1.	Title of the course	Biomolecules and Chemical Biology
2.	Course number	CY604L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CY6202/10
6.	To be offered by	Department of Chemistry
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To impart knowledge on the complicated and diverse structures of biological molecules. To entice students with their varied cellular functionality and with the molecular basis of drug action in body.	
10.	**Course Content:** General introduction including structural aspects of peptides/proteins, carbohydrates and nucleic acids and their biological importance; Transcription, translation and post-translational modifications; Protein folding & structures; Biomolecular Interactions: nature, energetics and dynamics; Hydrophobicity, organized assemblies and supramolecular structures; Enzyme Catalysis and Kinetics; Enzyme chemistry including the role of co-enzyme: proteases, phosphatases, oxidases and reductases; Proteins as drug targets & drug design; Nucleic acid chemistry: Quadruplex nucleic acids; Nucleic acids based enzymes: ribozymes, DNA enzymes and riboswitches; Nucleic acid based therapeutic strategies and drug targeting; DNA damage and repair.	
11.	**Textbook(s):** 1. Lehninger A, Nelson D L, and Cox M M, *Principles of Biochemistry*, W.H Freeman (2008). 2. Miller A, and Tanner J, *Essentials Of Chemical Biology: Structure and Dynamics of Biological Macromolecules*, Wiley (2002).	
12.	**Reference(s):** 1. Blackburn G M, Gait M J, Loakes D and Williams D M, *Nucleic Acids in Chemistry and Biology*, RSC Publishing (2006). 2. Dobson C M, Gerrard J A and Pratt A J, *Foundations of Chemical Biology*, Oxford University Press (2002). 3. Schreiber S L, Kapoor T and Wess G, *Chemical Biology: From Small Molecules to Systems Biology and Drug Design, Vol. 1-3*, Wiley-VCH, Verlag GmbH & Co. KGaA (2007). 4. Waldmann H, and Janning P, *Chemical Biology: Learning Through Case Studies*, Wiley-VCH, Weinheim (2009).	