Master of Science (Microbiology)
M.Sc. (Microbiology) Semester (I)

Course Code	PS01EMIC52	Title of the Course	Human physiology
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	Students should be able to : - Understand structure function relationship of various body systems

Course Content		
Unit	Description	Weightage* (%)
1.	Homeostasis and the organization of body fluids Control of Homeostasis, Positive and negative feedback systems, Homeostatic Imbalances. An overview of human circulatory system. Anatomy of heart, cardiac cycle, cardiac output, blood pressure and regulation, ECG. The arterial system, venous system, the microcirculation and mechanics of capillary fluid exchange. Control of blood flow to the tissues. Portal circulations. Arterial pressure and its regulation. Blood-components and functional significance. Blood buffer systems, Blood coagulation and factors involved in coagulation. Laboratory tests to measure coagulation and thrombolysis. Hemopoiesis and blood groups, Disorders of circulatory system: coagulation disorders, hypertension, thalassaemias and anemias.	25
2.	Digestive system – Composition, function of saliva, gastric, pancreatic intestinal and bile secretions – digestion and absorption of carbohydrates, lipids, proteins nucleic acids, minerals and vitamins. The Muscular System – Types of muscles and their functions. Physiology of m contraction in striated and non-striated muscle	25
3.	Excretory system – structure of nephron formulation of urine, glomerular filtration, GFR, tubular reabsorption of glucose. renal and pulmonary control of blood pH, renal clearance. An overview of Respiratory System. Pulmonary ventilation, External and internal respiration, Structure and functions of the nose, pharynx,	25

	larynx, trachea, bronchi, bronchioles, and lungs. Mechanics of Breathing. Partial pressures of oxygen and carbon dioxide, Transport of oxygen and carbon dioxide in blood.	
4.	Nervous System- Structure of neuron, function and organization of nervous system, Blood brain barrier, Neurotransmitters, Nerve impulse transmission. Reproductive physiology – secretion and function of reproductive hormones, lactation. Hormonal disturbances.	25

Teaching-Learning Methodology	Topics will be taught and discussed in interactive sessions using conventional black board and chalk as well as ICT tools such as power point presentations and videos. Practical sessions will be conducted in a suitably equipped laboratory either individually or in groups depending on the nature of exercise as well as availability of infrastructure. Course materials will be provided from primary and secondary sources of information.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Students should be able to read and understand diagnostic reports.
2.	Student should be able to understand, how to maintain health

Suggested References:	
Sr. No.	References
1.	**Guyton AC**, Hall **JE**: Cerebral blood flow, the cerebrospinal fluid, and brain metabolism, Textbook of **Medical Physiology**, 10th edition. Edited by **Guyton AC**, Hall **JE**. Orlando, Florida, **Harcourt**, 2000, pp 709–17. 3
2.	**Ganong's Review** of **Medical Physiology**, Twenty sixth Edition. 26th Edition. 1260122409 · 9781260122404.
3.	**Bryan** H. **Derrickson**; **Gerard** J. **Tortora**. Principles of anatomy and physiology, Published : 2008; ISBN : 0470084715

On-line resources to be used if available as reference material
On-line Resources
Related review articles and research papers