



**FACULTY OF PHARMACY**  
**First Semester Bachelor of Pharmacy**  
**In Effect from Academic Year 2026-27**

|                      |                                                                    |
|----------------------|--------------------------------------------------------------------|
| <b>Branch Name:</b>  | <b>Bachelor of Pharmacy</b>                                        |
| <b>Program Code:</b> | <b>PH101</b>                                                       |
| <b>Course Name:</b>  | <b>Human Anatomy, Physiology and Pathophysiology I (Practical)</b> |
| <b>Course Code:</b>  | <b>1BP109P</b>                                                     |

### Teaching and Examination Scheme:

| Teaching Scheme (Hours per week) |          |           |        | Evaluation Scheme (Marks) |                       |             |
|----------------------------------|----------|-----------|--------|---------------------------|-----------------------|-------------|
| Lecture                          | Tutorial | Practical | Credit | Theory (T)                |                       | Total Marks |
|                                  |          |           |        | Continuous Assessment     | University Assessment |             |
|                                  |          |           |        |                           |                       | Theory      |
| NA                               | -        | 3         | 1      | 20                        | 30                    | 50          |

### 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 (CO):**

| CO No. | Upon successful completion of this course, the students will be able to:                                                                                                                |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Explain the principles, applications, and experimental use of microscopy techniques, and perform basic laboratory experiments related to the nervous system and special senses.         |
| 2      | Describe the gross morphology, microscopic structure, and coordinated functioning of major human organs and organ systems, emphasizing their roles in maintaining normal physiology.    |
| 3      | Estimate and interpret key hematological parameters, and explain the mechanisms of homeostasis along with related physiological and pathological disorders.                             |
| 4      | Discuss the etiology and pathogenesis of selected disease states, linking structural and functional changes to clinical manifestations.                                                 |
| 5      | Identify and explain common diseases with respect to their signs and symptoms, risk factors, diagnostic methods, preventive measures, treatment strategies, and possible complications. |

### Detailed Syllabus:

| List of Practical                                                                                                                                                         |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <i>(Minimum 12 experiments must be performed)</i>                                                                                                                         |  |
| Practical HAPP allows the verification of physiological processes discussed in theory classes through experiments on living tissues, simulated videos, models and charts. |  |
| 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.

### References:

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.

### List of Open Source Software/learning website:

1. **BioDigital Human** ([biodigital.com](http://biodigital.com)) - A 3D virtual anatomy platform perfect for studying gross morphology and organ systems.