COURSE OVERVIEW HE0126
Occupational Hygiene Certification Program
OHTA501: Measurement of Hazardous Substances

(Accredited by the Occupational Hygiene Training Association - OHTA)

Course Title

Occupational Hygiene Certification Program OHTA501: Measurement of Hazardous Substances *(Accredited by the Occupational Hygiene Training Association - OHTA)*

Course Date/Venue

Session 1: January 05-09, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: July 06-10, 2025/Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA

Course Reference

HE0126

Course Duration

Five days/4.0 CEUs/40 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.

The course is a core module for the International Certicate in Occupational Hygiene (ICertOHTA). It is designed to be delivered as a 5-day taught programme including participant's assessment.

The aim of the course is:-

- Understand the techniques for assessing exposure to hazardous substances in the workplace.
- Understand how exposure information can be used to assess risk.

On completing this course successfully, the participants will be able to:-

- Describe the general approach to health risk assessment, including the role of atmospheric monitoring
- Select appropriate equipment to measure specific airborne contaminants and devise a suitable sampling strategy
- Presents the results in a form useful for health risk assessment purposes to enable management to comply with relevant legislation

This course is designed to provide participants with a detailed and up-to-date overview of OHTA501: Measurement of Hazardous Substances. It covers the risk assessment process and occupational hygiene risk assessment; the risk assessment tools and non-sampling approaches; the occupational exposure limits (OEL), short term exposure limits and long term average (LTA) exposure limit; the workplace sampling strategies and the types of surveys including sampling patterns; and the fundamentals of biological monitoring, biological half-life, sampling time, urine specimen acceptability and biological standards.

During this interactive course, participants will learn the sample analysis covering analytical methods, laboratory balances and quality assurance of analysis; the dusts, fumes and fibres including particulate deposition and air sampling, inhalable dust etc; the pump calibration, calculation of particulate air sampling results and calculation of 8h-time weighted average; the fundamentals of air sampling for gases and vapours including sorbent tubes, filters, mixed phase exposures and liquid sample media; and the air sampling, grab sampling, sample analysis and calculations of results.

Course Objectives

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

- Achieve the OHTA Certificate in OHTA501: Measurement of Hazardous Substances
- Carryout risk assessment process and occupational hygiene risk assessment as well as identify the risk assessment tools and non-sampling approaches
- Recognize occupational exposure limits (OEL), short term exposure limits and long-term average (LTA) exposure limit
- Apply workplace sampling strategies and identify the types of surveys including sampling patterns
- Discuss the fundamentals of biological monitoring, biological half-life, sampling time, urine specimen acceptability and biological standards
- Employ sample analysis covering analytical methods, laboratory balances and quality assurance of analysis
- Recognize dusts, fumes and fibres including particulate deposition and air sampling, inhalable dust etc
- Apply pump calibration, calculation of particulate air sampling results, calculation of air sample result and calculation of 8h-time weighted average
- Explain the fundamentals of air sampling for gases and vapours including sorbent tubes, filters, mixed phase exposures and liquid sample media
- Carryout air sampling, grab sampling, sample analysis and calculations of results

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 hazardous substances measurement for health and safety professionals, occupational health specialists including physicians and nurses. Specialists in subjects such as acoustics, ergonomics, human factors, occupational psychology, work organisation, biosafety, engineering, analytical chemistry and those who want a broader appreciation of how their role interfaces with other professions over health issues in the workplace will find this course beneficial.

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.

Training Fee

US$ 7,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Exam Fee

US$ 280 per Delegate + **VAT**

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) OHTA Certificates will be issued to participants who have successfully completed the course and passed the exam of the course.

OHTA Certificate(s)

The following certificate is a sample of the OHTA certificates that will be issued to successful candidates:-

(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 Middle East

Continuing Professional Development (HTME-CPD)

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
HE0126	Industrial Hygiene Certification Program OHTA501: Measurement of Hazardous Substances *(Accredited by OHTA)*	November 10-14, 2022	32.5	3.25

Total No. of CEU's Earned as of TOR Issuance Date **3.25**

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

Certificate Accreditations

Haward Technology is accredited by the following international accreditation organizations:-

- Occupational Hygiene Training Association (OHTA)

  Haward Technology is an Approved OHTA Trainer under the OHTA201 and OHTA500 series modules that promote better standards of occupational hygiene practice throughout the world.

  Haward Technology supports hygiene professionals who wanted people around the world to enjoy the benefits of healthy working environments.

- 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 **4.0 CEUs** (Continuing Education Units) or **40 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 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 Jacobs, is a **Senior HSE Consultant** with almost **25 years** of extensive experience within **Oil & Gas**, **Refinery** and **Petrochemical** industries. His wide experience covers in the areas of **OHTA Modules** (Measurement of Hazardous Substances, Thermal Environment, Noise Measurement & Its Effects, Asbestos & Other Fibers, Control of Hazardous Substances, Ergonomics Essentials, Health Effects of Hazardous Substances), Advanced **Industrial Hygiene**, **Incident Command & Report Writing**, **HAZOP**, **HAZMAT**, **HAZID**, **Health Risk** Assessment, Modern **Safety Risk** Management, **Process Risk** Management, **Root Cause Analysis** Techniques, **HSE Management System** Development & Implementation, **SAESI Hazardous Materials** for the **First Responder Operations (NFPA 472)**, **Industrial Safety** & Housekeeping, **Job Safety & Hazard** Analysis, **Hazardous Substances** Measurement, **Workplace** Control, Physical Agents, **Emergency Response**, **Chemical & Biological** Operations, Basic **Safety & Loss Prevention**, Safety in **Chemical Laboratory**, **Confined Space Safety**, **Industrial Hygiene**, **Occupational Health & Hygiene**, **Ergonomics**, **Biological** Assessment, **Radiation** with Radon/Thoron Assessment, **Radiation** Protection Safety, **Radiation** Monitoring, Natural **Radiation** Sources, **Nuclear** Regulatory Act, **Industrial Ventilation**, **Air Pollution Dispersion** Modelling, Basic Clandestine **Drug Laboratory** Investigation, **Chemical** Engineering, **Fire** Safety & Evacuation, **Evacuation** Safety, Safety Orientation, Hand & Power Tools Safety, Isokinetic Stack Sampling, Dust Exposure, Quantifying Workplace Stressors, Noise & Airborne Pollutants, Thermal Stress, Illumination, Mine Health & Safety, Statistical Method Validation, Legal Audit Compliance, Riot & Crowd Control, ISO 14000, OHSAS 18000, ISO 17025 and ISO 9000.

During his career life, Mr. Jacobs has gained his practical and field experiences through his various significant positions and dedication as the **Forensic Science Laboratory Manager**, **Occupational Hygienist**, **Radiation Protection Officer**, **Lead Practitioner**, Safety, Health & Environmental (**SHE**) **Specialist**, **First Responder**, **OHS Inspector**, **Ambulance Assistant** and **LPG Distributor Auditor** from various international companies like the Sedulitas, Richards Bay Minerals, Sasol and South African Police Service.

Mr. Jacobs has a **Master's** degree in **Public Health – Occupational Hygiene**, a **National Diploma** in **Purchasing Management** and an **Intermediate Certificate in Mine Environmental Control** an **Accredited South African Emergency Services Institute** (**SAESI**). Further, he is a **Certified Instructor/Trainer**, an Appointed Commissioned Officer, a SAIOH/ IOHA President, an Assessor/Moderator of Health & Welfare SETA, a **Registered Occupational Hygienist** of the Southern African Institute for Occupational Hygiene, awarded as a SAIOH **Occupational Hygienist** of the Year Award and a well-regarded member of the British Occupational Hygiene Society (**BOHS**), Mine Ventilation Society of South Africa (MVSSA) and South African Radiological Protection Association (SARPA). He has further delivered numerous trainings, courses, seminars, workshops and conferences worldwide.

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 – 0745	*Registration & Coffee*
0745 – 0800	*Welcome & Introduction*
0800 – 0815	***PRE-TEST***
0815 - 0930	***Course Overview*** *Introduction • Aim of Course • Learning Outcomes • Format of Manual*
1030 - 1045	*Break*
1045 - 1230	***Risk Assessment*** *Introduction to Risk Assessment • The Risk Assessment Process • Occupational Hygiene Risk Assessment Overview (Risk Identification; Risk Analysis; Risk Assessment)*
1230 – 1330	*Lunch*
1330 – 1500	***Risk Assessment (cont'd)*** *Risk Assessment Tools • Non-Sampling Approaches (Control Banding; Exposure Modelling) • Documentation*
1500 – 1515	*Break*
1515 - 1650	***Risk Assessment (cont'd)*** *Periodic Review • An Outline of an Approach to Risk Management • Hierarchy of Controls (Elimination and Substitution; Engineering Controls; Administrative Controls; Personal Protective Equipment; Information, Instruction and Training; Workplace Monitoring; Health Surveillance; Emergency Procedures; Management Role)*
1650 – 1700	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1700	*End of Day One*

Day 2

0730 – 1030	***Occupational Exposure Limits*** *Introduction to OELs • Definitions and Units • Time Weighted Average OELs • OELs for Extended Shifts (OSHA (Direct Proportion) Model; Brief and Scala Model; UK Approach; Quebec Model) • Short Term Exposure Limits*
1030 – 1045	*Break*
1045 – 1230	***Occupational Exposure Limits (cont'd)*** *Ceiling Limit (C) • Long Term Average (LTA Exposure Limit • Excursion Limits • Notations (Biological Monitoring Limits • Carcinogenicity • Sensitisation • Skin 43) • Basis of OELs*
1230 – 1330	*Lunch*
1330 - 1500	***Occupational Exposure Limits (cont'd)*** *Application of OELs • Types Occupational Exposure Limits • Threshold Limit Values (TLVs) (TLV-TWA; TLV-STEL; TLV-C; Peak Exposures (Formally Excursion Limit); Mixtures; TLV Notations) • Australian Exposure Standard • United Kingdom Workplace Exposure Limits (WELs)*
1500 - 1515	*Break*

1515 - 1650	***Occupational Exposure Limits (cont'd)*** *European Exposure Limits (European Agency for Safety and Health at Work; Scientific Committee on Occupational Exposure Limits; REACH Derived No Effect Limits) • OSHA Permissible Exposure Limits • NIOSH • AIHA • Germany – MAK Commission • Limitations of OELs*
1650 – 1700	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1700	*End of Day Two*

Day 3

0730 – 1030	***Air Sampling Theory & Practice*** *Introduction • Workplace Sampling Strategies • Types of Surveys (Initial Appraisal; Basic Survey; Detailed Survey; Routine Monitoring; Statistically Driven Approaches) • Who Should Be Sampled?. • When • Where? • How?*
1030 - 1045	*Break*
1045 – 1230	***Air Sampling Theory & Practice (cont'd)*** *Sample Numbers (Coefficient of Variation; Rappaport & Selvin; NIOSH; AIHA; The BOHS/NVvA Guidance) • How Long to Sample • Sampling Patterns (Sampling to Assess Acute or Chronic Effects) • Practicalities of Sampling Programmes • Personal Sampling (Breathing Zone; Operator Variability) • Area Sampling (General or Background Measurements)*
1230 - 1330	*Lunch*
1330 - 1500	***Dust, Fumes & Mists: Health Effects & Sampling Methods*** *Introduction to Dusts, Fumes and Fibres • Particulate Deposition • Particulate Air Sampling (General; Sample Filters; Basic Sample Collection Procedure) • Inhalable Dust (IOM Sampling Head; Conical Inhalable Sampler (CIS); SKC Button Aerosol Sampler; Pre-Loaded Cassettes) • Respirable Dust • Thoracic Dust • Fibres • Diesel Particulate Emissions • Rosin Fume • Air Sampling Pumps • Pump Calibration (Basics; Calibration Procedure)*
1500 – 1515	*Break*
1515 - 1650	***Dust, Fumes & Mists: Health Effects & Sampling Methods (cont'd)*** *Calculation of Particulate Air Sampling Results (Calculation of Sample Volume; Calculation of Particulate Mass) • Calculation of Air Sample Result • Calculation of 8h-Time Weighted Average • Particulate Air Sampling: Direct Reading Methods • Particulate Air Sampling Selection Guide*
1650 – 1700	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1700	*End of Day Three*

Day 4

0730 – 1030	***Gases & Vapours*** *What are Gases and Vapours? • Fundamentals of Air Sampling for Gases and Vapours • Active Air Sampling: Basics • Sorbent Tubes (General; Sorbent Tubes: Breakthrough; Sorbent Tubes: Common Varieties; Sorbent Tubes: Collection Efficiency; Sorbent Tube: Desorption Efficiency; Sorbent Tubes: Thermal Desorption) • Filters • Mixed Phase Exposures • Liquid Sample Media*
1030 - 1100	*Break*

1100 – 1230	***Gases & Vapours (cont'd)*** *Air Sampling: Diffusion Methods • Grab Sampling Basics (Canisters; Grab Sampling Bags; Colourimetric Tubes) • Sample Analysis • Example Calculations of Results (Air Volume Calculation) • Direct Reading Instruments: General (Direct Reading Instrument Limitations; Direct Reading Instrument Cross Sensitivity) • Detector Tubes (Colorimetric Tubes) (Maintenance and Calibration; A Primer on Explosion Safe Equipment)*
1230 – 1330	*Lunch*
1330 – 1500	***Sample Analysis*** *Introduction • Analytical Methods (Spectroscopy; Chromatography; Other Analytical Techniques; Detection Limits, Sensitivity, Chemical Interferences; Sources of Analytical Methods) • Laboratory Balances • Microscopy • Quality Assurance of Analysis (Internal Quality Control; External Quality Assurance)*
1500 – 1530	*Break*
1530 - 1650	***Other Sampling Tools*** *Bulk Sampling • Surface Contamination Measurements • In-Situ XRF Metal Analysis • Skin Exposure (Direct; Indirect) • Confined Spaces (Identification and Nature of Hazards; Monitoring in Confined Spaces; Breathing Air Quality)*
1650 – 1700	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1700	*End of Day Three*

Day 5

0730 – 1030	***Presentation of Results*** *Background • General Report Content • Notes on Process Description*
1030 – 1100	*Break*
1100 – 1230	***Presentation of Results (cont'd)*** *Notes on Results and Discussion • Notes on Conclusions and Recommendations • Statistical Analysis Primer (Statistical Distribution; Mean and Standard Deviation; Confidence Levels; Minimum Variance Unbiased Estimate (MVUE); Log Probability Plot)*
1230 - 1330	*Lunch*
1330 – 1500	***Biological Monitoring*** *Fundamentals of Biological Monitoring • Direct Biological Monitoring • Biological Effect Monitoring • General Considerations*
1500 – 1515	*Break*
1515 - 1615	***Biological Monitoring (cont'd)*** *Biological Half-Life • Sampling Time • Urine Specimen Acceptability • Biological Standards (Biological Exposure Indices; Notations; UK Limits) • Confidentiality*
1615 – 1630	***Course Conclusion***
1630 - 1645	***POST-TEST***
1645 – 1700	*Presentation of Course Certificates*
1700	*End of Course*

MOCK Exam

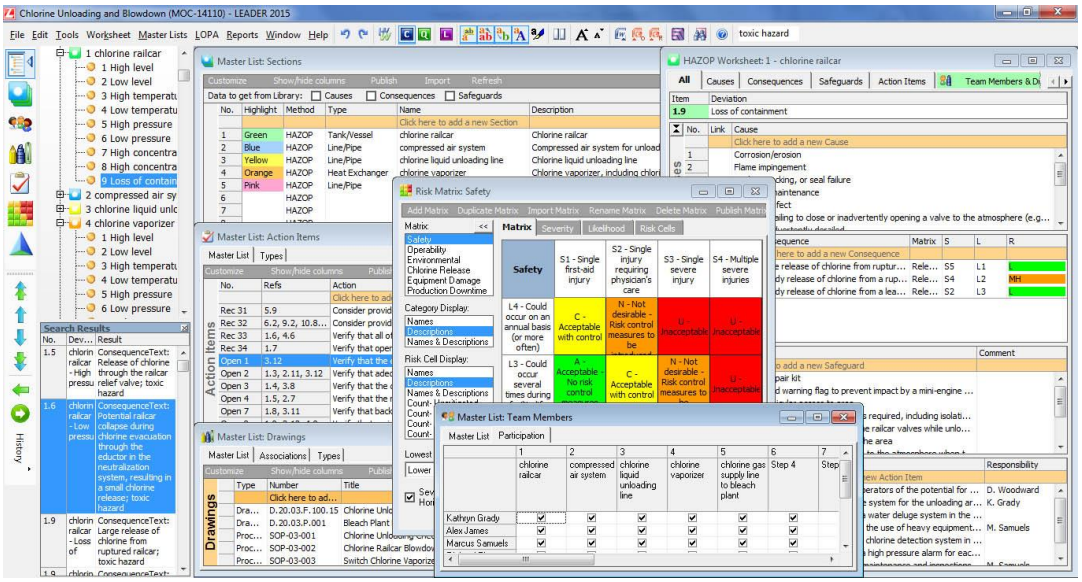
Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK exam during the 30 days following the course completion. Each participant has only one trial for the MOCK exam within this 30-day examination window. Hence, you have to prepare yourself very well before starting your MOCK exam as this exam is a simulation to the one of the Certification Body.

Day 6: ***OHTA Online Exam (to be scheduled within 30 days of course completion)***

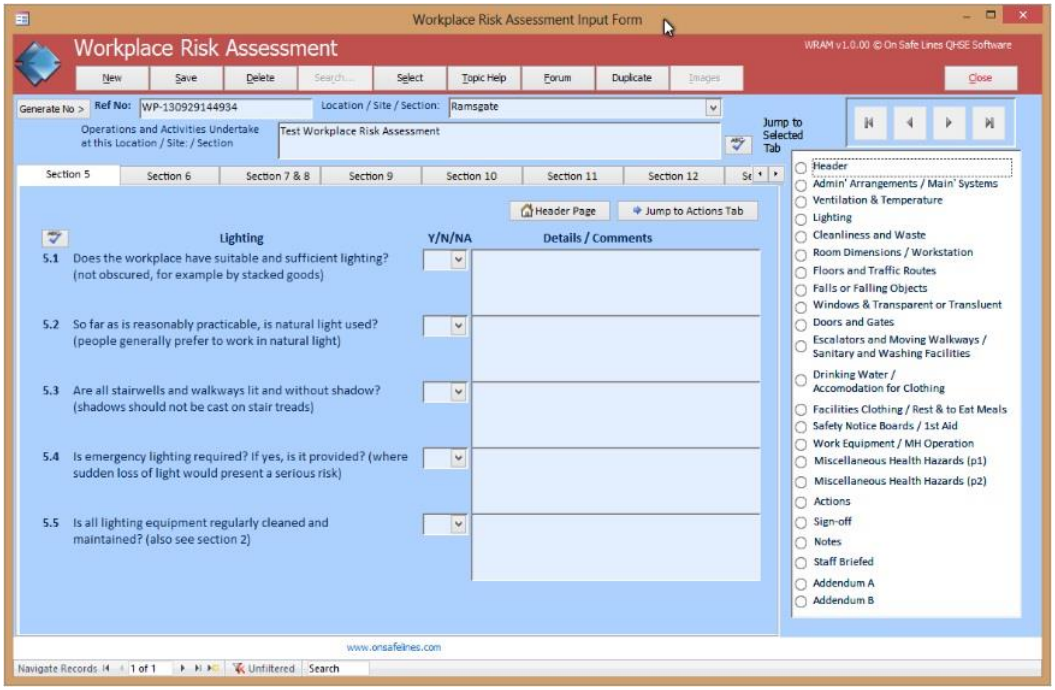
0900 – 0945	***OHTA Exam Registration/Briefing***
0945 - 1145	***OHTA Exam***
1145 - 1200	*Closing Ceremony*
1200	*End of Exam*

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", "Workplace Risk Assessment", "Industrial Hygiene Virtual Laboratory" and "CIHprep V9.0 " simulators.

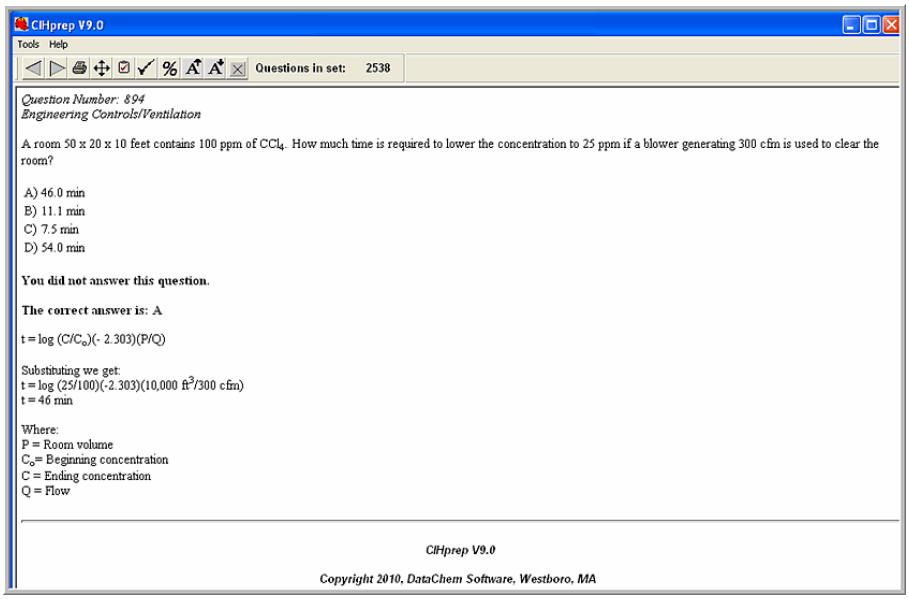


Haward PHA/HAZOP Simulator



Workplace Risk Assessment

Industrial Hygiene Virtual Laboratory Simulator



CIHprep V9.0 Simulator

Course Coordinator

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