

**(B. Pharm)**  
**(Semester - II)**

| L | T | P | C |
|---|---|---|---|
| 3 | 1 | - | 4 |

|                     |                                 |
|---------------------|---------------------------------|
| <b>Course Code</b>  | <b>BP204T</b>                   |
| <b>Course Title</b> | <b>Pathophysiology – Theory</b> |

**Scope:**

Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively.

**Objectives:**

Upon completion of the subject student shall be able to –

1. Describe the etiology and pathogenesis of the selected disease states;
2. Name the signs and symptoms of the diseases; and
3. Mention the complications of the diseases.

**Course Learning Outcomes (CLO):**

At the end of the course, students will be able to -

1. Recall the basic principles of Cell injury and Adaptation.
2. Understand pathophysiology of cardiovascular diseases, respiratory diseases, and renal disorders.
3. Explain hematological diseases, diseases of endocrine system, nervous system and gastrointestinal system.
4. Summarize about inflammatory disorders, liver disorders and disorders of bones and joints.
5. Discuss about pathophysiology of cancer.
6. Elaborate upon infectious diseases including sexually transmitted diseases.

**Syllabus:****Teaching hours: 45 Hours****UNIT I****10 Hours****Basic principles of cell injury and adaptation:**

Introduction, definitions, Homeostasis, Components and Types of Feedback systems, Causes of cellular injury, Pathogenesis (Cell membrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage), Morphology of cell injury – Adaptive changes (Atrophy, Hypertrophy, hyperplasia, Metaplasia, Dysplasia), Cell swelling, Intra cellular accumulation, Calcification,

Enzyme leakage and Cell Death Acidosis & Alkalosis, Electrolyte imbalance.

**Basic mechanism involved in the process of inflammation and repair:**

Introduction, Clinical signs of inflammation, Different types of Inflammation, Mechanism of Inflammation – Alteration in vascular permeability and blood flow, migration of WBC's. Mediators of inflammation, Basic principles of wound healing in the skin, Pathophysiology of Atherosclerosis.

**UNIT II**

**10 Hours**

**Cardiovascular System:**

Hypertension, congestive heart failure, ischemic heart disease (angina, myocardial infarction, atherosclerosis and arteriosclerosis).

**Respiratory system:**

Asthma, Chronic obstructive airways diseases.

**Renal system:**

Acute and chronic renal failure.

**UNIT III**

**10 Hours**

**Haematological Diseases:**

Iron deficiency, megaloblastic anemia (Vit B<sub>12</sub> and folic acid), sickle cell anemia, thalassemia, hereditary acquired anemia, hemophilia.

**Endocrine system:**

Diabetes, thyroid diseases, disorders of sex hormones.

**Nervous system:**

Epilepsy, Parkinson's disease, stroke, psychiatric disorders: depression, schizophrenia and Alzheimer's disease.

**Gastrointestinal system:**

Peptic ulcer, inflammatory bowel diseases, jaundice, hepatitis (A,B,C,D,E,F) alcoholic liver disease.

**UNIT IV**

**8 Hours**

**Disease of bones and joints:**

Rheumatoid arthritis, osteoporosis and gout.

**Pathophysiology of cancer:**

Classification, etiology and pathogenesis of cancer.

**Diseases of Genitourinary system:**

Disorders of bladder and ureter, infertility.

**UNIT V**

**7 Hours**

**Infectious diseases:**

Meningitis, Typhoid, Leprosy, Tuberculosis, Urinary tract infections.

**Sexually transmitted diseases:**

AIDS, Syphilis, Gonorrhoea.

**Tutorials**

**Teaching hours: 15 Hours**

Tutorials will be based on above syllabus.

**Suggested Readings<sup>^</sup>:** (Latest Edition)

1. Kumar, V., Abbas, A. K., Fausto, N., & Aster, J. C. *Robbins and Cotran Pathologic Basis of Disease*, Professional Edition E-Book. Elsevier Health Sciences.
2. Mohan, H. *Textbook of pathology* (pp. 280-283). New Delhi: Jaypee Brothers Medical Publishers.
3. Laurence B, Bruce C, Bjorn K. *Goodman Gilman's The Pharmacological Basis of Therapeutics*. New York; McGraw-Hill.
4. Best and Taylor. *Physiological basis of Medical Practice*. MI USA, Williams & Wilkins Co, Riverview.
5. Walker, B. R., Colledge, N. R. *Davidson's Principles and Practice of Medicine*. E-Book. Elsevier Health Sciences.
6. Hall, J. E. Guyton and Hall. *Textbook of Medical Physiology*. E-Book. Elsevier Health Sciences.
7. Dipiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R. Wells, B.G., Posey, M.L. *Pharmacotherapy: A Pathophysiologic Approach*. New York: Mc Graw Hills Publishers.
8. Robbins, S. L., Kumar, V., Cotran, R. S. *Robbins Basic Pathology*. Philadelphia, USA, Saunders.
9. Walker, R., & Edwards, C. *Clinical Pharmacy and Therapeutics*. Churchill Livingstone. London.
10. Sylvia, P. A., Wilson, L. M., et al. *Pathophysiology: Clinical Concepts of Disease Processes*. Elsevier Science Publishers.
11. Bullock B. A., Henze R. L. *Focus on Pathophysiology*. Lippincott Williams & Wilkins, Philadelphia.

#### **Recommended Journals**

1. The Journal of Pathology. ISSN: 1096-9896 (Online)
2. The American Journal of Pathology. ISSN: 0002-9440
3. Pathology. ISSN: 1465-3931 (Online)
4. International Journal of Physiology, Pathophysiology and Pharmacology. ISSN: 1944-8171 (Online)
5. Indian Journal of Pathology and Microbiology. ISSN-0377-4929.

L= Lecture, T= Tutorial, P= Practical, C= Credit

^this is not an exhaustive list

---