

Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sankhali, Goa		
Name of Faculty: Dr. Ranjana Gupta	Subject: Drug Synthesis and Analysis (Skill)	
Paper code: CHC-243	Program: S.Y.BSc.	Division:
Academic year: 2025 - 2026	Semester: III	Total Practical/Labs: 60 hours
Credits: 2		
Course Objectives: - To apply theoretical concepts to experiments. - To understand the role of various organic reactions in drug synthesis. - To learn about methods of drug analysis.		
Expected Course Outcome: At the end of the course students will be able: CO1: Perform synthesis of drugs and druglike entities. CO2: Determine the purity of drugs titrimetrically as well as by instrumental method. CO3: Perform TLC analysis of drugs.		
Student Learning Outcome: At the end of the course students will be able: LO1: Demonstrate the ability to synthesize pharmaceutical compounds and drug-like molecules using appropriate chemical methods. LO2: Evaluate the purity of pharmaceutical substances using both titrimetric and instrumental analytical techniques. LO3: Apply Thin Layer Chromatography (TLC) techniques for the identification and analysis of drug components.		

Month	Practical/Labs Scheduled Date	No. of Practical /Labs planned	List of Experiments	Reference books
July	10-07-2025	1 (Batch III)	Synthesis of FDA-approved drugs: a) Dilantin from Urea	[1-4]
	17-07-2025	1 (Batch III)	Synthesis of FDA-approved drugs: b) Aspirin from salicylic acid	[1-4]
	24-07-2025	1 (Batch III)	Synthesis of FDA-approved drugs: c) Paracetamol from p-aminophenol	[1-4]

	31-07-2025	1 (Batch III)	Synthesis of drug-like entities: a) 7-hydroxy-4-methylCoumarin by Pechmann Condensation	[1-4]
August	07-08-2025	1 (Batch III)	Synthesis of drug-like entities: b) Benzimidazole from formic acid by oxidative cyclization	[1-4]
	14-08-2025	1 (Batch III)	Synthesis of drug-like entities: c) 2,3-diphenylquinoxaline from benzil	[1-4]
	21-08-2025	1 (Batch III)	Titrimetric assay of: a) Aspirin	[4]
September	04-09-2025	1 (Batch III)	Titrimetric assay of: b) Ibuprofen	[4]
	11-09-2025	1 (Batch III)	Titrimetric assay of: c) Benzocaine	[4]
	18-09-2025	1 (Batch III)	Titrimetric assay of: d) Paracetamol	[4]
	25-09-2025	2 (Batch III)	TLC of following drugs/drug like entities and determination of R _f value (Any 6): Paracetamol, aspirin, dilantin, benzocaine, sulphanilamide, 7-hydroxy-4-methylCoumarin, 2,3-diphenylquinoxaline Recrystallisation, water solubility and identification of various functional groups in drugs and druglike entities.	[4,5]
October	09-10-2025	1 (Batch III)	Instrumental assay of the following drugs/tablet: UV-spectrophotometric method for purity analysis of paracetamol/ Albendazole	[4]
	16-10-2025	1 (Batch III)	Instrumental assay of the following drugs/tablet: UV-spectrophotometric method for purity analysis of paracetamol/ Albendazole	[4]

References:

- [1] Patrick, G.L., Introduction to Medicinal Chemistry, 7th ed., Oxford University Press, UK, 2023.
- [2] Lednicer, D.; and Meischer, L.A., Organic Chemistry of Drug Synthesis. Vol. I to III. John Wiley & Sons, New York, 2005.
- [3] Chatwal, G.R., Synthetic drugs, 2nd ed., Himalaya Publishing house, India, 1996.
- [4] Indian Pharmacopeia
- [5] Vogels Textbook of Practical Organic Chemistry.

* Assessment Rubrics	
Component	Max Marks
ISA (Practical)	10
Practical	40

