

COURSE OVERVIEW LE1009-3D Advanced Oil & Gas Sampling & Preservation

Course Title

Advanced Oil & Gas Sampling & Preservation

Course Date/Venue

September 01-03, 2025/Al Reem 2 Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference

LE1009-3D

Course Duration

Three days/1.8 CEUs/18 PDHs



Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Advanced Oil & Gas Sampling & Preservation. It covers the principles of sampling and preservation, methods of oil and gas sampling and sampling in oilfield environments; the regulatory and standards for sampling and techniques for preventing contamination; the proper preservation of liquid and gas samples and discuss the impact of storage conditions on sample quality; and the quality control in sample preservation, guidelines for transporting samples to testing laboratories as well as packing, sealing and labeling techniques.



During this interactive course, participants will learn to deal with high-salinity or high-pH samples, manage complex contamination issues and use advanced equipment for sampling; identify common sampling errors and their causes and apply techniques for resolving preservation failures; handle equipment malfunctions during sampling and rectify contamination or degradation problems; the innovations in real-time sampling systems, remote sensing and autonomous sampling technologies; the IoT and sensor integration for sample preservation; and the future trends in automated sample preservation techniques.



Course Objectives

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

- Apply and gain an advanced knowledge on oil & gas sampling and preservation
- Discuss the principles of sampling and preservation, methods of oil and gas sampling and sampling in oilfield environments
- Review regulatory and standards for sampling and techniques for preventing contamination
- Carryout proper preservation of liquid and gas samples and discuss the impact of storage conditions on sample quality
- Employ quality control in sample preservation, guidelines for transporting samples to testing laboratories as well as packing, sealing and labeling techniques
- Deal with high-salinity or high-pH samples, manage complex contamination issues and use advanced equipment for sampling
- Identify common sampling errors and their causes and apply techniques for resolving preservation failures
- Handle equipment malfunctions during sampling and rectify contamination or degradation problems
- Discuss the innovations in real-time sampling systems, remote sensing and autonomous sampling technologies
- Apply IoT and sensor integration for sample preservation and discuss the future trends in automated sample preservation techniques

Exclusive Smart Training Kit - H-STK®



*Participants of this course will receive the exclusive “Howard 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 advanced oil and gas sampling and preservation for process engineers, laboratory technicians and analysts, quality control/assurance personnel, production engineers, reservoir engineers, HSE (health, safety and environment) officers, field operators and supervisors, oil and gas field chemists, environmental compliance officers, technical auditors and inspectors, pipeline and terminal operators, R&D personnel in oil and gas sector and other technical staff.

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

Haward's certificates are accredited by the following international accreditation organizations:

- 
British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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.

- 
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 **1.8 CEUs** (Continuing Education Units) or **18 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.



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:



(1) **Mr. Kyle Bester** is a **Senior Water Engineer** with extensive years of practical experience within the **Oil & Gas, Power & Water Utilities** and other **Energy** sectors. His expertise includes **Water Sampling Techniques, Water Chemistry for Power Plant, Water Sampling and Chemical Portable Water Analysis, Water Reservoir, Water Tanks, Water Pumping Station, Water Distribution System, Water Network System, Water Pipes & Fittings, Water Hydraulic Modelling, Water Storage Reservoir, Reservoirs & Pumping Stations Design & Operation, Pumping Systems, Interconnecting Pipelines, Water Network Hydraulic Simulation Modelling, Water Supply Design, Water Balance Modelling, Water Distribution Network, Water Network System Analysis, Water Forecasts Demand, Water Pipelines Materials & Fittings, Water Network System Design, Pump Houses & Booster Pumping Stations, Potable Water Transmission, Water Distribution Network, Districts Meters Areas (DMAs), Water Supply & Desalination Plants Rehabilitation, Water Reservoirs & Pumping Stations, Water Network System Extension, Water Network System Replacement & Upgrade, Water Networks Optimization, Water Supply & Distribution Systems Efficiency & Effectiveness, Pipe Materials & Fittings, Service Reservoir Design & Operation, Pipes & Fittings, Water Network System Design & Operation, Supply Water Network Rehabilitation, Water Loss Reduction, Main Water System Construction, Main Water Line Construction, Transmission & Distribution Pipelines, Water Distribution Design & Modelling, Water Supply System, Oilfield Water Treatment, Best Practice in Sewage & Industrial Wastewater Treatment & Environmental Protection, Water Distribution Design & Modelling, Desilting, Treating & Handling Oily Water, Water Sector Orientation, Environmental Impact Assessment (EIA), Potable Water, Reverse Osmosis Treatment Technology and Chlorination System, Well Inventory, Monitoring & Conservation, Qualitative Analysis of Soil & Ground Water, Water Networking, Hydraulic Modelling Systems, Pumping Stations, Centrifugal Pumps, Pipelines & Pumping, Water Reservoirs, Water Storage Tanks, Extended Activated Sludge Treatment, Sewage & Industrial Wastewater Treatment & Environmental Protection, Supervising & Monitoring Sewage Works, Water Desalination Technologies, Water Distribution & Pump Station, Best Water Equipment Selection & Inspection, Hydraulic Modelling for Water Network Design, Water Utility Industry, Water Desalination Technologies & New Development, Water Hydrology, Water Conveyors, Water Networks Rehabilitation. He is currently the **Part Owner & Manager** of Extreme Water SA wherein he manages, re-designed and commissioned a water and wastewater treatment plants.**

During his career life, Mr. Bester has gained his practical and field experience through his various significant positions and dedication as the **Project Manager, Asset Manager, Manager, Water Engineer, Supervisor, Team Leader, Analyst, Process Technician, Landscape Designer** and **Senior Instructor/Trainer** for various international companies, infrastructures, water and wastewater treatment plants from New Zealand, UK, Samoa, Zimbabwe and South Africa, just to name a few.

Mr. Bester holds a **Diploma in Wastewater Treatment** and a **National Certificate in Wastewater & Water Treatment**. Further, he is a **Certified Instructor/Trainer**, an **Approved Chemical Handler** and has delivered numerous courses, trainings, conferences, seminars and workshops internationally.

AND,



(2) **Dr. Hesham Abdou**, PhD, MSc, PgDip, BSc, is a **Senior Process & Petroleum Engineer** with over **30 years** of integrated experience within the **Oil & Gas** industries. His specialization widely covers in the areas of **Oil Demulsification, Oil Emulsions, Crude Oil Testing & Water Analysis, Crude Oil & Water Sampling Procedures, Oil Recovery Methods Enhancement, Heavy Oil Production & Treatment Techniques, Oil & Gas Transportation, Oil & Gas Production Strategies, Oil & Water Source Wells Restoration, Advanced PVT & EOS Characterization, PVT/Fluid Characterization/EOS, Advanced Phase Behaviour & EOS Fluid Characterization, PVT Properties of Reservoir Fluids, Directional Drilling Fundamentals, Application & Limitation, Horizontal & Multilateral Wells (Analysis & Design), Directional, Horizontal & Multilateral Drilling, Root Cause Analysis (RCA), Root Cause Failure Analysis (RCFA), Root Cause Analysis Study, Root Cause Analysis Techniques & Methodologies, Process Hazard Analysis (PHA), Equipment Handling Procedures, Crude & Vacuum Process Technology, Gas Conditioning & Processing, Cooling Towers Operation & Troubleshooting, Sucker Rod Pumping, ESP & Gas Lift, PCP & Jet Pump, Pigging Operations, Electric Submersible Pumps (ESP), Progressive Cavity Pumps (PCP), Natural & Artificial Flow Well Completion, Well Testing Procedures & Evaluation, Well Performance, Coiled Tubing Technology, Well Integrity Management, Well Casing & Cementing, Acid Gas Removal, Water Flooding, Water Lift Pumps Troubleshooting, Water System Design & Installation, Water Networks Design Procedures, Water Pumping Process, Pipelines, Pumps, Turbines, Heat Exchangers, Separators, Heaters, Compressors, Storage Tanks, Valves Selection, Compressors, Tank & Tank Farms Operations & Performance, Artificial Lift Methods, Piping & Pumping Operations, Pump Performance Monitoring, Rotor Bearing Modelling, Hydraulic Repairs & Cylinders, Root Cause Analysis, Vibration & Condition Monitoring, Piping Stress Analysis, Amine Gas Sweetening & Sulfur Recovery, Heat & Mass Transfer and Fluid Mechanics.**

During his career life, Dr. Hesham held significant positions and dedication as the **General Manager, Petroleum Engineering Assistant General Manager, Workover Assistant General Manager, Workover Department Manager, Artificial Section Head, Oil & Gas Production Engineer** from Agiba Petroleum Company and **Engineering Consultant/Instructor** for various Oil & Gas companies as well as a **Senior Instructor/Lecturer** for **PhD, Master & BSc degree students** from various universities such as the Cairo University, Helwan University, British University in Egypt, Banha University.

Dr. Hesham has **PhD** and **Master's** degree as well as **Post Graduate Diploma in Mechanical Power Engineering** and a **Bachelor's** degree in **Petroleum Engineering**. Further, he is a **Certified Instructor/Trainer** and a **Peer Reviewer**. Dr. Hesham is an active member of Egyptian Engineering Syndicate and the Society of Petroleum Engineering. Moreover, he has published technical papers and journals and has delivered numerous trainings, workshops, courses, seminars and conferences internationally.

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 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 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, 01st of September 2025

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Overview of Oil & Gas Sampling Importance of Accurate Sampling • Sampling Techniques in Upstream & Downstream Sectors • Differences Between Liquid & Gas Sampling • Challenges in Oil & Gas Sampling
0930 – 0945	Break
0945 – 1030	Principles of Sampling & Preservation Definitions & Principles of Representative Sampling • Importance of Sample Integrity • Preservation Techniques for Oil & Gas Samples • Ensuring Compliance with Industry Standards
1030 – 1130	Methods of Oil Sampling Grab Sampling versus Composite Sampling • Automated Sampling Techniques • Manual Sampling Methods • Sampling Equipment & their Uses
1130 – 1215	Methods of Gas Sampling Continuous versus Batch Gas Sampling • Techniques for Gas Composition Analysis • Use of Gas Chromatographs in Sampling • Sample Conditioning & Preservation for Gases
1215 – 1230	Break
1230 – 1330	Sampling in Oilfield Environments Sampling Challenges in High-Temperature & High-Pressure Environments • Sampling from Production Wells & Pipelines • Impact of Environmental Factors on Sample Quality • Regulatory & Safety Concerns During Sampling



1330 – 1420	Regulatory & Standards for Sampling International & Local Standards (e.g., ASTM, ISO) • Ensuring Compliance with Industry Regulations • Best Practices for Maintaining Sampling Equipment • Documentation & Traceability of Samples
1420 – 1430	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
1430	Lunch & End of Day One

Day 2: Tuesday, 02nd of September 2025

0730 – 0830	Basics of Sample Preservation Importance of Sample Preservation in Ensuring Accurate Results • Types of Preservatives Used in Oil & Gas Samples • Techniques for Preventing Contamination • Preservation for Short-Term versus Long-Term Storage
0830 – 0930	Preservation of Liquid Samples Chemical Preservatives for Oil & Water Samples • Methods for Freezing & Cooling Samples • The Role of Inert Gases in Sample Preservation • Handling Volatile Organic Compounds in Samples
0930 – 0945	Break
0945 – 1100	Preservation of Gas Samples Techniques for Preserving Gas Samples in Pressurized Containers • Use of Refrigerants & Cryogenic Methods • Preventing Loss of Volatile Components • Storage & Transportation of Gas Samples
1100 – 1215	Impact of Storage Conditions on Sample Quality Effects of Temperature & Pressure on Oil & Gas Samples • Chemical Reactions & Degradation During Storage • Proper Labeling & Handling for Long-Term Preservation • Identifying & Mitigating Sample Contamination
1215 – 1230	Break
1230 – 1330	Quality Control in Sample Preservation Routine Checks on Preservatives & Storage Conditions • The Role of Preservatives in Maintaining Sample Integrity • Calibration of Preservation Equipment • Best Practices for Sample Validation & Traceability
1330 – 1420	Handling & Transport of Preserved Samples Guidelines for Transporting Samples to Testing Laboratories • Packing, Sealing & Labeling Techniques • Chain of Custody Procedures • Maintaining Integrity During Field-To-Laboratory Transition
1420 – 1430	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
1430	Lunch & End of Day Two

Day 3: Wednesday, 03rd of September 2025

0730 – 0830	Handling Complex Samples Sampling from Multiphase Flow Systems • Dealing with High-Salinity or High-pH Samples • Sampling from Unconventional Reservoirs • Managing Complex Contamination Issues
0830 – 0930	Use of Advanced Equipment for Sampling High-Performance Automatic Samplers • Advanced Equipment for Preserving Volatile Components • In-Line Sampling & its Advantages • Automation in Oil & Gas Sampling Processes

0930 – 0945	Break
0945 – 1115	Case Studies on Sampling & Preservation Successful Case Studies from Oil Fields • Failure Scenarios & Lessons Learned • Addressing Challenges in Remote & Offshore Locations • Case Studies on Contamination & Preservation Failure
1115 – 1230	Troubleshooting Common Sampling Issues Identifying Common Sampling Errors & their Causes • Techniques for Resolving Preservation Failures • Handling Equipment Malfunctions During Sampling • Rectifying Contamination or Degradation Problems
1230 – 1245	Break
1245 – 1345	Emerging Technologies in Oil & Gas Sampling Innovations in Real-Time Sampling Systems • Remote Sensing & Autonomous Sampling Technologies • IoT & Sensor Integration for Sample Preservation • Future Trends in Automated Sample Preservation Techniques
1345 – 1400	Course Conclusion Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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