SANKALCHAND PATEL UNIVERSITY
।। अथातो ज्ञानजिज्ञासा ।।

FACULTY OF PHARMACY
Second Semester Master of Science
In Effect from Academic Year 2020-21

Subject Code: 1PA1010203	**Subject Title:** PHARMACEUTICAL ANALYTICAL CHEMISTRY-II
Pre-requisite Subject	**- NONE -**

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)		
				Theory (T)		Total Marks
Lecture	Tutorial	Practical	Credit	University Assessment	Continuous Assessment	Theory
4	NA	NA	4	80	20	100

Scope and Objectives:

This course deals with the fundamentals of electroanalytical chemistry. Fundamentals, principles, instrumentation and application of various instrumental techniques like potentiometry, conductometry, polarometry, polarography and many more. The course also include pharmacopoeia, limit tests, tests and assays for selected compounds, reference standard and standardization of food products and cosmetics

Learning Outcome:

- The student shall have good understanding of the basic concept of the instrumental analysis and its application of the analysis of the pharmaceutical formulations.
- Students will be able to carry out the practical handling of the instrumental analysis.
- Students will be able to learn pharmacopoeial tests and assays for selected substances

Unit	Content	Hrs
1	Electroanalytical methods: Basics of electroanalytical methods. Conductometry: Conductance, factors affecting conductance, Kohlrausch law, conductivity cells, applications. Potentio and pH metric methods: Standard reduction potentials, various electrodes, electrodes and cell potential, applications of potentiometry and pH metry.	12
2	Polarimetry: Polarimeter, qualitative and quantitative applications. Polarography, amperometry, biamperometry: Basics of current flow in polarography, dropping mercury electrode, diffusion current, half wave potential, modifications like pulsed and differential pulse polarography, stripping voltametry, biamperometric titrations, amperometric titrations Calorimetry or Thermal Analysis: Types, thermo gravimetric analysis, differential scanning calorimetry, differential thermal analysis, melting point, etc. and their applications.	12
3	Pharmacopoeia: Introduction, overview of IP, monographs Limit tests: Tests for arsenic, lead, chloride, sulfate and heavy metals. Miscellaneous tests: Tests for vitamins, Sources of impurities in pharmaceutical products Microbiological assays: Anti-microbial effectiveness testing, microbial limit tests, sterility test, Biological tests: Antibiotics, microbial assays, bacterial endotoxins test.	12
4	Special tests: Inorganic impurities, residual solvents, etc. Dissolution tests: Types of dissolution apparatus, dissolution test requirements for immediate release, delayed release, extended release dosage forms; coated, uncoated and enteric-coated tablets, gelatin capsules, etc. Introduction to weight uniformity, content of active ingredients and content uniformity	12

5	Standardization of food products, standards for different types of food additives (colors, flavors, sweeteners) and methods of detection of adulteration in food products. Standardization of cosmetic formulations, Information on ingredients used in various cosmetics such as creams, powders, lotions, hair products, nail polishes, lipsticks, depilatories, toiletries etc. and their analysis.	12

References:

1 A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry, Vol I&II, Stahlone, Press of University of London
2 Fundamentals of Analytical Chemistry by Skoog
3 Text Book of Pharmaceutical Analysis by K. A. Connor
4 Textbook of Quantitative Chemical Analysis by A. I. Vogel
5 Instrumental methods of chemical analysis by G. R. Chatwal
6 Textbook of Pharmaceutical Analysis-I & II, Vidyasagar G.
7 Textbook of Pharmaceutical Analysis by Ravishankar
8 Textbook of Pharmaceutical Analysis by Kasture
9 GTU book for Pharmaceutical Analysis
10 Pharmaceutical Analysis Part I & II by J. W. Munson
11 United State Pharmacopoeia: USP Latest Edition
12 Indian Pharmacopoeia Latest Edition
13 Quantitative chemical analysis by Mendham
14 Instrumental method of analysis by Willard Hobartb H.
15 Food additive- R. J. Taylor
16 Cosmetic analysis- selective methods and techniques by P. Borc
17 Morris B. Jacobs. The chemical analysis of foods and food products.
18 S. Suzanne Neilson. " Introduction to chemical analysis of foods
19 P. P. Sharma.- Cosmetics Formulation, Manufacturing and Quality control.