

DEPARTMENT OF PHYSIOLOGY

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION:

B.A./B.SC. (HONOURS): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 1		
CC- 1	Cellular Basis of Physiology ,Genetics & Enzymes	To acquaint students with the basic knowledge of cellular physiology along with the structure and function of various cellular organelles. To introduce the concepts of passive and active transport and give a basic idea of intercellular communication. To provide the students with an introduction to cellular genetics as well as the concepts of pleiotropism and karyotyping in genetics. To make them understand the different stages of cell cycle during the process of mitosis and meiosis along with practical experiments. To provide a clear cut idea and knowledge about enzymes along with their mechanism of action, different kinds of models on enzyme - substrate reaction, kinetics, enzyme inhibition and last but not the least enzymes as a disease marker.
CC- 2	Biophysical Principles and Chemistry of Biomolecules	To provide students with the knowledge of basic biophysical principles and their physiological applications. Introduction to biomolecules like carbohydrate, protein , fat, amino acids and nucleic acids. Hands-on training on qualitative analysis of biomolecules. Hands-on training on different physiological soln preparation.Students are supposed to understand and explain how different thermodynamic laws and principles are applied to the living world.

SEMESTER 2		
CC- 3	Cell Signalling & Nerve-muscle Physiology	To provide students with detailed understanding of cell surface receptor proteins as well as the different cell signalling pathways like cAMP,IP3 &DAG etc. To introduce the muscular system along with a detailed analysis of the different parts of the muscle, different muscle groups, properties of skeletal muscle as well as the mechanism of muscle contraction. Related concepts like chemical, thermal changes and electrical changes taking place during muscle contraction will be taught to provide a holistic understanding of the nerve-muscle physiology. To provide a basic idea on nerve along with its detailed structure, characteristics formation, mechanism of actions. To make students more informative about synapse and its transmission procedure with characteristics, MEPP, neurotransmitters. A vivid knowledge on degeneration and regeneration of nerves will be given. To provide a clear view on motor point, motor unit, motor end plates, NGF and thermal changes of nerve during activity.
CC- 4	Nervous System	Introduction to nervous system. Idea about the functional anatomy of different parts of the brain. Basic concept of the neuronal pathways involved in various general sensations eg touch, pain, temperature etc. Teaches students about the role of several brain structures related to emotion, sleep and memory. Nature and role of neurotransmitters involved in various physiological system.
SEMESTER 3		
CC- 5	Blood and Body Fluids	To educate students with a detailed study on the composition of blood and lymph along with introduction of the concepts of homeostasis and erythropoiesis. A complete set of hematological experiments will aid in better understanding of this topic.
CC- 6	Cardiovascular System	Anatomy, physiology and pathological condition of human heart and vascular system Physiology of ECG, blood pressure, hemodynamics and their practical application.
CC- 7	Respiratory System	Introduction to the basic knowledge of the said system. To provide idea about the diseases related to the system. Knowledge on diagnostic methods or tools to assess the pathophysiology of the diseases.
SEMESTER 4		
CC- 8	Digestion and Metabolism	Objective of the area is to provide elementary knowledge of basic anatomy,physiology and pathology of the human digestive system. Basic Biochemistry and in-born error of different metabolic pathways of different compounds of carbohydrates, lipid, amino

		acid, purine and Pyrimidine. Practical knowledge of principle and procedure of various biochemical tests to identify a set of physiologically important compounds.
CC- 9	Molecular Biology	To teach the students the topics of molecular biology which includes DNA replication, transcription and translation along with introduction of new concepts like recombinant DNA technology, gene therapy and transgenic animal. Practical knowledge of biochemical estimation of proteins and paper chromatography will supplement the theoretical understandings of these topics. To provide an overall concept on methodologies like chromatography and its types, different kinds of electrophoresis process , ultracentrifugation, ELISA and RIA with their basic principle and procedure. To provide a brief knowledge on PCR.
CC- 10	Nutrition and Dietetics	Introduction to physiologically important vitamins and minerals and their deficiency symptoms or diseases.Introduction to the food stuffs and their composition. Idea about the calorie requirement calculation of individuals based on their activity. Surveying on food intake and calorie requirement of a family and recommendation in the daily diet based on their observation.
SEMESTER 5		
CC- 11	Special Senses	Introduction to special sense organs. Molecular mechanism behind special senses. Neuronal pathways involved in sensing light, sound and chemical stimulus. Hands-on training in identification and study of different histological sections.
CC- 12	Endocrinology	To update the students on their understanding of the endocrine system wherein they will study the structure and function relationship of each endocrine organ such as hypothalamus, thyroid gland, pineal gland, parathyroid, adrenal gland, heart , pancreas and gastro-intestinal hormones. Along with this, the pathophysiology of diseases of the endocrine system associated with such organs will also be introduced. Practical knowledge of PAS staining of liver tissue along with identification of histological sections of permanent slides will add on to the theoretical concepts of the endocrine system.

SEMESTER 6		
CC- 13	Reproductive Physiology & Developmental Biology	To educate the students about the various stages of fetal growth such as fertilization, blastulation and implantation. To elaborate upon the concept of gastrulation and organogenesis with a special mention of fetal circulation. Students will develop a consolidated understanding of developmental physiology along with some practical knowledge of histology and structure of various parts of the reproductive system.
CC- 14	Excretory system in burden mental pollutants and human health	Basic anatomy, physiology and pathophysiological significance of human excretory system Physiology of body temperature regulation Students are supposed to learn the sources of various environmental pollutants and it's acute and chronic effect on human health.

B.A./B.SC. (HONOURS): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 3		
SEC-A-1	Haematological techniques	This course is designed to develop basic concepts on different parameters of blood along with its formation and developmental procedure. This helps them to provide knowledge of blood banks and different blood components that can be preserved. The basic idea of significance of TC,DC,ESR,MCV,MCHC, glycemic index, glycated Hb etc. also provided by this course. To introduce the terms like ghrelin and leptin along with their function and mechanism. For revision purposes along with some extra information this course also provides a concept on different types of anemia.
SEMESTER 4		
SEC-B-1	Detection of food additives/ adulterants and Xenobiotics	To develop a clear idea on adulterants,additives and xenobiotics, and its mechanism along with the detection process of these adulterants. this course is so beautifully designed that students can get an overall concept on these things.

B.A./B.SC. (HONOURS): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 5		
DSE-A-1	Biostatistics	This area of the course is designed to give students a preliminary idea of the scope of biostatistics, different aspects of descriptive and inferential statistics and their practical application. Students are supposed to learn how to handle a variety of bulk numerical raw data through presentation and processing.
DSE-B-1	Work, exercise and sports physiology	Along with the introduction of work physiology, this course can give a wide idea about the physiological basis of work, workload and its assessment, work organization, physical fitness and exercise, working capacity, training. A basic idea and its utility in sports or exercise physiology will also be provided to students through this course. Students come to know about the body compositions by this course.
SEMESTER 6		
DSE-A-4	Community and Public Health	Basic idea about community, public health issues. Knowledge on malnutrition in a community, Concept of diet management of obese, diabetic, hypertensive individuals and athletes. Study on Population problem – family planning, infertility and Assisted Reproductive Technologies. Principles and social importance of immunization against diseases. To develop idea on Communicable and Non-communicable diseases.
DSE-B-4	Toxicology and Pharmacology	Introduction to drugs and their pharmacodynamic and pharmacokinetic aspects. Knowledge on different drugs used in different physiologically abnormal conditions or diseases. Concept of toxicological aspects of physiologically important drug. Hands on training on antagonism of different physiologically important biomolecules.

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