

COURSE OVERVIEW HE0150
Safety Engineering & Risk Management

Course Title

Safety Engineering & Risk Management

Course Date/Venue

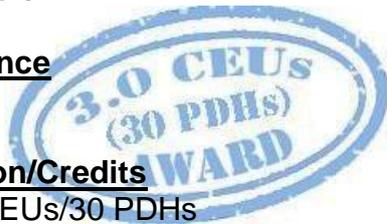
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Course Reference

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 “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of 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 Date/Venue

Session(s)	Date	Venue
1	June 15-19, 2025	Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA
2	August 03-07, 2025	Meeting Plus 9, City Centre Rotana, Doha, Qatar
3	October 19-23, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
4	December 08-12, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
5	January 04-08, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

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.

Accommodation

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

Course Fee

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.
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.
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.

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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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.
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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.

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 & Safety Engineer** with over **25 years** of extensive experience within the **Oil & Gas, Refinery, Petrochemical & Power** industries. His expertise widely covers in the areas of **PHA, HAZOP, HAZCOM, HAZMAT, HAZID, Behavior Based Safety, Hazardous Materials & Chemicals Handling, Pollution Control, Environment, Health & Safety Management, Process Risk Analysis, Hazard & Risk Assessment, Emergency Response Procedures Behavioural Based Safety (BBS), Confined Space Entry, Fall Protection, Emergency Response, H₂S, Safety Management System (ISO 45001), Accident/Incident Investigation System and Report PSM, Risk Assessment, SCE FMEA Failure Investigations, Site Management Safety Training (SMSTS), Occupational Health & Safety and Industrial Hygiene, Crisis Management & Damage Control in Oil & Gas Industry, Enhancing HSSE Safety Performance & Effectiveness, Overhead & Gantry Crane Safety, HSSE Principles & Practices Advanced, 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)**. Further, he is also well-versed in **Ammonia Manufacturing & Process Troubleshooting, 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, 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, Steam & Electricity, Flame Arrestors and Coal Processing, Environmental Emission Control**.

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

Day 2

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

Day 3

0730 - 0815	Emergency Planning & Response
0815 - 0900	Compliance Audits
0900 - 0930	Trade Secrets
0930 - 0945	<i>Break</i>
0945 - 1015	Hazard Classification & Control
1015 - 1100	Video
1100 - 1145	System Safety Management
1145 - 1230	Risk Assessment Matrix
1230 - 1245	<i>Break</i>
1245 - 1330	Preliminary Risk Analysis
1330 - 1420	Case Study, Review & Exercises
1420 - 1430	Recap
1430	<i>Lunch & End of Day Three</i>



Day 4

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 & Exercises</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

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 & 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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