

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-413	Analytical Chemistry (Sp. Theory-II)	4	VII
Year	Discipline		
4	Chemistry		

SYLLABUS OUTLINE:

FTIR / Raman Spectroscopy:

Origin of Infra Red Spectra; Different vibrational modes, Normal coordinate and normal vibrations, Symmetry of normal vibrations and selection rule, Raman Spectroscopy, Metal-isotope spectroscopy, Vibrational Spectra in gaseous phase and inert gas matrices; Comparison of raman with Infra Red spectroscopy; Applications for qualitative and quantitative chemical analysis; Instrumentation details and their function.

UV / Vis Spectroscopy:

The Nature of Electromagnetic Radiation, The Electromagnetic Spectrum, Atomic Energy Levels, molecular Electronic Energy Levels, Vibrational Energy Levels, Raman Effect, Lasers,

Radiation Sources, Wavelength Selection, Cells and Sampling Devices, Detectors, Readout Modules, Instruments for Absorption Photometry

Atomic / Mole Fluorescence:

Atomic Fluorescence Spectroscopy; Instrumentation, applications and limitations of these techniques

Plasma Source

Inductively coupled plasma sources, special detection systems and read out devices used for ICPEs; multielement analysis with plasma devices.

RECOMMENDED BOOKS:

1. Chemical Application of Spectroscopy by West, Inter Science Publisher Inc. N.Y. London.
2. Kinetics in Analytical Chemistry by H.B. Mark Jr. & G.A. Rechnitz, Interscience N.Y. (1968).
3. Analytical Chemistry by Gary D. Christian, John Wiley and Sons (1977).
4. Automated Chemical Analysis by J.K. Forman Stockwell, John Wiley and Sons, N.Y. (1975).
5. Advances in Infrared Group Frequencies by L.J. Bellamy, Mathuen & Col. Amsterdam (1968).