SACRED HEART COLLEGE (AUTONOMOUS)

Tirupattur – 635 601, Tamil Nadu, S.India

Resi : (04179) 220103
College : (04179) 220553
Fax : (04179) 226423

Ready for Every Good Work

A Don Bosco Institution of Higher Education, Founded in 1951 * Affiliated to Thiruvalluvar University, Vellore * Autonomous since 1987

Accredited by NAAC (4th Cycle – under RAF) with CGPA of 3.31 / 4 at 'A+' Grade

Name of the Programme: B.Sc Bio chemistry

S No	Title of the Paper	Course Code	Course Objectives	Course Outcomes	Relevance
1	CELL BIOLOGY	BC106	• To understand the structure of prokaryotic and eukaryotic cellular organization and to know the fluid mosaic model and membrane transport mechanism. • To learn about the chemical composition and functions of endoplasmic reticulum, golgi apparatus and lysosomes. • To have in-depth understanding of the Structure, Chemical composition and functions of Mitochondria and Ribosomes. • To learn the functions of peroxisomes and glyoxysomes and composition of cytoskeleton and extracellular matrix. • To acquire knowledge on nucleus□structure, composition and functions of chromosomes cell cycle, cell division and cell death	• Develop an understanding of the structure of cell and its difference between prokaryotes and eukaryotes • Define and understand the fluid mosaic model and membrane transport • Categorize the chemical composition and functions of endoplasmic reticulum, golgi apparatus and lysosomes. • Broad knowledge on the structure, chemical composition and functions of mitochondria, ribosomes, peroxisomes and glyoxysomes. • Demonstrate a clear understanding of the composition of cytoskeleton and extracellular matrix. • Evaluate the mechanism of cell division with reference to mitosis and meiosis	Global developmental needs

			mechanisms.		
2	BIOMOLECULES	BC107	• To study the structure and functions of large biological macromolecules. • To understand the organic chemical principles in life processes. • To introduce the knowledge of lipid and their importance. • To provide in-depth understanding of Nucleic acids and its structure. • To categorize the source, applications of vitamins and minerals.	• Understand the knowledge of carbohydrates and their classifications in detail • Acquire the basic knowledge on the classification and structure of amino acids and classify proteins based on its physical and chemical properties • Discuss the importance, classification and functions of lipids • Enumerate the structure and properties of nucleic acids and its types • Explore and recommend the source, applications of vitamins and minerals • Compile the basic information on the sources, mechanism and applications of macro and micro elements	Global developmental needs
3	PLANT BIOCHEMISTRY	BC206	• To provide the basic knowledge of plant cell and water absorption mechanism. • To get familiar with photosynthetic mechanism and starch production cycle. • To acquire knowledge about NPK cycle and its biological significance. • To give detail idea about seed germination, primary and secondary metabolites. • To explore the information about plant hormones and their physiological effects.	• Understand the basic knowledge of plant cell and water absorption mechanism. • Acquire knowledge on photosynthetic mechanism and starch production cycle. • Discuss about NPK cycle and its biological significance. • Describe about seed germination, primary and secondary metabolites. • Explore the information about plant hormones and their physiological effects. • Assess the in-depth principle and speculate the mechanism of plant life cycle	Global developmental needs
4	HUMAN PHYSIOLOGY	BC207	• To understand the anatomy and physiology, various levels of organizations basic homeostatic	• Define and explain the anatomy and physiology, various levels of organizations basic homeostatic	Global developmental needs

			mechanism. • To elucidate and describe the composition, function of various body fluids like blood and lymph, their significance and related disorders • To explain the morphology, physiology of circulatory, respiratory and digestive system and classify the structure of lungs, transport of gases between lungs and tissues. Explain the morphology, functions of kidney and nephron and their role in urine formation. • To categorize the Structure and functions of nerve cells, conduction of nerve impulses, the role of neurotransmitters and reflex action. • To speculate the physiology of muscle contraction in co-ordination with the joints, their articulation and skin.	mechanism. • Explain and determine the composition, function of various body fluids like blood and lymph, their significance and related disorders • Explain and sketch the morphology, physiology of circulatory, respiratory and digestive system. • Categorize the structure of lungs, transport of gases between lungs and tissues. Explain the morphology, functions of kidney and nephron and their role in urine formation. • Evaluate the structure and functions of nerve cells, conduction of nerve impulses, the role of neurotransmitters and reflex action. • Speculate the physiology of muscle contraction in co-ordination with the joints, their articulation and skin.	
5	MICROBIOLOGY	BC304	• To understand basic structure of microbes and associated instruments.	• By learning this subject, Students can demonstrate knowledge of microbial cell structure and metabolism, evolutionary forces and their consequences. It obtains wide knowledge as how microorganisms interact with their environment and interaction between humans. Students can describe and use new and existing methods and technologies in and out of the laboratory setting. They can also formally communicate the results of biological investigations	Global developmental needs

				using both oral and written. Students can demonstrate an understanding, and ability to use, the scientific method including observation, hypotheses testing, data collection, analysis and interpretation.	
6	BIOPHYSICAL CHEMISTRY	BC305	• To understand about basic biophysical units and its chemistry	• On completion of this subject, a student will be able to understand the range of physical methods used to characterize the organization, properties and function of biological molecules, along with the necessitating sophisticated methods to study them at the molecular level. This course will be also providing the principle, instrumentation and application of various basic and sophisticated analytical instruments like Electrophoresis, Microscopy, Chromatography, and Spectroscopy.	Global developmental needs
7	ENZYMOLOGY	BC516	• To understand the role of enzymes in biochemical reactions and its applications.	• Student will have a strong foundation in distinguishing the fundamentals of enzyme properties, nomenclatures, characteristics and its mechanisms. They will be able to apply biochemical calculation for enzyme kinetics, Compare methods for production, purification, characterization and immobilization of enzymes, can discuss various application of enzymes that can benefit human life. It also innovate the student to discover the current and future trends of	Global developmental needs

				applying enzyme technology for the commercialization purpose of biotechnological products.	
8	INTERMEDIATORY METABOLISM	BC517	• To promote and understand chemical reactions, central metabolic pathways and kinetics of energy and homeostasis of metabolism	• At the end of this course, the student is able to explain the general design of metabolic pathways based on bioenergetic principle, can understand the structures and functions of biological molecules. Students can describe how carbohydrates (glucose and glycogen), lipids (fatty acids and triglycerides) and nitrogenous compounds (amino acids and nucleotides) are synthesized and degraded, and more importantly, how metabolic pathways are regulated and recognize the biochemical basis of diseases arise due to defects in metabolism.	Global developmental needs
9	ENDOCRINOLOGY	BC518	• To understand the role of hormones in biochemical reactions and its applications.	• Students will develop the ability to independently evaluate, treat and monitor common endocrine disorders. They will be able to describe major actions of each hormone on target cells, synthesis pathways and inactivation of certain hormones like steroid and thyroid. Student will also gain complete knowledge on hormones and the control of its synthesis and secretion site for each hormone, including feedback relationships.	Global developmental needs

10	GENETICS	BC519	• To understand basic aspects of genetics and associated laws.	• On satisfying the requirements of this course, students will have the knowledge and skills to explain the key concepts in population, evolutionary and quantitative genetics including the basis of genetic variation, heretability and mutation. A student can understand the range of molecular laboratory techniques used routinely in human forensic analysis and population genetic analysis including sex typing, DNA profiling, Single Nucleotide Polymorphism (SNP) detection and DNA sequencing.	Global developmental needs
11	MOLECULAR BIOLOGY	BC613	• To give basic aspects of molecular theories and central dogma.	• Students will be able to exhibit a knowledge base in genetics, cell and molecular biology, anatomy and physiology. Demonstrate the knowledge of common and advanced laboratory practices in cell and molecular biology. Exhibit clear and concise communication of scientific data. Engage in review of scientific literature in the areas of biomedical sciences.	Global developmental needs
12	IMMUNOLOGY	BC614	• To know about exact mechanism of action of Ag-Ab interaction.	• The study of immunology will enable the student to gain a broad foundation base and build upon that base for understanding the defense mechanisms of the human body. Such foundation will be	Global developmental needs

				germane to advanced courses for the student entering medical school or graduate school or for any student actively involved in the medical healing arts.	