

1.	Title of the course	Applications of Spectroscopy in Inorganic and Organic Chemistry
2.	Course number	CY602L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CY6103/10
6.	To be offered by	Department of Chemistry
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): To introduce the basic principles of NMR, IR, UV-Vis spectroscopy and mass spectrometry. Hence, to use these spectroscopic methods for organic and inorganic structure elucidation.	
10.	Course Content: NMR Spectroscopy: ^1H , ^{13}C , ^{19}F and ^{31}P nuclei, chemical shifts, spin-spin coupling, first order patterns, second order effects, stereochemical assignments, selective decoupling, FT technique, NOE effects, dynamics by VT NMR; Mass Spectrometry: ionization techniques, isotope abundance, molecular ions, fragmentation and rearrangement of ions, high resolution MS, soft ionization methods; Electronic Spectroscopy: chromophoric groups, conjugated and aromatic systems, Cotton effects, octant rule, axial halo-keto rule, characteristic absorption of organic and inorganic compounds; Infrared Spectroscopy: characteristic group frequencies of organic and inorganic molecules; Introduction to EPR and Mossbauer spectroscopy; Identification of organic and inorganic compounds using spectral data;	
11.	Textbook(s): 1. Drago R S, <i>Physical Methods for Chemists</i> , W. B. Saunders (1992). 2. Kemp W, <i>Organic Spectroscopy</i> , Red Globe Press (2019).	
12.	Reference(s): 1. Abragam A and Bleaney B, <i>Electron Paramagnetic Resonance of Transition Ions</i> , Oxford University Press (2012). 2. Jolly W L, <i>The synthesis and characterization of inorganic compounds</i> , Prentice-Hall (1970). 3. Nasipuri D, <i>Stereochemistry of Organic Compounds, Principles and Applications</i> , New Age International (2011).	