

## **CY- 609 Advanced Spectroscopic Techniques and Their Applications**

Mass Spectrometry: Instrumentation and sampling, Fragmentation patterns, Ionization techniques, elemental composition from mass spectrum. NMR Spectroscopy: Interpretation of  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra, factors affecting the chemical shifts and coupling constants. Advanced NMR Techniques: Recent advances and structure elucidation of organic molecules from 1D and 2D NMR spectroscopy including J-resolved, shift correlated and multiple quantum spectra, inverse measurements, nuclear Overhauser effect and its applications. Practical Aspects of NMR: Practical Sampling, Recording, Software handling, monitoring of Reaction proceeding, Product purity.