

COURSE OVERVIEW HE1147
Certified Process Hazard and Risk Analysis (PH&RA)

Course Title

Certified Process Hazard and Risk Analysis (PH&RA)

Course Date/Venue

November 25-29, 2024/Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference

HE1147

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 simulators.



Old approaches to safe design in the process industry relied on the application of codes of practice and the design was usually based upon experience from specialists and operators in the industry. Such methods were able only to take into account problems and accidents that had already happened. With introduction of new technologies, unconventional design, complex plants and short operating experience, a proper PHA study is now a mandatory tool to identify potential hazards and operability problems.



PHA is a systematic multidisciplinary team study intended to identify and analyze the significance of potential process hazards and make initial recommendations for eliminating hazards, for reducing the consequences of potential accidents and for improving general facility safety.

PHA methods are used for new plants as well as for modifications to existing design. The methods have been developed primarily for the process industry and have been applied in great scale in the Oil and Gas sector. However, the PHA techniques are now applied with success for other industries such as offshore construction, power and water projects, space and military industries, and environment studies.

This course is designed to provide participants with a detailed and up-to-date overview of process hazard and risk analysis (PH&RA). It covers the root cause analysis; some basic risk concepts; the safety integrity level (SIL); the hazard evaluation guidelines; the hazard identification (HAZID); the PHA-HAZOP study preparations; the PHA-HAZOP study team; and the design issues.

During this interactive course, participants will learn fault tree analysis (FTA); the LOPA (Layer of Protection Analysis) and the semi-quantitative approach to risk assessment; the checklist method for PHA; the What-If Analysis; and the HAZOP study.

Course Objectives

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

- Apply systematic techniques on process hazard and risk analysis (PH&RA)
- Carryout root cause analysis and identify some basic risk concepts and significance of risk
- Explain safety integrity level (SIL), hazard evaluation guidelines and hazard identification (HAZID)
- Prepare PHA-HAZOP study, PHA-HAZOP study team and design issues
- Perform fault tree analysis (FTA), layer of protection analysis (LOPA) and the semi-quantitative approach to risk assessment
- Apply proper checklist method for PHA, What-If analysis and the HAZOP study

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 conveniently saved in a **Tablet PC**.

Who Should Attend

This course provides an overview of all significant aspects and considerations of safety engineering and risk management for safety and technical department managers, engineers, officers & staff, HSE and loss prevention personnel, plant management and employees, superintendent, supervisors and foremen.

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.

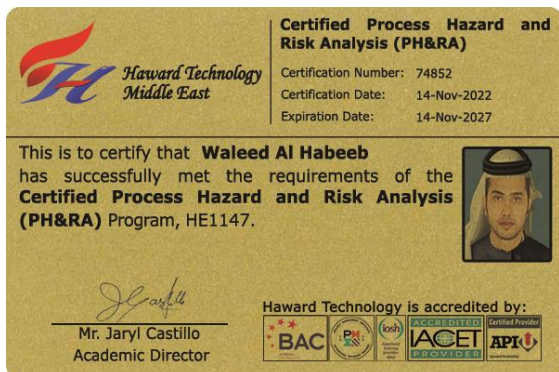
Course Certificate(s)

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

Recertification is FOC for a Lifetime.

Sample of Certificates

The following are samples of the certificates that will be awarded to course participants:-





- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

* Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology *



Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

CEUs

CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-22
HTME No. 74852
Participant Name: Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
HE1147	Certified Process Hazard and Risk Analysis (PH&RA)	November 10-14, 2022	30	3.0

Total No. of CEU's Earned as of TOR Issuance Date **3.0**

TRUE COPY



Jaryl Castillo
Academic Director

Haward Technology has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2018 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2018 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 Association 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 is accredited by



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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.

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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.

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 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



Dr. John Petrus, PhD, MSc, BSc, is a Senior HSE Consultant with over 30 years of onshore & offshore experience within the Oil & Gas, Refinery and Petroleum industries. His wide experience covers in the areas of HAZOP & HAZID, HAZMAT & HAZCOM Storage & Disposal, As Low as Reasonably Practicable (ALARP), Process Hazard Analysis (PHA), Process Safety Management (PSM), Hazardous Materials & Chemicals Handling, Pollution Control, Environment, Health & Safety Management, Process Risk Analysis, Effective Tool Box Talks, Construction Sites Safety, HSSE Management System, HSSE Audit & Inspection, HSEQ Procedures, Authorized Gas Testing, Confined Space Entry & Rescue, Risk Management, Quantitative & Qualitative Risk Assessment, Working at Height, Firefighting Techniques, Fire & Gas Detection System, Fire Fighter & Fire Rescue, Fire Risk Assessment, HSE Industrial Practices, Manual Handling, Rigging Safety Rules, Machinery & Hydraulic Lifting Equipment, Warehouse Incidents & Accidents Reporting, Incident & Accident Investigation, Emergency Planning, Emergency Response & Crisis Management Operations, Waste Management Monitoring, Incident Command, Job Safety Analysis (JSA), Behavioral Based Safety (BBS). Further he is also well versed in Materials for Construction & Repair of Concrete, Concrete Structures & Building Rehabilitation, Reinforced Concrete Structures Protection, Building Construction Technology, Construction Operations & Civil Engineering Services, Building Management, Building Maintenance, Construction & Concrete Works, Construction Management, Construction Materials & Testing, Construction Safety, Predictive Maintenance in Construction, Construction & Facilities Development, Buildings & Diverse Plant Infrastructure, Planning & Monitoring the Progress & Quality of Work, Physical Planning & Operations, Rotating Machinery Principles & Applications, Rotating Equipment Selection, Operation, Maintenance, Inspection & Troubleshooting, Rotating Machine/Equipment in Industry, Control Valves & Actuators, Data Analytics for Managerial Decision Making, Business Process Analysis, Mapping & Modeling, Research Methods & Analysis, Statistical Data Needs Analysis, Oil & Gas Industry Business Environment & Competitive Intelligence Gathering & Analysis, Petroleum Economics & Risk Analysis, Certified Data Analysis.

During his career life, Dr. Petrus held significant positions and dedication as the **Executive Director, Senior Geoscience Advisor, Exploration Manager, Project Manager, Manager, HSE Engineer, Mechanical Engineer, Maintenance Engineer, Chief Geologist, Chief of Exploration, Chief of Geoscience, Senior Geosciences Engineer, Senior Explorationist, Senior Geologist, Geologist, Senior Geoscientist, Geomodeller, Geoscientist, CPR Editor, Resources Auditor, Project Leader, Technical Leader, Safety Supervisor, Team Leader, Senior HSE Consultant, Scientific Researcher and Senior Instructor/Trainer** from various international companies and universities such as the Dragon Oil Holding Plc., ENOC, MENA, ENI Group of Companies, Ocre Geoscience Services (OGS), Burren RPL, Ministry of Oil-Iraq, Eni Corporate University, Stanford University, European Universities, European Research Institutes, NorskHydro Oil Company, Oil E&P Companies, just to name a few.

Dr. Petrus has a **PhD in Geology and Tectonophysics and Master and Bachelor degrees in Earth Sciences** from the **Utrecht University, The Netherlands**. Further, he is a **Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)**, a Secretary and Treasurer of Board of Directors of Multicultural Centre, Association Steunfonds SSH/SSR and Founding Member of Sfera Association. He has further published several scientific publications, journals, research papers and books and delivered numerous trainings, workshops, courses, seminars 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: Monday, 25th of November 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introductions
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Process Hazard & Risk Analysis
0930 – 0945	Break
0945 – 1100	Root Cause Analysis: A Kingdom Lost
1100 – 1230	Some Basic Risk Concepts
1230 – 1245	Break
1245 – 1420	Some Basic Risk Concepts (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Tuesday, 26th of November 2024

0730 – 0930	Significance of Risk
0930 – 0945	Break
0945 – 1100	Safety Integrity Level (SIL)
1100 – 1230	Hazard Evaluation Guidelines
1230 – 1245	Break
1245 – 1420	Hazard Evaluation Guidelines (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Wednesday, 27th of November 2024

0730 – 0930	HAZID (Hazard Identification)
0930 – 0945	Break
0945 – 1100	PHA-HAZOP Study Preparations
1100 - 1230	The PHA-HAZOP Study Team
1230 – 1245	Break
1245 - 1420	The PHA-HAZOP Study Team (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Thursday, 28th of November 2024

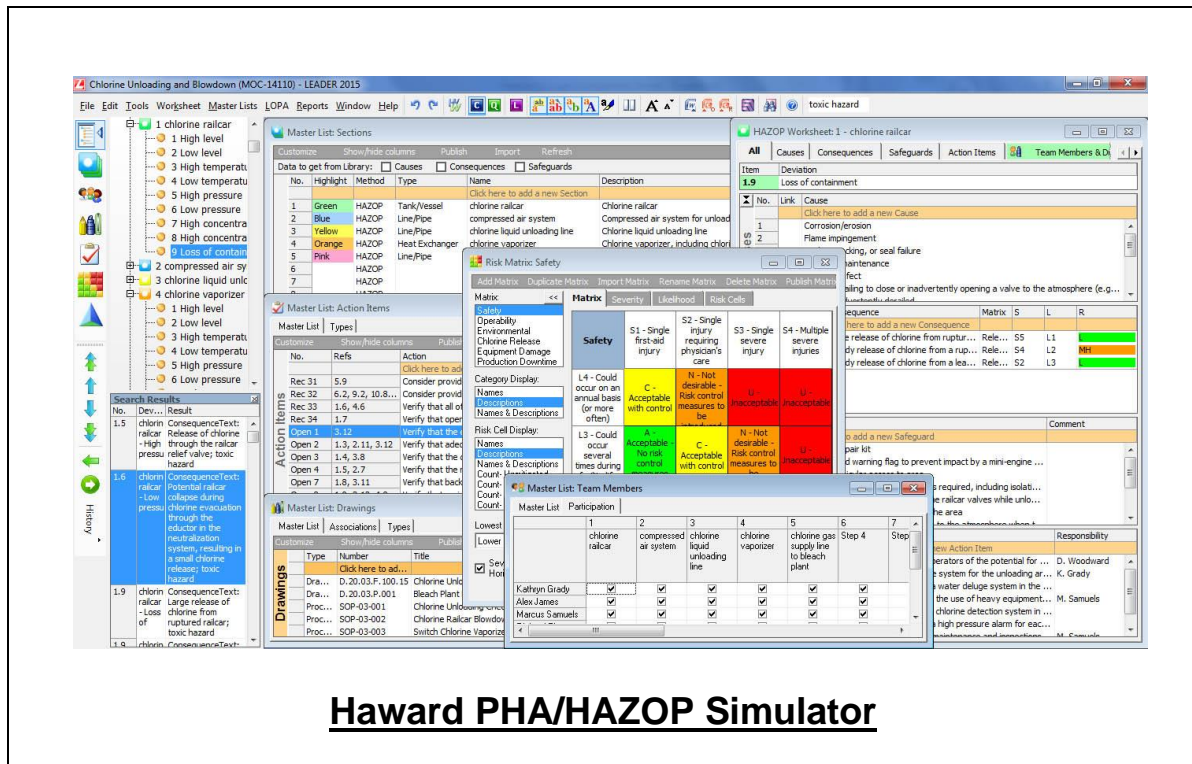
0730 – 0930	Design Issues
0930 – 0945	Break
0945 – 1100	Fault Tree Analysis (FTA)
1100 - 1230	LOPA (Layer of Protection Analysis) - The Semi-Quantitative Approach to Risk Assessment
1230 – 1245	Break
1245 - 1420	LOPA (Layer of Protection Analysis) - The Semi-Quantitative Approach to Risk Assessment (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Friday, 29th of November 2024

0730 – 0930	Checklist Method for PHA
0930 – 0945	<i>Break</i>
0945 – 1030	What-If Analysis
1030 – 1200	The HAZOP Study
1200 – 1215	<i>Break</i>
1215 – 1300	The HAZOP Study (cont'd)
1300 – 1315	Course Conclusion
1315 – 1415	COMPETENCY EXAM
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & 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.



The screenshot displays the Haward PHA/HAZOP Simulator software interface. The main window shows a project titled "Chlorine Unloading and Blowdown (MOC-14110) - LEADER 2015". The interface includes several panels:

- Master List: Sections:** A table listing sections with columns for No., Highlight, Method, Type, Name, and Description. Sections include Tank/Vessel, Line/Pipe, Heat Exchanger, and Line/Pipe.
- Risk Matrix: Safety:** A risk matrix with columns for Severity (S1-S4) and Likelihood (L1-L4). The matrix cells are color-coded (green, yellow, red) to indicate risk levels.
- Master List: Action Items:** A table listing action items with columns for No., Refs, and Action.
- Master List: Drawings:** A table listing drawings with columns for Type, Number, Title, and Publication status.
- Master List: Team Members:** A table listing team members with columns for Name, Participation, and Responsibility.
- HAZOP Worksheet:** A detailed worksheet for a specific HAZOP item, showing causes, consequences, safeguards, and action items.

Haward PHA/HAZOP Simulator

Course Coordinator

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