



LESSON PLAN

Faculty Name: Ms. Arti

Subject Name: Pharmaceutical Analysis I

Class: B. Pharmacy- Ist semester

Subject Code: BP102T

Scope of the Subject: This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs.

Course outcome: Upon completion of this course the student should be able to:

- Understand the principles of volumetric and electro chemical analysis
- Carryout various volumetric and electrochemical titrations
- Develop analytical skills

Number of Lectures: 45 + 5

Each lecture: 01 hour

Lecture No.	Particular	Remark/Date
Introduction		
1.	General discussion about scope of qualitative and quantitative analysis.	
Unit I		
Module 1: Pharmaceutical analysis-Definition and scope		
2.	Different techniques of analysis	
3.	Methods of expressing concentration Primary and secondary standards.	
4.	Preparation and standardization of various molar and normal solutions- Oxalic acid, sodium hydroxide, hydrochloric acid, sulphuric acid.	
5.	Preparation and standardization of various molar and normal solutions- Sodium thiosulphate, potassium permanganate	
6.	Preparation and standardization of various molar and normal solutions of and ceric ammonium sulphate.	
Module 2: Errors		
7.	Sources of errors, types of errors, methods of minimizing errors	
8.	Accuracy, precision and significant figures	
Module 3: Errors		
9.	Pharmacopoeia, Sources of impurities in medicinal agents	
10.	Limit tests	
UNIT -II		
Module 4: Acid base Titrations		
11.	General theories proposed for acids and bases	

12.	Theories of acid base indicators	
13.	Classification of acid base titrations and and very weak acids and bases.	
14.	Neutralization curves	
Module 5: Non Aqueous Titrations		
15.	Theory involved in titrations of strong weak,	
16.	Solvents used in non aqueous titrations	
17.	Acidimetry	
18.	Alkalimetry titration	
19.	Estimation of Sodium benzoate	
20.	Estimation of Ephedrine HCl	
UNIT-III		
Module 6: Precipitation Titrations		
21.	General Theory involved in Precipitation titrations	
22.	Mohr's method, Volhard's, Modified Volhard's	
23.	Fajans method, estimation of sodium chloride.	
Module 7: Complexometric Titrations		
24.	Classification, metal ion indicators	
25.	Masking and demasking reagents,	
26.	Estimation of Magnesium sulphate, and calcium gluconate.	
Module 8: Gravimetry		
27.	Basic Principle and steps involved in gravimetric analysis.	
28.	Purity of the precipitate: co-precipitation and post precipitation,	
29.	Estimation of barium sulphate.	
Module 9: Diazotisation		
30.	Principles, methods involved in diazotisation	
31.	Application of diazotisation titration.	
UNIT IV		
Module 10: Redox Titrations		
32.	Concepts of oxidation and reduction	
33.	Redox indicators, redox titration curve	
34. \	Types of redox titrations (Principles and applications)- Permanganometry (Permanganate Titrations)	
35.	Dichrometry (Dichromate Titrations)	
36.	Iodimetry, Iodometry titrations	
37.	Cerimetry	
38.	Bromatometry, Titration with potassium iodate	
UNIT V		
Module 11: Conductometry method of analysis		
39.	Introduction, Conductivity cell, cell constant	
40.	Types of Conductometric titrations, applications.	
Module 12: Potentiometry method of analysis		
41.	Electrochemical cell, construction and working	

	of reference (Standard hydrogen, silver chloride electrode and calomel electrode)	
42.	Indicator electrodes (metal electrodes and glass electrode)	
43.	Methods to determine end point of potentiometric titration and applications.	
Module 13:Polarography		
44.	Principle, Ilkovic equation,	
45.	Construction and working of dropping mercury electrode and rotating platinum electrode, applications	
Revision		
46.	Revision of Unit I with previous question paper	
47.	Revision of Unit II with previous question papers	
48.	Revision of Unit III with previous question papers	
49.	Revision of Unit IV with previous question papers	
50.	Revision of Unit V with previous question papers	

Teacher in-charge

HOD

Principal