

COURSE OVERVIEW HE0110
Hazardous Materials

Course Title

Hazardous Materials

Course Date/Venue

September 08-12, 2024/Boardroom 1, Elite Byblos Hotel, Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference

HE0110

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 one of our state-of-the-art simulators.



Hazardous chemicals are ubiquitous as air, carbohydrates, enzymes, lipids, minerals, proteins, vitamins, water and wood. Naturally occurring hazardous chemicals are supplemented by man-made substances. There are about 70,000 chemicals in use with another 500-1000 added each year. Their properties have been harnessed to enhance the quality of life, thus chemicals are found in virtually all workplaces. Besides the benefits, chemicals also pose dangers to man and the environment.



Society must strike a balance between the benefits and risks of hazardous chemicals. In the workplace it is a management responsibility to ensure practices control the dangers, and it is for employees to collaborate in implementing the agreed procedures. Management must also prevent uncontrolled environmental releases and ensure all wastes are disposed of safely and with proper regard for their environmental impact. The aims of this course are to raise awareness and to help participants identify, assess and control the hazards of chemicals to permit optimum exploitation whilst minimizing the dangers.

The hazards of chemicals stem from their inherent flammable, explosive, toxic, carcinogenic, corrosive, radioactive or chemical-reactive properties. The effect of exposure on personnel may be acute (fatal) or prolonged that result in an occupational disease or systemic poisoning. However, whether a hazardous condition develops in any particular situation also depends upon the physical properties of the chemical (or mixture of chemicals), the scale involved, the circumstances of handling or use, e.g. provision of control and safety devices, local exhaust ventilation, general ventilation, personal protection, atmospheric monitoring and systems of work generally.

This course is designed to cover occupational, industrial and environmental hazards associated with hazardous materials and chemicals. It includes chemical spills, fires and explosions since they inevitably involve chemical compounds. Further, the course will present information on the nature of hazardous materials and chemicals and help participants reduce or eliminate potential exposure to hazardous materials and chemicals in their work environment.

Course Objectives

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

- Apply systematic techniques in hazardous material handling (HAZMAT) and hazardous material communication (HAZCOM) including handling, storage, disposal, monitoring, response, SDS and spill clean-up of hazardous materials and chemicals
- Discuss the physicochemistry of vapour pressure, gas-liquid solubility, density differences of liquids, surface area effects in mass transfer or heterogeneous reactions and chemical reaction kinetics
- Recognize the hazards of toxic chemicals including its types, risk control and specific precautions
- Employ control measures for flammable chemicals and prevent hazards arising in reactive chemicals processing
- Enumerate the various cryogenics, compressed gases and radioactive chemicals including its characteristics
- Carryout proper monitoring techniques for environmental pollution, gases, vapours, particulates, water quality, sampling strategies and incident investigation
- Discuss safety by design including design procedures, layout, storage, piping arrangements, fire protection, installation and operation of hazardous chemicals
- Apply effective operating procedures for the commissioning, operation, maintenance, spillage, personal protection and monitoring standards of hazardous chemicals
- Identify the classification, packaging, labelling and specific information for marketing hazardous chemicals
- Employ the safe transport of chemicals by road, rail, air and sea and determine the modes of transport for liquids, gases and solids
- Acquire knowledge on the monitoring and protection of chemicals and the environment including the legislative control governing these chemicals, proper waste management and environmental impact assessment

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 hazardous materials and chemicals handling, storage, SDS, disposal, monitoring, response and spill clean-up for those who are dealing with hazardous materials and chemicals in the workplace such as managers, engineers and other technical staff. This course is also suitable for health, safety and environmental (HSE) personnel.

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.

Accommodation

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

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.

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)



CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-23

HTME No. 74851

Participant Name: Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
HE0110	Hazardous Materials	November 10-14, 2023	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.

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. Francis Almeida, PgDip, BSc, NEBOSH-ENV, NEBOSH-IGC, NEBOSH-IFC, NEBOSH-IOGC, NEBOSH-PSM, is a **Senior Health, Safety & Environmental (HSE) Consultant** with over **30 years** of practical experience within the **Oil and Gas** industry. He is a **NEBOSH Approved Instructor** for various certification programs. His expertise lies extensively in the areas of **Accident/Incident Investigation & Risk Management**, **NEBOSH Environmental Management**, **NEBOSH International General Certificate**, **NEBOSH Fire Safety & Risk Management International Certificate**, **NEBOSH International Oil & Gas Certificate**, **NEBOSH Process Safety Management**, **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**, **Root Cause Analysis**, **Hazard & Risk Assessment**, **Task Risk Assessment (TRA)**, **Incident Command**, **Job Safety Analysis (JSA)**, **Behavioral Based Safety (BBS)**, **Fall Protection**, **Work Permit & First Aid** and various international codes and standards such as the ISO 9001, OHSAS 18001, ISO 14001, SA8000, ISO 9001-2000 and ISO 9002. He was the **Offshore Safety Specialist** of **Chevron** wherein he was in-charge in HSE inspections, hazard analysis, incident investigation and implementing corrective actions.

During his career life, Mr. Almeida has gained his practical and field experience through his various significant positions and dedication as the **Quality Manager**, **HSE Specialist/Acting On-Scene Commander**, **Quality Auditor**, **Quality Supervisor**, **QHSE Engineer**, **Metallurgical Engineer**, **HSE Coordinator**, **Suppliers Auditor**, **Senior Instructor/Consultant**, **Oil & Gas Construction Specialist**, **Business Administration Specialist** and **Oil & Gas Management Technology Specialist** for various international companies and institutions such as the **IBEC**, **Lopes & Almeida**, **IMA**, **EXPRO Group**, **UNESA**, **Vetco Aibel**, **ABB Oil & Gas**, **Brazilian Aluminum Foundry**, **DNV** and **ABIFA**.

Mr. Almeida has a **Bachelor** degree in **Metallurgical Engineering** and a **Post Graduate Diplomas** in **Safety Engineering** and **Industrial Administration**. Further, he is a **Certified Instructor/Trainer**, an **Approved Lead Tutor** in **NEBOSH Environmental Management Certificate**, **NEBOSH International General Certificate**, **NEBOSH International Oil & Gas Certificate** and **NEBOSH Process Safety Management Certificate** and an **Approved Practical Assessor/Lead Tutor** in **NEBOSH Fire Safety & Risk Management**. Moreover, he is a **Certified ISO 9001:2000 Lead Auditor**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management (ILM)** and has further delivered numerous trainings, courses, seminars, conferences and workshops 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, 08th of September 2024

0730 - 0800	Registration & Coffee
0800 - 0815	Welcome & Introduction
0815 - 0830	PRE-TEST
0830 - 0900	General Principles of Chemistry Atoms & Molecules • Periodic Table • Valency • Chemical Bonds • Oxidation/Reduction • Physical State • Acids • Bases • Halogens
0900 - 0915	Break
0915 - 1030	General Principles of Chemistry (cont'd) Metals • Oxygen & Sulphur • Nitrogen, Phosphorus, Arsenic & Antimony • PH • Salts • Organic Chemistry • Combustion Chemistry • Chemical Reactivity
1030 - 1200	Physicochemistry Vapour Pressure • Gas-Liquid Solubility • Liquid-To-Vapour Phase Change • Solid-to-Liquid Phase Change • Density Differences of Gases & Vapours • Density Differences of Liquids • Immiscible Liquid-Liquid Systems • Vapour Flashing
1200 - 1215	Break
1215 - 1420	Physicochemistry (cont'd) Effects of Particle or Droplet Size • Surface Area Effects in Mass Transfer or Heterogeneous Reactions • Enthalpy Changes on Mixing of Liquids • Critical Temperatures of Gases • Chemical Reaction Kinetics • Corrosion • Force & Pressure • Expansion & Contraction of Solids
1420 - 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 09th of September 2024

0730 - 0900	Toxic Chemicals Hazard Recognition • Types of Toxic Chemicals • Hazard Assessment • Risk Assessment of Carcinogens • Risk Control • Control of Substances Hazardous to Health • Specific Precautions • SDS
0900 - 0915	Break
0915 - 1030	Flammable Chemicals Ignition & Propagation of a Flame Front • Control Measures • Fire Extinguishment • Fire Precautions • SDS
1030 - 1200	Reactive Chemicals Water-Sensitive Chemicals • Toxic Hazards From Mixtures • Reactive Hazards from Mixtures • Oxidizing Agents • Explosive Chemicals • General Principles for Storage • Hazards Arising in Chemicals Processing • SDS
1200 - 1215	Break
1215 - 1420	Cryogenics Liquid Oxygen • Liquid Nitrogen and Argon • Liquid Carbon Dioxide • Liquefied Natural Gas • SDS
1420 - 1430	Recap
1430	Lunch & End of Day Two





Day 3: Tuesday, 10th of September 2024

0730 – 0900	Compressed Gases Acetylene • Air • Ammonia • Carbon Dioxide • Carbon Monoxide • Chlorine • Hydrogen • Hydrogen Chloride • Hydrogen Sulphide • Liquefied Petroleum Gases • Methane • Nitrogen • Nitrogen Oxides • Oxygen • Ozone • Sulphur Dioxide
0900 – 0915	Break
0915 – 1030	Monitoring Techniques Selected General Analytical Techniques for Monitoring Environmental Pollution • Gases & Vapours • Particulates • Monitoring Water Quality • Monitoring Land Pollution • Monitoring Air Pollution
1030 – 1200	Monitoring Techniques (cont'd) Flammable Gases • Toxic Particulates • Official Methods • Sampling Strategies • Selected Strategies for Determining Employees' Exposure to Airborne Chemicals • Pollution Monitoring Strategies in Incident Investigation
1200 – 1215	Break
1215 – 1420	Radioactive Chemicals Hazards • Types of Radiation • Control Measures • SDS
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 11th of September 2024

0730 – 0900	Safety by Design Design Procedures • Layout • Storage • Equipment Design • Piping Arrangements • Fire Protection • Installation & Operation
0900 – 0915	Break
0915 – 1030	Operating Procedures Commissioning • Operation • Maintenance • Pressure Systems • Emergency Procedures • Spillage • SDS
1030 – 1200	Operating Procedures (cont'd) First Aid • Personal Protection • Medical Screening • Monitoring Standards • Training
1200 – 1215	Break
1215 – 1420	Marketing Classification • Packaging • Labelling • Information • SDS
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Thursday, 12th of September 2024


0730 – 0900	Transport of Chemicals Road Transport • Rail Transport • Air Transport • Sea Transport • Modes of Transport for Liquids, Gases & Solids • Loading & Unloading • Container Filling/Discharging • SDS
0900 – 0915	Break
0915 – 1030	Chemicals & the Environment: Monitoring & Protection Legislative Control • Waste Management • Environmental Impact Assessment • Control of Atmospheric Emissions • SDS • Liquid Effluent Treatment Operations • Control of Solid Waste • Monitoring & Auditing



1030 – 1200	Chemical Spill Clean Up
1200 – 1215	Break
1215 – 1300	Chemical Spill Clean Up (cont'd)
1300 – 1315	Course Conclusion
1315 – 1415	COMPETENCY EXAM
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course


Simulators (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 one of our state-of-the-art simulators; “Chemical Compatibility 1.1 Simulator”, “Chemical Safety Database Simulator”, “CAMEO Chemicals Suite Simulator” or “ERG 2020 Simulator”.



Material	Compatibility
Acetal (Delrin®)	
Plastics	Excellent
Aluminum	
Metals	Severe Effect
Bronze	
Metals	Good
Buna N (Nitrile)	
Elastomers	Excellent
Carbon graphite	
Non-metals	Excellent
Carbon Steel	
Metal	Severe Effect
Carpenter 20	
Metals	Good/2
Cast iron	
Metals	Severe Effect
Ceramic Al2O3	
Non-metals	Excellent
Ceramic magnet	
Non-metals	Excellent
ChemRaz (FFKM)	
Plastic	Excellent
Copper	
Metals	Good
CPVC	
Plastics	Excellent
EPDM	
Elastomers	Excellent

Chemical Compatibility 1.1 Simulator



Chemical Safety Database Simulator



CAMEO Chemicals Suite Simulator



ERG 2020 Simulator

Course Coordinator

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