

COURSE OVERVIEW HE1944
Industrial Hygiene Certification Program
BOHS-M200: Basic Principles in Occupational Hygiene
(Accredited by the British Occupational Hygiene Society - BOHS)

Course Title

Industrial Hygiene Certification Program: BOHS-M200: Basic Principles in Occupational Hygiene
(Accredited by the British Occupational Hygiene Society - BOHS)



Course Date/Venue

December 23-27, 2024/Al Maya 1 Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference

HE1944

Course Duration

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.

This course aims to provide an introduction to outline the broad principles in occupational hygiene as the basis for anticipation, recognition, evaluation, and control of hazards that can be encountered in the workplace.



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



- The value of occupational hygiene and the role of the occupational hygienist
- The Range of Physical and Chemical Hazards in the Workplace
- Hazard Recognition Techniques and Potential Routes and Sources of Exposure
- Hazard Evaluation, Measurement Processes and Assessment of Exposures
- Methods of Hazard Control and Exposure Controls
- Management of Occupational Hygiene Programmes
- UK Health and Safety Legislation

This course is designed to provide participants with a detailed and up-to-date overview of BOHS-M200: Basic Principles in Occupational Hygiene. It covers the development and importance of occupational hygiene; the basic principles of physiology of the human body and how occupational exposure to chemical and physical agents can affect the human body; the respiratory and circulatory system including sight, hearing and heat regulation; the principles of risk assessments, hazard definitions and risk, and basic information on expert systems and control banding; the basic principles of toxicology and effects on the body; and the material forms covering gases, vapours, aerosols, dusts, fumes and vapour pressure.

During this interactive course, participants will learn the hazard processes, metals processes, organic chemical processes and other processes; the physical hazards covering physics of sound, vibration and health effects, and thermal environment; the electromagnetic spectrum and various bands of non-ionizing radiation; assessing lighting in the workplace; the health effects of ionizing radiation, musculoskeletal injuries; the hazards associated with using display screen equipment and stress management in the workplace; the exposure assessment, measurement of gases, vapours, and dusts and exposure assessment of physical hazards; and the principles of different types of hazard control measure.

This course will require at least 36 hours of study time, which includes approximately 30 hours of teaching and practical assessment including final examination and approximately 6 hours of independent study, such as revision (in the candidates' own time).

Course Objectives

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

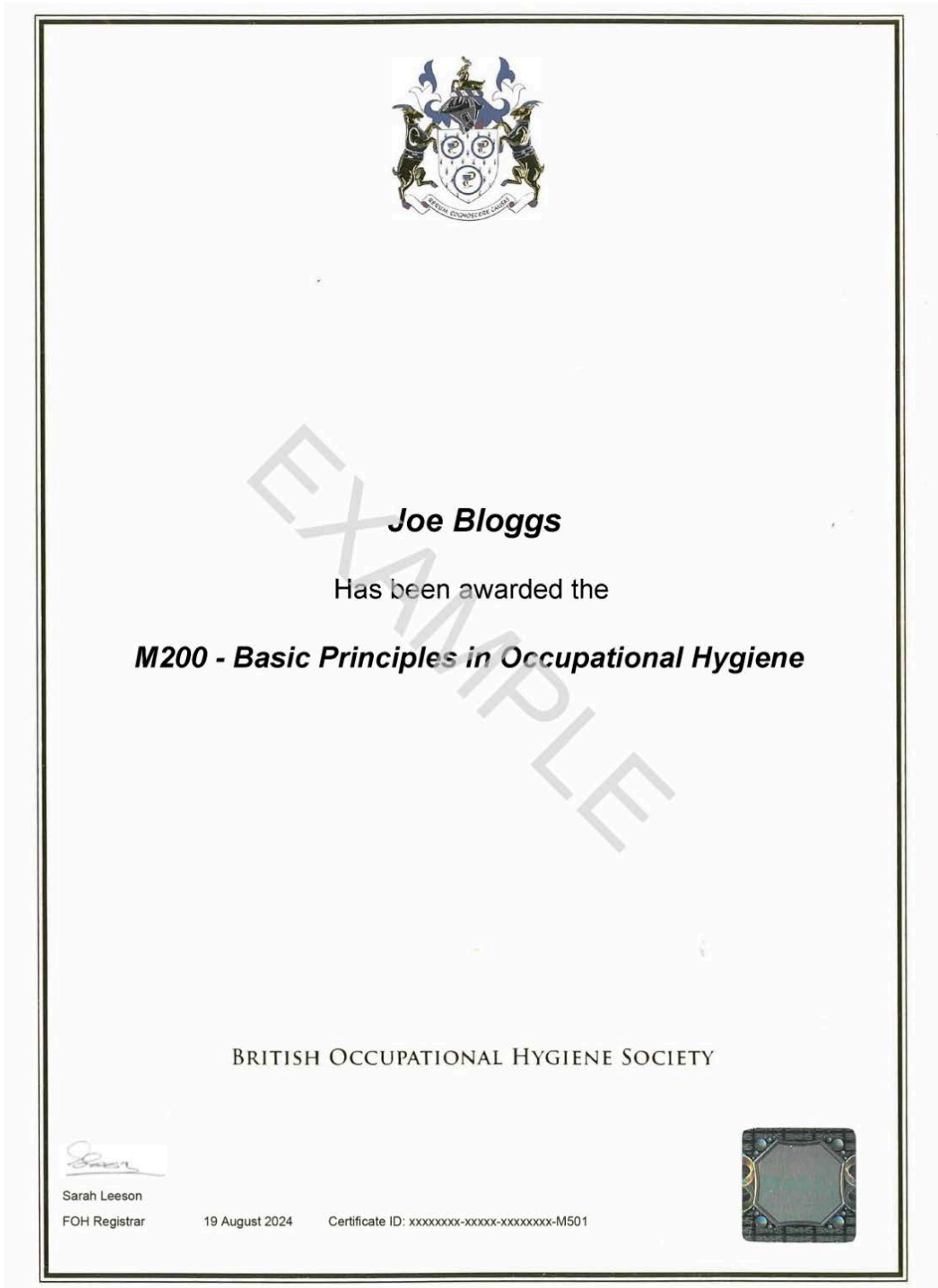
- Achieve the BOHS Certificate in BOHS-M200: Basic Principles in Occupational Hygiene
- Define occupational hygiene and discuss the history and background surrounding the development of occupational hygiene
- Explain the importance of occupational hygiene and the overview of qualifications and careers in occupational hygiene
- Discuss basic principles of physiology of the human body and how occupational exposure to chemical and physical agents can affect the human body
- Recognize the respiratory and circulatory system including sight, hearing and heat regulation
- Explain the principles of risk assessments, hazard definitions and risk, and basic information on expert systems and control banding
- Discuss the basic principles of toxicology and effects on the body and identify the material forms covering gases, vapours, aerosols, dusts, fumes and vapour pressure
- Illustrate hazard processes, metals processes, organic chemical processes and other processes

Course Certificate(s)

(1) BOHS-M200 – Basic Principles in Occupational Hygiene will be awarded to participants who have successfully completed the course and passed the examination within 12 months.

BOHS Certificate(s)

The following certificate is a sample of the BOHS 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 * 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: 15-Nov-23

HTME No. 74851

Participant Name: Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
HE1944	Industrial Hygiene Certification Program BOHS-M200: Basic Principles in Occupational Hygiene <i>(Accredited by the British Occupational Hygiene Society - BOHS)</i>	November 11-15, 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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* Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology * CEUs * Haward Technology *

Certificate Accreditations


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

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The British Occupational Hygiene Society (BOHS)

Haward Technology is an Approved Training Partner of the British Occupational Hygiene Society (BOHS) for the M200 and M500 series modules, which are designed to maintain a high standard of occupational hygiene education.

Together with BOHS, Haward Technology supports hygiene professionals in their mission to create safe working environments globally and is committed to advancing the practice of occupational hygiene to promote healthier workplaces worldwide.

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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. Peter Jacobs, OTHA-BOHS 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 **Measurement of Hazardous, Incident Command & Report Writing, HAZOP, HAZMAT, HAZID, Health Risk Assessment, Modern Safety Risk Management, Process Risk Management, Root Cause Analysis** Techniques, , **Industrial Hygiene, Occupational Health, Safety & Environment, HSE Management System Development & Implementation, Handling Hazardous Chemicals, 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 held an Intermediate Certificate in Mine Environmental Control. 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.

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 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, 23rd of December 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 1000	Introduction to Occupational Hygiene The Definition of Occupational Hygiene • A History & Background Surrounding the Development of Occupational Hygiene • The Importance of Occupational Hygiene • An Overview of Qualifications & Careers in Occupational Hygiene
1000 - 1015	Break
1015 - 1130	Human Physiology General Metabolism • The Respiratory System
1130 - 1230	Human Physiology (cont'd) The Circulatory System • Sight
1230 – 1245	Break
1230 - 1420	Human Physiology (cont'd) Hearing
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2 Tuesday, 24th of December 2024

0730 - 0800	Human Physiology (cont'd) Heat Regulation
0800 - 0930	Recognition of Chemical Hazards: Hazard & Risk Definitions Along with Gathering Information from Various Sources Safety Data Sheets • Guidance Documents • Literature • Websites Etc. • COSHH Essentials

0930 – 0945	Break
0945 - 1130	Recognition of Chemical Hazards: Basic Principles of Toxicology & Effects on the Body Routes of Entry into the Body (Inhalation, Ingestion, Absorption) • Metabolism • Effects on the Body (Acute, Chronic, Systemic & Localized) • Types of Effect (Asphyxiation, Irritation, Trauma, Poisoning) • Toxicity Testing
1130 - 1230	Recognition of Chemical Hazards: Material Forms Gases, Vapours, Aerosols • Dusts (Respirable & Inhalable) • Fumes • Vapour Pressure
1230 – 1245	Break
1245 - 1420	Recognition of Chemical Hazards: Hazards Processes Silica (Quarrying & Mining, Brick, Tile & Refractory Manufacture, Pottery & Ceramic, Sandblasting, Glass Manufacture; Asbestos (Uses, Building Surveys, Sampling & Analysis, Remediation/Removal); Machine Made Mineral Fibre (MMMMF) Manufacture & Utilization) • Metal Processes (Metal Refining (Furnaces, Foundries, Casting); Machining (Cutting, Grinding, Polishing); Treatments (Degreasing, Plating, Pickling, Anodising); Welding (Arc Welding, Gas Welding, Brazing, Soldering) • Organic Chemical Processes (Degreasing, Dry Cleaning, Halogenated Hydrocarbons (Solvents), Application Methods: Brushed or Sprayed (Paints); Benzene, Toluene, Xylene, N-Hexane (Hydrocarbons & Their Uses); Fumigants, Spraying, Animal Dipping (Pesticides); Polymer Manufacture, Rubber Manufacture, Use of Resins in Reinforced Structures such as Glass or Carbon Fibre, Isocyanate Forms & Uses (Plastics & Polymers); Handling & Use of Bioactive Materials & Asthmagens (Pharmaceuticals & Fine Chemicals)) • Other Processes (Woodworking; Biological Hazards (Animals, Farming, Water Treatment, Legionella))
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3 Wednesday, 25th of December 2024

0730 – 0930	Recognition of Physical Hazards An Overview of the Physics of Sound, Units of Measure & Effects Noise can have • An Overview of the Physics of Vibration & Health Effects it may have on the Body Either Locally or as a Whole
0930 – 0945	Break
0945 - 1100	Recognition of Physical Hazards (cont'd) Human Responses to Thermal Environments (Thermal Stress) & Ways to Evaluate It • The Electromagnetic Spectrum & Various Bands of Non-Ionizing Radiation, such as Ultraviolet, Infra-Red, Microwave, Lasers etc.
1100 – 1230	Recognition of Physical Hazards (cont'd) The Assessment of Lighting & in the Workplace & the Effects of Poor Lighting & Glare • The Health Effects of Ionizing Radiation, Assessment of Exposure, Control Techniques & Specialist Roles of those who Deal with it
1230 – 1245	Break
1245 – 1420	Recognition of Physical Hazards (cont'd) Musculoskeletal Injuries, Ergonomics & the Role of an Ergonomist • The Hazards Associated with Using Display Screen Equipment & how They Should Be Managed • Stress & Stress Management in the Workplace
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4 Thursday, 26th of December 2024

0830 – 0930	Evaluation of Hazards: An Introduction to Exposure Assessment, Measurement of Gases, Vapours & Dusts Measurement of Vapours, Gases, Aerosols & Dust Using Sampling Techniques such as, Personal, Static, Real Time & Spot Sampling • Analytical Methods • Hygiene Standards & Occupational Exposure Limits
0930 – 0945	Break
0945 – 1100	Evaluation of Hazards: An Introduction to Exposure Assessment, Measurement of Gases, Vapours & Dusts (cont'd) Units of Measurement, Time-Weighting, Simple Calculations/Algebra • Compliance with Statutory Limits • Standard Setting • Biological Monitoring & Health Surveillance
1100 – 1230S	Evaluation of Hazards: An Introduction to Exposure Assessment of Physical Hazards Measurement of Noise • Measurement of Thermal Environment • The Principles of Assessment of Vibration • the Principles of Assessment of Lighting & Non-Ionising Radiation
1230 – 1245	Break
1245 – 1420	Evaluation of Hazards: An Introduction to Exposure Assessment of Physical Hazards (cont'd) the Principles of Assessment of Ionising Radiation • The Principles of Ergonomic Risk Assessment
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5 Friday, 27th of December 2024

0730 – 0930	Control of Hazard: An Introduction to & Outline of Main Elements within the Hierarchy of Control Elimination or Substitution of a Hazard • Basic Principles of Ventilation (Local & General)
0930 – 0945	Break
0945 – 1100	Control of Hazard: An Introduction to & Outline of Main Elements within the Hierarchy of Control Local Exhaust Ventilation (LEV) Design
1100 – 1230	Control of Hazard: An Introduction to & Outline of Main Elements within the Hierarchy of Control Personal Protection (PPE, RPE, Hearing Protection etc.)
1230 – 1245	Break
1245 – 1345	Control of Hazard: An Introduction to & Outline of Main Elements within the Hierarchy of Control General Ventilation & Air Conditioning
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & 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.

Examinations & Assessment

Written Examination

This is an open-book multiple choice examination comprising of 40 questions (40 marks) to be answered in 1 hour.

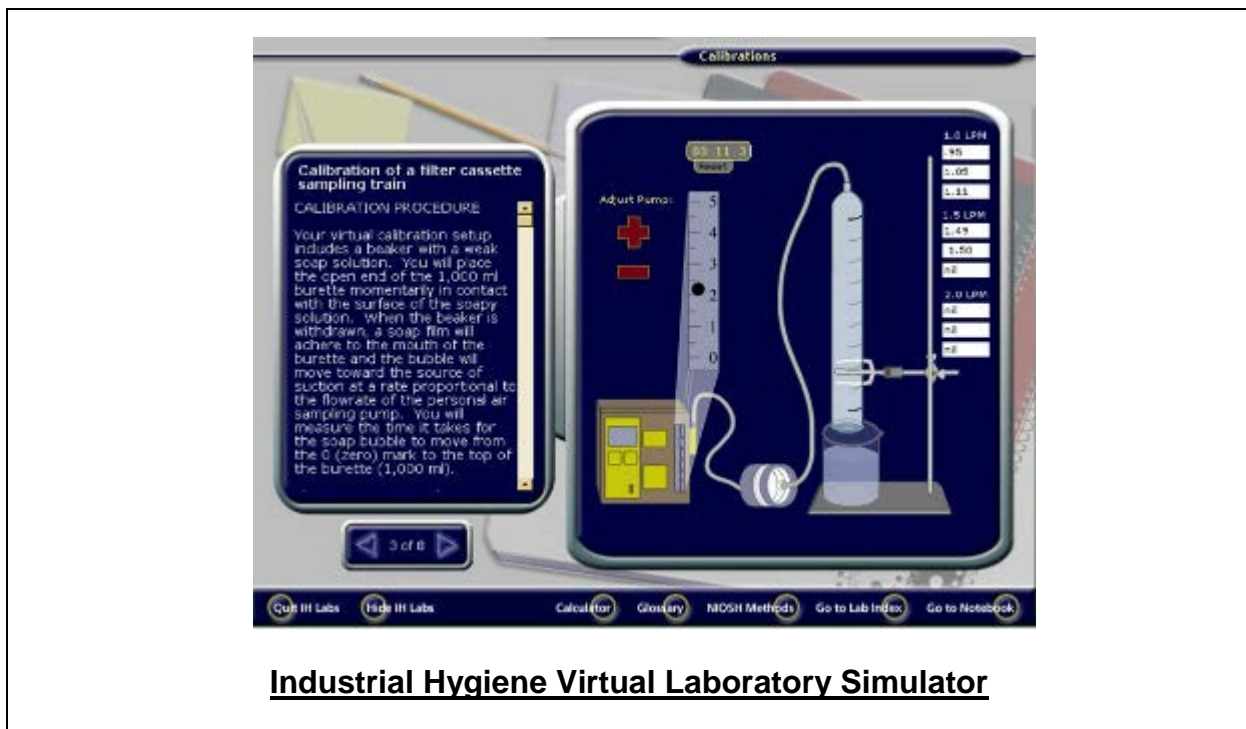
The examination covers all sections of the syllabus and is overseen by an invigilator.

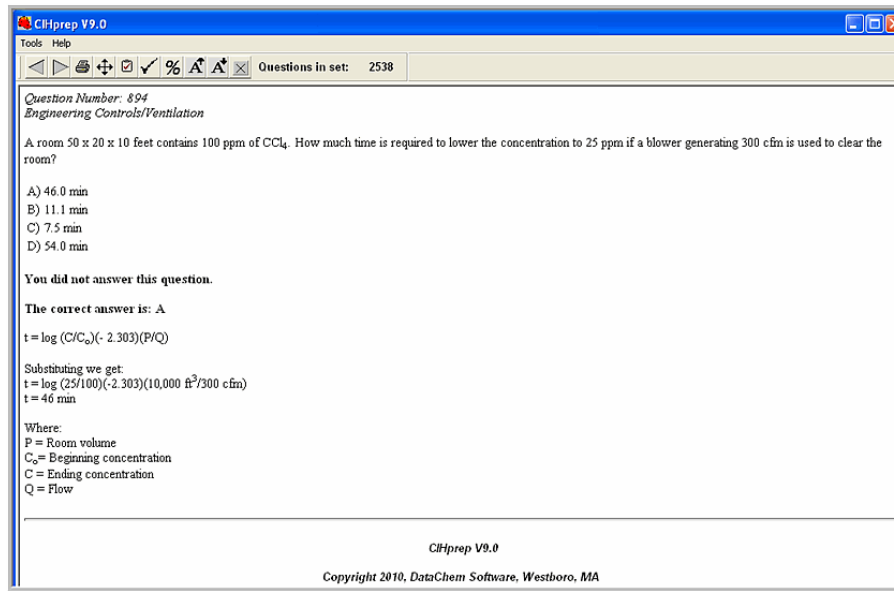
The pass mark for this examination is 60%.

Full details of the practical requirements and individual candidate reporting can be found in the Practical Evaluation Report which is available from www.bohs.org

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 the state-of-the-art "Industrial Hygiene Virtual Laboratory Simulator", "CIHprep V9.0 Simulator", "Extech 445580: Humidity/Temperature Pen" and "Digital Sound Level Meter".





CIHprep V9.0

Tools Help

Questions in set: 2538

Question Number: 894
Engineering Controls/Ventilation

A room 50 x 20 x 10 feet contains 100 ppm of CCl_4 . How much time is required to lower the concentration to 25 ppm if a blower generating 300 cfm is used to clear the room?

A) 46.0 min
B) 11.1 min
C) 7.5 min
D) 54.0 min

You did not answer this question.

The correct answer is: A

$$t = \log(C/C_0) \cdot (-2.303) \cdot (P/Q)$$

Substituting we get:
 $t = \log(25/100) \cdot (-2.303) \cdot (10,000 \text{ ft}^3 / 300 \text{ cfm})$
 $t = 46 \text{ min}$

Where:
P = Room volume
 C_0 = Beginning concentration
C = Ending concentration
Q = Flow

CIHprep V9.0
Copyright 2010, DataChem Software, Westboro, MA

CIHprep V9.0 Simulator



Extech 445580: Humidity/Temperature Pen



Course Coordinator

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