



COURSE OVERVIEW LE0270

High Performance Liquid Chromatography (HPLC)

Course Title

High Performance Liquid Chromatography (HPLC)

Course Date/Venue

December 15-17, 2024/ Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA

Course Reference

LE0270

Course Duration/Credits

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.



HPLC is used for separating, detecting and analyzing a variety of materials, including organic compounds and polymers. HPLC size-exclusion chromatography separates molecules based on differences in their molecular weights. Compounds varying in molecular weight from a few hundred to 10 million daltons can be easily separated. Three methods (laser light scattering, refractive index and UV-VIS) are used to detect the separated compounds and to characterize the components present. This technique provides valuable data on formulations for batch-to-batch comparisons.



This course covers the basics of the relevant scientific history, underlying theory and principles of operation of liquid chromatography. A description of HPLC hardware, its purpose and mode of operation, as well as basic separation principles are all covered in this course. A classroom approach with practical demonstrations and examples, together with written course notes helps to provide all the fundamental references someone starting out in HPLC needs.





This course is designed for beginners and intermediate-level users in HPLC who want practical laboratory experience. The lectures, supplemented by problems sets, slides, and video tapes, provide the fundamentals needed to understand the techniques and instrumentation involved in this powerful analytical tool. No prior experience in advanced mathematics, theoretical chemistry, or physics is required for this course. Some experience in HPLC or introductory course work in organic chemistry is desirable but not necessary.

Course Objectives

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

- Perform proper analysis using HPLC
- Describe HPLC instrumentation, detector details and hardware
- Discuss important HPLC parameters, separation fundamentals and mobile phase
- Distinguish separation modes such as reverse phase, normal phase, ion exchange and size exchange as well as carryout column selection and optimization
- Carryout quantitative and qualitative analysis
- Troubleshoot HPLC systems such as hardware, separation, etc
- Carryout gradients and develop methods from completely unknown mixtures

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 high-performance liquid chromatography (HPLC) for laboratory and R&D staff who are seeking a good working knowledge in HPLC. The lectures, supplemented by problems sets, slides, and video tapes, provide the knowledge needed to understand the techniques and instrumentation involved in this powerful analytical tool. The course is essential for chemists, scientists, researchers, instrumentation engineers and other laboratory staff.

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 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: -

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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 **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.

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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. Nikolas Karnavos, MSc, BSc, is a Senior Analytical Chemist with over 35 years of extensive experience within the Oil, Gas, Refinery and Petrochemical industries. His expertise widely covers Gas & Liquid Chromatograph Process Analysers, Process Analyzer Techniques (Online & Offline), Laboratory Information Management System (LIMS), Data & Method Validation in Analytical Laboratories, Laboratory Automation Techniques, Practical Problem Solving in Chemical Analysis, Practical Statistical Analysis of Lab Data, Chemical Laboratory, Analytical Laboratory & Instrumentation, Laboratory Health & Safety, GLP, Laboratory Quality Management (ISO 17025), ISO 9001 and Medical Laboratory Quality Management (ISO 15189). Further, he is also well-versed in Environmental Online Analyzers (Air & Water), Gas Chromatography and various instrumental methods of analysis such as Water Analysis & Quality Control, Water and Wastewater Chemical Analysis, Statistical Data and Laboratory Analysis, Gas Analysis, Qualitative Fuel Analysis, Environmental Chemical Analysis, Laboratory Environmental Analysis including Water Quality Testing, Process Water and Wastewater Effluents, Oily Sludge Treatment, Atomic Absorption and Spectroscopic Methods in Analytical Chemistry, Analytical Method Development and Methods of Environmental Measurements (Water, Air, Liquid & Solid Wastes).

Mr. Karnavos was the **Laboratory Manager** of **Exxon** wherein he was responsible for **ISO 17025 certification**, upgrading laboratory equipment in **refinery, petrochemical and polypropylene** plants, upgrading and extending LIMS, handling the transition plan process of the existing laboratory to a new as well as formulating and executing the plans for applied research and technology transfer. During his career life, he had occupied several significant positions as the **Laboratory Analyst, Laboratory Professor, Quality Manager, Partner & Managing Director, Environmental Engineer, Process Engineer, Environmental Management Corporate Department Head and Quality Control & Plastics Application Head** with different international companies like the **AQUACHEM, Hellenic Petroleum (EXXON) and Technological Institute.**

Mr. Karnavos holds a **Master** degree in **Chemical Engineering** and **Bachelor** degrees in **Mechanical Engineering** and **Petroleum Engineering** from the **Aristotelian University of Thessaloniki, Technological Institute and KATEE Kavala** respectively. He is an **Accredited Trainer** for the Organization for the Certifications & Vocational Guidance (**EOPPEP**), a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)**, a **Certified Instructor/Trainer** and an **Accredited Environmental Auditor** from the **IEMA**. Further, he is the **President** of **Greek Association of Chemical Engineers** and an active member of various professional engineering bodies internationally like the **IEMA, Technical Chamber of Greece** and the **CONCAWE**. He also **published numerous books and scientific papers** and delivered various trainings and workshops 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.

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 15th of December 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to KPI's Key Result Indicators • Performance and Result Indicators • Key Performance Indicators • Management Models that Have a Profound Impact on KPIs • Definitions
0930 – 0945	Break
0945 – 1100	Foundation Stones for Implementing KPI's Four Foundation Stones Guiding the Development and Use of KPIs • Defining Vision, Mission and Strategy
1100 – 1215	Developing & Using KPIs: A 12-Step Model Step1: Senior Management Team Commitment • Step 2: Establishing a Winning KPI Project Team
1215 – 1230	Break
1230 – 1420	Developing & Using KPIs: A 12-Step Model (cont'd) Step 3: Establishing a "Just Do It" Culture and Process" • Step 4: Setting Up a Holistic KPI Development Strategy
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday 16th of December 2024

0730 – 0930	Developing & Using KPIs: A 12-Step Model (cont'd) Step 5: Marketing the KPI System to All Employees • Step 6: Identifying Organization- Wide Critical Success Factors
0930 – 0945	Break
0945 – 1100	Developing & Using KPIs: A 12-Step Model (cont'd) Step 7: Recording Performance Measures in a Database • Step 8: Selecting Team-Level Performance Measures
1100 – 1215	Developing & Using KPIs: A 12-Step Model (cont'd) Step 9: Selecting Organizational Winning KPIs



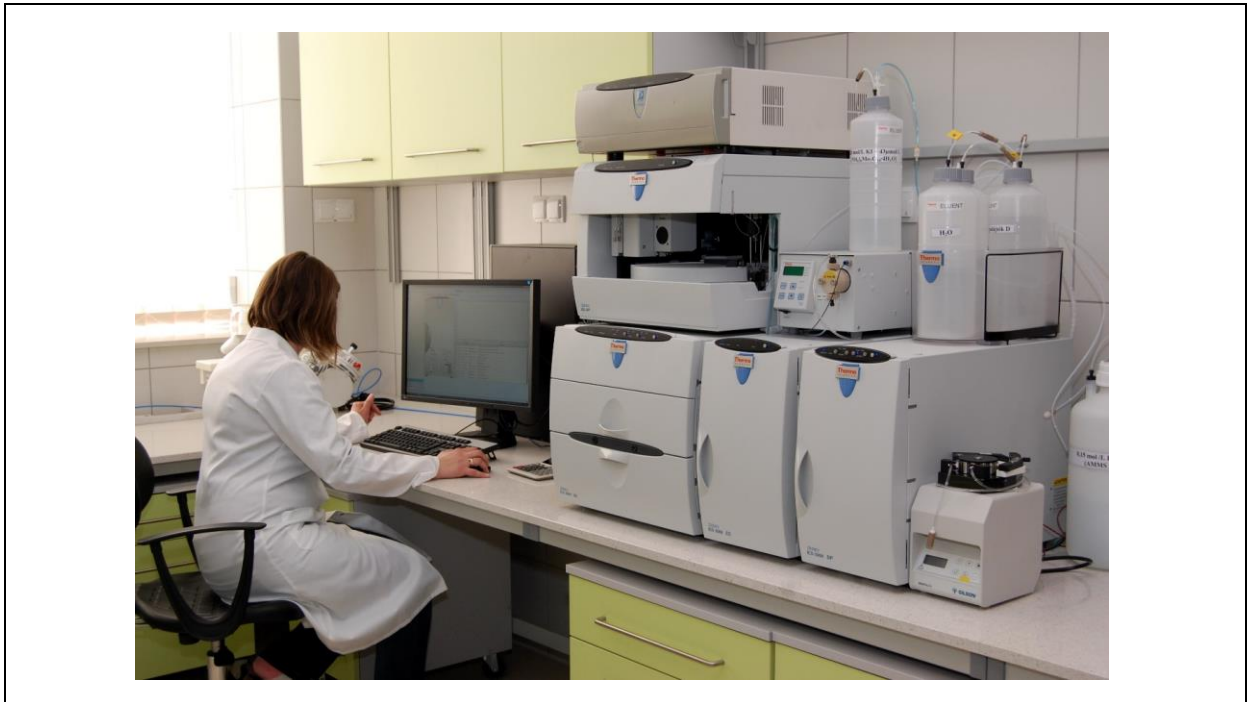
1215 – 1230	Break
1230 – 1420	Developing & Using KPIs: A 12-Step Model (cont'd) Step 10: Developing the Reporting Framework at All Levels
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Tuesday 17th of December 2024

0730 – 0930	Developing & Using KPIs: A 12-Step Model (cont'd) Step 11: Facilitating the Use of Winning KPIs
0930 – 0945	Break
0945 – 1100	Developing & Using KPIs: A 12-Step Model (cont'd) Step 12: Refining KPIs to Maintain Their Relevance
1100 – 1215	Reporting Performance Measures • Reporting Key Result Indicators in a Dashboard to the Board • Reporting Performance Measures to Management
1215 – 1230	Break
1230 – 1345	Reporting Performance (cont'd) Reporting Performance Measures to Staff • Graph Format Examples
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions/Site Visit

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



Course Coordinator

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