

## PHARMACOLOGY - I

**PLACEMENT:** III SEMESTER

**THEORY:** 1 Credit (20 hours)

**DESCRIPTION:** This course is designed to enable students to acquire understanding of Pharmacodynamics, Pharmacokinetics, principles of therapeutics and nursing implications.

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

1. Describe pharmacodynamics and pharmacokinetics.
2. Review the principles of drug calculation and administration.
3. Explain the commonly used antiseptics and disinfectants.
4. Describe the pharmacology of drugs acting on the GI system.
5. Describe the pharmacology of drugs acting on the respiratory system.
6. Describe drugs used in the treatment of cardiovascular and blood disorders.
7. Explain the drugs used in the treatment of endocrine system disorders.
8. Describe the drugs acting on skin and drugs used to treat communicable diseases.

## COURSE OUTLINE

### T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/Learning Activities	Assessment Methods
I	3 (T)	Describe Pharmacodynamics, Pharmacokinetics, Classification, principles of administration of drugs	<b>Introduction to Pharmacology</b> <ul style="list-style-type: none"> <li>• Definitions &amp; Branches</li> <li>• Nature &amp; Sources of drugs</li> <li>• Dosage Forms and Routes of drug administration</li> <li>• Terminology used</li> <li>• Classification, Abbreviations, Prescription, Drug Calculation, Weights and Measures</li> <li>• <i>Pharmacodynamics</i>: Actions, Drug Antagonism, Synergism, Tolerance, Receptors, Therapeutic, adverse, toxic effects, pharmacovigilance</li> <li>• <i>Pharmacokinetics</i>: Absorption, Bioavailability, Distribution, Metabolism, Interaction, Excretion</li> <li>• Review: Principles of drug administration and treatment individualization                             <ul style="list-style-type: none"> <li>○ Factors affecting dose, route etc.</li> </ul> </li> <li>• Indian Pharmacopoeia: Legal Issues, Drug Laws, Schedule Drugs</li> <li>• Rational Use of Drugs</li> <li>• Principles of Therapeutics</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Guided reading and written assignment on schedule K drugs</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> <li>• Assessment of assignments</li> </ul>
II	1 (T)	Describe antiseptics, and disinfectant & nurse's responsibilities	<b>Pharmacology of commonly used antiseptics and disinfectants</b> <ul style="list-style-type: none"> <li>• Antiseptics and Disinfectants</li> <li>• Composition, action, dosage, route, indications, contraindications, Drug interactions, side effects, adverse effects, toxicity and role of nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
III	2 (T)	Describe drugs acting on gastro-intestinal system & nurse's responsibilities	<b>Drugs acting on G.I. system</b> <ul style="list-style-type: none"> <li>• Pharmacology of commonly used drugs                             <ul style="list-style-type: none"> <li>○ Emetics and Antiemetics</li> <li>○ Laxatives and Purgatives</li> <li>○ Antacids and antipeptic ulcer drugs</li> <li>○ Anti-diarrhoeals – Fluid and electrolyte therapy, Furazolidone, dicyclomine</li> </ul> </li> <li>• Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/Learning Activities	Assessment Methods
IV	2 (T)	Describe drugs acting on respiratory system & nurse's responsibilities	<p><b>Drugs acting on respiratory system</b></p> <ul style="list-style-type: none"> <li>• Pharmacology of commonly used <ul style="list-style-type: none"> <li>○ Antiasthmatics – Bronchodilators (Salbutamol inhalers)</li> <li>○ Decongestants</li> <li>○ Expectorants, Antitussives and Mucolytics</li> <li>○ Broncho-constrictors and Antihistamines</li> </ul> </li> <li>• Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects toxicity and role of nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
V	4 (T)	Describe drugs used on cardio-vascular system & nurse's responsibilities	<p><b>Drugs used in treatment of Cardiovascular system and blood disorders</b></p> <ul style="list-style-type: none"> <li>• Haematinics, &amp; treatment of anemia and antiadrenergics</li> <li>• Cholinergic and anticholinergic</li> <li>• Adrenergic Drugs for CHF &amp; vasodilators</li> <li>• Antianginals</li> <li>• Antiarrhythmics</li> <li>• Antihypertensives</li> <li>• Coagulants &amp; Anticoagulants</li> <li>• Antiplatelets &amp; thrombolytics</li> <li>• Hypolipidemics</li> <li>• Plasma expanders &amp; treatment of shock</li> <li>• Drugs used to treat blood disorders</li> <li>• Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
VI	2 (T)	Describe the drugs used in treatment of endocrine system disorders	<p><b>Drugs used in treatment of endocrine system disorders</b></p> <ul style="list-style-type: none"> <li>• Insulin &amp; oral hypoglycemics</li> <li>• Thyroid and anti-thyroid drugs</li> <li>• Steroids <ul style="list-style-type: none"> <li>○ Corticosteroids</li> <li>○ Anabolic steroids</li> </ul> </li> <li>• Calcitonin, parathormone, vitamin D3, calcium metabolism <ul style="list-style-type: none"> <li>○ Calcium salts</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/Learning Activities	Assessment Methods
VII	1 (T)	Describe drugs used in skin diseases & nurse's responsibilities	<b>Drugs used in treatment of integumentary system</b> <ul style="list-style-type: none"> <li>• Antihistaminics and antipruritics</li> <li>• Topical applications for skin- Benzylbenzoate, Gamma BHC, Clotrimazole, Miconazole, Silver Sulphadiazine (burns)</li> <li>• Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects toxicity and role of nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
VIII	5 (T)	Explain drug therapy/ chemotherapy of specific infections & infestations & nurse's responsibilities	<b>Drugs used in treatment of communicable diseases (common infections, infestations)</b> <ul style="list-style-type: none"> <li>• General Principles for use of Antimicrobials</li> <li>• Pharmacology of commonly used drugs: <ul style="list-style-type: none"> <li>○ Penicillin, Cephalosporin's, Aminoglycosides, Macrolide &amp; broad spectrum antibiotics, Sulfonamides, quinolones, Misc. antimicrobials</li> </ul> </li> <li>• Anaerobic infections</li> <li>• Antitubercular drugs,</li> <li>• Antileprosy drugs</li> <li>• Antimalarials</li> <li>• Antiretroviral drugs</li> <li>• Antiviral agents</li> <li>• Anthelmintics, Antiscabies agents</li> <li>• Antifungal agents</li> <li>• Composition, action, dosage, route, indications, contraindications, Drug interactions, side effects, adverse effects, toxicity and role of nurse</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture cum Discussion</li> <li>• Drug study/ presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>

## **PATHOLOGY - I**

**PLACEMENT:** III SEMESTER

**THEORY:** 1 Credit (20 hours) (includes lab hours also)

**DESCRIPTION:** This course is designed to enable students to acquire knowledge of pathology of various disease conditions, understanding of genetics, its role in causation and management of defects and diseases and to apply this knowledge in practice of nursing.

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

1. Apply the knowledge of pathology in understanding the deviations from normal to abnormal pathology.
2. Rationalize the various laboratory investigations in diagnosing pathological disorders.
3. Demonstrate the understanding of the methods of collection of blood, body cavity fluids, urine and feces for various tests.
4. Apply the knowledge of genetics in understanding the various pathological disorders.
5. Appreciate the various manifestations in patients with diagnosed genetic abnormalities.
6. Rationalize the specific diagnostic tests in the detection of genetic abnormalities.
7. Demonstrate the understanding of various services related to genetics.

## COURSE OUTLINE

### T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	8 (T)	<p>Define the common terms used in pathology</p> <p>Identify the deviations from normal to abnormal structure and functions of body system</p>	<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• Importance of the study of pathology</li> <li>• Definition of terms in pathology</li> <li>• Cell injury: Etiology, pathogenesis of reversible and irreversible cell injury, Necrosis, Gangrene</li> <li>• Cellular adaptations: Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia, Apoptosis</li> <li>• Inflammation: <ul style="list-style-type: none"> <li>○ Acute inflammation (Vascular and Cellular events, systemic effects of acute inflammation)</li> <li>○ Chronic inflammation (Granulomatous inflammation, systemic effects of chronic inflammation)</li> </ul> </li> <li>• Wound healing</li> <li>• Neoplasia: Nomenclature, Normal and Cancer cell, Benign and malignant tumors, Carcinoma in situ, Tumor metastasis: general mechanism, routes of spread and examples of each route</li> <li>• Circulatory disturbances: Thrombosis, embolism, shock</li> <li>• Disturbance of body fluids and electrolytes: Edema, Transudates and Exudates</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Explain using slides</li> <li>• Explain with clinical scenarios</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>
II	5 (T)	<p>Explain pathological changes in disease conditions of various systems</p>	<p><b>Special Pathology</b></p> <p><b>Pathological changes in disease conditions of selected systems:</b></p> <p><b>1. Respiratory system</b></p> <ul style="list-style-type: none"> <li>• Pulmonary infections: Pneumonia, Lung abscess, pulmonary tuberculosis</li> <li>• Chronic Obstructive Pulmonary Disease: Chronic bronchitis, Emphysema, Bronchial Asthma, Bronchiectasis</li> <li>• Tumors of Lungs</li> </ul> <p><b>2. Cardio-vascular system</b></p> <ul style="list-style-type: none"> <li>• Atherosclerosis</li> <li>• Ischemia and Infarction.</li> <li>• Rheumatic Heart Disease</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Explain using slides, X-rays and scans</li> <li>• Visit to pathology lab, endoscopy unit and OT</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
			<ul style="list-style-type: none"> <li>• Infective endocarditis</li> </ul> <p><b>3. Gastrointestinal tract</b></p> <ul style="list-style-type: none"> <li>• Peptic ulcer disease (Gastric and Duodenal ulcer)</li> <li>• Gastritis-H Pylori infection</li> <li>• Oral mucosa: Oral Leukoplakia, Squamous cell carcinoma</li> <li>• Esophageal cancer</li> <li>• Gastric cancer</li> <li>• Intestinal: Typhoid ulcer, Inflammatory Bowel Disease (Crohn's disease and Ulcerative colitis), Colorectal cancer</li> </ul> <p><b>4. Liver, Gall Bladder and Pancreas</b></p> <ul style="list-style-type: none"> <li>• Liver: Hepatitis, Amoebic Liver abscess, Cirrhosis of Liver</li> <li>• Gall bladder: Cholecystitis.</li> <li>• Pancreas: Pancreatitis</li> <li>• Tumors of liver, Gall bladder and Pancreas</li> </ul> <p><b>5. Skeletal system</b></p> <ul style="list-style-type: none"> <li>• Bone: Bone healing, Osteoporosis, Osteomyelitis, Tumors</li> <li>• Joints: Arthritis - Rheumatoid arthritis and Osteoarthritis</li> </ul> <p><b>6. Endocrine system</b></p> <ul style="list-style-type: none"> <li>• Diabetes Mellitus</li> <li>• Goitre</li> <li>• Carcinoma thyroid</li> </ul>		
<b>III</b>	7 (T)	Describe various laboratory tests in assessment and monitoring of disease conditions	<p><b>Hematological tests for the diagnosis of blood disorders</b></p> <ul style="list-style-type: none"> <li>• Blood tests: Hemoglobin, White cell and platelet counts, PCV, ESR</li> <li>• Coagulation tests: Bleeding time (BT), Prothrombin time (PT), Activated Partial Prothrombin Time (APTT)</li> <li>• Blood chemistry</li> <li>• Blood bank: <ul style="list-style-type: none"> <li>○ Blood grouping and cross matching</li> <li>○ Blood components</li> <li>○ Plasmapheresis</li> <li>○ Transfusion reactions</li> </ul> </li> </ul> <p><b>Note:</b> Few lab hours can be planned for observation and visits (Less than 1 credit, lab hours are not specified separately)</p>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Discussion</li> <li>• Visit to clinical lab, biochemistry lab and blood bank</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer</li> <li>• Objective type</li> </ul>