SANKALCHAND PATEL UNIVERSITY
।। अथातो ज्ञानजिज्ञासा ।।

FACULTY OF SCIENCE
M.Sc. (Chemistry) (Semester-4)
In Effect from Academic Year 2017-18

Subject Code: 1SC2030411	Subject Title: ANALYTICAL CHEMISTRY -V
COURSE TYPE: CORE COURSE	

Course Objective: To provide the basic knowledge of very important concepts of the Analytical chemistry. To provide overview of the application of analytical chemistry in applied field to the students.

Teaching scheme (hours) per week		Credit		Theory Marks		Practical Marks		Total
Theory	Practical	Theory	Practical	University Assessment	Cont. Assessment	University Assessment	Cont. Assessment	
4	-	4	-	60	40	-	-	100

UNIT	DISCRIPTION IN DETAIL	WEIGHTAGE
I	**Clinical Chemistry** Composition of blood, collection and preservation of samples, common determinations- serum electrolytes, blood glucose, blood urea nitrogen, uric acid, albumins and globulins, acid and alkaline phosphatases, barbiturates. Principles of immunoassays, radioimmunoassay, fluorescence immunoassay, enzyme immunoassay,	25%
II	**Analytical Drug discovery and Development** Discovery of new chemical entity, Identity and purity assessment, bioavailability/dissolution requirement, high-throughput screening, degradation and impurity analysis of drug substances, residual solvent and its classification, stability studies, pre-formulation studies, method development and validation.	25%
III	**Bioanalytical Chemistry** Components of bioanalytical methodology: extraction from biological matrices, chromatography and detection systems. Bioanalytical method validation parameters: sensitivity, selectivity, accuracy and precision, linearity (calibration curves), recovery, matrix effect and stability. Bioavailability and bioequivalence study, incurred sample reanalysis test for subject samples. USFDA guidelines for bioanalytical method validation and the acceptance criteria.	25%
IV	**Clinical and regulatory aspect of Drug Discovery** Clinical Trials-Phase I, II, III, IV.Quality Control and QUALITY assuranc. Regulatory consideration, regulatory compliance, International Conference on Harmonization (ICH) Classification and FDA guidelines, Global CMC NDA.	25%

LEARNING OUTCOMES

- This study is useful to furnish students with the advanced technical skill and knowledge base that is required in the field of instrumental analysis and which will enable them to pursue careers as analyst in the chemical, agriculture, food and pharmaceutical industry.
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REFERENCE BOOKS:

1. "Analytical Chemistry" by Gary D. Christian, 6th Edition, John Wiley and Sons Inc. New Jersey.

2. "Principles of Instrumental Analysis" by Douglas A. Skoog, 3rd Edition, Holt-Saunders International Edition.

3.Bioanalytical chemistry by S. Mikkelsen and E. Corton, John wiley and Sons, 2004

4.Clinical chemistry: Principle, Procedure, Correlation, 4thedition by Michael L.Bishop, Janet L.Duben-Engelkrik, Edward P. Fody, Lippincott Williams and Wilkins, 2000

5. Text book of Pharmaceutical Analysis By Dr. S. Ravisankar

6.Bioanalytical chemistry by H.Cui; P.Garrigues;GGauglitz;E. Hilder; G Hopfgartner;D.CMuddiman; A Roda; A. Sanz-Medel; S. A Wise A.T. Woolley; L. Zhang