COURSE OVERVIEW HE2011
HSE Critical Equipment System (HSECES) Implementation and Audit

Course Title
HSE Critical Equipment System (HSECES) Implementation and Audit

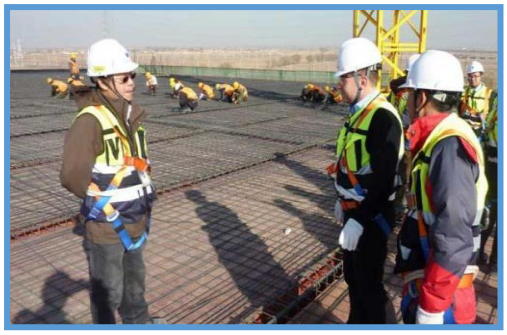
Course Reference
HE2011

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

Course Date/Venue

Session(s)	Date	Venue
1	May 04-08, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
2	June 16-20, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	October 12-16, 2025	Meeting Plus 9, City Centre Rotana, Doha Qatar
4	December 07-11, 2025	Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA

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 HSE Critical Equipment System (HSECES) Implementation and Audit. It covers the purpose of HSECES; the importance in major accident hazard (MAH) prevention; the relationship with safety case/COMAH/SEVESO; the HSECES lifecycle approach, regulatory and standards framework and identification of HSE critical equipment and systems; the safety case and HSECES interface and roles and responsibilities in HSECES implementation; and the asset integrity and HSECES.

Further, the course will also discuss the performance standards (PS) and the elements of a good performance standard; the writing performance standards; and developing a HSECES register; the barrier management and bowtie analysis; the human and organizational factors (HOF); the specifying safety functions and integrity levels; the procurement and vendor documentation; and the lifecycle traceability from design.

Moreover, the course will also discuss the HSECES in commissioning and start-up, operation phase; the maintenance and inspection, risk screening for HSECES changes, and change approval and implementation; the re-validation of PS and risk scenarios and documentation and training updates; the alignment of vendor specs with PS; and auditing suppliers for HSECES compliance; the service contracts and verification scope; the assurance versus verification versus validation; the verification planning and execution, audit protocols and schedules, auditor independence and objectivity and governance and escalation; the evidence gathering and triangulation, interviewing and walkthroughs, document and record reviews; and using digital tools for audit support.

During this interactive course, participants will learn the typical failures in HSECES systems, non-compliance to PS or verification and root causes and systemic issues; writing effective audit reports, action tracking and close-out; reviewing feedback into the risk management system, and leading indicators for performance improvement; linking HSECES with OE programs and the synergies with asset management (ISO 55000); the safety culture and leadership engagement and data analytics in performance monitoring; the smart sensors and predictive analytics, digital twins for verification and simulation; the cloud-based HSECES registers and role of AI in auditing and assurance; the custom templates for PS and verification, checklists and scoring systems, digital forms and dashboards; and the KPI development for HSECES health.

Course Objectives

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

- Apply and gain a good working knowledge on HSE critical equipment system (HSECES) implementation and audit
- Discuss the purpose of HSECES as well as the importance in major accident hazard (MAH) prevention, relationship with safety case/COMAH/SEVESO and HSECES lifecycle approach
- Review regulatory and standards framework and identify of HSE critical equipment and systems and safety case and HSECES interface
- Discuss roles and responsibilities in HSECES implementation and asset integrity and HSECES
- Recognize performance standards (PS) and elements of a good performance standard as well as write performance standards and develop a HSECES register
- Carryout barrier management and bowtie analysis and human and organizational factors (HOF)
- Specify safety functions and integrity levels and apply procurement and vendor documentation and lifecycle traceability from design
- Apply HSECES in commissioning and start-up, operation phase and maintenance and inspection
- Employ risk screening for HSECES changes, change approval and implementation, re-validation of PS and risk scenarios and documentation and training updates

- Align vendor specs with PS, audit suppliers for HSECES compliance and apply service contracts and verification scope
- Differentiate assurance versus verification versus validation and carryout verification planning and execution
- Apply audit protocols and schedules, auditor independence and objectivity and governance and escalation
- Carryout evidence gathering and triangulation, interviewing and walkthroughs, document and record reviews and using digital tools for audit support
- Identify the typical failures in HSECES systems, non-compliance to PS or verification and root causes and systemic issues
- Write effective audit reports, apply action tracking and close-out, review feedback into the risk management system and identify lead indicators for performance improvement
- Link HSECES with OE programs, discuss synergies with asset management (ISO 55000) and apply safety culture and leadership engagement and data analytics in performance monitoring
- Carryout smart sensors and predictive analytics, digital twins for verification and simulation and discuss cloud-based HSECES registers and role of AI in auditing and assurance
- Develop custom templates for PS and verification, checklists and scoring systems, digital forms and dashboards and KPI development for HSECES health

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 HSE critical equipment system (HSECES) implementation and audit for HSE engineers and officers, operations and production supervisors, maintenance and reliability engineers, instrumentation and control engineers, process engineers, asset integrity and technical safety specialists, project engineers (EPC and commissioning), risk and compliance managers, auditors and verifiers (internal/external), emergency response coordinators and other technical staff.

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 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

Dubai	**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.
Abu Dhabi	**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.
Doha	**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.
Al Khobar	**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.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop 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 – 0930	***Overview of HSECES*** *Definition & Purpose of HSECES • Importance in Major Accident Hazard (MAH) Prevention • Relationship with Safety Case/COMAH/SEVESO • HSECES Lifecycle Approach*
0930 – 0945	*Break*
0945 – 1030	***Regulatory & Standards Framework*** *COMAH, SEVESO III, OSHA PSM, API RP 754 • IEC 61508 / IEC 61511 Overview • Company-Specific & Industry-Specific Standards • Role of Regulators in HSECES*
1030 – 1130	***Identification of HSE Critical Equipment & Systems*** *Hazard Identification Methods (HAZOP, HAZID) • Risk Assessment & MAH Scenarios • Classification Criteria for HSECES • Developing a HSECES Register*
1130 – 1215	***Safety Case & HSECES Interface*** *Structure of a Safety Case • Linking HSECES To Barriers & Safety Functions • Bowtie Analysis Integration • Performance Standards in the Safety Case*
1215 – 1230	*Break*
1230 – 1330	***Roles & Responsibilities in HSECES Implementation*** *Asset Operators & Duty Holders • Engineering & Maintenance Teams • HSE & Audit Teams • Senior Management Oversight*
1330 – 1420	***Asset Integrity & HSECES*** *Asset Integrity Management Systems (AIMS) • Integration with HSECES Requirements • Inspection, Testing & Maintenance Plans • Equipment Reliability & Assurance Strategies*
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	***Basics of Performance Standards (PS)*** *Definition & Hierarchy of PS • Attributes of Effective PS • Performance Assurance & Verification • PS Documentation & Templates*
0830 – 0930	***Elements of a Good Performance Standard*** *Functionality & Purpose • Availability & Reliability • Survivability & Interactions • Dependency & Independence*
0930 – 0945	*Break*
0945 – 1100	***Writing Performance Standards*** *Functional Requirements • Integrity Requirements • Dependency Considerations • Verification Methodology*
1100 – 1215	***Developing a HSECES Register*** *Content of a Register (Tag, Function, Location, PS) • Grouping Similar HSECES • Interfaces & Dependencies • Roles in Maintaining the Register*

1215 – 1230	*Break*
1230 – 1330	***Barrier Management & Bowtie Analysis*** *Bowtie Methodology Overview • Prevention & Mitigation Barriers • Linking HSECES to Barrier Elements • Barrier Degradation & Assurance*
1330 – 1420	***Human & Organizational Factors (HOF)*** *Operator Interaction with HSECES • Alarm Management & Interface Design • Organizational Competency & Training • Management of Change (MOC) Impact*
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	***HSECES in Design Phase*** *Design Reviews & Risk-Based Design • Specifying Safety Functions & Integrity Levels • Procurement & Vendor Documentation • Lifecycle Traceability from Design*
0830 – 0930	***HSECES in Commissioning & Start-Up*** *Pre-Commissioning Checklists • Functional & Integrity Testing • Verification of Performance Standards • Start-Up Readiness Reviews*
0930 – 0945	*Break*
0945 – 1100	***HSECES in Operation Phase*** *Monitoring Performance in Operations • O&M Procedures Alignment • Incident Investigation Relevance • Operational Integrity Reviews*
1100 – 1215	***HSECES in Maintenance & Inspection*** *Maintenance Strategies (Time-Based, Risk-Based) • Maintenance Management Systems (CMMS Integration) • Condition Monitoring Techniques • Maintenance Verification & Assurance*
1215 – 1230	*Break*
1230 – 1330	***Management of Change (MOC) & HSECES*** *Risk Screening for HSECES Changes • Change Approval & Implementation • Re-Validation of PS & Risk Scenarios • Documentation & Training Updates*
1330 – 1420	***Contractor & Supplier Management*** *Contractor Awareness of HSECES Role • Alignment of Vendor Specs with PS • Auditing Suppliers for HSECES Compliance • Service Contracts & Verification Scope*
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 Three*

Day 4

0730 – 0830	***Assurance versus Verification versus Validation*** *Definitions & Differences • Methods & Frequency of Assurance • Roles in Verification & Validation • Recording & Reporting Processes*
0830 – 0930	***Verification Planning & Execution*** *Annual & Lifetime Verification Plans • Sampling & Prioritization Techniques • Verification Tools & Checklists • Competency of Verification Personnel*
0930 – 0945	*Break*

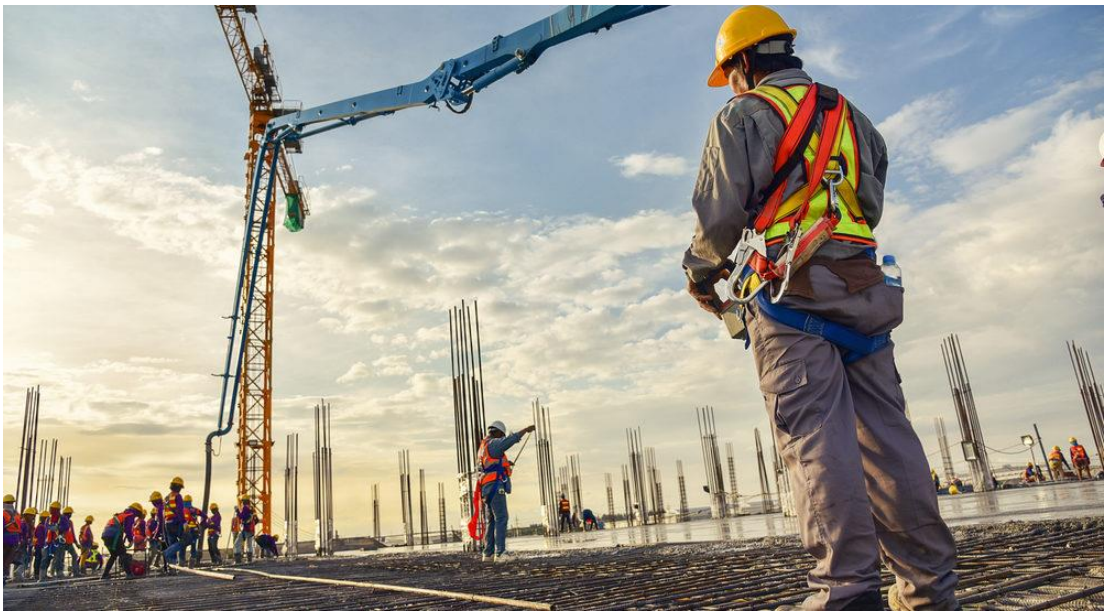
0945 – 1100	***Audit Planning & Governance*** *Internal versus External Audits • Audit Protocols & Schedules • Auditor Independence & Objectivity • Governance & Escalation*
1100 – 1215	***Audit Techniques & Tools*** *Evidence Gathering & Triangulation • Interviewing & Walkthroughs • Document & Record Reviews • Using Digital Tools for Audit Support*
1215 – 1230	*Break*
1230 – 1330	***Common Findings & Lessons Learned*** *Typical Failures in HSECES Systems • Non-Compliance to PS or Verification • Root Causes & Systemic Issues • Case Studies & Real-World Examples*
1330 – 1420	***Reporting & Continuous Improvement*** *Writing Effective Audit Reports • Action Tracking & Close-Out • Feedback into the Risk Management System • Leading Indicators for Performance Improvement*
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 Four*

Day 5

0730 – 0930	***Real-Life Case Studies of HSECES Failures*** *Offshore Oil & Gas Incidents (e.g., Piper Alpha, Deepwater Horizon) • Chemical Plant Accidents Involving Critical Safeguards • Analysis of Failed Barriers & PS Issues • Key Takeaways & Industry Learning*
0930 – 0945	*Break*
0945 – 1030	***HSECES Simulation Exercise (Team-Based)*** *Scenario-Based Exercise • Identify HSECES from MAH Scenario • Develop Basic PS & Verification Plan • Present Team Findings & Justify Approach*
1030 – 1130	***Integration with Operational Excellence*** *Linking HSECES with OE Programs • Synergies with Asset Management (ISO 55000) • Safety Culture & Leadership Engagement • Data Analytics in Performance Monitoring*
1130 – 1230	***Digitalization & HSECES*** *Smart Sensors & Predictive Analytics • Digital Twins for Verification & Simulation • Cloud-Based HSECES Registers • Role of AI in Auditing & Assurance*
1230 – 1245	*Break*
1245 – 1345	***Developing a HSECES Audit Toolkit*** *Custom Templates for PS & Verification • Checklists & Scoring Systems • Digital Forms & Dashboards • KPI Development for HSECES Health*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
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

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org