Subject Code: 1NR1010202	Subject Title: PHARMACOLOGY, PATHOLOGY AND GENETICS
Pre-requisite	----------NA----------

PHARMACOLOGY

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

Teaching Scheme (Total Hours)			Evaluation Scheme (Marks)				
			Theory		Practical		
Lecture (Class and Lab)	Clinical Hours	Total Hours	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total
45+30+15	--	90	75	25	--	--	100

Course Content

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activity	Assessment Method
I	3	▪ Describe pharmaco-dynamics, pharmaco-kinetics, classification and the principle of drug administration	**Introduction to pharmacology** ▪ Definition ▪ sources ▪ Terminology used ▪ Types: Classification ▪ pharmacodynamics: action, therapeutics, ▪ Adverse, toxic ▪ Pharmacokinetics: absorption, distribution, metabolism, interaction, excretion ▪ Review: Routs and principles of administration of drugs ▪ Indian pharmacopoeia: Legal issues ▪ Rational use of drugs ▪ Principle of therapeutics	▪ Lecture Discussion	▪ short answers ▪ Objective type
	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 ➢ Antiamoedic ➢ Antimalarials ➢ Anthelmintics	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type

			➢ Antiscribes 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		
II	2	▪ Describe Antiseptics, disinfectants, insecticides and nurse's responsibilities	**Pharmacology of commonly used Antiseptics, disinfectants, insecticides** ▪ Antiseptics; Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse ▪ Disinfectants ▪ Insecticides	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type
IV	2	▪ Describe Drugs acting on Gastro Intestinal system and nurse's responsibilities	**Drugs acting on Gastro Intestinal system** Pharmacology of commonly used ▪ Antimetics, ▪ Emitics ▪ 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	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type
V	2	▪ Describe Drugs used on Respiratory system and nurse's responsibilities	**Drugs used on Respiratory system** ▪ Pharmacology of commonly used ➢ Antiasthmatics ➢ Mycolytics ➢ Decongestants	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type

			➢ Expectorants ➢ Antitussives ➢ Bronchodilators ➢ Broncho constrictors ➢ Antihistamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse		
VI	2	▪ Describe Drugs used on Urinary system and nurse's responsibilities	**Drugs used on Urinary system** ▪ Pharmacology of commonly used ➢ Diuretics and antidiuretics ➢ Urinary antiseptics ➢ Cholinergic and Anticholinergics ➢ Acidifiers and alkalanizers Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type
VII	4	▪ Describe Drugs used in Dead diction, emergency, deficiency of vitamins & minerals, poisoning, for immunization and immunosuppresants and nurse's responsibilities	**Miscellaneous** ▪ Drug used in de-addition ▪ Drug used in CPR and emergency ▪ vitamins & minerals ▪ immunosuppresants ▪ Antidotes ▪ Antivenom ▪ Vaccines and sera	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type
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, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type
IX	8	▪ Describe Drugs used on Nervous system and nurse's responsibilities	**Drugs acting on Nervous system** ▪ Basic & applied Pharmacology 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,	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type

			carbon-dioxide ▪ Cholinergic and Anti- Cholinergics: ➢ Muscle relaxants ➢ Major tranquilizers ➢ Anti-psychotics ➢ Antidepressants ➢ Anticonvulsants ➢ Adrenergic ➢ Noradregenics ➢ Mood stabilizers ➢ Acetylcholine ➢ Stimulants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse		
X	5	▪ Describe Drugs used on Cardiovascular system and nurse's responsibilities	**Cardiovascular Drugs** ▪ Haematinics ▪ Cardiotonics, ▪ Anti anginals ▪ Anti-hypertensives &Vasodilators ▪ Anti-arrhythmics ▪ Plasma expanders ▪ Coagulants & anticoagulants ▪ Antiplatelets & thrombolytics ▪ Hypolipidemics Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	▪ Lecture Discussion ▪ Drug study / presentation	▪ short answers ▪ Objective type
XI	4	▪ Describe Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy and nurse's responsibilities	**Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy** ▪ Insulins & Oral hypoglycemics ▪ Thyroid supplements and suppresants ▪ 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	▪ Lecture Discussion ▪ Drug study or presentation	▪ short answers ▪ Objective type

XII	6	▪ Demonstrate awareness of the common drugs used in alternatives system of medicine	**Introduction to drugs used in alternatives system of medicine** ▪ Ayurveda, Homeopathy, Unani and Siddha etc	▪ Lecture Discussion ▪ Observational Visits	▪ short answers ▪ Objective type

Pathology

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)		Objective	Content	Teaching Learning Activities	Assessment 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	▪ Lecture Discussion ▪ Explain using Charts	▪ Short answers ▪ Objective type
II	10	5	▪ Explain Pathological changes in disease conditions of various system	**Special pathology** ▪ **Pathological changes in disease condition of various systems**: ▪ **Respiratory tract** ➢ Tuberculosis, Bronchitis, Pleural effusion and pneumonia**,** ➢ Lung abscess, emphysema, bronchiectasis ➢ Bronchial asthma, Chronic obstructive Pulmonary disease & 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 ➢ Turnover of liver, gall bladder and pancreas,	▪ Lecture Discussion ▪ Explain using Charts, slides, specimen, X-rays and Scans ▪ Visit to pathology lab, endoscopy unit and OT	▪ Short answers ▪ Objective type

				➢ 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, choriocareinoma ➢ 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**		
III	4	3	▪ Describe various laboratory tests in assessment and monitoring of disease conditions	**<u>Clinical pathology</u>** ▪ **Various blood and bone marrow tests in assessment and monitoring of disease condition** ➢ 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 ➢ Method of collection of blood specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values	▪ Lecture Discussion ▪ Visit to clinical pathology lab, and Bio-chemistry lab and Blood bank	▪ Short answers ▪ Objective type
IV	2	1	▪ Describe the laboratory tests for examination of body cavity fluids, transudates and exudates	**<u>Examination of body cavity fluids, transudates and exudates</u>** ▪ The laboratories tests used in CSF analysis ▪ Examination of body cavity fluids, transudates and exudates-sputum, wound discharge etc. ▪ Analysis of gastric and duodenal contests ▪ Analysis of semen-sperm count,	▪ Lecture Discussion ▪ Demonstration	▪ Short answers ▪ Objective type

				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.		
V	1	1	▪ Describe the laboratory tests for examination of Urine and faeces	**<u>Urine and faeces</u>** **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**	▪ Lecture Discussion ▪ Demonstration	▪ Short answers ▪ Objective type

Genetics

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)	Objective	Content	Teaching Learning Activities	Assessment methods
I	3	▪ Explain nature principle and perspectives of heredity	**<u>Introduction</u>** ▪ Practical application of genetics in nursing ▪ Impact of genetics condition on families ▪ Review of cellular division mitosis and meiosis. ▪ Characteristics and structure of genes ▪ Chromosomes-sex determination ▪ Chromosomal aberrations Pattern of inheritance ➢ Mendalian theory of inheritance ➢ Multiple allots and blood groups ➢ Sex linked inheritance ➢ Mechanism of inheritance ➢ Error in transmission (Mutation)	▪ Lecture Discussion ▪ Explain using Charts, slides	▪ Short answers ▪ Objective type
II	3	▪ Explain Maternal, Prenatal and genetic influences on development of defects and diseases	**<u>Maternal, Prenatal and genetic influences on development of defects and diseases</u>** ▪ Conditions affecting the mother: genetic and infections ▪ Consanguinity atopy ▪ Prenatal nutrition and food allergies.	▪ Lecture Discussion ▪ Explain using Charts, slides	▪ Short answers ▪ Objective type

			▪ Maternal Age ▪ Maternal drug therapy ▪ Prenatal testing and diagnosis ▪ Effect of Radiation, drug and chemicals ▪ Infertility ▪ Spontaneous abortion ▪ Neural Tube Defects and the role of folic acid in lowering the risks ▪ Down syndrome (Trisomy 21)		
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	▪ Lecture Discussion ▪ Explain using Charts, slides	▪ Short answers ▪ Objective type
IV	2	▪ Identify genetic disorders in adolescents and adults	**Genetic conditions of adolescents and adults** ▪ Cancer genetics –Familial Cancer ▪ Inborn errors of metabolism ▪ Blood group alleles and haematological disorder ▪ Genetic haemochromatosis ▪ Huntington's disease ▪ Mental illness	▪ Lecture Discussion ▪ Explain using Charts, slides	▪ Short answers ▪ Objective type
V	5	▪ Describe the role of nurse in genetic services and counselling	**Services related to Genetics** ▪ Genetic testing ▪ Human genome project ▪ Gene therapy ▪ The Eugenics movement ▪ Genetic Counselling Legal and Ethical issues Role of nurse	▪ Lecture Discussion ▪ Explain using Charts, slides	▪ Short answers ▪ Objective type