COURSE TITLE	**PHARMACOLOGY I & II PATHOLOGY I & II AND GENETICS INCLUDING FUNDAMENTALS OF PRESCRIBING MODULE**
COURSE CODE	**20BN0401**
COURSE CREDITS	**6**

Objective:

1. Describe pharmacodynamics and pharmacokinetics, Review the principles of drug calculation and administration, Explain the commonly used antiseptics and disinfectants, Describe the pharmacology of drugs acting on the GI system.
2. Describe the pharmacology of drugs acting on the respiratory system,Describe drugs used in the treatment of cardiovascular and blood disorders,Explain the drugs used in the treatment of endocrine system disorders, Describe the drugs acting on skin and drugs used to treat communicable diseases.
3. Apply the knowledge of pathology in understanding the deviations from normal to abnormal pathology,Rationalize the various laboratory investigations in diagnosing pathological disorders, Demonstrate the understanding of the methods of collection of blood, body cavity fluids, urine and feces for various tests., Apply the knowledge of genetics in understanding the various pathological disorders, Appreciate the various manifestations in patients with diagnosed genetic abnormalities, Rationalize the specific diagnostic tests in the detection of genetic abnormalities,Demonstrate the understanding of various services related to genetics.
4. Explain the drugs used in the treatment of ear, nose, throat and eye disorders,Explain the drugs used in the treatment of urinary system disorders,Describe the drugs used in the treatment of nervous system disorders, Explain the drugs used for hormonal replacement and for the pregnant women during antenatal, intra natal and postnatal period,Explain the drugs used to treat emergency conditions and immune disorders, Discuss the role and responsibilities of nurses towards safe administration of drugs used to treat disorders of various systems with basic understanding of pharmacology, Demonstrate understanding about the drugs used in alternative system of medicine, Demonstrate understanding about the fundamental principles of prescribing.
5. Apply the knowledge of pathology in understanding the deviations from normal to abnormal pathology, Rationalize the various laboratory investigations in diagnosing pathological disorders, Demonstrate the understanding of the methods of collection of blood, body cavity fluids, urine and feces for various tests, Apply the knowledge of genetics in understanding the various pathological disorders,
6. Appreciate the various manifestations in patients with diagnosed genetic abnormalities , Rationalize the specific diagnostic tests in the detection of genetic abnormalities. & Demonstrate the understanding of various services related to genetics.

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

1. Describe Pharmacodynamics, Pharmacokinetics, Classification, principles of administration of drugs, Describe antiseptics, and disinfectant & nurse‘s responsibilities, Describe drugs acting on gastro-intestinal system & nurse‘s responsibilities, Describe drugs acting on respiratory system & nurse‘s responsibilities, Describe drugs used on cardio-vascular system & nurse‘s responsibilities. Describe the drugs used in treatment of endocrine system disorders, Describe drugs used in skin diseases & nurse‘s responsibilities, Explain drug therapy/ chemotherapy of specific infections & infestations & nurse‘s responsibilities
2. Describe drugs used in disorders of ear, nose, throat and eye and nurses‘ responsibilities,Describe drugs acting on urinary system & nurse‘s responsibilities, Describe drugs used on nervous system & nurse‘s responsibilities, Describe drugs used for hormonal disorder & supplementation, contraception & medical termination of pregnancy & nurse‘s responsibilities, Develop understanding about important drugs used for women before, during and after labour,Describe drugs used in deaddiction, emergency, poisoning, vitamins & minerals supplementation, drugs used for immunization & immune-suppression & nurse‘s responsibilities, Demonstrate awareness of common drugs used in alternative system of medicine, Demonstrate understanding about fundamental principles of prescribing.
3. Define the common terms used in pathology Identify the deviations from normal to abnormal structure and functions of body system, Explain pathological changes in disease conditions of various systems, Describe various laboratory tests in assessment and monitoring of disease conditions,
4. Explain pathological changes in disease conditions of various systems, Describe the laboratory tests for examination of body cavity fluids, urine and faeces,
5. Apply the knowledge of pathology in understanding the deviations from normal to abnormal pathology, Rationalize the various laboratory investigations in diagnosing pathological disorders, Demonstrate the understanding of the methods of collection of blood, body cavity fluids, urine and feces for various tests, Apply the knowledge of genetics in understanding the various pathological disorders,
6. Explain nature, principles and perspectives of heredity,Explain maternal, prenatal and genetic influences on development of defects and diseases, Explain the screening methods for genetic defects and diseases in neonates and children,Identify genetic disorders in adolescents and adults, Describe the role of nurse in genetic services and counselling

Pre-requisite of course:PHARMACOLOGY - II : This course is designed to enable students to acquire understanding of Pharmacodynamics, Pharmacokinetics, principles of therapeutics & nursing implications. Further it develops understanding of fundamental principles of prescribing in students. PATHOLOGY - II AND GENETICS: 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.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
6	0	0	75	15	10	0	0

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Contents : Unit	Topics	Contact Hours
1	**Drugs used in disorders of ear, nose, throat & Eye** Antihistamines , Topical applications for eye (Chloramphenicol, Gentamycin eye drops), ear (Soda glycerin, boric spirit ear drops), nose and buccal cavity chlorhexidine mouthwash , Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	4
2	**Drugs used on urinary system** Pharmacology of commonly used drugs (1)Renin angiotensin system (2)Diuretics and antidiuretics (3) Drugs toxic to kidney (4)Urinary antiseptics (5)Treatment of UTI – acidifiers and alkalinizers , Composition, action, dosage, route, indications, contraindications, Drug interactions, side effects, adverse effects toxicity and role of nurse	4
3	**Drugs acting on nervous system** Basis & applied pharmacology of commonly used drugs , Analgesics and anaesthetics (1) Analgesics and anaesthetics (2)Analgesics: Non-steroidal anti inflammatory (NSAID) drugs (3) Antipyretics (4) Opioids & other central analgesics (5)General (techniques of GA, pre anesthetic medication) & local anesthetics (6)Gases: oxygen, nitrous, oxide, carbon-dioxide & others , Hypnotics and sedatives , Skeletal muscle relaxants, Antipsychotics : (1) Mood stabilizers (2)Antidepressants (3)Antianxiety Drugs (4)Anticonvulsants, Drugs for neurodegenerative disorders & miscellaneous drugs , Stimulants, ethyl alcohol and treatment of methyl alcohol poisoning , Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects toxicity and role of nurse	10
4	**Drugs used for hormonal, disorders and supplementation, contraception and medical termination of pregnancy** Estrogens and progesterones : (1) Oral contraceptives and hormone replacement therapy (2)Vaginal contraceptives , Drugs for infertility and medical termination of pregnancy , Uterine stimulants and relaxants, Composition, actions dosage route indications contraindications, drugs interactions, side effects, adverse effects, toxicity and role of nurse	5
5	**Drugs used for pregnant women during antenatal, labour and postnatal period** Tetanus prophylaxis, Iron and Vit K1 supplementation , Oxytocin, Misoprostol, Ergometrine, Methyl prostaglandin F2-alpha , Magnesium sulphate, Calcium gluconate	3
6	**Miscellaneous** Drugs used for deaddiction, Drugs used in CPR and emergency adrenaline, Chlorpheniramine, hydrocortisone, Dexamethasone, IV fluids & electrolytes replacement , Common poisons, drugs used for treatment of poisoning (1) Activated charcoal (2) Ipecac (3)Antidotes, (4) Anti-snake venom (ASV), Vitamins and minerals supplementation , Vaccines & sera (Universal immunization program schedules), Anticancer drugs: Chemotherapeutic drugs commonly used , Immuno-suppressants and Immunostimulants	10

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Contents : Unit	Topics	Contact Hours
7	**Introduction to drugs used in alternative systems of medicine** Ayurveda, Homeopathy, Unani and Siddha etc., Drugs used for common ailments	4
8	**Fundamental principles of prescribing** Prescriptive role of nurse practitioners: Introduction , Legal and ethical issues related to prescribing, Principles of prescribing , Steps of prescribing , Prescribing competencies	20
9	**Pathological changes in disease conditions of selected systems** Kidneys and Urinary tract : (1)Glomerulonephritis (2) Pyelonephritis (3) Renal calculi (4)Cystitis (5)Renal Cell Carcinoma (6)Renal Failure (Acute and Chronic) , Male genital systems : (1) Cryptorchidism (2)Testicular atrophy (3)Prostatic hyperplasia (4)Carcinoma penis and Prostate. , Female genital system (1)Carcinoma cervix (2)Carcinoma of endometrium (3) Uterine fibroids (4) Vesicular mole and Choriocarcinoma (5) Ovarian cyst and tumors, Breast : (1)Fibrocystic changes (2) Fibroadenoma (3) Carcinoma of the Breast , Central nervous system (1)Meningitis. (2) Encephalitis (3) Stroke (4) Tumors of CNS	5
10	**Clinical Pathology** Examination of body cavity fluids: Methods of collection and examination of CSF and other body cavity fluids (sputum, wound discharge) specimen for various clinical pathology, biochemistry and microbiology tests, Analysis of semen: Sperm count, motility and morphology and their importance in infertility, Urine: Physical characteristics, Analysis, Culture and Sensitivity , Faeces: (1) Characteristics (2) Stool examination: Occult blood, Ova, Parasite and Cyst, Reducing substance etc. (3) Methods and collection of urine and faeces for various tests	5
11	**Introduction of Genetics** 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 , Mendelian theory of inheritance, Multiple allots and blood groups , Sex linked inheritance, Mechanism of inheritance, Errors in transmission (mutation)	2
12	**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, Infertility, Spontaneous abortion , Neural Tube Defects and the role of folic acid in lowering the risks , Down syndrome (Trisomy 21)	2
13	**Genetic testing in the neonates and children** Screening for (1) Congenital abnormalities (2) Developmental delay (3)Dysmorphism	2

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Contents : Unit	Topics	Contact Hours
14	**Genetic conditions of adolescents and adults** Cancer genetics: Familial cancer , Inborn errors of metabolism , Blood group alleles and hematological disorder , Genetic haemochromatosis, Huntington‘s disease , Mental illness	2
15	**Services related to genetics** Genetic testing , Gene therapy, Genetic counseling, Legal and Ethical issues , Role of nurse	2
16	**Introduction to pharmacology** Definitions & Branches, Nature & Sources of drugs, Dosage Forms and Routes of drug administration, Terminology used, Classification, Abbreviations, Prescription, Drug Calculation, Weights and Measures, Pharmacodynamics: Actions, Drug Antagonism, Synergism, Tolerance, Receptors, Therapeutic, adverse, toxic effects, pharmacovigilance, Pharmacokinetics: Absorption, Bioavailability, Distribution, Metabolism, Interaction, Excretion, Review: Principles of drug administration and treatment individualization, Factors affecting dose, route etc, Indian Pharmacopoeia: Legal Issues, Drug Laws, Schedule Drugs, Rational Use of Drugs, Principles of Therapeutics	3
17	**Pharmacology of commonly used antiseptics and disinfectants** Antiseptics and Disinfectants, Composition, action, dosage, route, indications, contraindications, Drug interactions, side effects, adverse effects, toxicity and role of nurse	1
18	**Drugs acting on G.I. system** Pharmacology of commonly used drugs o Emetics and Antiemetics o Laxatives and Purgatives o Antacids and antipeptic ulcer drugs o Anti-diarrhoeals – Fluid and electrolyte therapy, Furazolidone, dicyclomine, Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	2
19	**Drugs acting on respiratory system** Pharmacology of commonly used o Antiasthmatics – Bronchodilators (Salbutamol inhalers) o Decongestants o Expectorants, Antitussives and Mucolytics o Broncho-constrictors and Antihistamines, Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects toxicity and role of nurse	2
20	**Drugs used in treatment of Cardiovascular system and blood disorders** Haematinics, & treatment of anemia and antiadrenergics, Cholinergic and anticholinergic, Adrenergic Drugs for CHF & vasodilators, Antianginals, Antiarrhythmics, Antihypertensives, Coagulants & Anticoagulants, Antiplatelets & thrombolytics, Hypolipidemics, Plasma expanders & treatment of shock, Drugs used to treat blood disorders, Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse	4

Contents : Unit	Topics	Contact Hours
21	**Drugs used in treatment of endocrine system disorders** Insulin & oral hypoglycemics, Thyroid and anti-thyroid drugs, Steroids o Corticosteroids o Anabolic steroids, Calcitonin, parathormone, vitamin D3, calcium metabolism o Calcium salts	2
22	**Drugs used in treatment of integumentary system** Antihistaminics and antipruritics, Topical applications for skin-Benzylbenzoate, Gamma BHC, Clotrimazole, Miconazole, Silver Sulphadiazine (burns), Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects toxicity and role of nurse	1
23	**Drugs used in treatment of communicable diseases (common infections, infestations)** General Principles for use of Antimicrobials, Pharmacology of commonly used drugs: o Penicillin, Cephalosporin‘s, Aminoglycosides, Macrolide & broad spectrum antibiotics, Sulfonamides, quinolones, Misc. antimicrobials, Anaerobic infections, Antitubercular drugs,, Antileprosy drugs, Antimalarials, Antiretroviral drugs, Antiviral agents, Antihelminthics, Antiscabies agents, Antifungal agents, Composition, action, dosage, route, indications, contraindications, Drug interactions, side effects, adverse effects, toxicity and role of nurse	5
24	**Introduction to pathology** Importance of the study of pathology, Definition of terms in pathology, Cell injury: Etiology, pathogenesis of reversible and irreversible cell injury, Necrosis, Gangrene, Cellular adaptations: Atrophy, Hypertrophy, Hyperplasia, Metaplasia, Dysplasia, Apoptosis, Inflammation: o Acute inflammation (Vascular and Cellular events, systemic effects of acute inflammation) o Chronic inflammation (Granulomatous inflammation, systemic effects of chronic inflammation), Wound healing, 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, Circulatory disturbances: Thrombosis, embolism, shock, Disturbance of body fluids and electrolytes: Edema, Transudates and Exudates	8

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Contents : Unit	Topics	Contact Hours
25	**Special Pathology Pathological changes in disease conditions of selected systems:** 1. Respiratory system , Pulmonary infections: Pneumonia, Lung abscess, pulmonary tuberculosis , Chronic Obstructive Pulmonary Disease: Chronic bronchitis, Emphysema, Bronchial Asthma, Bronchiectasis , Tumors of Lungs, 2. Cardio-vascular system , Atherosclerosis , Ischemia and Infarction. Rheumatic Heart Disease, Infective endocarditis, 3. Gastrointestinal tract , Peptic ulcer disease (Gastric and Duodenal ulcer) , Gastritis-H Pylori infection , Oral mucosa: Oral Leukoplakia, Squamous cell carcinoma , Esophageal cancer , Gastric cancer , Intestinal: Typhoid ulcer, Inflammatory Bowel Disease (Crohn‘s disease and Ulcerative colitis), Colorectal cancer, 4. Liver, Gall Bladder and Pancreas , Liver: Hepatitis, Amoebic Liver abscess, Cirrhosis of Liver ,Gall bladder: Cholecystitis. , Pancreas: Pancreatitis , Tumors of liver, Gall bladder and Pancreas, 5. Skeletal system , Bone: Bone healing, Osteoporosis, Osteomyelitis, Tumors , Joints: Arthritis - Rheumatoid arthritis and Osteoarthritis, 6. Endocrine system , Diabetes Mellitus , Goitre , Carcinoma thyroid	5
26	**Hematological tests for the diagnosis of blood disorders** Blood tests: Hemoglobin, White cell and platelet counts, PCV, ESR, Coagulation tests: Bleeding time (BT), Prothrombin time (PT), Activated Partial Prothrombin Time (APTT), Blood chemistry, Blood bank: o Blood grouping and cross matching o Blood components o Plasmapheresis o Transfusion reactions	7
Total Hours		**120**

Textbook :

1 Textbook of Pharmacology for BSc Nursing Students, Joginder Singh Pathania ,, CBS PUBLISHERS , 2023

2 Textbook of Pathology and Genetics for BSc Nursing Students As per the Revised INC Syllabus (2021-22) for BSc Nursing, VANDANA PURI KAVITA GAUR, CBS PUBLISHERS , 2023

References:

1 TEXTBOOK OF PHARMACOLOGY for BSc Nursing Students, TEXTBOOK OF PHARMACOLOGY for BSc Nursing Students, PRITPAL SINGH & GURLEEN KAUR & DAVINDER KAUR, vision health science publishers, 2023

2 TEXTBOOK OF PATHOLOGY AND GENETICS TEXTBOOK OF for BSc Nursing Students, TEXTBOOK OF PATHOLOGY AND GENETICS TEXTBOOK OF for BSc Nursing Students, RIMPI BANSAL & DAVINDER KAUR, vision health science publishers, 2023

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**
0.00	0.00	35.00	35.00	30.00	0.00

Instructional Method:

1 LECTURE CUM DISCUSSION

Supplementary Resources:

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