



# SILVER OAK UNIVERSITY

Silver college of Pharmacy (067)

Programme Name: B.Pharm (18)

Subject Name: Human Anatomy and Physiology I

Subject Code: 1180673101

Semester: I

## Prerequisite:

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.

## Objective: Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the various experiments related to special senses and nervous system.
5. Appreciate coordinated working pattern of different organs of each system

## Teaching Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
3	1	4	8	6

## Content:

Unit No.	Contents	Teaching Hours	Weightage %
1	<p><b>Introduction to human body</b> Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminology.</p> <p><b>Cellular level of organization</b> 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</p> <p><b>Tissue level of organization</b></p>	10 Hrs	22%

	Classification of tissues, structure, location and functions of epithelial, muscular and nervous and connective		
2	<p><b>Integumentary system</b> Structure and functions of skin</p> <p><b>Skeletal system</b> Divisions of skeletal system, types of bone, salient features and functions of bones of axial and appendicular skeletal system Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction</p> <p><b>Joints</b> Structural and functional classification, types of joints movements and its articulation</p>	10 Hrs	22%
3	<p><b>Body fluids and blood</b> 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, Reticulo endothelial system.</p> <p><b>Lymphatic system</b> Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system</p>	10 Hrs	22%
4	<p><b>Peripheral nervous system:</b> Classification of peripheral nervous system: Structure and functions of sympathetic and parasympathetic nervous system. Origin and functions of spinal and cranial nerves.</p> <p><b>Special senses</b> Structure and functions of eye, ear, nose and tongue and their disorders.</p>	08 Hrs	18%
5	<p><b>Cardiovascular system Heart</b> 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, electrocardiogram and disorders of heart.</p>	07Hrs	16%
	<b>Total</b>	45 Hrs	100%

**Course Outcome:**

Sr. No.	CO statement	Unit No
CO-1	Explain the gross morphology, structure, and functions of various organs of the human body with respect to the levels of organization and communication, coordinated working pattern of different muscles and organs of each system.	1
CO-2	Students would have studied about the gross morphology, structure and functions of cell, skeletal system of the human body. Students would be able to identify the different types of bones and joints in human body.	2
CO-3	Discuss the composition and functions of blood, explain the process of hemostasis and correlate the knowledge to hematological disorders.	3
CO-4	It is designed to impart fundamental knowledge on the structure and functions of sympathetic and parasympathetic nervous system.	4
CO-5	To learn anatomy and physiology of Cardiovascular system and regulation of blood pressure and learn about ECG	5

**Teaching & Learning Methodology: -**

The various methods or tools followed by the faculties to teach the above subject are:

1. Student centered learning
2. Experimental learning

**Experiments:**

Students will perform following Experiments

1. Study of compound microscope.
2. Microscopic study of epithelial and connective tissue
3. Microscopic study of muscular and nervous tissue
4. Identification of axial bones
5. Identification of appendicular bones
6. Introduction to hemocytometry.
7. Enumeration of white blood cell (WBC) count
8. Enumeration of total red blood corpuscles (RBC) count
9. Determination of bleeding time
10. Determination of clotting time
11. Estimation of hemoglobin content
12. Determination of blood group.
13. Determination of erythrocyte sedimentation rate (ESR).
14. Determination of heart rate and pulse rate.
15. Recording of blood pressure.

## Books Recommended

1. K. Sembulingam and P. Sembulingam. Essentials of Medical Physiology by Jaypee brother's medical publishers, New Delhi.
2. Kathleen J.W. Wilson, Anatomy and Physiology in Health and Illness by Churchill Livingstone, New York
3. Williams & Wilkins. Physiological basis of Medical Practice-Best and Taylor Co, Riverview, MI USA
4. Arthur C, Guyton and John. E. Hall. Text book of Medical Physiology- Miamisburg, OH, U.S.A.
5. Tortora Grabowski. Principles of Anatomy and Physiology by Palmetto, GA, U.S.A. 31
6. Inderbir Singh. Textbook of Human Histology by Jaypee brother's medical publishers, New Delhi.
7. C.L. Ghai, Textbook of Practical Physiology by Jaypee brother's medical publishers, New Delhi.
8. K. Srinageswari and Rajeev Sharma. Practical workbook of Human Physiology by Jaypee brother's medical publishers, New Delhi.

## CO-PO-PSO Matrix:

Co. No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO-1	3	1	2	3	1	3	1	2	3	3	3	2	2
CO-2	3	1	2	3	1	1	2	2	2	3	3	2	2
CO-3	3	1	1	2	-	2	-	1	2	2	2	2	2
CO-4	3	-	2	2	-	2	-	2	1	2	2	2	3
CO-5	3	-	2	2	-	2	-	-	2	2	2	2	2