GANPAT UNIVERSITY

FACULTY OF PHARMACY

Programme	Bachelor of Pharmacy	Branch/Spec.	General
Semester	I	Version	3.0.0.0
Effective from Academic Year	2026-27	Effective for the Batch admitted in	July 2026
Course Code	BP104T	Course Name	Human Anatomy, Physiology and Pathophysiology I (Theory)

Scheme	Teaching Scheme (Per week)					Examination Scheme (Marks)			
	L	TU	P	TW	Total		CE	SEE	Total
Credit	4	0	0	--	4	Theory	40	60	100
Hours	4	0	0	--	--	Practical	-	-	-

Pre-requisites	Nil / Basic knowledge of Chemistry and Biology

COURSE OBJECTIVES:

The objectives of this course are to:

1. Understand the structural organization of the human body from cells to systems.
2. Comprehend physiological functions of various body systems and the principles of homeostasis.
3. Learn the cellular basis of disease including injury, adaptation, and inflammation.
4. Recognize common pathological conditions related to skin, bones, joints, blood, cardiovascular system, and special senses.
5. Establish the groundwork for clinical interpretation of symptoms and disease mechanisms relevant to pharmacy and therapeutics.

Course Outcomes

On successful completion of the course, the students will be able to:

CO1	Explain the fundamental concepts of Human Anatomy, Physiology and Pathophysiology.
CO2	Explain the gross morphology, structure and functions of various organs of the human body.
CO3	Understand the etiology and pathogenesis of diseases/disorders associated with integumentary system, peripheral nervous system and cardiovascular system.
CO4	Understand the basic mechanism behind inflammation.
CO5	Identify and differentiate the various tissues and organs of different systems of human body.

Theory Syllabus

Unit	Content	Hrs.
I	Introduction to Human Body • Definition and scope of anatomy, physiology and pathophysiology. Levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminologies. • Structure and functions of cell, transport across cell membrane, cell division, cell junctions. • General principles of cell communication: Contact-dependent, Paracrine, Synaptic, Endocrine. • Classification of tissues; structure, location and functions of epithelial, muscular, nervous and connective tissues. • Basic principles of cell injury and adaptation: Components and types of feedback systems, causes of cellular injury, pathogenesis (cell membrane damage,	12

	mitochondrial damage, ribosome damage and nuclear damage), morphology of cell injury – adaptive changes (atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia), cell swelling, intracellular accumulation and cell death. • Definitions of commonly used relevant medical terminologies.	
II	Integumentary System, Wound Healing, Skeletal System and Joints • Structure and functions of skin. Skin disorders: Psoriasis, dermatitis and pathophysiology of Leprosy. Basic principles of wound healing. • Divisions of skeletal system, types of bones, salient features and functions of bones of axial and appendicular skeletal system. • Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction. Structural and functional classification of joints. • Pathophysiology of rheumatoid arthritis, osteoporosis and gout.	12
III	Body Fluids, Blood, Lymphatic System and Inflammation • Body fluids, composition and functions of blood, hemopoiesis, formation of haemoglobin, mechanisms of coagulation, blood grouping, Rh factors and transfusion. • Lymphatic organs and tissues, lymphatic vessels, lymph formation, circulation and functions of lymphatic system. • Introduction, classification and pathophysiology of inflammation, mediators of inflammation. • Pathophysiology of iron deficiency, megaloblastic anaemia, sickle cell anaemia, Thalassemia, hereditary acquired anaemia and haemophilia.	12
IV	Peripheral Nervous System and Special Senses • Classification of peripheral nervous system: structure and functions of sympathetic and parasympathetic nervous system. Origin and functions of spinal and cranial nerves. • Structure and functions of eye, ear, nose and tongue. • Pathophysiology of special sense disorders: glaucoma, cataract, myopia, otitis externa, otitis media, vertigo and anosmia.	12
V	Cardiovascular System • 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. • Pathophysiology of hypertension, cardiac arrhythmias, congestive heart failure, ischemic heart disease (angina, myocardial infarction, atherosclerosis and coronary artery disease).	12

Text Books

1. Sembulingam, K. and Sembulingam, P. Essentials of Medical Physiology. Jaypee Brothers Medical Publishers, New Delhi.
2. Guyton, A.C. and Hall, J.E. Textbook of Medical Physiology. Elsevier Saunders, Philadelphia.
3. Tortora, G.J. and Grabowski, S.R. Principles of Anatomy and Physiology. Wiley, USA.

Reference Books

4. Kumar, V., Cotran, R.S. and Robbins, S.L. Basic Pathology. W.B. Saunders Company, Philadelphia.
5. Wilson, K.J.W. Anatomy and Physiology in Health and Illness. Churchill Livingstone, New York.

ICT / MOOCs Reference

6. NPTEL – Human Physiology and Pathophysiology
7. Khan Academy – Human Biology
8. Visible Body – 3D Anatomy (app)

Mapping of CO with PO and PSO:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PEO1	PEO2	PEO3	PEO4	PEO5
CO1	3	-	1	-	1	1	-	-	1	-	2	2	-	1	1	1
CO2	2	-	-	-	1	-	-	-	-	-	1	1	1	1	-	1
CO3	3	2	1	-	1	1	-	-	1	-	2	3	1	2	1	1
CO4	3	1	1	-	1	-	-	-	-	-	1	2	-	2	-	1
CO5	2	-	-	-	1	-	-	-	-	-	1	2	-	1	-	1