COURSE OVERVIEW HE0150
Safety Engineering & Risk Management

Course Title
Safety Engineering & Risk Management

Course Date/Venue
February 02-06, 2025/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 "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 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.

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 Health**, **Safety & Environmental** (**HSE**) **Consultant** with over **25 years** of extensive experience within the **Oil & Gas**, **Refinery**, **Petrochemical & Power** industries. His expertise widely covers in the areas of Certified Environmental Manager (**CEM**), Environmental Management & Technology (**EMT**), **Environmental Management** System, Environmental Impact Assessment (**EIA**), **Environmental Monitoring & Modelling**, **Environmental Awareness** in Industrial Plant, **Environmental Pollution & Control** in Oil Industry, **Environmental Enforcement & Compliance**, Waste Management & Environmental Protection, Environmental **Emergency Plan**, **Environmental Policy** Analysis, Health & **Environment Hazards**, **Environmental Emission Control**, **Environmental Incident Investigation** & Root Cause Analysis, **Hazardous Materials & Chemicals** Handling, Hazardous Materials (**HAZMAT**), Hazard Identification & Operability (**HAZOP**), **Process Hazard** Analysis (**PHA**), Process Safety Management (**PSM**), Behavioural Based Safety (**BBS**), Authorized Gas Tester (**AGT**), **Confined Space Entry & Rescue**, Pre-Startup Safety Reviews (**PSSR**), **Risk Assessment**, **Risk Management**, Permit to Work (**PTW**), **Lock Out/Tag Out** Permit to Work Systems, Data Analysis, Sampling & Analysis, Job Safety Analysis (**JSA**), **Hazardous Material** Classification & Storage/Disposal, **Risk** Monitoring, Authorized Gas Tester (**AGT**), **Working at Heights**, **H_2S**, **Emergency Planning**, **Emergency Response & Crisis** Management Operations, **Waste Management** Monitoring, Personal Protective Equipment (**PPE**), **Gas Testing & Energy** Isolations, **Fire & Gas**, PTW & Gas Tester, Basic **Fire Fighting**, **Fire Protection**, **Fire Extinguisher** Service & Maintenance, **First Aid**, **Near Miss Reporting** Best Practices, **Dangerous Goods** and Occupational Health & Safety. Further, he is well versed in **Ammonia Plant Safety**, **Ammonia Recovery**, Hazard of **Ammonia Handling**, Storage & Shipping, **Sulphur Recovery**, **Phenol Recovery** & Extraction, **Wax Sweating & Blending**, **Wax Molding/Slabbing**, **Wax Bleachers**, **Extractors**, **Coal** Processing, **Water** Purification, Gasification, Distillation, Fractionation, **Industrial Drying**, Principles, Selection & Design, **Steam Trapping & Control**, **Column, Pump & Exchangers**, Troubleshooting & Design, Rotating Equipment Operation & Troubleshooting, **Control & ESD** System and **Production Optimization**.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Senior HSE Manager**, **Warehouse Manager**, **Quality Manager**, **Business Analyst**, **Senior HSE Engineer**, **Process Engineer**, **HSE Supervisor**, **Senior HSE Specialist**, **HSE Officer**, **Senior Process Controller**, **Process Controller**, **Safety Officer**, **Senior Lecturer**, **Senior HSE Consultant** 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.

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 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 ***Sunday, 02nd of February 2025***

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

Day 2 ***Monday, 03th of February 2025***

0730 – 0815	***Operating Procedures***
0815 – 0900	***Training***
0900 – 0915	***Contractors***
0915 – 0930	*Break*
0930 – 1015	***Pre-Start-up Safety Review***
1015 – 1100	***Mechanical Integrity***
1100 – 1145	***Video***

1145 – 1215	***Hot Work Permit***
1215 – 1230	*Break*
1230 – 1300	***Management of Change***
1300 – 1330	***Incident Investigation***
1330 – 1420	***Case Study, Review & Exercises***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3 Tuesday, 04th of February 2025

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

Day 4 Wednesday, 05th of February 2025

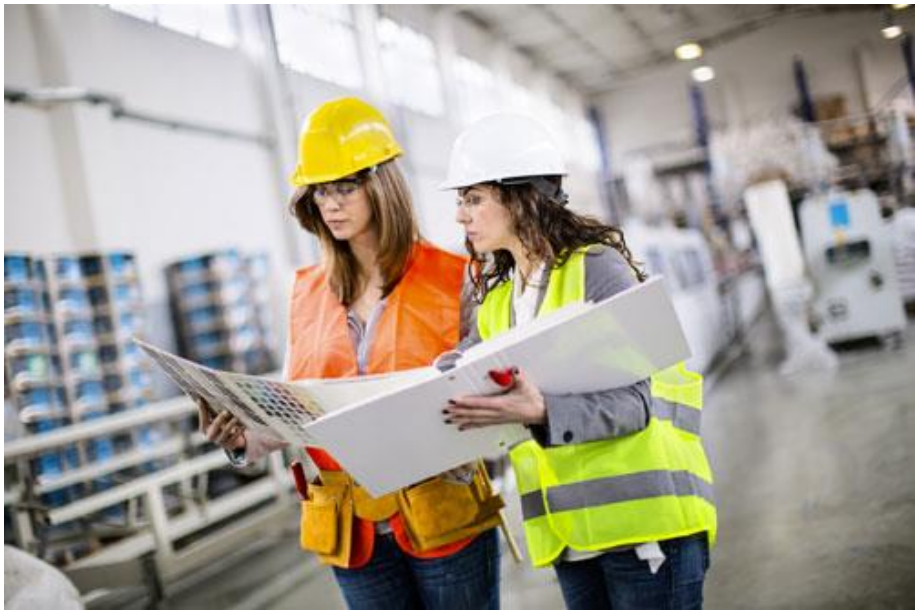
0730 – 0815	***What-if Analysis***
0815 – 0900	***Failure Modes and Effects Analysis (FMEA)***
0900 – 0930	***Fault Tree Analysis***
0930 – 0945	*Break*
0945 – 1030	***Hazard and Operability (HAZOP) Analysis***
1030 – 1130	***Video***
1130 – 1215	***Event Tree Analysis***
1215 – 1230	*Break*
1230 – 1330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

Day 5 Thursday, 06th of February 2025

0730 – 0930	***Checklist Analysis***
0930 - 0945	*Break*
0945 – 1100	***Change Analysis***
1100 – 1215	***Alternative Hazard Identification Methods***
1215 – 1230	*Break*
1230 – 1315	***Human Reliability Assessment (HRA)***
s1315– 1345	***Video***
1345 – 1400	***Course Conclusion***
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

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