

Approval: 1st Convocation Adhoc meeting

Course Name : Advanced Analytical Techniques

Course Number : CY 643

Credit : 3-0-0-3

Students intended for: B.Tech/MSc/PhD

Prerequisites:

Elective or Compulsory: Compulsory

Course contents:

Introduction: Role of Analytical Chemistry in Science, Classification of quantitative methods in the science, steps in typical quantitative analysis. **(2 hrs)**

Surface Analysis by Microscopy: Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM)-Principle, Instrumentation, Analysis, and Applications. **(10 hrs)**

Atomic Spectroscopy for Analysis: Atomic Absorption and Atomic Emission Spectroscopy - Principle, Instrumentation, Analysis, and Applications and *Advances*. **(8 hrs)**

Purification and Isolation techniques: An introduction to chromatographic techniques, Gas Liquid Chromatography and Liquid Chromatography (particularly High Performance Liquid Chromatography) - Principles, Instrumentation, Applications and *Advances*. **(8 hrs)**

Miscellaneous Methods of Analysis: Thermal Methods- Differential Thermal Analysis, Differential Scanning Calorimetry. **Particle Size Determination** – Dynamic Light Scattering **(14 hrs)**

Text & Reference Books:

Instrumental Analysis by Skoog. Holler. Crouch.

Fundamentals of Analytical Chemistry by Skoog. West. Holler