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	BP109P	Course Name	Human Anatomy, Physiology and Pathophysiology I (Practical)

Scheme	Teaching Scheme (Per week)					Examination Scheme (Marks)			
	L	TU	P	TW	Total		CE	SEE	Total
Credit	0	0	1	--	1	Theory	-	-	-
Hours	0	0	3	--	--	Practical	20	30	50

Pre-requisites	Nil / Basic knowledge of Chemistry and Biology

COURSE OBJECTIVES

The objectives of this course are to:

1. Provide fundamental knowledge of the structure and functions of various organ systems of the human body.
2. Understand the mechanisms of homeostasis and their role in maintaining normal physiological functions.
3. Introduce the basic concepts of pathophysiology and the causes of diseases affecting different organ systems.
4. Explain the body's physiological responses to disease-producing agents.
5. Lay the foundation for understanding clinical conditions through the study of functional alterations in organs and systems.

Course Outcomes

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

CO1	Explain the principles, applications, and experimental use of microscopy techniques, and perform basic laboratory experiments related to the nervous system and special senses.
CO2	Describe the gross morphology, microscopic structure, and coordinated functioning of major human organs and organ systems, emphasizing their roles in maintaining normal physiology.
CO3	Estimate and interpret key hematological parameters, and explain the mechanisms of homeostasis along with related physiological and pathological disorders.
CO4	Discuss the etiology and pathogenesis of selected disease states, linking structural and functional changes to clinical manifestations.
CO5	Identify and explain common diseases with respect to their signs and symptoms, risk factors, diagnostic methods, preventive measures, treatment strategies, and possible complications.

Practical Content

Minimum 12 experiments must be performed.

1. Study of compound microscopes.
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. Demonstration of total blood count by cell analyser.
8. Enumeration and interpretation of white blood cell (WBC) count, differential count.

9. Enumeration and interpretation of total red blood corpuscles (RBC) count.
10. Determination of bleeding time and clotting time.
11. Estimation and interpretation of hemoglobin content.
12. Determination of blood group.
13. Determination and interpretation of erythrocyte sedimentation rate (ESR).
14. Determination of pulse rate, heart rate and blood pressure.
15. Recording and interpretation of ECG.
16. To study the cardiovascular system and integumentary system.
17. Case studies/files of patients with anaemia, thalassemia, haemophilia, leprosy, gout, hypertension and ischemic heart disease.

Text Books

1. Wilson, K.J.W. Anatomy and Physiology in Health and Illness. New York: Churchill Livingstone.
2. Guyton, A.C. and Hall, J.E. Textbook of Medical Physiology. Philadelphia: Elsevier.
3. Tortora, G.J. and Grabowski, S.R. Principles of Anatomy and Physiology. New York: Wiley.

Reference Books

4. Sembulingam, K. and Sembulingam, P. Essentials of Medical Physiology. Jaypee Brothers, New Delhi.
5. Kumar, V. et al. Basic Pathology. W.B. Saunders Company, Philadelphia.

ICT / MOOCs Reference

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

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	-	2	1	1	-	-	-	-	-	2	3	-	-	-	1
CO2	2	2	3	1	1	-	-	-	-	-	2	2	-	1	-	1
CO3	2	2	3	-	1	-	-	-	-	-	2	2	-	1	-	1
CO4	3	3	3	-	1	-	-	-	-	-	2	3	-	1	-	1
CO5	3	3	3	-	2	-	-	-	-	-	2	3	-	1	-	1