

PHARMACOLOGY
Basic B.Sc. N 2nd year

Total hours: 45

Unit No. & Hours	Objectives	Contents with distributed Hours						
		Must Know (60%)27	Desirable to Know (30%)14	Nice to Know (10%) 4				
I(3Hrs)	At the end of unit student are able to Knowledge: Understand and explain various sources and Pharmacodynamics and pharmacokinetics of different groups of drugs. Skill: Practice principles of therapeutics and administer different groups of drugs. Attitude: Know the legal implications of drug management.	Introduction to Pharmacology: • Definitions. Sources. Terminology used. Types: Classification. • Pharmacodynamics: Actions, Therapeutics. Adverse, toxic. • Pharmacokinetics: absorption, distribution, metabolism, interaction, excretion • Review: Routes and principles of administration of drugs. Principles of therapeutic. (2 hours)	Indian pharmacopoeia: Legal issues Rational use of drugs. (1 hour)					
Introduction to Pharmacology								
Course Outcome		Program outcome						
		Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
Students should be able to- CO-1: define all terms used in pharmacology		2	2	2	2	2	2	1
CO-2: explain various sources of drugs		2	2	2	2	2	2	1
CO-3: define Drugs and Describe Types: Classification of drugs		2	2	2	2	2	2	1
CO-4: differentiate Pharmacodynamics and Pharmacokinetics:		2	2	2	2	2	2	1

CO-5: describe routes and principles of administration of drugs		2	2	2	2	2	2	1
CO-6: explain Indian pharmacopoeia: Legal issues Rational use of drugs		2	2	2	2	2	2	1
II(6Hrs)	At the end of unit student are able to; Knowledge: Understand and explain different chemotherapeutic agents their action and effects on clients. Skill: Administer chemotherapeutic agents correctly. Attitude: Observe the clients for adverse effects and therapeutic effects of the chemotherapeutic agents in different disease conditions.	Chemotherapy: • Pharmacology of commonly used drugs: ○ Penicillin. ○ Cephalosporin. ○ Amino glycosides, ○ Sulfonamides. ○ Quinolones. ○ Macrolide and broad Spectrum antibiotics. ○ Antiamoebic. ○ Antimalarias. ○ Anthelmintics. ○ Antiscabes agents. ○ Antiviral & antifungal agents. ○ Antitubercular agents. ○ Anticancer drugs. ○ Immuno-suppressants. Composition action, dosage, route, indication and contraindications, drug interactions, side effects and adverse effects, toxicity and role of Nurse. (3 hours)	• Antiretroviral drugs Composition action, dosage, route, indication and contraindications, drug interactions, side effects and adverse effects, toxicity and role of Nurse. (2 hours)	• Antileprosy drugs. • Swine flu regimen. Composition action, dosage, route, indication and contraindications, drug interactions, side effects and adverse effects, toxicity and role of Nurse. (1 hour)				
Chemotherapy								
Course Outcome		Program outcome						
Students should be able to-		Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1: Explain Pharmacology of commonly used drugs: Penicillin, Cephalosporin, Amino glycosides, Sulfonamides,		2	2	2	2	2	2	1
CO-2: Explain Pharmacology of commonly used drugs: Quinolones, Macrolide and broad Spectrum antibiotics.		2	2	2	2	2	2	1

CO-3: Explain Pharmacology of commonly used drugs Antiamoebic, Antimalarias, Anthelmintics, Antiscabes agents, Antiviral & antifungal agents,			2	2	2	2	2	2	1	
CO-4: Explain Pharmacology of commonly used drugs:Antitubercular agents, Anticancer drugs and Immuno- suppressants			2	2	2	2	2	2	1	
CO-5: Explain Pharmacology of commonly used drugs Antiretroviral drugs, Antileprosy drugs.Swine flu regimen.			2	2	2	2	2	2	1	
CO-6:Describe Role of Nurse while administering different chemotherapeutic agents			3	3	2	2	2	2	2	
III(2Hrs)	At the end of unit student are able to Knowledge: Understand and explain the actions of commonly used antiseptics, insecticides and disinfectants. Skill: Use disinfectants, insecticides and antiseptics judiciously. Attitude: Prevent misuse of these agents in clinical set up.	Pharmacology of commonly used antiseptics, disinfectants and insecticides: • Antiseptics: Composition action, dosage, route indication, contraindications, drug interactions, side effects, adverse effects, toxicity. Role of nurse. (1 hour)	• Disinfectants, Insecticides: Composition action, dosage, route indication, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse. (1 hour)							
Pharmacology of commonly used antiseptics, disinfectants and insecticides										
Course Outcome				Program outcome						
Students should be able to- CO-1: List the major drugs and drug classes used as a antiseptics and describe Composition action, dosage, route indication, contraindications, drug interactions, side effects, adverse effects, toxicity. Role of nurse				Clinician/N urse educator	Professional	Communicato r	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
				PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
				2	2	2	2	2	2	1
CO-2: List the major drugs used as disinfectants and describe composition, action, dosage, route indication, contraindications, drug interactions, side effects, adverse effects, toxicity. Role of nurse				2	2	2	2	2	2	1
CO-3: List the major drugs used as a insecticides and describe composition, action, dosage, route indication, contraindications, drug interactions, side effects, adverse effects, toxicity. Role of nurse				2	2	2	2	2	2	1

CO-4: Describe Role of Nurse while using different antiseptics, disinfectants and Insecticides		2	2	2	2	2	2	1	
IV(2Hrs)	At the end of unit student are able to Knowledge: Understand and explain various drugs used in the treatment of G. I. disorders. Skill: Administer drugs for all G. I. disorders accurately. Attitude: Observe the clients for adverse effects and therapeutic effects of the drugs used for G. I. disorders.	Drugs acting on G. I. system: <ul style="list-style-type: none"> • Pharmacology of commonly used drugs: Composition action, dosage, route, indication, and contraindications, drug interactions, side effects, and adverse effects, toxicity and Role of Nurse: • Antiemetic. • Emetics. • Purgatives. • Antacids. • Anti diarrheal • Anticholinergic • Fluid and electrolyte therapy. • Cholinergic • Histamines 							
Drugs acting on G. I. system									
Course Outcome			Program outcome						
Students should be able to-			Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
			PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
			2	2	2	2	2	2	1
CO-1: List the major drugs and drug classes used as antiemetics and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.			2	2	2	2	2	2	1
CO-2: List the major drugs and drug classes used as an emetic and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.			2	2	2	2	2	2	1
CO-3: List the major drugs and drug classes used as purgatives and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.			2	2	2	2	2	2	1

CO-4: List the major drugs and drug classes used as antacids and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.			2	2	2	2	2	2	1
CO-5: List the major drugs and drug classes used as antidiarrheal agents and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.			2	2	2	2	2	2	1
CO-6: Explain Anticholinergics and Cholinergic			2	2	2	2	2	2	1
CO-7: Explain Anticholinergics and Cholinergic			2	2	2	2	2	2	1
CO-8: Describe Histamines			2	2	2	2	2	2	1
CO-9: Describe Role of Nurse while using different drugs used in G.I. system			3	3	2	2	2	2	2
V(2Hrs)	At the end of unit student are able to Knowledge: Understand and explain the drugs used in the treatment of disorders of respiratory tract. Skill: Administer drugs in all conditions of respiratory tract. Attitude: Observe the clients for adverse effects and therapeutic effects of the drugs used in the treatment of disorders of respiratory tract.	Drugs used on respiratory systems: <ul style="list-style-type: none"> • Pharmacology of commonly used: Composition action, dosage, route, indication, and contraindications, drug interactions, side effects, and adverse effects, toxicity and role of nurse: • Decongestants. • Expectorants. • Antitussives. • Bronchodilators. • Bronchoconstrictors. • Anihisthmatics. • Mucolytics. (2 hours)							
Drugs used on respiratory systems									
Course Outcome			Program outcome						
			Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Students should be able to-			PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1: List the major drugs and drug classes used on respiratory system			2	2	2	2	2	2	1
CO-2: List the major drugs and drug classes used as antiasthmatics			2	2	2	2	2	2	1

CO-3: describe Decongestant including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions	2	2	2	2	2	2	1	
CO-4: describe Expectorants including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions	2	2	2	2	2	2	1	
CO-5: describe Antitussives including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.	2	2	2	2	2	2	1	
CO-6: describe Bronchodilators including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.	2	2	2	2	2	2	1	
CO-7: describe Mucolytics including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.	2	2	2	2	2	2	1	
CO-8: Describe Role of Nurse while administering different drugs used in respiratory system	3	3	2	2	2	2	2	
VI(2Hrs) At the end of unit student are able to Knowledge: Understand and explain different therapeutic agents used in the treatment of urinary tract disorders. Skill: Administer all categories of therapeutic agents correctly to the patients of urinary tract disorders. Attitude: Observe the clients for adverse effects and therapeutic effects of the drugs used in the treatment of urinary disorders.	Drugs used in urinary systems: <ul style="list-style-type: none"> Pharmacology of commonly used: Composition action, dosage, route, indication, contraindications, drug interactions, side effects, adverse effects, toxicity and Role of Nurse- Diuretics and antidiuretics. Urinary antiseptics Cholinergic and anticholinergic Acidifiers and alkalanizers (2 hours)							
Drugs used in urinary systems								
Course Outcome		Program outcome						
		Clinician/ Nurse educator	Profession al	Communi cator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher

Students should be able to-			PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1: List the major drugs and drug classes used on urinary system			2	2	2	2	2	2	1
CO-2: describe Diuretics including their classification, indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.			2	2	2	2	2	2	1
CO-3: describe Antidiuretics including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions. CO-4: Explain urinary antiseptics			2	2	2	2	2	2	1
CO-5: Differentiate Acidifiers and Alkalanizers			2	2	2	2	2	2	1
CO-6: Describe role of Nurse while administering various drugs used in urinary system			3	3	2	2	2	2	2
VII(4Hrs)	At the end of unit student are able to Knowledge: Understand and explain different categories of drugs used in de-addiction, emergency resuscitation and as supplements and antisera. Skill: Administer all these categories of drugs correctly. Attitude: Participate in the immunization programme and educate people about immunization.	Miscellaneous: • Drugs used in • De-addiction • Drugs used in CPR and emergency • Antidotes • Antivenom. (2 hour)	• Vaccines and sera • Immunosuppressants (1hour)			• Vitamins and minerals (1hour)			
Miscellaneous:									
Course Outcome			Program outcome						
			Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
			PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
Students should be able to-			2	2	2	2	2	2	1
CO-1: List and Describe the major drugs used in De-addiction			2	2	2	2	2	2	1
CO-2: List and Describe the major drugs used in CPR			2	2	2	2	2	2	1
CO-3: List and Describe the major drugs used as Antidotes			2	2	2	2	2	2	1
CO-4: Describe antivenom			2	2	2	2	2	2	1
CO-5: List and Describe Vaccines and sera			3	2	2	2	2	2	1

CO-6: Describe Immunosuppressant		2	2	2	2	2	2	1
CO-7: List and Describe Vitamins and Minerals		2	2	2	2	2	2	1
CO-8: Describe role of Nurse while administering various miscellaneous drugs		3	3	2	2	2	2	2
VIII(1Hrs)	At the end of unit student are able to Knowledge: Understand and explain various agents used on skin and mucous membrane. Skill: Administer medication correctly on skin and mucous membrane. Attitude: Observe the clients for adverse effects and therapeutic effects of the skin and mucous membrane application.	Drugs used on skin and mucous membranes: • Topical applications for skin, eye, ear, nose and buccal cavity. • Antipruritics Composition action, dosage, route, indication, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse (1 hours)						
Drugs used on skin and mucous membranes								
Course Outcome		Program outcome						
Students should be able to- CO-1: List the major drugs and drug classes used on skin and mucous membranes and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions		Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
		2	2	2	2	2	2	1
CO-2: List and Describe topical applications for skin, eye, ear, nose and buccal cavity.		2	2	2	2	2	2	1
CO-3: Describe Antipruritics		2	2	2	2	2	2	1
CO-4: Describe role of Nurse while administering various miscellaneous drugs		3	3	2	2	2	2	2

IX(8Hrs)	<p>At the end of unit student are able to</p> <p>Knowledge: Understand and explain different agents used for the treatment of nervous system disorders.</p> <p>Skill: Administer medications in neurological conditions correctly.</p> <p>Attitude: Observe the clients for adverse effects and therapeutic effects of the drugs used in the neurological disorders.</p>	<p>Drugs used on Nervous system:</p> <ul style="list-style-type: none"> • Basic & applied pharmacology of commonly used drugs: Composition action, dosage, route, indication, contraindications, drug interactions, side effects, adverse effects, toxicity and role of nurse: • Analgesics and anesthetics • Analgesics • Non steroidal anti inflammatory (NSAID) Drugs. • Antipyretics • Hypnotics and sedatives • Opioids • Non – Opioids, • Tranquilizers • General and local anesthetics(4 hours) 	<ul style="list-style-type: none"> • Gases: Oxygen and nitrous oxide, carbon dioxide. • Anti-psychotics. • Antidepressants. • Cholinergics and anti Cholinergics: • Muscle relaxants • Major tranquilizers • Anticonvulsants • Stimulants <p>(3 hours)</p>	<ul style="list-style-type: none"> • Acetylcholine. • Noradrenergics. • Mood stabilizers. <p>(1 hour)</p>
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Drugs used on Nervous system

Course Outcome	Program outcome						
<p>Students should be able to-</p> <p>CO-1: List the major drugs and drug classes used on nervous system</p>	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
	2	2	2	2	2	2	1
<p>CO-2:List the major drugs and drug classes used as Analgesics, Antipyretics and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.</p>	2	2	2	2	2	2	1
<p>CO-3:List the major drugs and drug classes used as General and local anesthetics and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.</p>	2	2	2	2	2	2	1

CO-4:List the major drugs and drug classes used as Non steroidal anti inflammatory (NSAID) Drugs and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.		2	2	2	2	2	2	1		
CO-5:List the major drugs and drug classes used as Hypnotics and sedatives and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.		2	2	2	2	2	2	1		
CO-6:List the major drugs and drug classes used as Opioids and Non-Opioids and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions		2	2	2	2	2	2	1		
CO-7:Explain Gases: Oxygen and nitrous oxide, carbon dioxide		2	2	2	2	2	2	1		
CO-8:Describe Major tranquilizers, Anti-psychotics. Antidepressants. Mood stabilizers		2	2	2	2	2	2	1		
CO-9:Explain Muscle relaxants,Anticonvulsants,Stimulants, Acetylcholine.Noradrenetics.		2	2	2	2	2	2	1		
CO-10: Describe role of Nurse while administering various drugs used in nervous system		3	3	2	2	2	2	2		
X(5 Hrs)	At the end of unit student are able to Knowledge: Understand and explain therapeutic agents used in cardiovascular disorders. Skill: Administer cardiovascular drugs correctly. Attitude: Observe the clients for adverse effects and therapeutic effects of the cardiovascular drugs in different disease conditions.	Cardiovascular drugs: <ul style="list-style-type: none"> Pharmacology of commonly used: Composition action, dosage, route, indication, and contraindications, drug interactions, side effects, and adverse effects, toxicity and role of Nurse Anti anginal Anti-hypertensive & vasodilators. Coagulants & anticoagulants Platelets and thrombolytic Hypolipidemics Cardiotonics (3 hours)		<ul style="list-style-type: none"> Haemantitics Plasma expanders Anti-arrhythmics (2hour)						
Cardiovascular drugs										
Course Outcome				Program outcome						
				Clinician/Nurse educator	Professional	Communi cator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher

Students should be able to-		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	
CO-1: List the major drugs and drug classes used as Antiangina agents and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.		2	2	2	2	2	2	1	
CO-2: List the major drugs and drug classes used as Antihypertensive drugs and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.		2	2	2	2	2	2	1	
CO-3: Describe Coagulants & anticoagulants, Platelets and thrombolytic		2	2	2	2	2	2	1	
CO-4: Explain Hypolipidemics, Cardiotonics, Haemantitics, Plasma expander		2	2	2	2	2	2	1	
CO-5: Define, List the major drugs and drug classes used as Anti-arrhythmic agents and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.		2	2	2	2	2	2	1	
CO-6: Describe role of Nurse while administering various drugs used in cardiovascular system		3	3	2	2	2	2	2	
XI(4 Hrs)	At the end of unit student are able to Knowledge: Understand and explain drugs used in hormonal disorders. Skill: Administer different hormonal therapies. Attitude: Observe the clients for adverse effects and therapeutic effects of the hormonal therapies.	Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy: <ul style="list-style-type: none"> Pharmacology of commonly used: Composition action, dosage, route, indication, and contraindications, drug interactions, side effects, and adverse effects, toxicity and role of nurse: Insulin and oral hypoglycemic. Thyroid supplements and suppressants. Steroids. Uterine stimulants and relaxants. (2 hours) 		<ul style="list-style-type: none"> Other estrogen – progesterone preparations Corticotrophine and gonadotropines Adrenaline Prostaglandins (1 hour) 		<ul style="list-style-type: none"> Oral contraceptives Anabolics. Calcitonins Calcium salts Calcium regulators. (1hour) 			
Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy									
Course Outcome			Program outcome						
			Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team	Lifelong learner	Critical thinker	Researcher

					and system					
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7		
Students should be able to- CO-1: : List the major drugs and drug classes used in Hormonal disorders and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.		2	2	2	2	2	2	1		
CO-2: Explain Insulin and oral hypoglycemic.		2	2	2	2	2	2	1		
CO-3: Describe Thyroid supplements and suppressants.		2	2	2	2	2	2	1		
CO-4: Describe Steroids.		2	2	2	2	2	2	1		
CO-5: Explain Uterine stimulants and relaxants, oestrogen – progesterone preparations		2	2	2	2	2	2	1		
CO-6: Describe Corticotrophine and gonadotropines		2	2	2	2	2	2	1		
CO-7: Explain Adrenaline, Prostaglandins and Oral contraceptives		2	2	2	2	2	2	1		
CO-8: Explain Calcitonins, Calcium salts and Calcium regulators.		2	2	2	2	2	2	1		
CO-9: Describe role of Nurse while administering various drugs used in hormonal disorders		3	3	2	2	2	2	2		
XII(6Hrs)	At the end of unit student are able to Knowledge: Understand and explain drugs used in alternative system of medicine. Skill: Administer prescribed drugs from alternative system of medicine. Attitude: Observe the clients for adverse effects and therapeutic effects of the drugs used in alternative systems of medicine.	Introduction to drugs used in alternative system of medicine: • Ayurveda (3 hours)	<ul style="list-style-type: none"> • Homeopathy • Unani • Siddha etc. (3 hours)							
Introduction to drugs used in alternative system of medicine										
Course Outcome				Program outcome						
				Clinician/Nurse educator	Professional	Communicator	Leader and member of the	Lifelong learner	Critical thinker	Researcher

				health care team and system			
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
Students should be able to- CO-1: Describe alternative system of medicine Ayurveda,	2	2	2	2	2	2	1
CO-2: Describe alternative system of medicine Unani, Siddha, homeopathy	2	2	2	2	2	2	1

