

# 18BP001 HUMAN ANATOMY AND PHYSIOLOGY - I

Hours Per Week :

L	T	P	CP	CL
3	1	4	2	4

Total Hours :

L	T	P	WA/RA	SSH/HS	CS	SA	S	BS
45	1	60						

## SCOPE:

This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

## COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs	PSO
1	Explain the gross morphology, structure and functions of various organs of the human body.	1,4,5	1
2	Describe the various homeostatic mechanisms and their imbalances.	1,4,5	1
3	Identify the various tissues and organs of different systems of human body.	1, 5	1
4	Understand the organ functions	1,4, 5	1
5	Elucidate coordinated working pattern of different organs of each system	1,5	1

**UNIT - I****10 HOURS**

**INTRODUCTION TO HUMAN BODY:** Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis and basic anatomical terminology.

**CELLULAR LEVEL OF ORGANIZATION:** Structure and functions of cell, transport across cell membrane, cell division, cell junctions. General principles of cell communication, intracellular signaling pathway activation by extracellular signal molecule, Forms of intracellular signaling: a) Contact-dependent b) Paracrine c) Synaptic d) Endocrine

**TISSUE LEVEL OF ORGANIZATION:** Classification of tissues, structure, location and functions of epithelial, muscular and nervous and connective tissues.

**UNIT - II****10 HOURS****Musculoskeletal system:**

- 1 Divisions of skeletal system, types of bone, salient features and functions of bones of axial and appendicular skeletal system
- 2 Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction  
Joints
- 3 Structural and functional classification, types of joints movements and its articulation

**UNIT - III****10 HOURS**

**Body fluids and blood :** Body fluids, composition and functions of blood, hemopoiesis, formation of hemoglobin, anemia, mechanisms of coagulation, blood grouping, Rh factors, transfusion, its significance and disorders of blood, Reticule endothelial system.

**Lymphatic system :** Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system.

**UNIT - IV****08 HOURS****Nervous system**

Organization of nervous system, neuron, neuralgia, classification and properties of nerve fiber, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters. Central nervous system: Meninges, ventricles of brain and cerebrospinal fluid. Structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts, reflex activity)

**UNIT - V****07HOURS**

**Cardiovascular system :** Heart – anatomy of heart, blood circulation, blood vessels, structure and functions of artery, vein and capillaries, elements of conduction system of heart and heartbeat, its regulation by autonomic nervous system, cardiac output, cardiac cycle. Regulation of blood pressure, pulse and electrocardiogram.