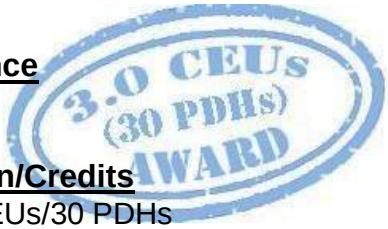
COURSE OVERVIEW HE0150
Safety Engineering & Risk Assessment

Course Title
Safety Engineering & Risk Assessment

Course Date/Venue
February 18-22, 2024/The Paragon Meeting Room, The H Hotel 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 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: -

- 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.

- 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.

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 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. Peter Christian, BSc, PGDip, NHD, is an **International Expert** in **Safety**, **Health**, **Environmental** and **Quality** with over **35 years** of practical and industrial experience in **HSSE Writing** Skills, **Writing HSSE** Technical Specifications, **Technical HSSE Report** Writing, **Writing HSSE** Scope of Works, **Writing HSSE** Agenda, **Fundamentals of HSSE Audit & Inspection**, **Incident Root Cause Analysis** & Abnormality Reporting, **Accident/Incident Investigation**, **Root Cause Analysis & Reporting**, **Incident RCA Investigation & Corrective Actions, HSE Emergency Planning & Crisis** Management**, Safety Engineering & Risk Assessment**, **Crisis Management & Risk Assessment**, **Emergency Response & Crisis Management** Plan, **Corporate Social Responsibility**, **Sustainable Development & Environmental Dimensions**, Permit to Work (**PTW**) System, **PTW** Issuer, Work Management System & **e-PTW** Holder, **PTW** Users, **Safe Work Permit** Procedure, **Work Permit** Refresher, Lock Out/Tag Out **Permit to Work** Systems, **Hazard Identification & Risk Assessments**, Job Safety Analysis (**JSA**), Lockout/Tagout (**LOTO**) **Lifting & Rigging**, Personal Protective Equipment (**PPE**), Advanced **HSSE Principles & Practices**, **HSSE System**, **HSSE Procedure**, Hazard Operability (**HAZOP**), Hazardous Waste Operations (**HAZWOPER**), Hazardous Materials (**HAZMAT**), Hazard Communication (**HAZCOM**), **PHA** (**Process Hazard Analysis**), **FMEA**, Hazard Identification (**HAZID**), **Safe Work Practices**, **Space Entry**, **Work Permit Procedures**, Personal Protective Equipment (PPE), Self-Contained Breathing Apparatus (**SCBA**), Emergency Response Procedures (**ERP**), Behavioural Based Safety (**BMS**), **ISO 14001**, **OHSAS 18001**, **ISO 9001**, Process Safety Management (**PSM**), **Environmental Pollution** Interpretation, Safety, Health, Environmental & Quality Management (**SHEQ**), **Behavioral Safety Management**, **Industrial Hygiene**, Emergency Response within process industries. He is currently the **President** of **NKWE** and spearheads the company's major projects and business ventures, where he specializes in the areas of **SHEQ** solutions, **ISO**, **Quality Control** and **OSHA systems**. Previously, he has had much on–hand experience in the initiation and management of projects (technical as well organizational development) including involvement in **design of process plants**; **the commissioning & decommissioning** of process plants; the **operational and financial responsibility** for large process operations; **risk management**; **operational and maintenance management**, **crisis and emergency management**, **accident investigation**, **risk assessment**, **hazard identification** and **emergency preparedness & response** (oil spillage and gas explosions).

Much earlier in his career, Mr. Christian was a **HAZOP Team Leader** for numerous **HAZOP** studies and he has further managed the **Health, Safety & Environmental** and **Quality** requirements of a large process company. This included responsibilities as an auditor for compliance against **SHEQ standards**, **ISO standards** and the **Fatal Risk Control Protocols**. He then facilitated the development and implementation of the above standards as a group and at site level as part of the SHEQ council. Moreover, he established, trained and led a Rope rescue team and a high-level emergency care clinic and ambulance service for many years. He still abseils recreationally and leads adventure groups during abseiling activities and serves as a rescue team member for mountain and water emergencies.

During his career life, Mr. Christian has gained his practical and field experience through his various significant positions as the **Plant Manager**, **Permit to Work Issuer**, **Project Metallurgist**, **Metallurgist**, **HSSE Team Leader**, **SHEC Superintendent**, **Mentor**, Instructor/Trainer, Acting **Technical Manager**, **Process Plant Superintendent**, Acting **Project Leader**, Acting **Plant Superintendent**, Appointed **Health & Safety & Environmental Superintendent**, Production Technician, Acting **Senior Shiftsman**, Foreman and Learner – Official Extraction Metallurgy from various companies such as the NKWE Consulting, SAMANCOR, Middleburg Mine Services (Pty) Ltd., Koomfontein Mines, Emelo Mine Services, Gencor Group and South African Defence Force.

Mr. Christian has a **Bachelor's Degree** in **Chemical Engineering**, **Postgraduate Studies** in **Advanced Executive Programme** and a **National Higher Diploma** (**NHD**) & a **National Diploma** in **Extraction Metallurgy**. He is also a **Certified Auditor** in **OHSAS 18001**, **ISO 14001** & **ISO 9001**, a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), a **Six Sigma Black Belt Coach** and holds a Certificate in General Health and Safety, a Certificate **in Managing Safety: Operations Manager's Safety**, a Certificate in **Championing Enterprise-wide Risk Management**, a Certificate in **Risk Assessment**, a Certificate in **Root Cause Analysis**, a Certificate in Facilitate Learning Using a Variety of Given Methodologies **NQF Level 5** (**EDTP-SETA**) as a **Certified Facilitator**. He has further delivered innumerable courses, trainings, workshops and conferences globally.

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, 18th of February 2024

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, 19th of February 2024

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, 20th of February 2024

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, 21st of February 2024

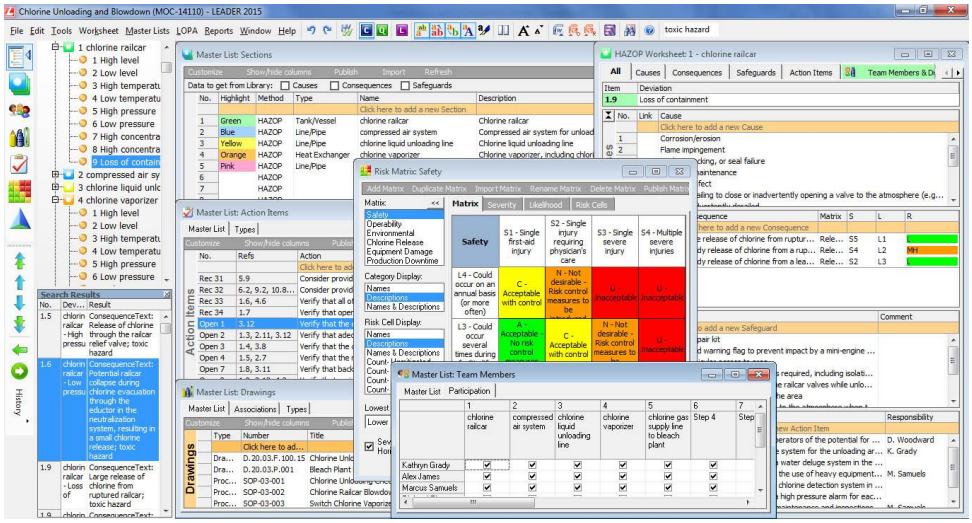
0730 – 0815	***What-if Analysis***
0815 – 0900	***Failure Modes and Effects Analysis (FMEA)***
0900 – 0930	***Fault Tree Analysis***
0930 – 0945	*Break*
0945 – 1030	***Hazard and Operability (HAZOP) Analysis***
1030 – 1130	***Video***
1130 – 1215	***Event Tree Analysis***
1215 – 1230	*Break*
1230 – 1330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

Day 5: Thursday, 22nd of February 2024

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

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

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