

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

Course Title

Certified Process Hazard and Risk Analysis (PH&RA)

Course Date/Venue

Session 1: May 25-29, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
 Session 2: December 14-18, 2025/ Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA



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

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.

Accommodation

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

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.

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**.

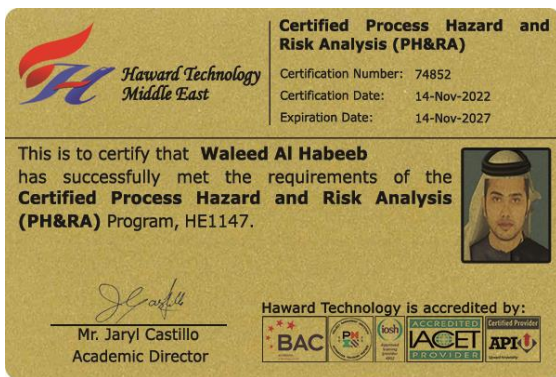
Course Certificate(s)

(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



P.O. Box 26070, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | E-mail: info@haward.org | Website: www.haward.org

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

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 Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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. Roedolf Coetzer is a **Senior HSE Consultant** with over **30 years** of extensive practical experience within the **Oil & Gas, Refinery, Power, Petroleum** and **Petrochemical** industries. His expertise includes **Safety Auditing, Hazard Identification & Site Inspection, Safety Inspector Qualification, Certified Safety Manager (CSMP), Industrial Safety, Construction Safety, HSE Management, Risk Management, Risk Assessment & Mitigation, Job Hazard Analysis (JSA), Hazard Analysis & Control, Hazard Recognition, Hazard Identification, Root Cause Analysis & Problem Solving, Accident & Incident Investigation, First Aid, CPR, AED (BFA) Basic Life Support (BLS), Basic Ambulance, Emergency Care, Self-Contained Breathing Apparatus (SCBA), Personal Protective Equipment (PPE), Incident Command, Incident Report & Investigation, Accident/Incident Investigation, Root Cause Analysis & Reporting, Emergency Response, Emergency Control Centre Operations, Oil Spill Response, Emergency Management, Confined Space Safety, Fall Protection, Gas Leaks & Gas Detectors Testing, Workplace Violence Prevention, HAZID, HAZMAT, HAZOP, HAZWOPER, Process Hazard Analysis (PHA), Process Safety Management (PSM), Safety Audit, Fleet Safety Management, Lockout & Tag-out (LOTO) Ergonomics, Project Management, Human Resource Development, Tactics & Strategies in Hostile Environments, Organizational Change, Quality Assurance, Safety Supervision & Leadership and Industrial Hygiene. Further, he is well-versed in **Fire Extinguishers, Firefighting, Triangle of Fire, Portable Fire Extinguisher, Fire Rescue, Fire Protection, Fire Prevention, Fire Investigation, Fire Behaviour, Fire Suppression Systems, Fire Safety, Fire Engineering Management, Fire Risk Assessment, Fire Awareness, Fire Detection & Alarm Systems, Hose Reels & Sprinkler Systems, Fire & Rescue Planning & Operation, Fire Equipment & Facilities Inspection, Fire Trucks Driving & Operation, Fire Aviation, Wild Land Firefighting/ICS and Fire & Emergency Services Start-up & Mobilization.** He is also specialized on **NFPA Codes & Standards, OSHA Standards, ISO 9001, ISO 14001, OHSAS 18001** and **Lean Six Sigma**. He is currently the **General Manager of AGECE** and ranked as a **Distinguished Toastmaster (DTM)**.**

During his career life, Mr. Coetzer has gained his practical and field experience through his various significant positions and dedications as the **Fire Chief, Fire Engineer, HSE & Security Manager, Environmental Manager, Project Manager, Acting HSE Manager, Senior Fireman, Fireman, Fire Marshall, Assistant Chief Fire Officer (ACFO), Spill Response Team Leader, Senior Fire & Emergency Response Technical Advisor, Subject Matter Expert, Training Development Specialist, Learning & Development Officer, Senior Officer, Facility Management Senior Health & Safety Supervisor, Fire & Rescue Services Team Member, Junior Fireman, Operational Medical Orderly (Ops Medic) and a Fire Safety, Prevention & Safety Technology Technician** from various companies such as the Southern African Emergency Services Institute, South African Fire Services, Al-Muhaidib Contracting Company, ACWA Power Health & Safety, HIWPT, Rabigh Arabian Water & Electricity Company (**RAWEC**), King Abdulaziz International Airport, SRT, Sizwe Consultants, Highveld Steel and Vanadium, Kriel City Council, Germiston City Council and South African Defence Force.

Mr. Coetzer is a **Certified IFSAC Firefighter I&II (NFPA 1001)**, a **Certified First Responder Awareness Level (NFPA 472)** and holds a Certificate in **Electrical & Electronics NQF Level 4, Leadership Excellence (LDREXC), High-Level Executive Coaching in High-Performance Mentorship, and Leader Strategic Management SUAS.** Further, he is a **Neuroscience Mental Focus Specialist Advisor, a Professional Practitioner in Psychology Counselling, ISO 9001, ISO 14001 Auditor, Certified Lean Six Sigma Yellow Belt & White Belt, a Certified IADC Rig Pass Safety Orientation Instructor, a Certified Internal Verifier/Assessor/Trainer by the Institute of Leadership & Management (ILM) and a Certified Instructor/Trainer.** Moreover, he is a Registered Basic Ambulance Assistant by the South African medical and Dental Council, a recognized member of The International Fire Service Accreditation Congress (**IFSAC**), the National Fire Protection Association (**NFPA**), the International Association of Drilling Contractors (**IADC**) and South African Fire Institute. 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

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

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

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

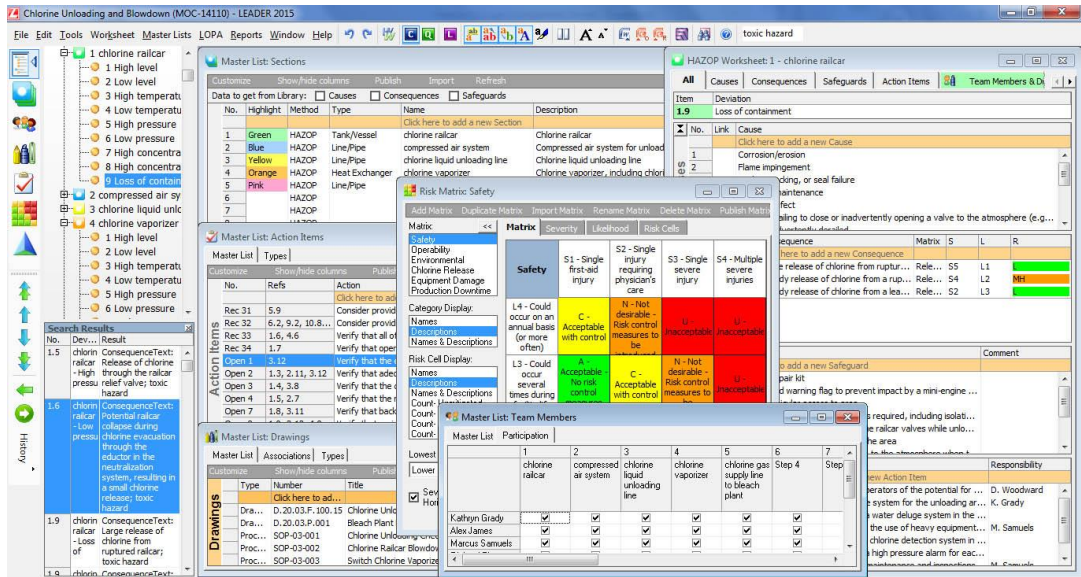
0730 – 0930	Design Issues
0930 – 0945	Break
0945 – 1100	Fault Tree Analysis (FTA)
1100 – 1230	LOPA (Layer of Protection Analysis) - The Semi-Quantitative Approach to Risk Assessment
1230 – 1245	Break
1245 – 1420	LOPA (Layer of Protection Analysis) - The Semi-Quantitative Approach to Risk Assessment (cont'd)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

Day 5

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



The screenshot displays the Howard PHA/HAZOP Simulator software interface. The main window is titled "Chlorine Unloading and Blowdown (MOC-14110) - LEADER 2015". It features a sidebar with a tree view of the process, a central workspace with multiple overlapping windows, and a bottom panel with a team member participation table.

Master List: Sections

No.	Highlight	Method	Type	Name	Description
1	Green	HAZOP	Tank/Vessel	chlorine railcar	Chlorine railcar
2	Blue	HAZOP	Line/Pipe	compressed air system	Compressed air system for unloading
3	Yellow	HAZOP	Line/Pipe	chlorine liquid unloading line	Chlorine liquid unloading line
4	Orange	HAZOP	Heat Exchanger	chlorine vaporizer	Chlorine vaporizer, including chlor...
5	Pink	HAZOP	Line/Pipe		
6		HAZOP			
7		HAZOP			

Risk Matrix: Safety

Matrix	Severity	Likelihood	Risk Cells
S1 - Single first-aid injury	S2 - Single injury requiring physician's care	S3 - Single severe injury	S4 - Multiple severe injuries
L4 - Could occur on an annual basis (or more often)	C - Acceptable with control	N - Not desirable - Risk control measures to be considered	H - Inacceptable
L3 - Could occur several times during	A - Acceptable - No risk control	C - Acceptable with control	N - Not desirable - Risk control measures to be considered

Master List: Team Members

Master List	Participation	1	2	3	4	5	6	7	8	9	Responsibility
chlorine railcar											
compressed air system											
chlorine liquid unloading line											
chlorine vaporizer											
chlorine gas supply line to bleach plant											
Step 4											
Step 7											

Howard PHA/HAZOP Simulator

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org