



AL115: Basic Chromatography Technique Operation, Application & Analysis Troubleshooting



Training Description:

This intensive course is designed to provide training in the fundamental techniques of both gas chromatography (GC) and liquid chromatography (HPLC). The course covers: major components of a chromatography; operating principles; application; calibration methods; set-up procedures; preventative maintenance; troubleshooting methods; quantitative methods and failure modes for each, along with practical examples.

The course also discusses other aspects such as optimization of column lengths, flows, temperatures and pressure with the necessary theoretical information in each part. The aim of this course is to enrich and advance the skills and knowledge of participants and to teach them chromatography technique operation.

Training Objective:

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

- ✓ Impart with the fundamental techniques and knowledge of chromatography
- ✓ Familiarize with the tools and techniques used in chromatography analyses, cause and effect diagrams, calibration and standard analysis methods
- ✓ Provide the skills, knowledge and understanding of principles of chromatography analysis application
- ✓ Use a routine maintenance
- ✓ Impart the operation technique
- ✓ Be trained to know how to change and install all chromatography components
- ✓ Be familiar with of the latest analytical methods

Training Designed for:

This course is intended for Chemists, Lab Technicians, Chemical Engineers, Instrument Engineers and Lab Supervisors/Managers.

Training Program:

DAY ONE:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ Fundamental chromatography technique
- ❖ Chromatographic theory parameters
- ❖ Chromatography retention process
- ❖ Separation methods
- ❖ Application of chromatography
- ❖ Solid phase extraction method
- ❖ Derivatization method

DAY TWO:

- ❖ Standard operation method
- ❖ Successful and safe operating procedure



- ❖ Gas chromatography technique
- ❖ Carrier gas and pressure regulator system
- ❖ Split/Splitless inlet system
- ❖ Cool on-column inlet and programmed temperature vaporization inlet
- ❖ Column configuration

DAY THREE:

- ❖ Detector configuration
- ❖ Maintenance and installation procedure for inject system, column and detectors
- ❖ Liquid chromatography technique
- ❖ Mobile phase solvent
- ❖ Pumping system
- ❖ Column and detector types
- ❖ Operation method of HPLC

DAY FOUR:

- ❖ Overview of liquid chromatographic separation methods
- ❖ Application of liquid chromatography
- ❖ Ion chromatographic method
- ❖ Size-exclusion chromatographic method
- ❖ Supercritical fluid chromatography
- ❖ Instrumentation and operating variables

DAY FIVE:

- ❖ Chromatography variables effect
- ❖ Techniques to minimize peak broadening
- ❖ Column condition and regeneration technique
- ❖ Maintenance and installation procedure for inject system, column, pump and detectors
- ❖ Troubleshooting and approaches to solve problems
- ❖ Quantitative methods: calibration methods, external and internal standards, outliers test, determination of analyte concentration, standard addition method, error in quantitative analysis, confidence limits, detection limit, repeatability, reproducibility and method validation,
- ❖ Course Conclusion
- ❖ POST-TEST and EVALUATION

Training Requirements:

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

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.





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, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

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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Training & Career Development Department

