COURSE OUTCOME & PROGRAMME OUTCOME

Paper name		Course outcome	Programme Outcome
CC-1A (Cellular Physiology, Biophysics, Biochemistry of Biomolecules)	**Theory :**		
	Units of Human System	Students will learn about the structure and functions of different cell organelles.	
	Biophysical and Biochemical Principles	Students will learn about the Physiological importance of Diffusion ii. Osmosis iii. Dialysis iv. Ultra filtration v. Surface tension vi. Adsorption vii. Absorption; brief idea about acids, bases, buffers and indicators. pH; Colloids; Enzymes	
	Biochemistry of Bio Molecules.	Students will learn about the Definition and classification and physiological importance of carbohydrate, protein, fat.	
	Practical :		
	Identification of permanent slides :	To know the histological structures of Hyaline cartilage, Trachea, Lung, Spleen, Lymph gland, Parotid gland, Bone, Sub maxillary gland, Sublingual gland, Tongue, Oesophagus, Stomach, Duodenum, Jejunum, Ileum, Large intestine, Liver, Kidney, Ureter, Pancreas, Adrenal gland,Thyroidgland,Testis, Ovary,Spinalcord,Cerebralc ortex,Cerebellum, Skin, Cardiac muscle, Skeletal muscle, Smooth muscle, Artery, Vein, Uterus	

This course provides a anding of the human body ns at the cellular, tissue, organ and levels. It also provides how s disrupt normal physiology. It es knowledge from different cal disciplines like biochemistry, sics, anatomy, histology, sports ogy, nutrition, microbiology, ology, molecular biology, ng a comprehensive view of the functioning.

	Fresh tissue experiments	Students will learn about staining of fresh tissues (other than blood) squamous, certified, ciliated and columnar epithelium, skeletal muscle, cardiac muscle by methylene blue stain. adipose tissue by Sudan III or IV.	

Semester-II

Paper name		Course outcome	Programme outcome
CC-1B : Digestion and Metabolism	**Theory :**		This course provides a understanding of the human body functions at the cellular, tissue, organ and system levels. It also provides how diseases disrupt normal physiology. It integrates knowledge from different biological disciplines like biochemistry, biophysics, anatomy, histology,sports physiology, nutrition, microbiology, immunology, molecular biology, providing a comprehensive view of the body's functioning.
	Digestive System	Students gain knowledge regarding the biochemical pathways, enzymatic activities and absorptive functions of various food stuffs.	
	Nutrition	Students gain knowledge regarding the nutritional aspects and food style	
	Metabolism	Students gain knowledge regarding the biochemical pathways, regulation and energetics of protein, fat, carbohydrate metabolism.	
	Practical :		
	Qualitative Experiments:	Students gain knowledge about identification of starch, dextrin, lactose, sucrose, 9 glucose, fructose, albumin, gelatin, peptone, lactic acid, hydrochloric acid, uric acid, acetone, glycerol, bile salts, urea.	
	Quantitative Experiments	Students gain knowledge about how to Quantitatively estimate glucose by Benedict's method.,amino-nitrogen by Sorensen's	

		formol titration method(Percentage and total quantity).	

Semester-III

Paper name		Course outcome	Programme outcome
CC– 1C : Respiratory and Cardiovascular Physiology	**Theory :**		This course provides a understanding of the human body functions at the cellular, tissue, organ and system levels. It also provides how diseases disrupt normal physiology. It integrates knowledge from different biological disciplines like biochemistry, biophysics, anatomy, histology,sports physiology, nutrition, microbiology, immunology, molecular biology, providing a comprehensive view of the body's functioning.
	Respiratory Physiology	Students will learn about the anatomy of the Lungs, mechanics of breathing, mechanism of oxygen Transport and carbon Dioxide Transport.	
	Cardiovascular Physiology	Students gain knowledge regarding the Anatomy of the heart. Properties of cardiac muscle. Cardiac Innervation. Stannius ligature. Mechanical Events of the Cardiac Cycle, The cardiac cycle- pressure and volume changes. Heart sounds. Murmurs. Cardiac Output – measurement by application of Fick's principle and dye dilution method, factors affecting. Starling's law of heart. Structure of arteries, arterioles, capillaries. venules and veins. f. Pulse - arterial and venous. g. Blood pressure and its regulation and factors controlling. Baro- and chemoreceptors. Vasomotor reflexes. Methods of measurement of blood pressure. h. Peculiarities of regional circulations coronary, pulmonary, renal, hepatic and cerebral.	
	Blood and Body Fluids	Students gain knowledge regarding the Formed elements of blood– origin, formation, functions and fate. Plasmaproteins– normal values, origin and functions Blood volume –normal	

		values, different physiological activities of blood. Haemoglobin– Structure, Different types of anaemia and their causes. ABO and Rh; formation, circulation, functions and fate of Lymph.	
	Practical :		
	Haematological experiments I	Students gain knowledge regarding **determination** Identification measurement of blood cells and derivatives	
	Haematological experiments II		

Semester-IV

Paper name		**Course outcome**	**Programme outcome**
CC- 1D : Endocrinology, Renal Physiology, skin and Body Temperature Regulation	**Theory :**		This course provides a
	Endocrine System	Students will learn about the structure; synthesis, transport, physiological function; hypo and hyper-secretion of hypothalamus, pituitary, thyroid, parathyroid, adrenal cortex, adrenal medulla, pancreas	
	Renal Physiology	Students will learn about Elementary Structure of Kidney & Location. b. Relationship between structure and functions of kidney. c. Mechanism of formation of urine. d. Normal and abnormal constituents of urine. e. Physiology of urine storage and micturition. f. Renal regulation of acid-base balance. g. Non-excretory functions of kidney	
	Skin and Regulation of Body Temperature	Students will learn about the Structure and functions of skin. b. Insensible and sensible perspiration c.	

		Regulation of body temperature -- physical and physiological processes involved in it. d. Physiology of sweat secretion and its regulation	understanding of the human body functions at the cellular, tissue, organ and system levels. It also provides how diseases disrupt normal physiology. It integrates knowledge from different biological disciplines like biochemistry, biophysics, anatomy, histology,sports physiology, nutrition, microbiology, immunology, molecular biology, providing a comprehensive view of the body's functioning.
	Practical:		
	Biochemistry II	Students will learn about Identification of normal (chlorIde. sulphate, phosphate, creatinine and urea)and abnormal constituents(glucose, protein, acetone blood and bile salts.) of urine	
SEC- II	Molecular Biology	Students will learn about Structure of DNA and RNA. b. Elementary idea of gene, genome, transcription, genetic code, translation and genetic engineering.	
	Social Physiology	Composition and nutritional value of common Indian foodstuff. Dietary fibers. Calorie requirement. Concept of ACU. Principle of balanced diet formulation of individuals - infants, growing children, students, pregnant women, lactating women and aged persons. Dietary management or obese, diabetic person, hypertensive person and athlete. Diet survey. h. Malnutrition and its causes - PCM, marasmus, kwashiorkor their prevention. Iron and iodine deficiency. i. Population problem and its control. Problem of infertility and brief idea about in vitro fertilization and intrauterine gamete transfer Brief idea of AIDS and hepatitis B and their preventions.	

Semester-V

Paper name	Content	Course outcome	Programme outcome
DSE- 1A	**Theory :**		This course provides a understanding of the human body functions at the cellular, tissue, organ and system levels. It also provides how diseases disrupt normal physiology. It integrates knowledge from different biological disciplines like biochemistry, biophysics, anatomy, histology,sports physiology, nutrition, microbiology, immunology, molecular biology, providing a comprehensive view of the body's functioning.
	Muscle and Nerve Physiology	Students will learn about the structure of nerve fibre, classification, functions,Cytoskeletal elements and axoplasmic flow, Propagation of nerve impulse,properties of nerve fibre, types of muscles present in our body, their individual structures and properties and how muscles work in our body to do movements. Synapses types, structure, synaptic transmission of the impulse, Neurotransmitters, co transmitters and neuromodulators, the neuromuscular junction structure, transmission. Motor unit	
	Nervous System	Students will learn about the structure, function of central and peripheral nervous system, CSF composition, idea of speech, aphasia, conditioning, learning and memory.	
	Practical:		
	Human Experiment I	Students gain knowledge regarding practical measurement of blood pressure.	
	Field Study	Students gain knowledge regarding Diet survey method. And process of fiels study among Population.	
SEC- III	Microbiology Or Immunology	Students will learn about the structure of Virus, Bacteriophage, brief idea of structure and morphological	

		classification of bacteria, Gram positive and Gram negative and acid-fast bacteria, Pathogenic and non-pathogenic bacteria - definition with a few examples. Sterilization and Pasteurization. Or Students will learn about the brief idea of antibiotics, innate and acquired immunity. Humoral and cell mediated immunity j. Vaccination - principles and importance of immunization. Basic principle of immunological detection of pregnancy.	

Semester-VI

Paper name	Course outcome	Course outcome	Programme outcome
DSE-1B	**Theory :**		This course provides a understanding of the human body functions at the cellular, tissue, organ and system levels. It also provides how diseases disrupt normal physiology. It integrates knowledge from different biological disciplines like biochemistry, biophysics, anatomy, histology,sports physiology, nutrition, microbiology, immunology, molecular biology, providing a comprehensive view of the body's functioning.
	Reproductive Physiology	Students will learn about the anatomy of male reproductive system, mechanism of spermatogenesis, female reproductive system, mechanism of oogenesis, menstrual cycle,fertilization, implantation, lactation	
	Sensory Physiology	Students will learn about thespecial senses and their receptors. Receptors; Structure of sensory organ; neural pathway of special sensation; mechanism of action of special sense.	
	Practical:		
	Human Experiments II	to knowthe practical idea about physical fitness for muscular work, respiratory movements, measurement of	

		common anthropometric parameters	
SEC IV	**Theory :**		
	Work Physiology Or Environmental Physiology	definition and units of measurement. b. Concept and classification of physical work; Cardiovascular and respiratory changes during physical exercise. maximal aerobic power and excess postexercise oxygen consumption. Basic idea of doping. EMG. Physical fitness index - Harvard step test.ECG -- normal waves and leads.Anthropometry and its uses. Or Environment - its physiological aspects.Effect of extreme temperature on humans. Hypobaric environment - effects on physiological system, acclimatization. Hyperbaric conditions and Caisson disease. Brief idea of cyanosis, dyspnoea, hyperpnoea, apnoea and asphyxia. Some common pollutants and their effects - carbon monoxide, lead and arsenic.Effects of noise on human body and preventive measures.	