

**COURSE OVERVIEW HE0150**  
**Technical Safety Engineering**

**Course Title**

Technical Safety Engineering

**Course Date/Venue**

November 10-14, 2024/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

**Course Reference**

HE0150



**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 provides understanding of the quantitative and qualitative analysis methods of safety engineering & risk management. The course also provides guidance in planning, implementing and managing an overall safety engineering program. It includes coverage of such applicable science and engineering principles as risk, human reliability, fault logic, failure modes, incident cost and prediction.



The course is presented in an applied format where several different types of industries are discussed such as Oil, gas, Chemical, Petrochemical, Power and manufacturing industries. Regulatory influence on system and process safety is discussed. Quantitative aspects of the course include application of risk analysis, fault tree analysis, process hazard and operability analysis (HAZOP), vapor-cloud dispersion modeling, human reliability analysis, failure modes and effects analysis, etc.

The course is also intended to provide a background in managing an overall safety program and its application to several industries, therefore, cost and effectiveness measurement are covered in the material.

## Course Objectives

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

- Apply and gain a comprehensive knowledge on safety engineering and risk management
- Demonstrate the proper application of the appropriate science and engineering principles and quality applicable aspects of risk, human reliability, fault logic, failure modes, incident cost and incident prediction
- Employ the following system-safety analysis techniques and methods:
  - Hazard and Operability Study (HAZOP)
  - Fault Tree Analysis (FTA)
  - Risk Assessment and Analysis
  - Energy Trace and Barrier Analysis
  - Failure Modes and Effects Analysis (FMEA)
  - Other techniques to discuss including Technique for Human Error Rate Prediction (THERP)
- Explain the planning and management principles of a system safety program
- Determine what elements of a system safety program are critical to assessing the effectiveness of an overall program
- Employ safety conditions in the workplace and the need for formal written procedures
- Discuss the analysis of potentially dangerous conditions for risk management
- Identify hazardous chemicals and discuss confined spaces, excavations & elevated areas
- Describe the safety aspects of gases & pressure vessels and emergency procedures
- Discuss how the safety auditing system can gauge the company's safety status as well as technical reports and accident investigations to reduce future risks
- Develop an understanding on overall Management of Risk Process
- Apply a variety of techniques to determine and quantify potential risks & risk assessment and apply the Safety Life Cycle

## Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

## Who Should Attend


This course provides an overview of all significant aspects and considerations of managing risk, reliability and loss prevention in production operations for all safety and reliability management specialists, managers, engineers and personnel responsible for the safety of the process plant. Further, the course is also beneficial for operators I and II in production operations.

### 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: -


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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.

### 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. Raymond Tegman** is a **Senior HSE & Management Consultant** with extensive experience within the **Oil & Gas, Petrochemical and Refinery** industries. His broad expertise widely covers in **Crisis Management Specialist, Business Continuity Management System, Risk Management Specialist, Handling Hazardous Chemicals, Service Station Hazards & Risk Control, Spill Containment, Fire Protection, Fire Precautions, Incidents & Accidents Reporting, HSEQ Audits & Inspection, HSEQ Procedures, Environmental Awareness, Waste Management Monitoring, Emergency Planning, Emergency Management, Working at Heights, Root Cause Analysis, HSE Rules & Regulations, Process Safety Management (PSM), Process Hazard Analysis (PHA), Techniques, HAZOP, HSE Risk, Pre-Start-up Safety Reviews, HSE Risk Identification, Assessments & Audit, HSE Risk Assessment & Management Concepts, HSE Management Policy & Standards, HSSE Emergency Response & Crisis Management Operations, Confined Space Entry, Quantitative Risk Assessment (QRA), Hazardous Materials & Chemicals Handling, Safety Precaution & Response Action Plan, Hazard & Risk Assessment and Task Risk Assessment (TRA)**. Further, he is also versed in **Office Management & Administration, Personnel Administration, Employee Relations & Benchmarking, Maintaining Positive Relationships & Managing Conflict, Sustainable Business Relationships, Managing Interactions & Relationship, Successful Planning, Organizing & Control, Self & Time Management, Management Planning & Organizing, Organization Skills, Monitoring & Achieving Results, Results Oriented Management, Leadership Skills, Performance & Leadership Management, Modern Leadership & Management Skills, Excellence in Leadership & Teambuilding, Interpersonal Skills & Teamwork, Organization Performance & Development, Human Resource Management Systems, Human Resources for Line Management, Managing Dynamic Work Environments, Organizational Development, Career Management, Situation & Behaviour Analysis and Motivation Skills**.

During his career life, Mr. Tegman has gained his practical and field experience through his various significant positions and dedication as the **Human Resource Manager, Admin Manager, Operations Manager, Safety & Maintenance Manager, Safety Manager, Road/Traffic Supervisor, Crane Supervisor, Assessor/Moderator, Safety Consultant, Safety Advisor, Safety Officer and Liaison Officer** from Zero Harm, SHRA Training & Services (Health & Safety), Road Crete, Balwin Property Development, DEME International, Gladstone Australia, Godavari Gas Pipeline and New Castle NCIG.

**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.



**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, 10<sup>th</sup> of November 2024**

0730 - 0800	Registration & Coffee
0800 - 0815	Welcome & Introduction
0815 - 0830	<b>PRE-TEST</b>
0830 - 0900	<b>Introduction: Risk, Safety &amp; Accidents</b>
0900 - 0930	Video
0930 - 0945	Break
0945 - 1015	<b>Process Safety Management (PSM) Standard</b>
1015 - 1100	<b>PSM Elements</b>
1100 - 1145	<b>Employee Participation</b>
1145 - 1230	<b>Chemical, Fire &amp; Explosive Hazards</b>
1230 - 1245	Break
1245 - 1330	<b>System Safety Engineering</b>
1330 - 1420	<b>Case Study, Review &amp; Exercises</b>
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day One

**Day 2: Monday, 11<sup>th</sup> of November 2024**

0730 - 0815	<b>Operating Procedures</b>
0815 - 0900	<b>Training</b>
0900 - 0915	<b>Contractors</b>
0915 - 0930	Break
0930 - 1015	<b>Pre-Start-up Safety Review</b>
1015 - 1100	<b>Mechanical Integrity</b>
1100 - 1145	Video
1145 - 1215	<b>Hot Work Permit</b>
1215 - 1230	Break
1230 - 1300	<b>Management of Change</b>
1300 - 1330	<b>Incident Investigation</b>
1330 - 1420	<b>Case Study, Review &amp; Exercises</b>
1420 - 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3: Tuesday, 12<sup>th</sup> of November 2024**

0730 - 0815	<b>Emergency Planning &amp; Response</b>
0815 - 0900	<b>Compliance Audits</b>
0900 - 0930	<b>Trade Secrets</b>
0930 - 0945	Break
0945 - 1015	<b>Hazard Classification &amp; Control</b>
1015 - 1100	Video
1100 - 1145	<b>System Safety Management</b>
1145 - 1230	<b>Risk Assessment Matrix</b>
1230 - 1245	Break



1245 – 1330	<i>Preliminary Risk Analysis</i>
1330 – 1420	<i>Case Study, Review &amp; Exercises</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch &amp; End of Day Three</i>

**Day 4: Wednesday, 13<sup>th</sup> of November 2024**

0730 – 0815	<i>What-if Analysis</i>
0815 – 0900	<i>Failure Modes and Effects Analysis (FMEA)</i>
0900 – 0930	<i>Fault Tree Analysis</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Hazard and Operability (HAZOP) Analysis</i>
1030 – 1130	<i>Video</i>
1130 – 1215	<i>Event Tree Analysis</i>
1215 – 1230	<i>Break</i>
1230 – 1330	<i>Pareto Analysis</i>
1330 – 1420	<i>Case Study, Review &amp; Exercises</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch &amp; End of Day Four</i>

**Day 5: Thursday, 14<sup>th</sup> of November 2024**

0730 – 0930	<i>Checklist Analysis</i>
0930 - 0945	<i>Break</i>
0945 – 1100	<i>Change Analysis</i>
1100 – 1215	<i>Alternative Hazard Identification Methods</i>
1215 – 1230	<i>Break</i>
1230 – 1315	<i>Human Reliability Assessment (HRA)</i>
1315– 1345	<i>Video</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<i>POST-TEST</i>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Practical Sessions**

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



**Course Coordinator**

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