COURSE OVERVIEW LE0362(KN1)-4D
Refinery Laboratory: Analytical Methods, Procedures, Quality Control, Technology, Analysis & Best Practice

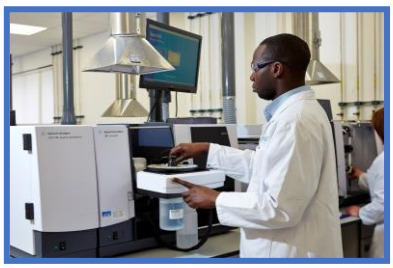
Course Title
Refinery Laboratory: Analytical Methods, Procedures, Quality Control, Technology, Analysis & Best Practice

Course Date/Venue
December 23-26, 2024/Al Aziziya Hall,
The Proud Hotel Al Khobar, KSA

Course Reference
LE0362(KN1)-4D

Course Duration/Credits
Four days/2.4 CEUs/24 PDHs

Course Description



This practical and highly-interactive course includes practical sessions and exercises where participants will visit the laboratory and they will be introduced to various lab instruments and refinery laboratory best practices. Practical sessions will be performed using lab equipment and instruments in order to apply the theory learnt in the class.

This course is designed to provide delegates with a detailed and up-to-date overview of the analytical methods, procedures, quality control, technology, analysis and best practices of refinery laboratory. It covers laboratory quality management system in accordance with the international standard ISO 17025; and laboratory procedures that includes the general product specification, analytic items, sample handling and laboratory safety.

At the completion of the course, participants will be able to implement quality control of gasoline, naphtha, diesel, kerosene and aviation fuel; assess crude oil and apply quality control of fuel oil, base oil, asphalt and sulfur as well as quality control of gas; employ quality control of water and environmental test; recognize the general principle and scheme of NIR technology and its application; interpret troubleshooting analysis; and identify the miscellaneous issues in quality control.

Course Objectives

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

- Apply and gain systematic techniques, analytical methods, procedures, quality control, technology, analysis and best practices of refinery laboratory
- Discuss laboratory quality management system in accordance with the international standard ISO 17025
- Carryout laboratory procedure including the general product specification and analytic items, sample handling and laboratory safety
- Implement quality control of gasoline, naphtha, diesel, kerosene and aviation fuel
- Assess crude oil and apply quality control of fuel oil, base oil, asphalt and sulfur as well as quality control of gas that includes propane, butane, etc
- Employ quality control of water and environmental test as well as recognize the general principle and scheme of NIR technology and its application
- Interpret troubleshooting analysis and identify the miscellaneous issues in quality control including the preparation of scale and oil samples to be tested for trace metal contents using AAS and/or ICP as well as the laboratory hand blends preparation and results evaluation

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 covers analytical methods, procedures, quality control, technology, analysis and best practices of refinery laboratory for laboratory staff in refineries including laboratory chemists, analysts, scientists and other lab staff.

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 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 **2.4 CEUs** (Continuing Education Units) or **24 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.

Accommodation

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

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. Saad Bedir is a **Senior Chemical Engineer** with over **30 years** of extensive experience in the **Power**, **Petrochemical** and **Oil & Gas** industries. He is well-versed in the areas of **Laboratory,** Health, Fire, Safety, Security & Environmental Codes of Practice, Legislations and Procedures. His expertise include the implementation of **Refinery Laboratory**, **Laboratory Quality Management & Quality Assurance**, **Medical Laboratory Quality Management**, **Lab Instrument** Calibration & Troubleshooting Techniques, Modern **Analytical** Laboratory, Safety in **Analytical** Laboratories, **Analytical** Chemistry & Precise Results Generation, **ISO 17025:2005 Laboratory Quality Management & Quality Assurance Systems**, **OHSAS 18001**, **ISO 9001**, **ISO 14001**, **QHSE** Management Planning, Crisis & Business Continuity Management Planning, Emergency Response & Procedures, Industrial Security Risk Assessment & Management, Environmental Impact Assessment (**EIA**), Behavioural Safety, Incident & Accident Investigation, Integrated EHS Aspects, Risk Assessment & Hazard Identification, Environmental Audits, Hazardous & Non-Hazardous Waste Management, Confined Space Safety, **SHEMS** Principles, Process Safety, Basic & Advanced Construction Safety, Air Quality Management, Safety & Occupational Health Awareness, Loss Control, Marine Pollution Hazards & Control, Ground Contamination & Reclamation Processes, Waste Management & Recycling, Clean Energy & Power Saving, **HAZOP**, **HAZID**, **HSEIA**, **QRA**, Hazardous Area Classification and Radiation Protection. Presently, he is the **HSE Director** for one of the largest and renowned companies in the Middle East, wherein he takes charge of all HSE and security operations of the company.

Mr. Saad's vast professional experience in directing and managing laboratory, health, safety and the environment aspects as per **ISO 17025:2005** & **OSHA framework** and guidelines can be traced back to his stint with a few international companies like **Saudi ARAMCO**, **CONOCO**, **Kuwait Oil Co.** (**KOC**), where he worked as the Field HSE Senior Engineer, **Laboratory Manager**, **Refinery Engineer**, **Process Engineer**, **QA\QC Engineer**, handling major projects and activities related to the discipline. Through these, Saad gained much experience and knowledge in the implementation and maintenance of international safety standards such as the National Fire Protection Association (**NFPA**), the American Petroleum Institute (**API**), Safety of Life at Sea (**SOLAS**) and Safety for Mobile Offshore Drilling Unit (**MODU**).

Mr. Saad has **Bachelor's** degree in **Chemical Engineering** and a **NEBOSH** certificate holder. Further, he is a **Certified Instructor/Trainer**, a **Certified Lead Auditor** for **OHSAS 18001**, **ISO 9001**, **ISO 14001** and a **member** of the **Egyptian Syndicate** & **Scientific Professions**. His passion for development and acquiring new skills and knowledge has taken him all over the Middle East to attend and share his expertise in numerous trainings and workshops.

Course Fee

US$ 4,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course 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 – 0930	***Introduction of Laboratory Training*** *LQM System (Laboratory Quality Management ISO 17025)*
0930 – 0945	*Break*
0945 – 1100	***Overview of Laboratory Procedure*** *The General Product Specification and Analytic Items ● Handling of Sample ● Laboratory Safety*
1100 – 1230	***The Quality Control of Gasoline & Naphtha*** *Research Octane Number ● Copper Strip, Etc.*
1230 – 1245	*Break*
1245 – 1420	***The Quality Control of Gasoline & Naphtha (cont'd)*** *Oxygenates Compounds and Gum Contents on Gasoline and Naphtha Samples*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 24th of December 2024***

0730 – 0930	***The Quality Control of Diesel, Kerosene & Aviation Fuel*** *CFPP ● Cloud ● Pour Point ● Cetane Number ● Cetane Index ● Lubricity, Etc.*
0930 – 0945	*Break*
0945 – 1100	***The Quality Control of Diesel, Kerosene & Aviation Fuel (cont'd)*** *Total Aromatics (Mono-Di-Tri-poly) on Aviation Samples*
1100 – 1230	***Crude Oil Assessment*** *TBP*
1230 – 1245	*Break*
1245 – 1420	***Crude Oil Assessment (cont'd)*** *Pot Still, Etc.*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Wednesday, 25th of December 2024***

0730 – 0930	***The Quality Control of Fuel Oil, Base Oil, Asphalt, Sulfur, Etc.*** *API ● Viscosity ● Color, Etc.*
0930 – 0945	*Break*
0945 – 1100	***The Quality Control of Fuel Oil, Base Oil, Asphalt, Sulfur, Etc. (cont'd)*** *HT. Simulated Distillation Test for Heavy Oil Samples (SimDis) ● Total Sediments on Fuel Oil Samples using IP Method*
1100 – 1230	***The Quality Control of Gas (Propane, Butane, Etc.)*** *Sulfur*
1230 – 1245	*Break*
1245 – 1420	***The Quality Control of Gas (Propane, Butane, Etc.) (cont'd)*** *Composition, Etc.*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4:	***Thursday, 26th of December 2024***
0730 – 0930	***The Quality Control of Water & Environmental Test*** *Ion Chromatography ● Amine Concentration, etc. • TOC ● Oil in Water*
0930 - 0945	*Break*
0945 – 1100	***NIR Technology & Application*** *General Principle & Scheme*
1100 – 1230	***Special Analysis for Troubleshooting*** *The Interpretation for Troubleshooting Analysis*
1230 – 1245	*Break*
1245 – 1345	***Miscellaneous Issues in Quality Control*** *Preparation for Scale and Oil Samples to be Tested for Trace Metal Contents using AAS and/or ICP • Laboratory Hand Blends Preparation and Results Evaluation*
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/Site Visit

Site visit will be organized during the course for delegates to practice the theory learnt:-

Course Coordinator

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