

GUJARAT TECHNOLOGICAL UNIVERSITY

Pharm.D.

1st year

Subject Name: Human Anatomy and Physiology

Subject Code: 818801

Teaching Scheme (Hours)				Evaluation Scheme (Marks)				Total marks
Theory	Tutorial	Practical	Total	Theory		Practical		
				External	Internal	External	Internal	
3	1	3	7	70	30	70	30	200

Sr. No.	Course Contents	Hours	Module Weightage
1	Scope of anatomy and physiology , basic terminologies used in this subject (Description of the body as such planes and terminologies)	4	4.5%
2	Structure of cell – its components and their functions.	5	5.5%
3	Elementary tissues of the human body: Epithelial, Connective, Muscular and Nervous tissues-their sub-types and characteristics	4	4.5%
4	a) Osseous system - structure, composition and functions of the Skeleton. (done in practical classes - 6hrs) b) Classification of joints, Types of movements of joints and disorders of joints (Definitions only)	4	4.5%
5	Haemopoetic System a) Composition and functions of blood b) Haemopoiesis and disorders of blood components (definition of disorder) c) Blood groups d) Clotting factors and mechanism e) Platelets and disorders of coagulation	6	6.5%
6	Lymph a) Lymph and lymphatic system, composition, formation and circulation. b) Spleen: structure and functions, Disorders c) Disorders of lymphatic system (definition only)	3	3.5%
7	Cardiovascular system a) Anatomy and functions of heart b) Blood vessels and circulation (Pulmonary, coronary and systemic circulation) c) Electrocardiogram (ECG) d) Cardiac cycle and heart sounds e) Blood pressure – its maintenance and regulation f) Definition of the following disorders Hypertension, Hypotension, Arteriosclerosis, Atherosclerosis, Angina, Myocardial infarction, Congestive heart failure, Cardiac arrhythmias	7	8%
8	Respiratory system a) Anatomy of respiratory organs and functions b) Mechanism / physiology of respiration and regulation of respiration c) Transport of respiratory gases d) Respiratory volumes and capacities, and Definition of: Hypoxia,	6	6.5%

	Asphyxia, Dybarism, Oxygen therapy and resuscitation.		
9	Digestive system a) Anatomy and physiology of GIT b) Anatomy and functions of accessory glands of GIT c) Digestion and absorption d) Disorders of GIT (definitions only)	6	6.5%
10	Nervous system a) Definition and classification of nervous system b) Anatomy, physiology and functional areas of cerebrum c) Anatomy and physiology of cerebellum d) Anatomy and physiology of mid brain e) Thalamus, hypothalamus and Basal Ganglia f) Spinal card: Structure & reflexes – mono-poly-planter g) Cranial nerves – names and functions h) ANS – Anatomy & functions of sympathetic & parasympathetic N.S.	9	10%
11	Urinary system a) Anatomy and physiology of urinary system b) Formation of urine c) Renin Angiotensin system – Juxtaglomerular apparatus - acid base Balance d) Clearance tests and micturition	6	6.5%
12	Endocrine system a) Pituitary gland b) Adrenal gland c) Thyroid and Parathyroid glands d) Pancreas and gonads	7	8%
13	Reproductive system a) Male and female reproductive system b) Their hormones – Physiology of menstruation c) Spermatogenesis & Oogenesis d) Sex determination (genetic basis) e) Pregnancy and maintenance and parturition f) Contraceptive devices	8	9%
14	Sense organs a) Eye b) Ear c) Skin d) Tongue & Nose	6	6.5%
15	Skeletal muscles a) Histology b) Physiology of Muscle contraction c) Physiological properties of skeletal muscle and their disorders (definitions)	5	5.5%
16	Sports physiology a) Muscles in exercise, Effect of athletic training on muscles and muscle performance, b) Respiration in exercise, CVS in exercise, Body heat in exercise, Body fluids and salts in exercise, c) Drugs and athletics	4	4.5%

Course Materials:

Text books

1. Tortora Gerard J. and Nicholas, P. Principles of anatomy and physiology Publisher Harpercollins college New York.

- Wilson, K.J.W. Ross and Wilson's foundations of anatomy and physiology. Publisher: Churchill Livingstone, Edinburg.

Reference books

- Guyton Arthur, C. *Physiology of human body*. Publisher: Holtsaunders.
- Chatterjee C.C. *Human physiology*. Volume 1&11. Publisher: medical allied agency, Calcutta.
- Peter L. Williams, Roger Warwick, Mary Dyson and Lawrence, H.
- Gray's anatomy*. Publisher: Churchill Livingstone, London.

Pharm.D. 1st year HUMAN ANATOMY PHYSIOLOGY

Practical (3 Hours/ Week, 6 Credits, 90 Hours)

Sr. No.	Experiments
1	Study of tissues of human body (a) Epithelial tissue. (b) Muscular tissue.
2	Study of tissues of human body (a) Connective tissue. (b) Nervous tissue.
3	Study of appliances used in hematological experiments.
4	Determination of W.B.C. count of blood.
5	Determination of R.B.C. count of blood.
6	Determination of differential count of blood.
7	Determination of (a) Erythrocyte Sedimentation Rate. (b) Hemoglobin content of Blood. (c) Bleeding time & Clotting time.
8	Determination of (a) Blood Pressure. (b) Blood group.
9	Study of various systems with the help of charts, models & specimens (a) Skeleton system part I-axial skeleton. (b) Skeleton system part II- appendicular skeleton. (c) Cardiovascular system. (d) Respiratory system. (e) Digestive system. (f) Urinary system. (g) Nervous system. (h) Special senses. (i) Reproductive system.
10	Study of different family planning appliances.
11	To perform pregnancy diagnosis test.
12	Study of appliances used in experimental physiology.
13	To record simple muscle curve using gastrocnemius sciatic nerve preparation.
14	To record simple summation curve using gastrocnemius sciatic nerve preparation.
15	To record simple effect of temperature using gastrocnemius sciatic nerve preparation.
16	To record simple effect of load & after load using gastrocnemius sciatic nerve preparation.
17	To record simple fatigue curve using gastrocnemius sciatic nerve preparation.

Scheme of Practical Examination

	Internal/ Sessional	External
Identification	04	10
Synopsis	04	10
Major Experiment	07	20
Minor Experiment	03	15
Viva	02	15
Max. marks	20	70
Duration	3 hours	4 hours

Note: Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance)

Course Materials:

Text books

1. Goyal, R. K, Natvar M.P, and Shah S.A, Practical anatomy, physiology and biochemistry, latest edition, Publisher: B.S Shah Prakashan, Ahmedabad.

Reference books

1. Ranade VG, Text book of practical physiology, Latest edition, Publisher: PVG, Pune
Anderson Experimental Physiology, Latest edition, Publisher: NA