

Course title: Principles of Biochemistry and Biophysics			
Course code: BBP 161	No. of credits: 2	L-T-P: 30-0-0	Learning hours: 30
Pre-requisite course code and title (if any): Science graduate			
Department: Department of Biotechnology			
Course coordinator: Dr Chaithanya Madhurantakam		Course instructor: Dr Chaithanya Madhurantakam	
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Course type: Core		Course offered in: Semester 1	
<p>Course description:</p> <p>The course is designed to provide students with basic concepts, principles and applications of biochemistry and biophysics. This is aimed at providing information on molecular logic of life, supramolecular chemistry, structure and function of macromolecules, molecular circuits/ information processing cellular networks, cell mechanics and dynamics, molecular bioenergetics, and applications. The course will provide inputs on how emerging biochemical and biophysical techniques greatly enhanced our understanding of biological systems and functioning. Furthermore, the course is focused on recent developments and evolving scenarios in biochemistry and biophysics and will be a good platform for students to further pursue their careers in sciences.</p>			
<p>Course objectives:</p> <ol style="list-style-type: none"> 1. Introduction to the molecular components of a cell, complex chemistry, and their interactions with the environment. 2. Familiarization of students with the macromolecular structural organization and relation to the functional significance of such a conformation through enzyme kinetics. 3. Acquainting the students with concepts of cell mechanics and applications, cellular dynamics and techniques employed. 4. Familiarization with biomolecular interplay involved in signal transduction and ubiquitination, apoptosis, transport mechanisms and metabolic pathways. 5. Providing students with fundamentals of laws of thermodynamics, Non equilibrium thermodynamics and cellular bioenergetics. 			