

Branch Name:	B. Sc (CCT)
Program Code:	AS104
Course Title:	Pharmacology
Course Code:	1AS1040202
Pre-requisite Course:	

Course Objectives:

The objective of this subject is to provide students with a fundamental understanding of drugs used in the prevention, diagnosis, and treatment of cardiovascular and related systemic diseases. The course aims to familiarize students with the pharmacodynamics, pharmacokinetics, therapeutic uses, and adverse effects of commonly used cardiac drugs such as antiarrhythmics, antihypertensives, anticoagulants, and vasodilators. It also emphasizes the safe administration of medications, dosage calculations, and the monitoring of drug effects in cardiac care settings to ensure effective and rational drug therapy.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	-	2	4	50	50	25	25	150

Course Contents:

Unit No	Topic	Total Hours
1	<u>General Pharmacology</u>	05
	• Introduction • Routes of Drug Administration • Pharmacokinetics (Absorption, Distribution, Metabolism, Elimination) • Pharmacodynamics • Drug Discovery including Pharmacovigilance • Adverse Drug Reactions	
2	<u>Autonomic Nervous System</u>	05
	• General Considerations • Cholinergic Drugs • Anticholinergics, Ganglion Blockers • Adrenergic Drugs	
3	<u>Anti-Anginal Agents</u>	05
	• Beta Blocking agents – Propranolol, Atenolol, Metoprolol, Labetalol, Pindolol • Nitrates – Nitroglycerine, Isosorbide dinitrate, Isosorbide, mononitrate, transdermal nitrate patches.	

	Calcium channel blockers – Nifedipine, verapamil, diltiazem, new calcium channel blockers.	
4	<u>Anti arrhythmic agents</u> - Diuretics – Furosemide, Thiazide diuretics, Other thiazide like agents, Potassium sparing diuretics, Combination diuretics, Special diuretic agents. - Angiotensin converting enzyme (ACE) inhibitors. Types of ACE inhibitors – Captopril, Enalapril, ACE inhibitors for diabetics and hypertensive renal disease. - Quinidine and related compounds, Procainamide, Lidocaine, Mexiletine, Phenytoin, Flecainide, amiodarone, Bretylium, - Combination therapy	10
	<u>Drugs for heart failure</u> - Digitalis and acute inotropes – Digoxin, Digitoxin, Dobutamine, - Dopamine, Adrenaline, Noradrenaline, Isoprenaline, Mixed inotropic - vasodilators amrinone.	05
5	<u>Anti-Hypertensive drugs</u> - Diuretics, - Alpha & Beta Blockers, - ACE inhibitors, - Calcium antagonists, - Direct vasodilators, - Centrally active and peripherally active vasodilators.	05
6	<u>Antithrombotic agents</u> - Platelet inhibitors – Aspirin, Persantine - Anticoagulants – Heparin, Warfarin - Fibrinolytics – Streptokinase, Urokinase, Combination therapy	08
7	Lipid lowering and anti atherosclerotic drugs	02

Practicals

Unit No	Topic	Total Hours
I	Sources of Drugs	05
II	Dosage forms	05
III	Dosage Calculations	05
IV	Graphs ANS, CVS	05
V	Dosage Administrations by different Routes (Oral, Parenteral, Topical)	05
VI	ADR Reporting	05

Text Books/Reference Books:

1. Pharmacology for Dental and Allied Health Sciences, Padmaja Udaykumar, 4th edition onwards.
2. HL Sharma/KK Sharma Principles of Pharmacology, Paras Medical Publisher, 4th Edition.
3. Tripathi.KD, Essentials of Medical Pharmacology, Jaypee Brothers, 9th Edition.
4. R.S.Satoskar, S.D. Bhandarkar, S. S. Ainapure, Pharmacology and Pharmacotherapeutics, 18th Edition onwards.

Course Learning Outcomes (CLO):

By the end of this course, students will be able to:

- 1.Explain the role of pharmacological agents in the prevention, diagnosis, and treatment of cardiovascular and related systemic diseases.
- 2.Describe the pharmacodynamics and pharmacokinetics of major cardiac drug classes including antiarrhythmics, antihypertensives, anticoagulants, and vasodilators.
- 3.Identify the therapeutic uses and adverse effects of commonly prescribed cardiovascular medications.
- 4.Demonstrate competency in safe medication administration, including accurate dosage calculations and adherence to clinical protocols in cardiac care settings.
- 5.Monitor and evaluate drug effects in patients with cardiovascular conditions to ensure effective and rational drug therapy.