Pharmacology

Placement : Second Year
Time : Theory – 45 hours

Course Description: This course is designed to enable students to acquire understanding of pharmaco-dynamics, pharmacokinetics, principles of therapeutics and nursing implications.

Unit	Time (Hrs)	Learning Objectives	Content and Teaching learning Activities
I	3	• Describe pharmaco-kinetics, classification and the principles of drug administration	**Introduction to pharmacology** • Definitions • Sources • Terminology used • Types: Classification • Pharmacodynamics: Actions, therapeutic • Adverse, toxic • Pharmacokinetics : absorption, distribution, metabolism, interaction, excretion • Review: Routes and principles of administration of drugs • Indian pharmacopoeia : Legal issues • Rational use of drugs • Principles of therapeutics ***Teaching learning Activities*** * Lecture Discussion
II	6	• Explain Chemotherapy of specific infections and infestations and nurse's responsibilities	**Chemotherapy** • Pharmacology of commonly used; ❑ Penicillin ❑ Cephalosporins ❑ Aminoglycosides ❑ Macrolide & Broad Spectrum Antibiotics ❑ Sulfonamides ❑ Quinolones ❑ Antiamoebic ❑ Antimalarials ❑ Anthelmintics ❑ Antiscabies agents ❑ Antiviral & anti-fungal agents ❑ Antitubercular drugs ❑ Anti leprosy drugs ❑ Anticancer drugs ❑ Immuno-suppressants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities*** * Lecture Discussion

			* Drug study/ presentation
III	2	• Describe **Antiseptics** disinfectants, insecticides and nurse's responsibilities	**Pharmacology of commonly used antiseptics, disinfectants and insecticides** • Antiseptics; • Disinfectants • Insecticides ***Teaching learning Activities*** * Lecture Discussion * Drug study/ presentation
IV	2	• Describe Drugs acting on Gastro Intestinal system and nurse's responsibilitie s	**Drugs acting on G.I. system** • Pharmacology of commonly used – ❑ Antiemetics, ❑ Emetics ❑ Purgatives ❑ Antacids ❑ Cholinergic ❑ Anticholinergics ❑ Fluid and electrolyte therapy ❑ Anti diarrhoeals ❑ Histamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities*** * Lecture Discussion * Drug study/ presentation
V	2	• Describe Drugs used on Respiratory systems and nurse's responsibilitie s	**Drugs used on Respiratory Systems** • Pharmacology of commonly used – ❑ Antiasthmatics ❑ Mucolytics ❑ Decongestants ❑ Expectorants ❑ Antitussives ❑ Bronchodilators ❑ Broncho constrictors ❑ Antihistamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities*** * Lecture Discussion * Drug study/ presentation
VI	2	• Describe Drugs used on Urinary System and nurse's responsibilitie	**Drugs used on Urinary System** • Pharmacology of commonly used – ❑ Diuretics and antidiuretics ❑ Urinary antiseptics ❑ Cholinergic and anticholinergics ❑ Acidifiers and alkalanizers

		s	**Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse** ***Teaching learning Activities*** * Lecture Discussion ***** Drug study/ presentation
VII	4	• Describe Drugs used in Dead diction, emergency, deficiency of vitamins & minerals, poisoning, for immunization and immuno-suppression and nurse's responsibilities	**Miscellaneous** • Drugs used in de-addiction • Drugs used in CPR and emergency • Vitamins and minerals • Immunosuppresants • Antidotes • Antivenom • Vaccines and sera ***Teaching learning Activities*** * Lecture Discussion * Drug study/ presentation
VIII	1	• Describe Drugs used on skin and mucous membranes and nurse's responsibilities	**Drugs used on skin and mucous membranes** • Topical applications for skin, eye, ear, nose and buccal cavity Antipruritics Composition, action, dosage, route, indications, contraindica-tions, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities*** * Lecture Discussion ***** Drug study/ presentation
IX	8	• Describe Drugs used on Nervous System and nurse's responsibilities	**Drugs acting on Nervous system** • Basic & applied Pharmaco-logy of commonly used : • Analgesics and Anaesthetics ❑ Analgesics - Non steroidal anti - inflammatory (NSAID) drugs ❑ Antipyretics ❑ Hypnotics and Sedatives - Opioids - Non-Opioids - Tranquilizers - General & local anesthetics - Gases : oxygen, nitrous oxide, carbon-dioxide • Cholinergic and anti-cholinergics: ❑ Muscle relaxants ❑ Major tranquilizers ❑ Anti-psychotics ❑ Antidepressants ❑ Anticonvulsants

			❑ Adrenergics ❑ Noradregenics ❑ Mood stabilizers ❑ Acetylcholine ❑ Stimulants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities*** * Lecture Discussion * Drug study/ presentation
X	5	• Describe Drugs used on Cardio-vascular System and nurse's responsibilitie s	**Cardiovascular drugs** • Haematinics • Cardiotonics • Anti anginals • Anti-hypertensives & Vasodilators • Anti-arrhythmics • Plasma expanders • Coagulants & anticoagulants • Antiplatelets & thrombolytics • Hypolipidemics Composition, action, dosage, route, indications, contraindi-cations, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities*** * Lecture Discussion * Drug study/ presentation
XI	4	• Describe drugs used for hormonal disorders and supplemen-tation, contraception and medical termination of pregnancy and nurse's responsibilities	**Drugs used for hormonal disorders & supplementation, contraception and medical termination of pregnancy** • Insulins & Oral hypoglycemics • Thyroid supplements and suppressants • Steroids, Anabolics • Uterine stimulants and relaxants • Oral contraceptives • Other estrogen-progestrone preparations • Corticotrophine & Gonadotropines • Adrenaline • Prostaglandins • Calcitonins • Calcium salts • Calcium regulators Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse ***Teaching learning Activities***

			* Lecture Discussion * Drug study/ presentation
XII	6	• Demonstrate awareness of the common drugs used in alternative system of medicine	**Introduction to Drugs used in alternative systems of medicine:** • Ayurveda, Homeopathy, Unani and Siddha etc. ***Teaching learning Activities*** * Lecture Discussion * Observational Visits

Section A – Pathology

Placement : Second Year
Time : Theory – 45 hours

Course Description : This course is designed to enable students to acquire knowledge of pathology of various disease conditions and apply this knowledge in practice of nursing.

Unit	Time (Hrs)		Objectives	Content and Teaching Learning Methods
	Th.	Pr.		
I	3		• Define the common terms used in pathology • Appreciate the deviations from normal to abnormal structure and functions of the body system	• **Introduction** ❑ Importance of the study of pathology ❑ Definition of terms ❑ Methods and techniques ❑ Cellular and Tissue changes ❑ Infiltration and regeneration ❑ Inflammations and Infections ❑ Wound healing ❑ Vascular changes • Cellular growth, Neoplasms ❑ Normal and Cancer cell ❑ Benign and Malignant growths ❑ In situ carcinoma • Disturbances of fluid and electrolyte imbalance ***Teaching learning Activities*** • Lecture Discussion • Explain using charts
II	10	5	• Explain Pathological changes in disease conditions of various systems	Special pathology • Pathological changes in disease conditions of various systems: • Respiratory tract ❑ Tuberculosis, Bronchitis, Pleural effusion and pneumonia ❑ Lung abscess, emphysema, bronchiectasis ❑ Bronchial asthma, Chronic obstructive Pulmonary disease and tumours
				• Cardio-vascular system ❑ Pericardial effusion ❑ Rheumatic heart disease ❑ Infective endocarditis, atherosclerosis ❑ Ischemia, infarction & aneurysm • Gastro Intestinal Tract ❑ Peptic ulcer, typhoid ❑ Carcinoma of GI tract-buccal, Esophageal, ❑ Gastric & intestinal • Liver, Gall bladder & pancreas ❑ Hepatitis, Chronic liver abscess, cirrhosis

				❑ Tumours of liver, gall bladder and pancreas, ❑ Cholecystitis • Kidneys & Urinary tract ❑ Glomerulonephritis, pyelonephritis ❑ Calculi, renal failure, renal carcinoma & cystitis • Male genital systems ❑ Cryptorchidism, testicular atrophy ❑ Prostatic hyperplasia, carcinoma Penis & prostate • Female genital system ❑ Fibroids ❑ Carcinoma cervix and Endometrium ❑ Vesicular mole, choriocarcinoma ❑ Ectopic gestation ❑ Ovarian cyst & tumours • Cancer Breast • Central Nervous system ❑ Hydrocephalus, Meningitis, encephalitis, ❑ Vascular disorders – thrombosis, embolism ❑ Stroke, paraplegia, quadriplegia ❑ Tumours, meningiomas-gliomas • Metastatic tumour • Skeletal system ❑ Bone healing, osteoporosis, osteomyelitis • Arthritis & tumours ***Teaching learning Activities*** • Lecture Discussion • Explain using charts, slides, specimen, X-rays and scans • Visit to Pathology lab, endoscopy unit and OT
III	4	3	• Describe various laboratory tests in assessment and monitoring of disease conditions	Clinical pathology • Various blood and bone marrow tests in assessment and monitoring of disease conditions ❑ Hemoglobin ❑ RBC, White cell & platelet counts ❑ Bleeding time, clotting time and prothrombine time ❑ Blood grouping and cross matching ❑ Blood chemistry ❑ Blood culture ❑ Serological and immunological tests ❑ Other blood tests ❑ Examination of Bone marrow ❑ Methods of collection of blood specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values ***Teaching learning Activities*** • Lecture Discussion • Demonstration

				• Visit to Clinical Pathology & Bio-Chemistry lab and Blood bank
IV	2	1	• Describe the laboratory tests for examination of body cavity fluids, transudates and exudates	Examination of body cavity fluids, transudates and exudates • The laboratories tests used in CSF analysis • Examination of other body cavity fluids, transudates and exudates –sputum, wound discharge etc • Analysis of gastric and duodenal contents • Analysis of semen-sperm count, motility and morphology and their importance in infertility • Methods of collection of CSF and other cavity fluids specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values ***Teaching learning Activities*** • Lecture Discussion • Demonstration
V	1	1	• Describe laboratory tests for examination of Urine and faeces	**Urine and faeces** • Urine ❑ Physical characteristics ❑ Analysis ❑ Culture and sensitivity • Faeces ❑ Characteristics ❑ Stool examination : occult blood, ova, parasite and cyst, reducing substance etc. • Methods of collection for various tests, inference and normal values ***Teaching learning Activities*** • Lecture Discussion • Demonstration

Section B – Genetics

Placement : Second Year
Time : Theory – 15 hours

Course Description : This course is designed to enable students to acquire understanding of Genetics, its role in causation and management of defects and diseases

Unit	Time (Hrs)	Objectives	Content and Teaching Learning Activities	Teaching Learning Activities
I	3	• Explain nature, principles and perspec-tives of heredity	Introduction : • Practical application of genetics in Nursing • Impact of genetic condition on families • Review of cellular division mitosis and meiosis. • Characteristics and structure of genes • Chromosomes – sex determination • Chromosomal aberrations Patterns of inheritance ❑ Mendalian theory of inheritance ❑ Multiple allots and blood groups ❑ Sex linked inheritance ❑ Mechanism of inheritance ❑ Errors in transmission (Mutation) ***Teaching learning Activities*** • Lecture Discussion • Explain using charts, slides	• Lecture Discussion • Explain using charts, slides
II	3	• Explain Maternal, prenatal and genetic influences on develop-ment of defects and diseases	Maternal, prenatal and genetic influences on development of defects and diseases • Conditions affecting the mother : genetic and infections • Consanguinity atopy • Prenatal nutrition and food allergies • Maternal Age • Maternal drug therapy • Prenatal testing and diagnosis • Effect of Radiation, drugs and chemicals	• Lecture Discussion • Explain using charts, slides

			• Infertility • Spontaneous abortion • Neural Tube Defects and the role of folic acid in lowering the risks • Down syndrome (Trisomy 21) ***Teaching learning Activities*** • Lecture Discussion • Explain using charts, slides	
III	2	• Explain the screening methods for genetic defects and diseases in neonates and children	Genetic testing in the neonates and children • Screening for ❑ Congenital abnormalities ❑ Developmental delay ❑ Dysmorphism ***Teaching learning Activities*** • Lecture Discussion • Explain using charts, slides	• Lecture Discussion • Explain using charts, slides
IV	2	• Identify genetic disorders in adoles-cents and adults	Genetic conditions of adolescents and adults • Cancer genetics – Familial Cancer • Inborn errors of metabolism • Blood group alleles and haematological disorder • Genetic haemochro-matosis • Huntington's disease • Mental illness ***Teaching learning Activities*** • Lecture Discussion • Explain using charts, slides	• Lecture Discussion • Explain using charts, slides
V	5	• Describe the role of nurse in genetic services and coun-selling	Services related to Genetics • Genetic testing • Human genome project • Gene therapy • The Eugenics movement • Genetic Counselling Legal and Ethical issues Role of nurse ***Teaching learning Activities*** • Lecture Discussion • Explain using charts, slides	• Lecture Discussion • Explain using charts, slides

Scheme of University Examination:

- **Theory**

Pharmacology, Pathology and Genetics,

There shall be one paper of three hours duration carrying 100 marks for the subjects Pharmacology, Pathology and Genetics.

Section A shall be Pharmacology with 50 marks, Section B shall be Pathology with 35 marks and Genetics with 15 marks. The distribution of type of questions and marks shall be as follows:

Table 7(B): Distribution of Type of Questions and Marks for Pharmacology (50 marks)

Type of Questions	No. of Questions	Marks	Sub-total
Long Essay (LE)	1	10	10
Short Essay (SE)	5	5	25
Short Answer (SA)	5	3	15
Total Marks			50

Pathology and Genetics

Table 7 (C): Distribution of Type of Questions and Marks for Pathology (35 marks)

Type of Questions	No. of Questions	Marks	Sub-total
Long Essay (LE)	-	-	
Short Essay (SE)	4	5	20
Short Answer (SA)	5	3	15
Total Marks			35

Table 7(D): Distribution of Type of Questions and Marks for Genetics (18 marks)

Type of Questions	No. of Questions	Marks	Sub-total
Long Essay (LE)	-	-	-
Short Essay (SE)	-	-	-
Short Answer (SA)	5	3	15
Total Marks			15

No practical examination.