



PROGRAMME, PROGRAMME SPECIFIC & COURSE OUTCOMES 2016-17

B.Sc.(Bio – Chemistry)

Programme Outcomes (PO)

1. Biochemistry Major able to demonstrate an understanding of fundamental biochemical principles, such as the structure/function of biomolecules, metabolic pathways, and the regulation of biological/biochemical processes.
2. On completion of this program, students are able to be exposed to the theoretical and practical background in fundamental concepts.
3. To get insights into multiple technical areas of biochemistry.
4. To apply contextual knowledge and modern tools
5. of biochemical research for solving problems.
6. Biochemists mainly study the structures and functions of enzymes, proteins, carbohydrates, fats, the process of metabolism, and the molecular basis of the action of genes.
7. As a field Biochemistry has seen unprecedented growth because of its significant contribution towards the illumination and grasping of the DNA Structure.
8. Forming the basis of a great deal of research, this study can make for a successful career offering more alternatives than other science.
9. The biochemistry major provides professional training in medicine, dentistry, clinical nutrition, public health, and veterinary medicine.

Programme Specific Outcomes (PSO)

1. Understand the principles of various fields of chemistry and biology (organic chemistry, analytical chemistry, biochemistry, genetics, metabolism, and molecular biology)
2. Develop as independent thinkers who are responsible for their learning.
3. Develop transferable quantitative skills.
4. Be able to work with others by demonstrating leadership and collaborative skills.
5. Apply modern instrumentation theory and practice to biochemical problems.
6. Handling microbial and biochemical systems.
7. Procuring hands-on real-time experience in industries.
8. Application of knowledge and techniques of Biochemistry
9. Scale-up of the biochemical process after designing, optimization, and analysis for developing products required for society.
10. Compilation and interpretation of Biological data using computer software.
11. Recognize potential laboratory safety concerns and address those using appropriate techniques.
12. Produce scientific reports formatted for peer-reviewed publication, using the primary literature.
13. Present the results, conclusions, and relevance of scientific experiments to a specific audience.

Course Outcomes (CO)

S.NO	SEMESTER	NAME OF THE COURSE	OUTCOMES
1	I	Bioorganic Chemistry	<ul style="list-style-type: none"> • This course aims to provide a basic understanding of the structure and properties of biological molecules. • Knowledge of the simple, complex structure of carbohydrates, chemical properties, biological role. Metabolism of carbohydrates. • A detailed understanding of reaction mechanisms is used to predict product outcome and optimize product over bi-product formation. • The course in bioorganic chemistry focuses on organic molecules, their properties, and how those properties correlate to organic functional groups and three-dimensional structures. • The theory and application of modern spectroscopic methods, such as IR and NMR spectroscopy, is used to establish the structure of organic molecules. • Nucleosides and nucleotides: structure and chemical and biological properties. Nucleoside drugs. Nucleic acids. Experimental sessions on the use of data banks of proteins. • Biological transformation of biomolecules. Lipids digestion, glycolysis, Krebs cycle. Oxidative phosphorylation. Fermentations.
2	II	Tools of biochemistry	<ul style="list-style-type: none"> • The course aims to develop students' understanding in some areas widely used in advanced scientific methods: spectroscopic tools, molecular imaging, and bioinformatics. These achieved via lectures, classes, and seminars. • Make students understand entry into and exit from the cell cycle and the regulation

			<p>of transitions between phases of the cycle.</p> <ul style="list-style-type: none"> • Pursue knowledge in clinical aspects, including epidemiology, tumor cell metabolism, cancer stem cells, DNA viruses, metastasis, and therapeutic strategies. Molecules of a mixture get partitioned between the stationary and mobile phase which depend on their relative affinity, to each one of the phases. Globular protein structure, as well as the techniques used for elucidation of structures and approaches to their prediction from the sequence. The behavior of proteins in solution and the principles of molecular recognition. The principles of membrane protein structure determination.
3	III	Bioorganic Chemistry	<ul style="list-style-type: none"> • To analyze Biochemical preparations • Analyze common organic reducing sugar and ascorbic acid. • Estimation of glycine and calcium • Qualitative analysis of sugars, amino acids, and lipids • Determination of the acid number, saponification number, and estimation of calcium – Titrimetric method.