

**COURSE OVERVIEW HE0150**  
**Safety Engineering & Risk Assessment**

**Course Title**

Safety Engineering & Risk Assessment

**Course Date/Venue**

Session 1: February 18-22, 2024/The Mouna Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

Session 2: March 03-07, 2024/Oryx Meeting Room, Doubletree By Hilton Doha-Al Sadd, Doha, Qatar



**Course Reference**

HE0150



**Course Duration/Credits**

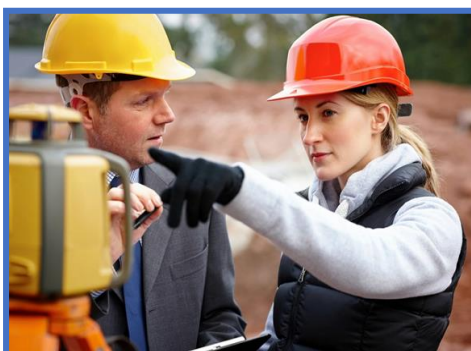
Five days/3.0 CEUs/30 PDHs

**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 simulator.***

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 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. Ashraf Mohamed** is a **Senior HSE Consultant & Radiation Protection Expert** with **35 years** of practical and industrial experience within the **Oil & Gas, Refinery** and **Petrochemical** industry. He is a **NEBOSH Approved Instructor** for various certification programs. His expertise lies extensively in the areas of **Radiation Safety & Protection, Radioactive Waste Management, Radiation Protection Instrumentation, Nuclear & Radiological Safety, Radiation Protection Design, Radioactive Sources Protection, Radioisotopes & Protection Application, Ionizing Radiation, NEBOSH Fire Safety & Risk Management International Certificate, NEBOSH International General Certificate, Firefighting Techniques, Fire & Gas Detection System, Fire Fighter & Fire Rescue, Fire Risk Assessment, HSE Policy & Strategy, HSEMS Development & Implementation, Risk Assessment & Management, HSE Performance Measurement & Monitoring Systems, HSE & Fire Inspection, HAZOP & HAZID, HAZMAT & HAZCOM, As Low as Reasonably Practicable (ALARP), Process Hazard Analysis (PHA), Process Safety Management (PSM), Accident/Incident Investigation, Risk Management, Hazard & Effect Management Process, ALARP System, Isotopes Application & Protection, Safety Induction, PTW, Gas Testing, Lock Out/Tag Out, Confined Space, H<sub>2</sub>S, Working at Heights, Lifting Operations, Scaffolding, Rigging & Slings, Incidents Investigations, First Aid & CPR, Crane Inspection, Risk Evaluation, Emergency Response Plan, Defensive Driving, Safety Supervision, Environment Management System, Environmental Impact & Life Cycle Assessment, Pesticide Assessment & Environmental Control, Behavioural Based Safety, Work Management System** and various international codes and standards such as the ISO 9001, OHSAS 18001 and ISO 14001. He is currently the **Acting Senior HSE Engineer** wherein he develops and manages the implementation of fire, safety and environment programs for all the employees and contractors.

During his career life, Mr. Ashraf has gained his practical and field experience through his various significant positions as the **Safety & Fire Manager, HSE Manager, Safety & Fire Instructor, Senior HSE & Fire Instructor, Safety Training Instructor, Safety Construction Manager** and **Safety Section Head** from various companies such as the ADNOC, Eprome, Foster Wheeler-MIDOR Refinery, Amyria Petroleum Refining Company and Egyptian Refinery Company.

Mr. Ashraf has a **Bachelor's** degree in **Geology**. Further, he is a **Certified Instructor/Trainer** and a member of Society of Petroleum Engineers and Egyptian Society for Safety. He has further held various Radiation Certifications like the **Radiation Protection & Peaceful Uses of Radioactive Sources** and the **Applications of Radioisotopes & Protection from Ionizing Radiations** from the Egyptian Atomic Energy Authority and has delivered numerous courses, trainings, seminars, workshops and conferences globally.

### Course Fee

Dubai	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	<b>US\$ 6,000</b> per Delegate. 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**

0730 – 0800	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 - 0830	<b>PRE-TEST</b>
0830 - 0900	<b>Introduction: Risk, Safety &amp; Accidents</b>
0900 – 0930	<b>Video</b>
0930 – 0945	<i>Break</i>
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	<i>Break</i>
1245 – 1330	<b>System Safety Engineering</b>
1330 – 1420	<b>Case Study, Review &amp; Exercises</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0815	<b>Operating Procedures</b>
0815 – 0900	<b>Training</b>
0900 – 0915	<b>Contractors</b>
0915 – 0930	<i>Break</i>
0930 – 1015	<b>Pre-Start-up Safety Review</b>
1015 – 1100	<b>Mechanical Integrity</b>
1100 – 1145	<b>Video</b>
1145 – 1215	<b>Hot Work Permit</b>
1215 – 1230	<i>Break</i>
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	<i>Lunch &amp; End of Day Two</i>



**Day 3**

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

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>

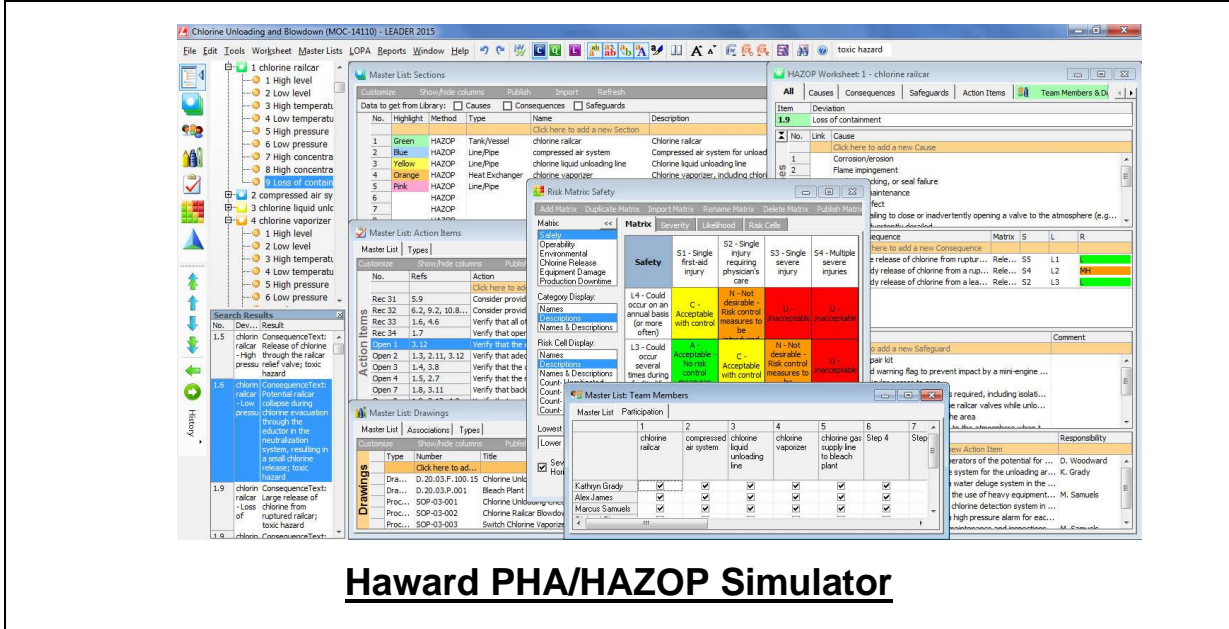
**Day 5**

0730 – 0800	<i>Checklist Analysis</i>
0800 – 0900	<i>Change Analysis</i>
0900 – 0945	<i>Alternative Hazard Identification Methods</i>
0945 – 1000	<i>Break</i>
1000 – 1030	<i>Human Reliability Assessment (HRA)</i>
1030 – 1115	<i>Video</i>
1115 – 1130	<i>Course Conclusion</i>
1130 – 1145	<i>POST-TEST</i>
1145 – 1200	<i>Presentation of Course Certificates</i>
1200	<i>Lunch &amp; End of Course</i>



### Simulator (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 our state-of-the-art "Haward PHA/HAZOP" simulator.



### **Haward PHA/HAZOP Simulator**

### Course Coordinator

Kamel Ghanem, Tel: +971 2 30 91 714, Email: [kamel@haward.org](mailto:kamel@haward.org)