

- *Introduction to chromatographic methods*
 - *Historical Background, The mobile and stationary phases.*
 - *Basic Components of chromatographic system, Classification of chromatographic techniques.*
- *Theoretical chromatographic treatment.*
 - *Physical forces, Phase equilibria.*
 - *The plate and Rate Theories, Van Deemter Equation and chromatographic performance.*
 - *Resolution in chromatography, Choosing a chromatographic technique*
- *Gas chromatography*
 - *Principles of GSC and GLC chromatography.*
 - *Basic GC components, Sample injection- Direct, split and splitless sample introduction.*
 - *Sample properties, sample derivatization for GC analysis*
 - *The stationary phase - materials and packing, Packed and Capillary columns.*
 - *Column oven and temperature programming system*
 - *Classification of detection systems; Thermal conductivity, Flame ionization, Electron capture, and other detectors*
 - *Typical GC instruments, Qualitative and Quantitative analysis*
- *Liquid chromatography*
 - *Scope of LC analysis, The basic LC components*
 - *Sample injectors, The pumps*
 - *The mobile phase; Isocratic and gradient elution techniques, The stationary phases and columns; Normal and reversed phase LC.*
 - *Properties of LC detectors; Refractive index, photometric, conductimetric, electrometric and other detectors, Other LC systems.*
- *Other chromatographic related techniques.*

الكتب الأساسية:

Ion Chromatography "Modern analytical Chemistry", H. Small, 1st ed., 2001, Springer.

المرجع المساند:

Analytical electrochemistry, J. Wang, 3rd ed., 2006, Jon Wiley & Sons.