

**SRM University**  
**School of Bioengineering**  
**Department of Biotechnology**

**B. Tech. Biotechnology**  
**I Year/I Semester**  
**BT1002 – Human Physiology & Health**  
**Total hours: 32**

**Lesson plan**

Unit	Hours	Lecture Topics	Page Nos.	Reference	Learning Outcomes
I	1	Functional organization of cell, Physiology of membranes	1 – 42	1	Molecular level communications between cells. Structure – Function relation in specialized cells.
	2, 3	Signal transduction, Regulation of gene expression	Slides	1	
	4, 5	Physiology of skeletal, smooth and cardiac muscles	167 – 203	1	
II	6, 7	Action potential and physiology of neurons	757 – 772 838 – 843	1	Nervous system functions and regulation brought by movement of ions across the membrane. Special emphasis on neuro degenerative diseases
	8	Circuits of the CNS	775 – 837	1	
	9, 10	ANS	954 – 964	1	
	11	Alzheimer's and Schizophrenia	Slides		
III	12	Introduction to Cardiovascular system – structure of arteries and veins	519 – 532	1	Organs, functional mechanism, parameters to be monitored in normal functioning of cardiovascular and respiratory system.
	13, 14	Cardiac electrophysiology – role of calcium channels and sarcoplasmic reticulum	533 – 550	1	
			562 – 569 654 – 663		
	15	ECG, Heart pump parameters (CO, Stroke volume etc.,)	551 – 557 572 – 581	1	
	16	Introduction and organization of respiratory system, Mechanism of respiration	673 – 699	1	
17, 18	Acid – Base Physiology, Gaseous exchange in lungs	705 -736	1		
IV	19	Introduction & organization of GI system	219 – 222	1	Digestion of food materials and the effector enzymes in different regions of gastro
	20	Upper GIT – Salivary glands, oesophagus, Gastric physiology	223 – 240	1	
	21, 22	Lower GIT – enteric physiology, hepato-lacteal portal system	241 – 265, 281 –	1	

			286		intestinal tract. Acid base regulation and significance of excretion of toxic wastes by urinary system.
	23	Introduction & organization of Urinary system	301 – 311	1	
	24, 25	Mechanism of urine formation & Micturition	315 – 324 339 – 345	1	
	26	Osmotic homeostasis	330 – 336	1	
V	27	Organization & Regulation of endocrine system	367 – 374	1	Endocrine regulation and their significance in sustenance of normal life is elaborated.
	28	Pituitary, thyroid and adrenal glands	375 – 398 425 – 443	1	
	29	Endocrine pancreas & Diabetes Mellitus	415 – 424	1	
	30, 31	Male & Female reproductive system	455 – 466 473 – 493	1	
	32	Fertilization, Pregnancy & Lactation	498 – 512	1	

**Reference:**

1. Essentials of Medical Physiology, Sixth Edition by K Sembulingam & Prema Sembulingam, JAYPEE publishers.

**Course coordinator : S. Karthik**

**Mobile : 9962723968**

**Email : karthik.sb@ktr.srmuniv.ac.in**