



(Bachelor of Science) (Undergraduate) (NEP-2020)

B. Sc. (UG) Semester- II

Course Code	US02MACHE02	Title of the Course	CHEMISTRY PRACTICAL - I
Total Credits of the Course	4	Hours per Week	8
Course Objectives:	To make students familiar about: 1. Chemistry as a subject 2. Practical aspects of chemistry 3. Basic concepts related to qualitative analysis of organic substances. 4. Hands on training of laboratory practices.		

Course Content	
Unit	Description
1.	Identification of Organic substance: Like organic spotting, detection of elements, Type of compound like aliphatic/aromatic, Nature (acidic/basic/neutral), Functional group(s) analysis, and m.pt. /b.pt. Benzoic acid, Salicylic acid, α -Naphthol, β -Naphthol, p-nitroaniline/m-nitroaniline, Acetanilide, Urea, Naphthalene, p-dichlorobenzene, m-dinitrobenzene, Dextrose, Acetamide, Acetone, Methanol, Methyl acetate/Ethyl acetate, Carbon tetrachloride, Benzaldehyde, Aniline.
2.	TITRIMETRIC ANALYSIS For the following exercise student has to prepare solution of titrant, where ever required. (i) To determine the amount of NH_3 volumetrically from the given solution of $(\text{NH}_4)_2\text{SO}_4$ or NH_4Cl . (ii) To determine the amount and percentage of CaCO_3 in the given sample (i.e. in chalk). (iii) To determine the amount of Mg^{+2} by EDTA using Eriochrom Black-T indicator. (iv) To determine the amount of Ni^{+2} by EDTA using Muroxide indicator. (v) To determine the amount of Cu^{+2} by EDTA using Fast Sulphon Black-F indicator. (vi) To determine the amount of Cd^{+2} by EDTA using Xylenol Orange indicator. (vii) To determine the amount of Ca^{+2} by EDTA using EBT indicator.



	<p>(viii) To determine the amount of Zn^{+2} by EDTA using Eriochrom Black-T. indicator.</p> <p>(ix) To determine the molarity and gm/lit of H_2O_2 solution by using 0.02 M $KMnO_4$ solution.</p> <p>(x) To determine the amount of Nitrite solution by using 0.01 M $KMnO_4$ solution by direct titration method.</p>
--	--

Teaching-Learning Methodology	<p>Hands on training, Practical 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).</p>
-------------------------------	---

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage (%)
1.	Continuous and compression evaluation : Laboratory work Assessment 20 (40 %), Viva Voce/Lab Quiz 20 (40 %), Attendance 10 (20 %). [Total 50 Marks (100%)].	50
2.	Semester End Examination : Laboratory work Assessment 40 (80 %), Viva Voce/Lab Quiz 10 (20 %). (As per SPU Letter No. E-3/2748 dated 02/02/2024) [Total 50 Marks (100%)].	50

Course Outcomes: Having completed this course, the learner will be able to learn	
1.	About hands on training of Volumetric analysis and Analysis of Inorganic substances.
2.	About improvement in practical skills of students.

Suggested References:	
Sr.	References



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



No.	
1.	Mendham, J., Denney, R. C., Barnes, J. D., Thomas, M. J. K., <i>Vogel's textbook of quantitative chemical analysis</i> , 6 th Edition.
2.	Pandey, O. P., Bajpai, D. N., Giri, S., <i>Practical Chemistry</i> .
3	Ghoshal, Mahapatra, Nad, <i>An Advanced course in Practical Chemistry</i> .

On-line resources to be used if available as reference material

On-line Resources : Google books, INFLIBNET, Google Web
