



Vitthalbhai Patel & Rajratna P. T. Patel Science College
(Autonomous)

(Reaccredited with 'A' Grade by NAAC (CGPA 3.13))

Affiliated to SARDAR PATEL UNIVERSITY

Vallabh Vidyanagar, Gujarat

Syllabus effective from the Academic Year 2024-2025



Course Code (Inter Disciplinary)	US01IDCHE01	Title of the Course	FUNDAMENTALS OF CHEMISTRY- 1
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	To make students familiar with: 1. Chemistry as a subject. 2. Historic development and scope of chemistry 3. Basic concepts related to analytical and physical chemistry.
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Course Content		
Unit	Description	Weightage* (%)
1.	IONIC EQUILIBRIA IN AQUEOUS SOLUTIONS Sparingly Soluble Salts, Selective Precipitation, Acids & Bases; Arrhenius theory of Acids and Bases, The Lowry – Bronsted Concept, Strength of Acids and Bases, The Lewis concept, Numerical problems; Self Ionization of water, Weak acids and bases, Hydrolysis, Buffer Solutions; Indicator, Numerical based on above topics.	50
2.	ANALYTICAL CHEMISTRY Introduction, Qualitative and Quantitative analysis, Instrumental and Chemical Methods of analysis, Applications of Chemical Analytical Chemistry, Sampling of Solid, Liquid and Gas, Stages of Analysis, Selection of Methods, Classification of quantitative analysis on the basis of : Quantitative execution of chemical reaction, Electrical measurements, Spectroscopic properties and Movement of substance in a medium under controlled condition, limitations of Analytical Methods, Classification of Errors, Accuracy and Precision, Absolute and Relative Error, Minimization of Error, Significant Figure, Rounding off, Mean, Median,	50

	Standard Deviation, , Distribution of Random Error, Reliability of Results (Q-test), Comparison of Results: Student's t-test and F-test, confidence limit (interval), Numericals based on above topics.	
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Teaching-Learning Methodology	Conventional method (classroom blackboard teaching), ICT. Courses for B. Sc. Chemistry programme are delivered through classroom, laboratory work in a challenging, engaging, and inclusive manner that accommodates a variety of learning styles and tools (PowerPoint presentations, audio visual resources, e-resources, seminars, workshops, models).
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage (%)
1.	Continuous and compression evaluation : Class test/Internal written test 10 Marks (40%), Quiz 05 Marks (20%), Home Assignments 05 Marks (20%), Attendance 05 Marks (20%), (As per SPU Letter No. E-3/2748 dated 02/02/2024) [Total 25 Marks (100%)].	50
2.	Semester End Examination [Total 25 Marks (100%)].	50

Course Outcomes: Having completed this course, the learner will be able to	
1.	Gain the knowledge of Chemistry using various fundamental aspects of all four major branches of chemical sciences.
2.	Gain knowledge about various acid -base theory and their applications.
3.	Know about use of various theoretical analytical methods and their applications.

Suggested References:	
Sr. No.	References

1.	Vogel, A. I., <i>Textbook Quantitative Chemical Analysis</i> , Prentice-Hall, 5th edition.
2.	Day, R. A. and Underwood A. L., <i>Quantitative Analysis</i> 6 th Edition.
3	Mahan, B.H. <i>University Chemistry</i> , 3 rd Edition Narosa.

On-line resources to be used if available as reference material
On-line Resources : Google books, INFLIBNET, Google Web
