



# SILVER OAK UNIVERSITY

Silver college of Pharmacy (067)

Programme Name: B.Pharm (18)

Subject Name: Human Anatomy and Physiology II

Subject Code: 1180673105

Semester: II

## 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 hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

## Teaching Scheme:

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

## Content:

Unit No.	Contents	Teaching Hours	Weightage %
1	<b>Nervous system:</b> Organization of nervous system, neuron, neuroglia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters <b>Central nervous system:</b> Meninges, ventricles of brain and cerebrospinal fluid. Structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions)	10 Hrs	22%

	of afferent and efferent nerve tracts, reflex activity)		
2	<p><b>Digestive system</b> Anatomy of GI Tract with special reference to anatomy and functions of stomach, (Acid production in the stomach, regulation of acid production through parasympathetic nervous system, pepsin role in protein digestion) small intestine and large intestine, anatomy and functions of salivary glands, pancreas and liver, movements of GIT, digestion and absorption of nutrients and disorders of GIT</p> <p><b>Energetics:</b> Formation and role of ATP, Creatinine Phosphate and BMR</p>	06 Hrs	14%
3	<p><b>Respiratory system</b> Anatomy of respiratory system with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration Lung Volumes and capacities transport of respiratory gases, artificial respiration, and resuscitation methods</p> <p><b>Urinary system</b> Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine 10 formation, micturition reflex and role of kidneys in acid base balance, role of RAS in kidney and disorders of kidney</p>	10 Hrs	22%
4	<p><b>Endocrine system</b> Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas, pineal gland, thymus and their disorders</p>	10 Hrs	22%
5	<p><b>Reproductive system</b> Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition. Introduction to genetics Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance 9</p>	09Hrs	20%
	<b>Total</b>	45 Hrs	100%

**Course Outcome:** After Completion of Syllabus Students will able to

Sr. No.	CO statement	Unit No
CO-1	Students would have studied about the gross morphology, structure and functions of nervous systems in the human body.	1
CO-2	To learn anatomy and Physiology of Digestive system .Students would have studied in detailed about energy and metabolism.	2
CO-3	Learn about the gross morphology structure and functions of respiratory and urinary system	3
CO-4	To understand anatomy and physiology of Endocrine system	4
CO-5	Detailing and functioning of male and female Reproductive system The subject provides the basic knowledge required to understand the various disciplines of pharmacy	5

**Teaching & Learning Methodology: -**

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

1. Student centered learning
2. Experimental learning

**Experiments:**

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. To study the integumentary and special senses using specimen, models, etc.,
2. To study the nervous system using specimen, models, etc.,
3. To study the endocrine system using specimen, models, etc
4. To demonstrate the general neurological examination
5. To demonstrate the function of olfactory nerve
6. To examine the different types of taste.
7. To demonstrate the visual acuity
8. To demonstrate the reflex activity
9. Recording of body temperature
10. To demonstrate positive and negative feedback mechanism Determination of blood group.
11. Determination of tidal volume and vital capacity
12. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens
13. Recording of basal mass index
14. Study of family planning devices and pregnancy diagnosis test
15. Demonstration of total blood count by cell analyzer
16. Permanent slides of vital organs and gonads Recording of blood pressure.

**Books Recommended:**

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