Course Title	Course Structure			Pre-Requisite
	L	T	P	
Protein Engineering (BT320)	3	1	0	Nil

Course Objective:

To impart advance knowledge on how to engineer proteins through a detailed study of protein structure, its characteristic properties and its significance in biological Systems.

Course Outcome:

1. Compare and contrast between different types of bonds in protein structure.
2. Understand amino acid structure, their molecular properties and chemical reactivity.
3. Analyze and determine structure of protein
4. To know the relationship between structure and function of DNA binding proteins
5. Identify and analyze protein by 2D analysis, Mass Spectrometry.

S. No.	Content	Contact Hours
1.	**Bonds and Energies in protein:** Covalent, Ionic, Hydrogen, Coordinate, hydrophobic and Vander walls interactions in protein structure.	8
2.	**Amino acids and their characteristics:** Amino acids- structure with three and single letter codes, molecular properties (size, solubility,charge, pKa), Chemical reactivity in relation to post-translational modification.	8
3.	**Protein architecture:** Primary structure- peptide sequencing, Secondary structure- methods to determine Tertiary structure-overview of methods to determine 3D structures.	8
4.	**Structure-function relationship:** DNA binding proteins- Prokaryotic transcription factors, Eukaryotic transcription factors, Membrane proteins.	9
5.	**Identification and analysis of proteins:** Identification and analysis of proteins by 2D analysis, Mass spectrometry- ion source (MALDI, spray sources), analyser and detector.	9