INSTITUTE	**FACULTY OF PHARMACY**
PROGRAM	**BACHELOR OF PHARMACY**
SEMESTER	**3**
COURSE TITLE	**PATHOPHYSIOLOGY**
COURSE CODE	**13PH0304**
COURSE CREDITS	**4**

Objective:

1 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.

2 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.

Course Outcomes: After completion of this course, student will be able to:

1 Describe the etiology and pathogenesis of the selected disease states;

2 Name the signs and symptoms of the diseases;

3 Mention the complications of the diseases.

Pre-requisite of course: 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.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	1	0	75	15	10	0	0

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Contents : Unit	Topics	Contact Hours
1	**Basic principles of Cell injury and Adaptation:** 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.	10
2	**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.	10
3	**Haematological Diseases:** Iron deficiency, megaloblastic anaemia (Vit B12 and folic acid), sickle cell anaemia, thalassemia, hereditary acquired anaemia, haemophilia., 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.	10
4	**Inflammatory bowel diseases, jaundice, hepatitis (A, B, C, D, E, F) alcoholic liver disease. Disease of bones and joints:** Rheumatoid arthritis, osteoporosis and gout. Principles of cancer: classification, etiology and pathogenesis of cancer. Diseases of bones and joints: Rheumatoid Arthritis, Osteoporosis, Gout. Principles of Cancer: Classification, etiology and pathogenesis of Cancer.	8
5	**Infectious diseases:** Meningitis, Typhoid, Leprosy, Tuberculosis, Urinary tract infections. Sexually transmitted diseases: AIDS, Syphilis, Gonorrhea.	7
Total Hours		**45**

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Tutorial** Workshop 1, Workshop 2, Workshop 3, Workshop 4, Workshop 5, Workshop 6, Workshop 7, Workshop 8, Workshop 9, Workshop 10, Workshop 11, Workshop 12, Workshop 13, Workshop 14, Workshop 15	15
Total Hours		**15**

Textbook :

1 Pathology, Harsh Mohan, Jaypee Publications, 2010

References:

1 Robbins And Cotran Pathologic Basis Of Disease South Asia, Robbins And Cotran Pathologic Basis Of Disease South Asia, Vinay Kumar, Abul K. Abas, Jon C. Aster; , Elsevier India, 2014

2 The Pharmacological Basisof Therapeutics, The Pharmacological Basisof Therapeutics, Laurence B, Bruce C, Bjorn K. ;, McGraw-Hill, 2011

3 Best and Taylor's Physiological basis of medical practice, Best and Taylor's Physiological basis of medical practice, Best, Charles Herbert, Baltimore : Williams & Wilkins, 1985

4 1990 printing, 1990 printing, William and Wilkins, Baltimore; , William and Wilkins Baltimore;, 1991

5 Davidson's Principles and Practice of Medicine 21st Edition , Davidson's Principles and Practice of Medicine 21st Edition , Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston;, Elsevier Health Science, 2010

6 Textbook of Medical Physiology, Textbook of Medical Physiology, Guyton A, John .E Hall; , WB Saunders Company , 2010

7 Pharmacotherapy: A Pathophysiological Approach: 9th edition, Pharmacotherapy: A Pathophysiological Approach: 9th edition, Joseph DiPiro, Robert L. Talbert, Gary Yee, Barbara Wells, L. Michael Posey; , MMcGraw-Hill Medical, 2014

8 Pathology, Pathology, V. Kumar, R. S. Cotran and S. L. Robbins;, WB Saunders Company, 1997

9 Clinical Pharmacy and Therapeutics; 3rd edition, Clinical Pharmacy and Therapeutics; 3rd edition, Roger Walker, Clive Edwards; , Churchill Livingstone publication, 2003

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
20.00	30.00	25.00	15.00	10.00	0.00

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Instructional Method:

1 The course delivery method will depend upon the requirement of content and the need of students. The teacher in addition to the conventional teaching method by the blackboard may also use any tools such as demonstration, role play, quiz, brainstorming, MOOCs etc.

2 The internal evaluation will be done based on continuous evaluation of students in the laboratory and classroom.

3 Students will use supplementary resources such as online videos, NPTEL videos, MOOCs/ e-courses, virtual laboratories.