



**SILVER OAK UNIVERSITY**  
**Silver Oak College of Pharmacy (067)**  
**Programme Name: D. Pharm (18)**  
**Subject Name: Human Anatomy and Physiology**  
**Subject Code: 1180672104**  
**Year: I**

**Prerequisite:**

1. This course is designed to impart basic knowledge on the structure and functions of the human body. It helps in understanding both homeostasis mechanisms and homeostatic imbalances of various systems of the human body.

**Objective: Upon completion of the course student shall be able to**

1. Structure and functions of the various organ systems and organs of the human body
2. Homeostatic mechanisms and their imbalances in the human body
3. Various vital physiological parameters of the human body and their significances

**Teaching Scheme**

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

**Content:**

Unit No.	Contents	Teaching Hours	Weight age %
1	Scope of Anatomy and Physiology Definition of various terminologies	02 Hrs	03%
2	<b>Structure of Cell:</b> Components and its functions	02 Hrs	03%
3	<b>Tissues of the human body:</b> Epithelial, Connective, Muscular and Nervous tissues – their sub-types and characteristics.	04 Hrs	05%
4	<b>Osseous system:</b> structure and functions of bones of axial and appendicular skeleton Classification, types and movements of joints, disorders of joints	06 Hrs	08%
5	<b>Haemopoietic system :</b> Composition and functions of blood , Process of Hemopoiesis , Characteristics and functions of RBCs, WBCs, and platelets , Mechanism of Blood Clotting , Importance of Blood groups	08 Hrs	11%

6	<b>Lymphatic system</b> Lymph and lymphatic system, composition, function and its formation. Structure and functions of spleen and lymph node.	03 Hrs	04%
7	<b>Cardiovascular system</b> : Anatomy and Physiology of heart, Blood vessels and circulation (Pulmonary, coronary and systemic circulation) , Cardiac cycle and Heart sounds, Basics of ECG, Blood pressure and its regulation	08 Hrs	11%
8	<b>Respiratory system:</b> Anatomy of respiratory organs and their functions. Regulation and Mechanism of respiration. Respiratory volumes and capacities – definitions	04 Hrs	05%
9	<b>Digestive system:</b> Anatomy and Physiology of the GIT, Anatomy and functions of accessory glands, Physiology of digestion and absorption	08 Hrs	11%
10	<b>Skeletal muscles</b> : Histology , Physiology of muscle contraction , Disorder of skeletal muscles	02 Hrs	03%
11	<b>Nervous system:</b> Classification of nervous system, Anatomy and physiology of cerebrum, cerebellum, mid brain, Function of hypothalamus, medulla oblongata and basal ganglia , Spinal cord-structure and reflexes, Names and functions of cranial nerves. Anatomy and physiology of sympathetic and parasympathetic nervous system (ANS)	08Hrs	11%
12	<b>Sense organs:</b> Anatomy and physiology of Eye, Ear, Skin, Tongue, Nose	06 Hrs	08%
13	<b>Urinary system:</b> Anatomy and physiology of urinary system, Physiology of urine formation. Renin - angiotensin system, Clearance tests and micturition	04 Hrs	05%
14	<b>Endocrine system (Hormones and their functions):</b> Pituitary gland, Adrenal gland, Thyroid and parathyroid gland, Pancreas and gonads	06 Hrs	08%
15	<b>Reproductive system:</b> Anatomy of male and female reproductive system. Physiology of menstruation Spermatogenesis and Oogenesis. Pregnancy and parturition	04 Hrs	05%
	<b>Total</b>	75 Hrs	100%

**Course Outcome:**

Sr. No.	CO statement
CO-1	Perform the haematological tests in human subjects and interpret the results
CO-2	Record, monitor and document the vital physiological parameters of human subjects and interpret the results
CO-3	Describe the anatomical features of the important human tissues under the microscopical conditions
CO-4	Discuss the significance of various anatomical and physiological characteristics of the human body

**Teaching & Learning Methodology: -**

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

1. Student-centred learning.
2. Experiential learning.
3. Power Point Presentation

**List of Tutorials/Experiments:**

Students will perform following Experiments OR

The students will have to solve at least five examples and related theory from each topic as an assignment/tutorial.

1. Study of compound microscope
2. General techniques for the collection of blood
3. Microscopic examination of Epithelial tissue, Cardiac muscle, Smooth muscle, Skeletal muscle, Connective tissue and Nervous tissue of ready / pre-prepared slides.
4. Study of Human Skeleton-Axial skeleton and appendicular skeleton
5. Study of appliances used in Haematological experiments (only identification and listing the appliances)
6. Determination of
  - A. BLOOD group
  - B. ESR
  - C. Haemoglobin content of blood
  - D. Bleeding time and Clotting time
7. Determination of WBC count of blood
8. Determination of RBC count of blood
9. Determination of Differential count of blood
10. Recording of Blood Pressure in various postures, different arms, before and after exertion and interpreting the results
11. Recording of Body temperature (using mercury, digital and IR thermometers at various locations), Pulse rate/ Heart rate (at various locations in the body, before and after exertion), Respiratory Rate
12. Recording Pulse Oxygen (before and after exertion)
13. Recording force of air expelled using Peak Flow Meter

14. Measurement of height, weight, and BMI
15. Study of various systems and organs with the help of chart, models and specimens a) Cardiovascular system b) Respiratory system c) Digestive system d) Urinary system e) Endocrine system f) Reproductive system g) Nervous system h) Eye i) Ear j) Skin

**Books Recommended: - (minimum 3 books)**

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

**Open-Source Software/learning website:**

- <http://silveroakuni.ac.in/video-lecture>
- <https://nptel.ac.in/>
- <https://nptel.ac.in/courses/112/105/112105124/>