PHARMACOLOGY

Placement: Second Year **Theory – 45 Hours**
(Class 35 Hours + Lab 10 Hours)

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

Specific objectives: at the end of the course the students are able to:

1. Understand the basic concepts of pharmacology
2. Understand the pharmacology of common chemotherapeutics.
3. Understand common antiseptics, disinfectants and insecticides.
4. Understand drug acting on various systems of human body.
5. Appreciate alternative systems of medicines.

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment Methods
I	2	Describe pharmaco-dynamics, pharmacokinetics, classification and the principles of drug administration	**Introduction to Pharmacology** • Definitions • Sources • Terminology use • Types: Classification • Pharmaco-dynamics: Actions, therapeutic • Adverse, toxic • Pharmacokinetics: Absorption, distribution, metabolism, interaction, excretion • Review: Routes and principles of administration of drugs • Indian pharmacopoeia: Legal issues O Storage of various drugs O Calculation of drug dosage • Rational use of drugs • Principles of therapeutics	• Lecture • Discussion	• Short answers • Objective type

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment Methods
II	5	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 • Antihelmintics • Antiscabies agents • Antiviral & Antifungal agents • Antitubercular drugs • Antileprosy drugs • Anticancer drugs • Immuno-suppressants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture • Discussion • Drug study/ Presentation O field visits/ educational trips to pharmaceutical farms / companies O Pharmacological management of clinical conditions. O Practical classes in the pharmacology department like administration \of injections and medications	• Short answers • Objective type
III	2	Describe antiseptics, disinfectants, insecticides and nurse's responsibilities	**Pharmacology of commonly used anitiseptics, disinfectants and 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

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment Methods
IV	2	Describe drugs acting gastro-intestinal system and nurse's responsibilities	**Drugs acting on G I System** Pharmacology of commonly used • Antiemetics • Emetics • Purgatives • Antacids • Cholinergic • Anticholinergics • Fluid and Electrolyte therapy • Antidiarrhoeals • Histamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type
V	2	Describe drugs used on Respiratory systems and nurse's responsibilities	**Drugs used on Respiratory System** 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 & role of nurse.	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type
VI	2	Describe drugs used on Urinary systems and nurse's responsibilities	**Drugs used on Urinary System** Pharmacology of commonly used • Diuretics and Antidiuretics • Urinary antiseptics • Cholinergics and anticholinergics • Acidifiers and alkalanizers Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment Methods
VII	3	Describe drugs used in deaddiction, emergency, deficiency of vitamins & minerals, positioning, for immunization and immunosuppression and nurse's responsibilities	**Miscellaneous** • Drugs used in deaddiction • Drugs used in CPR & emergency • Vitamins and minerals • Immunosuppressants • Antidotes • Antivenom • Vaccines and Sera	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type
VIII	1	Describe drugs used on skin and mucous membranes and nurse's responsibilities	**Drugs used on skin and mucus 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 & role of nurse.	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type
IX	5	Describe drugs used on Nervous system and nurse's responsibilities	**Drugs acting on Nervous System** Basic & applied pharmacology of commonly used: • Analgesics & Anesthetics ➢ Analgesics - Nonsteroidal anti-inflammatory (NSAID) drugs ➢ Antipyretics ➢ Hypnotics and sedatives - Opioids - Non opioids - Tranquilizers - General & local anaesthetics - Gases – Oxygen, nitrous oxide, Carbon dioxide • Cholinergic & anticholinergics: Muscle relaxants Major tranquilizers Anti psychotics ➢ Antidepressants ➢ Anticonvulsants ➢ Adrenergics	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning Activities	Assessment Methods
			➢ Noradrenergics ➢ Mood stabilizers ➢ Acetylcholine ➢ Stimulants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.		
X	4	Describe drugs used on Cardiovascular system and nurse's responsibilities	**Cardiovascular Drugs** • Haematinics • Cardiotonics • Anti anginals • Antihypertensives & vasodilators • Anti-arrhythmics • Plasma expanders • Coagulants & anticoagulants • Antiplatelets & thrombolytics • Hypolipidemics Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type
XI	3	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** • Insulin & Oral hypoglycemics • Thyroid supplements & suppressants • Steroids , Anabolics • Uterine stimulants & relaxants • Oral contraceptives • Other estrogen – progestrone preparations • Corticotrophine & Gonadotropines	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type

Unit	Time (Hrs)	Learning Objectives	Contentss	Teaching Learning Activities	Assessment Methods
			• Adrenaline • Prostaglandins • Calcitonins • Calcium salts • Calcium regulators Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.		
XII	4	Demonstrate awareness of the common drugs used in alternative system of medicine	**Introduction to drugs used in alternative system of medicine** • Ayurveda, Homeopathy, Unani and Siddha etc	• Lecture • Discussion • Observational visits	• Short answers • Objective type

Lab: 10 Hrs

Administration of medications-oral
Administration of medications –Subcutaneous, intramuscular and intravenous injections

Visits to: -
Allopathy Pharmaceutical farm / company
Ayurveda Pharmaceutical farm / company
Homeopathy Pharmaceutical farm / company

Bibliography: (Pharmacology)

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2. M M Das: Pharmacology, Books & Allied (p) Ltd, 4 Edition 2001.
3. Linda, Skidmore Roth: Mosby's 2000 Nursing Drug Reference, Mosby Inc, Harcourt Health Sciences Company, Missouri 2000.
4. Ramesh Karmegan: First aid to Pharmacology for undergraduates, Paras Medical publishers, Hyderabad, India, 1 Edition 2003.
5. K D Tripathi: Essentials of medical pharmacology, 4 Edition, Jaypee Brothers, Bangalore.
6. Govoni & Hayes: Drugs and nursing implications, 8 Edition, Appleton & Lange Newyork.
7. Rodman & Smith: Clinical pharmacology in nursing, 2 Edition, J B Lippincott company, Philadelphia.
8. Richard A Lehne : Pharmacology for nursing care , 3 Edition ,W B S aunderers company , Philadelphia, 1990.
9. Lalit Mishra: Drug Today, Vol 12, No 12, Lorina publications Inc. Delhi 2004.

PATHOLOGY AND GENETICS

Placement: Second Year **Theory – 45 Hours**
Pathology - 30 Hrs (Class 23 + Lab 07 Hrs)
Genetics – 15 Hrs

A: 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.

Specific objectives: At the end of the course students are able to:

1. Understand the basic concepts of pathology.
2. Understand the pathophysiological changes in different system disorders.
3. Assist for various pathological tests conducted in the clinical field.
4. Collect and send the pathological tests and infer their results with patient conditions.

Unit	Time (Hrs)		Objectives	Content	Teaching Learning activities	Assessment methods
	Th.	Pr.				
I	3		1.Define the common terms used in pathology 2.Appreciate the deviations from normal to abnormal structure and functions of the body system	**General Pathology** o Introduction to pathology o Review of cell and tissues • Definition of terms • Methods & techniques • Cellular & tissue changes • Infiltration and regeneration • Inflammations and infections • Wound healing and repair o Nature of injuries, adaptive responses, reversible & irreversible cell injury o Cell accumulations Vascular changes Cellular growth and neoplasms • Normal and cancer cell • Benign and malignant growths • In situ carcinoma Disturbances of fluid and electrolyte balance, role of nurse	• Lecture • Discussion • Explain using charts	• Short answers • Objective type
II	10	03	Explain pathological changes in disease conditions of various systems	**Systemic Pathology** • Pathological changes in disease conditions of various systems: • Respiratory tract ➢ Tuberculosis, Bronchitis, ➢ Pleural effusion & Pneumonia ➢ Lung abscess, emphysema, bronchiectasis ➢ Bronchial asthma, chronic obstructive pulmonary disease and tumours.	• Lecture • Discussion • Explain using charts, slides, specimen, x-rays and scans • Visit to pathology lab, endoscopy unit and OT	• Short answers • Objective type

Unit	Time (Hrs)		Objec-tives	Content	Teaching Learning activities	Assessment methods
	Th.	Pr.				
				• Cardiovascular system ➢ Pericardial effusion ➢ Rheumatic heart disease ➢ Infective endocarditis, atherosclerosis ➢ Ischemia, infarction & aneurism		
I	3			• Gastointestinal tract ➢ Peptic ulcer, Typhoid ➢ Carcinoma of GI tract – buccal, esophageal, gastric and 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 ➢ Diabetes Mellitus • Male genital system ➢ Cryptorchidism, testicular atrophy ➢ Prostatic hyperplasia, Carcinoma penis & prostate • Female genital system ➢ Fibroids ➢ Carcinoma cervix & endometrium ➢ Vesicular mole, choriocarcinoma ➢ Ectopic gestation ➢ Ovarian cyst & tumours • Cancer breast • Central Nervous System ➢ Vascular disorders – thrombosis, embolism ➢ Stroke, paraplegia, quadriplegia ➢ Tumours, meningiomas- gliomas • Metastatic tumour • Skeletal system ➢ Bone healing, osteoporosis, osteomyelitis • Arthritis and tumours	• Lecture • Discussio n • Explain using charts	• Short answers • Objective type

Unit	Time (Hrs)		Objectives	Content	Teaching Learning activities	Assessment methods
	Th.	Pr.				
III	4	2	Describe various laboratory test in assessment and monitoring of disease conditions	**Haematology & Pathology** • Various blood and bone marrow tests in assessment and monitoring of disease conditions ➢ Hemoglobin ➢ RBC, white cells & platelet counts ➢ Bleeding time, clotting time and prothrombin 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, microbiological tests, inference and normal values o Nurse's role in collection and dispatch of various samples for laboratory tests. o Universal safety precautions	• Lecture • Discussion	• Short answers • Objectiv e type
IV	2	1	Describe the laboratory tests for examinatio n of body cavity fluids, transudates and exudates	**Examination of body cavity fluids, transudates and exudates** • The laboratory 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. • Nurse's role in assisting and preparing the patient for these diagnostic tests	Lecture • Discussion • Demonstra tion	• short answers • Objectiv e type

Unit	Time (Hrs)		Objectives	Content	Teaching Learning activities	Assessment methods
	Th.	Pr.				
				• O		
V	1	1	Describe the laboratory tests for examination of Urine and Faeces	**Urine & Faeces** • Urine ➢ Physical characteristics ➢ Analysis ➢ Culture and sensitivity • Characteristics ➢ 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

Lab – 07 Hrs

Museum specimens of,

- Respiratory disorders
- Tuberculosis
- Cardiovascular disorders-IE, RHD, Hypertension, MI
- Ulcers of GIT
- Hepatobiliary disorders
- Renal diseases
- Female genital tract

Visits to:-

- Pathology lab
- Endoscopy unit
- Operation Theatre
- Routine examination of urine
- Hb estimation
- Cell counts

Bibliography - Pathology

1. Harsh Mohan : Text book of Pathology, IV Edition Jaypee Brothers, New Delhi 2000.
2. Heller : Pathology: Comprehensive Review 1999 Edition.
3. Emanuel Rubin M D, John L Farber : Pathology , III Edition , Lippincott, Philadelphia 1999.
4. Carol Mattson Porth : Pathophisiology ,VII Edition Lippincott Philadelphia 2002.
5. Ramzi S Cotran etal : Robins Pathologic basib of disease, VI Edition, W B Saunders coy USA 1999.
6. JCE Underwood : General and systemic pathology , III Edition, Churchill liuvingstone , Philadelphia 2000.
7. Canjanov and Linder : Anderson's pathology, X Edition , Lippincott , Philadelphia 1996.
8. Vinay Kumar M D etal : Basic Pathology , VI Edition W B Saunders coy USA 1997.
9. Walter F Coulson : Surgical Pathology , II Edition J B Lippincott coy Philadelphia, 1988.
10. Parakrama Chandrasoma : Concise pathology, III Edition, Hall International, USA,1998.
11. Lynne's Gracia, M S & David A Brucker : Diagnostic medical parasitology , III Edition ASM press, Washington'2005.
12. Haber et al : Differential diagnosis in pathology , W B Saunders coy, Philadelphia, 2002.

B – GENETICS

Placement: Second Year **Theory – 15 Hours**

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

Specific objectives: At the end of the course students are able to:

1. Understand the basic concepts of genetics
2. Understand maternal, prenatal and genetic influences on development of defects and diseases
3. Understand the significance of genetic testing.
4. Understand genetic disorders in various age groups.
5. Appreciate services related to genetics

Unit	Time (hrs)	Objectives	Content	Teaching Learning activities	Assessment methods
I	3	1.Explain nature, principles and perspectives 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 pattern of inheritance ➢ Mendalian theory of inheritance ➢ Multiple allots and blood groups ➢ Sex linked inheritance ➢ Mechanism of inheritance ➢ Errors 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	**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)	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type

Unit	Time (hrs)	Objectives	Content	Teaching Learning activities	Assessment methods
III	2	1.Explain the screening methods for genetic defects and diseases in neonates and children	**Genetic tests in neonates and children** • Screening for ➢ Karyotype analysis ➢ 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 hematological disorders • 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 counseling • Legal and ethical issues • Role of nurse	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type

Bibliography –(Genetics)

1. S Mandal: Fundamentals of Human Genetics II Edition New Central Book Agency, Kolkota 1996
2. S D Gangane : Human Genetics II Edition, Saurabh Printers, Noida.
3. Jorde Carey BamshadWhite : Medical Genetics, Mosby 2003.
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8. P C Winter, G I Hickey : Instant notes in genetics , Viva books Pvt Ltd, New Delhi 2000.
9. Ching Chun L : Human Genetics- Principles and methods , Mcgeaw hill book company, Newyork 1961.
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15. Pansky Ban, Review of Medical Embryology. Macmillian Publishing Company, New York 1982.
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EVALUATION SCHEME

Internal Assessment: **Maximum Marks 25**

Theory: **15 Marks**

	Pharmacology	**Pathology and genetics**	**Total Marks**	**Average Out of**
Mid-term	**30**	**20**	**50**	**-**
Pre-final	**40**	**35**	**75**	**-**
		Total	**125**	**15**

(125 Marks to be converted in to 15 Marks for Internal Assessment (Theory))

Assignments: Two

a) Pharmacology – Drug Study / Drug Presentation 25 Marks
b) Pathology - Preparation of Patient for diagnostic Test 25 Marks

Total: 50 Marks

(50 Marks to be converted in to 10 Marks for Internal Assessment (Assignments))

External assessment:

University Examination (Theory) 75 Marks

Format for Assignment: -

i) Drug study

- Index of drug
- Introduction
- Classification of drugs
- Factors affecting action of drugs
- Name of the drug (Trade & Pharmaceutical name)
- Preparation, strength and dose
- Indications and contraindications
- Actions
- Adverse effects and drug interactions
- Nursing responsibility
- Conclusion
- References

Evaluation criteria

Planning and organization ---------- 05
Content ----------10
Nursing responsibility ---------- 05
Conclusion & References ----------05
Total 25

ii) Preparation of patients for diagnostic tests

- Type of investigation
- Indications
- Preparation of the patient
- Do's and Don'ts
- Documents to be carried along
- Complications
- Aftercare of the patient
- Conclusion
- Reference

Evaluation criteria

Criteria		Marks
Organization	10	
Content		10
Conclusion and references	05	
Total	25	