment** (**HSE**) **Expert** within **Oil**, **Gas** and **Petrochemical** industries. His expertise includes **Accident/Incident Investigation & Risk Management**, **Risk Assessment** within Production Operation, **Hazard Identification**, **Quantified Risk Assessment**, **Process Hazard Analysis** (**PHA**), **Construction Safety** (**STOP**), **Process Safety Management**, **HAZOP Studies & Leadership**, **FMEA**, Waste Management, Industrial Effluents, **Hazardous Material**, Chemical Handling, **Firefighting**, Emergency Response Services, **HAZCOM**, **HAZWOPER** and **HAZMAT** with over **30 years** of practical experience in the **process** industry. His wide experience also includes **Environmental Management** (**ISO 14001**), **Safety Management** (**OHSAS 18001**), **Quality Management** (**ISO 9001**). He is the **Founder** of **ISTEC**, an international health & safety management and consultancy company where he is greatly involved in the development and implementation of **SHEQ standards & procedures**, **HAZOP Studies**, **HAZOP Leadership**, **FMEA**, **PHA**, operational safety guidelines, inspections & auditing techniques.

While Mr. Taljard has been very active in the process industry for almost three decades, he has likewise headed Consultancy projects for major **petrochemical**, aviation, engineering & construction, mining & chemical industries. In all his projects, he utilizes a systems approach which includes **risk management**, **process safety**, health & environmental management, human behaviour and quality management. Furthermore, he has come to share his expertise through the **numerous international trainings** he has held on **PHA**, **HAZOP**, **Risk Assessment**, Handling **Hazardous Materials** & Chemicals, Petroleum Products Handling & Transportation, **Fire Fighting & Fire Rescue**, **Safety Auditing**, **Hazard Identification** & Site Inspection and **Accident Investigation** for several significant clientele among these are **ARAMCO**, **SABIC**, **ZADCO**, **ORPC**, **KOTC**, and **AADC**. Moreover, he completed various assignments as a consultant, trainer, facilitator, auditor & designer and conducted numerous licensed international Safety, Technology and Auditing Awareness & Implementing training courses including **IMS**, **ISO 9001**, **ISO 14001**, **ISO 27001**, **ISO 17799**, **OHSAS 18001** audits & assessments. With his accomplishments and achievements, he had been a **Safety Superintendent**, **Senior Safety Official** and **Senior Process Controller** for several international petrochemical companies.

Course Fee

US$ 6,000 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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 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, 10th of August 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 - 0900	***Course Background*** *Our Industry, Infrastructure, Assets (Equipment, Piping, Tanks, Pumps, RV's), Processes, Safety, Reliability, Efficiency*
0900 - 0930	***Industrial Failures – Catastrophic Failures Do Happen*** *Typical Examples ● Learning*
0930 - 0945	*Break*
0945 - 1030	***Development of Asset Integrity Management System*** *Process Safety Management ● Mechanical Integrity ● Management Systems ● Benchmarking ● Solomon Reports ● Implementation Phases*
1030 - 1130	***Regulations and Legislation*** *UK Health and Safety Executive ● Seveso II Directive ● US DOT ● EPA and OSHA Regulations ● Other Countries Compliance*
1130 - 1230	***Management Systems and Process Safety Management Implementation*** *Management Systems ● Elements ● Key Positions ● OSHA 1910.119 ● Case Study*
1230 - 1245	*Break*
1245 -1330	***Industry Codes, Standards, Specifications*** *Standard Producers ISO, NB, ASME, API, NACE, NFPA & Applicable Codes*
1345 - 1420	***Failure Statistics*** *Industry Statistics ● Oil and Gas Industry ● Sources of Statistics ● Survey of Incidents Applicable to our Industry ● Explosion and Fire Video*
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: **Monday, 11th of August 2025**

0730 - 0830	***Acceptable and Tolerable Risk*** *Definition of Risk, Hazards, Measurement of Risk, Tolerable Risk, Risk Management, Liability & Due Diligence*
0830 - 0930	***Probability and Consequence of Failure*** *Equipment Failures ● Probability Databases ● Consequence of Failure ● Toxics ● Flammables ● Explosives ● Modeling ● Calculation of End Points ● LPG Explosion example*
0930 - 0945	*Break*
0945 - 1030	***Plant Design*** *Risk Management Strategies ● Intrinsic ● Active ● Passive ● Procedural ● Facility Layout ● Engineering Design ● Modifications*
1030 - 1130	***Design of Major Plant Equipment*** *Loading and Unloading ● Storage ● Process Equipment ● Pumps ● Boilers*
1130 - 1230	***Materials Selection*** *Engineering Materials ● Material Properties ● Material Selection Criteria*
1230 - 1245	*Break*
1245 - 1330	***Design of Pressure Vessels and Piping Systems*** *Methodology and Key Considerations*
1330 - 1420	***Pressure Relief Devices, Relief Valves, Pilot Valves, Rupture Disc, Buckling Pin Devices***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: **Tuesday, 12th of August 2025**

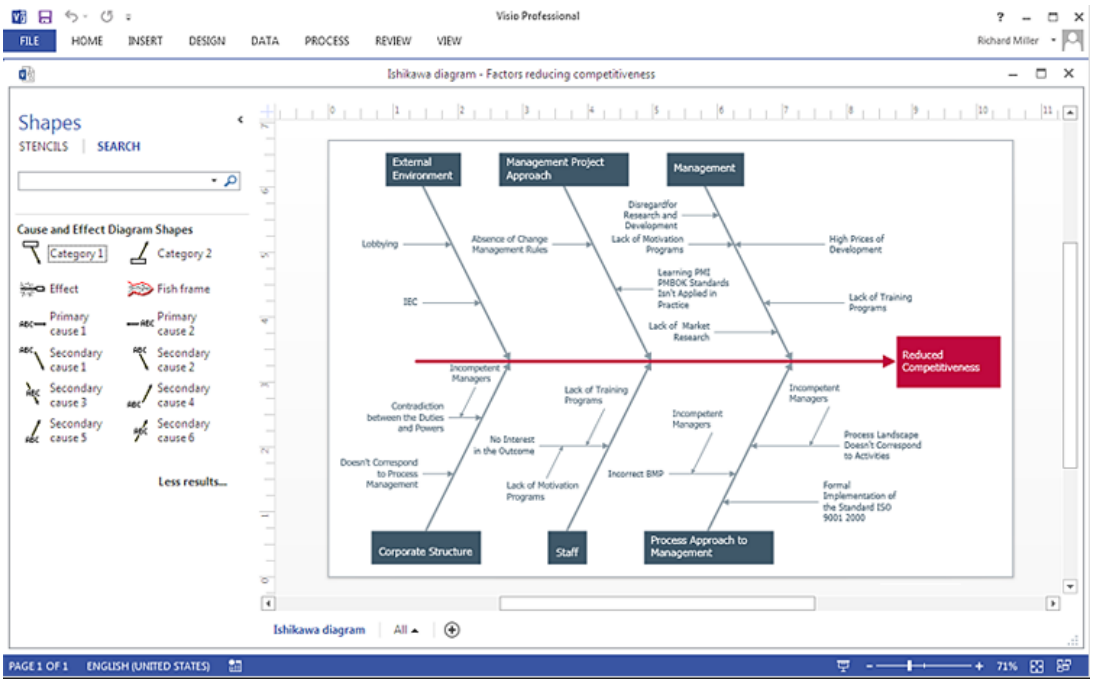
0730 - 0830	***Safety Systems*** *Alarm Systems ● Safety System Maintenance Testing ● Implementation of the Process Control System*
0830 - 0930	***Inherent Safety and Reliability in Plant Design*** *Case Study*
0930 - 0945	*Break*
0945 - 1030	***Process Hazards Analysis*** *Requirements ● Types ● Elements ● Identification ● Analysis ● Case Study*
1030 - 1130	***Failures in Pressure Vessels, Piping, Rotating Equipment and Boilers*** *Case Studies*
1130 - 1230	***Fabrication and Welding*** *Documentation ● Materials ● WPS, PQR and WPQ ● Welding Processes ● Welding Defects ● Fabrication Quality Assurance*
1230 - 1245	*Break*
1245 - 1330	***Bolted Joint Maintenance*** *Pre-loads ● Flange Seals ● Requirements ● Assembly ● Troubleshooting*
1345 - 1420	***Video Presentation of Good Bolting Practices for the Industry***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4:	Wednesday, 13th of August 2025
0730 - 0830	***Metallurgy & Corrosion*** *Metals and Alloys ● Heat Treatment ● Working Metals ● Mechanical Properties ● Corrosion*
0830 - 0930	***Composite Materials and Hardide Coatings***
0930 - 0945	*Break*
0945 - 1030	***Mechanical Integrity*** *Covered Equipment ● Documentation ● Training ● Inspection and Testing ● Maintenance ● Equipment Deficiencies ● Quality Assurance*
1030 - 1130	***Maintenance*** *Preventative ● Predictive ● Reliability Centered Maintenance ● CMMS Systems ● Maintenance Strategies ● RCM2 ● Examples*
1130 - 1230	***NDE Techniques*** *RT, UT, PT, MT, ET, VT, LT & AE*
1230 - 1245	*Break*
1245 - 1330	***Risk Based Inspection*** *Standards ● Methodologies ● Calculating the Likelihood and Consequence of Failure of Equipment Items ● Risk Management ● Development of Risk Based Inspection Plans*
1330 - 1420	***Fire-safe Valves & Testing Classification of Valves***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Four*

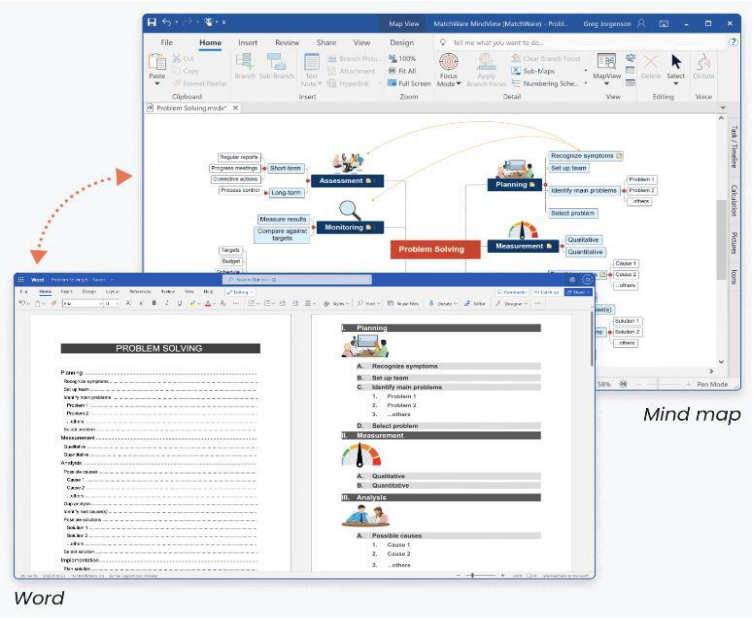
Day 5:	Thursday, 14th of August 2025
0730 - 0830	***Condition Assessment, Fitness-For-Service, Deficiency Resolution*** *Identifying Equipment Deficiencies ● Flaw Characterization, API RP 579 Fitness-For-Service Evaluations ● Remaining Useful Life Evaluation, Run/ Repair/Replace Decisions*
0830 - 0930	***Re-rating Piping and Pressure Vessels***
0930 - 0945	*Break*
0945 - 1030	***Root Cause Analysis*** *Incident Investigation ● Data Collection ● Causal Charting ● Root Cause Identification ● Recommendations ● Examples*
1030 - 1115	***Management of Change*** *Recognition of Change ● Procedures ● Recordkeeping*
1115 - 1230	***MOC Case Studies***
1230 - 1245	*Break*
1245 - 1315	***Technical Integrity and Safety Audits*** *Guidelines and Procedures ● Checklists ● Implementation Plans*
1315 - 1345	***Human Factors***
1345 - 1400	***Course Conclusion***
1400 - 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulators (Hands-on Practical Sessions)

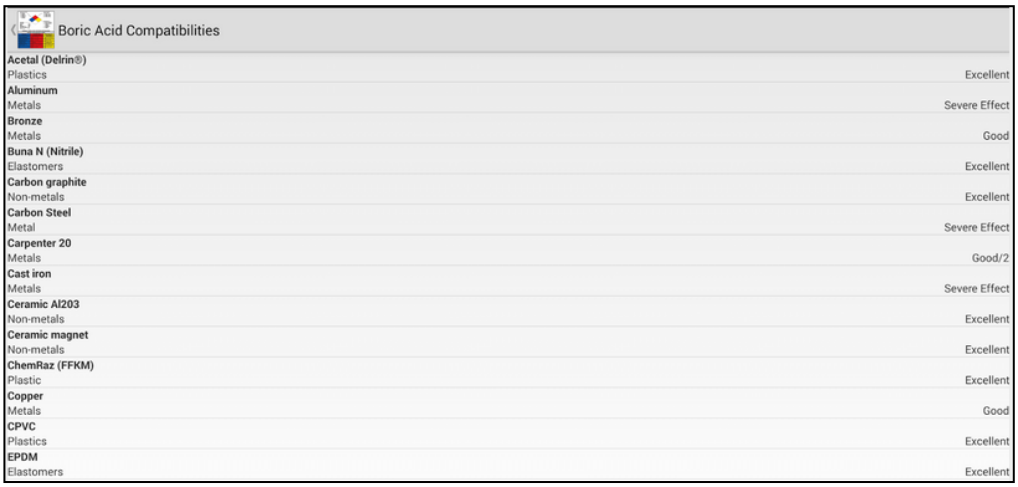
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using one of our state-of-the-art "Visio", "Mindview"; "Chemical Compatibility 1.1 Simulator", "Chemical Safety Database Simulator", and "CAMEO Chemicals Suite Simulator".



Visio Software

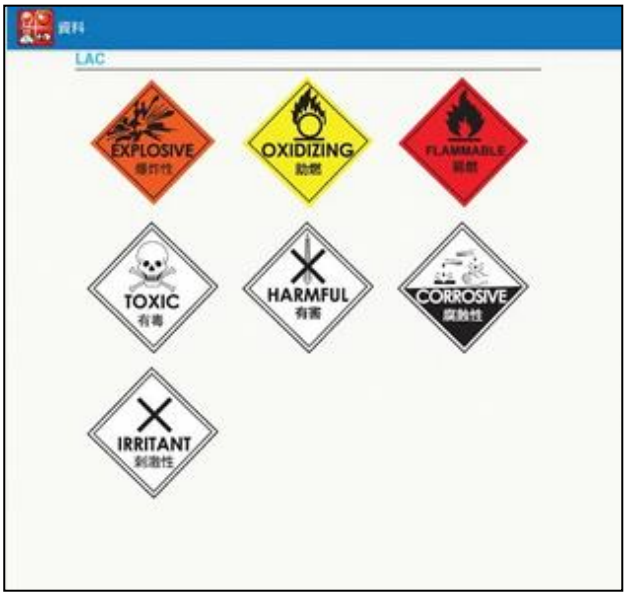


Mindview Software

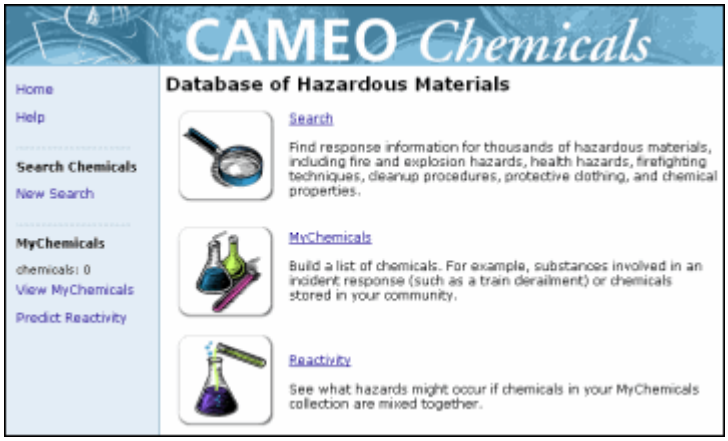


Boric Acid Compatibilities	
Acetal (Delrin®)	
Plastics	Excellent
Aluminum	
Metals	Severe Effect
Bronze	
Metals	Good
Buna N (Nitrile)	
Elastomers	Excellent
Carbon graphite	
Non-metals	Excellent
Carbon Steel	
Metal	Severe Effect
Carpenter 20	
Metals	Good/2
Cast iron	
Metals	Severe Effect
Ceramic Al203	
Non-metals	Excellent
Ceramic magnet	
Non-metals	Excellent
ChemRaz (FFKM)	
Plastic	Excellent
Copper	
Metals	Good
CPVC	
Plastics	Excellent
EPDM	
Elastomers	Excellent

Chemical Compatibility 1.1 Simulator



Chemical Safety Database Simulator



CAMEO Chemicals Suite Simulator

Course Coordinator

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