



AL162: HPLC: High-Performance Liquid Chromatography

Training Description:

High Performance Liquid Chromatography (HPLC) techniques are so popular and common in pharma industry, cosmetic industry, chemistry industry, food industry, polymer industry and environment laboratories.

High performance liquid chromatography (HPLC) is the crucial and integral analytical tool applied in all stages of drug discovery, development, and commercialization in the pharmaceutical industry, especially. At each step of drug development, drug substances, ingredients and drug products are controlled and monitored by using HPLC techniques.

In this course, chromatography, chromatography principles, types of chromatography, instrumental design of HPLC, HPLC Analysis, Types of HPLC and Descriptors of HPLC have been discussed within all technical details.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Understand and define basics of chromatography by learning stationary phase, mobile phase and analyte
- ✓ Explain chromatography principles by understanding of affinity theory (solubility & adsorption)
- ✓ Explain the types of chromatography based on bed type, separation mechanism, and physical states of phases
- ✓ Understand instrumental design of HPLC system by explaining HPLC compartments
- ✓ Define mission and importance of HPLC compartments such as solvent reservoir, solvent delivery system (pump), sampler unit & injector, column, detector, monitor
- ✓ Evaluate mission of HPLC techniques in analytical chemistry by explaining qualitative and quantitative analysis
- ✓ Define types of HPLC such as Normal Phase (NP HPLC), Reversed Phase (RP HPLC), Ion Exchange (IEX) and Size Exclusion Chromatography (SEC)
- ✓ Evaluate and understand descriptors of HPLC such as Retention Time, Void Volume, Retention Factor, Selectivity, Efficiency (Theoretical Plate Number), Resolution

Training Designed for:

- ✓ Anyone who is willing to learn High Performance Liquid Chromatography (HPLC)
- ✓ Anyone who wants to learn the chemistry of the High-Performance Liquid Chromatography (HPLC)
- ✓ Anyone who wants to be qualified in analytical chemistry, instrumental analysis and pharmaceutical industry
- ✓ Anyone who need to use HPLC techniques in analytical chemistry and/or pharmacy in the learning process
- ✓ Anyone who desire to be master in HPLC analysis by using technical/chemical background
- ✓ Anyone who wants to get certification related with High Performance Liquid Chromatography (HPLC)

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

This training course is available upon request in English or Arabic, virtual online live or face to face public/inhouse. Content, location and duration can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

FIVE DAYS:

- ❖ INTRODUCTION
- ❖ INTRODUCTIONS TO HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)
- ❖ CHROMATOGRAPHY
 - History of Chromatography
 - What is Chromatography
 - What is Stationary Phase
 - What is Mobile Phase
 - What is Analyte
- ❖ CHROMATOGRAPHY PRINCIPLES
 - Chromatographic Separation
 - Chromatography (Affinity & Interaction)
 - Chromatography (Solubility & Adsorption)
 - Chromatography (Solubility & Polarity)
 - Chromatography (Solubility & Hydrophilic / Hydrophobic)
 - Let's Categorize Molecules
- ❖ TYPES OF CHROMATOGRAPHY
 - Chromatography Classification Based on Bed (Column Chromatography, Paper Chromatography, Thin Layer Chromatography)
 - Chromatography Classification Based on Separation Mechanism (Affinity Chromatography, Ion Exchange Chromatography, Gel Filtration Chromatography)
 - Chromatography Classification Based on Physical States of Phases (Gas Chromatography, Liquid Chromatography)
- ❖ INSTRUMENTAL DESIGN OF HPLC SYSTEM
 - Simple Technical Design
 - Technical Design
 - Equipment Compartments
 - Solvent Reservoir
 - Solvent Delivery System (Pump)
 - Sampler Unit & Injector & Autosampler
 - Column
 - Defector
 - PC Monitor

- ❖ **HPLC ANALYSIS**
 - HPLC in Analytical Chemistry
 - Qualitative Analysis
 - Quantitative Analysis
 - Quantitative Analysis Example
- ❖ **TYPES OF HPLC**
 - Types of HPLC
 - Normal Phase HPLC (NP HPLC)
 - Reversed Phase HPLC (RP HPLC)
 - Ion Exchange Chromatography (IEX)
 - Size Exclusion Chromatography (SEC)
- ❖ **DESCRIPTORS OF HPLC & ANALYTICAL METHOD DEVELOPMENT**
 - Retention Time
 - Void Volume (Dead Volume)
 - Retention Factor
 - Selectivity
 - Efficiency (Theoretical Plate Number)
 - Selectivity & Efficiency
 - Resolution
- ❖ **Course Conclusion**
- ❖ **POST-ASSESSMENT and EVALUATION**

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Prayer Break & Lunch)
13:30 - 15:00	Last Session

For training registrations or in-house enquiries, please contact:

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