



First Select

Advanced Gas Chromatography Techniques & Troubleshooting

Date	Venues	(\$Fees	Book your seat
21 Dec -25 Dec 2025	Dubai	2900	Register Now

This course is designed to integrate the various aspects and techniques within the field of separation science. We will cover theory, instrumentation, and practice of modern separation techniques including gas chromatography, liquid chromatography, and electro kinetic separations. We will also discuss sample preparation methods.

The emphasis of the course is on practical, empirical, and applied aspects of the above, with sufficient coverage of theory to provide a thorough understanding of how the methods work and to facilitate method development.

The unifying features of the various separations techniques are, not surprisingly, the fundamental physical parameters governing the separative process - including equilibrium, mass transport, bulk fluid transport, zone formation and perturbation, etc. These unifying features will guide us through the course.

Course objectives:

By the end of this workshop participants will have:

- A greater understanding of why and how separations techniques work as they do
- An ability to select and employ appropriate separations methods for various analysis problems
- An aptitude for making the calculations necessary in utilizing the various separation techniques. Having met these goals, you will be able to effectively employ chromatography and other separations methods in your research

Who should attend?

Analytical chemists, laboratory supervisors, laboratory technicians, GC technicians, research and development scientists, instrument specialists, and quality assurance/control managers.

Course Outline:

Day 1

- Introduction to separation science
- Separations theory and calculations
- Column Systems
- Packed and capillary
- Performance evaluations, how they are made
- Liquid phases/selection/temperature limits
- Solid supports
- Adsorbents, molecular sieves
- How to select the type of columns required for plant application
- Isothermal/temperature programming
- Compatibility, operating tips
- Installation of columns, trouble-shooting, gas flow adjustments
- Linear velocity thru capillary column
- Operational tips

- Column behavior
- Maintenance and trouble-shooting

Day2

- Gas chromatography: hardware and methods
- High performance liquid chromatography: hardware and methods
- Introduction to modern electrophoretic methods of analysis
- Sample preparation
- Biological, environmental, and industrial applications (interspersed among the above)

Day3

- Introduction to Troubleshooting and Preventive Maintenance
- System Familiarization
- Inlet Troubleshooting and Maintenance
- Worksheet Exercise 1

Day 4

- Automatic Liquid Sampler (ALS) Troubleshooting and Maintenance
- Capillary Column Troubleshooting and Maintenance
- Video Segment 2: Column Installation
- Electronic Pneumatic Control (EPC) T&M

Day 5

- Detector Troubleshooting and Maintenance
- Worksheet Exercise 2
- Worksheet Exercise 3
- Data System Troubleshooting and Conclusion

WORKSHOP STYLE:

This will be a participative workshop with a mix of interactive learning sessions, exercises and discussions aimed to provide maximum impact and learning retention for all delegates.



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