GUJUARAT UNIVERSITY

B.Sc. SEMESTER II

CHEMISTRY

EFFECTIVE FROM - JUNE 2023

ACCORDING TO NEP – 2020

Course Structure with respect to credit, hours and marks

Course Type	**Course**	**Credit**	**Work Hours/ week**	**Exam Hours**	**Marks**		**Total mark**
					Internal	**External**	
Skill Enhancement Course	SEC-126 Chemistry Laboratory Skills-II	**2**	**3**	**2**	**25**	**25**	**50**

N.B.: Each practical batch should have 10 students

No. of students per batch during practical exam = 10

SEC-126

Chemistry Laboratory Skills-II

Learning Objectives:

- To be able to prepare various indicator.
- To be able to prepare litmus and other papers.
- To know how prepare reagent solutions.
- To know about preparation of various types of standard solutions.
- To know about the Standardization of solutions

Learning outcomes:

By the end of course, the students will be able to:

- Prepare different lab chemicals
- Prepare normal, molar and percentage solutions.
- Perform titrations

SEC-126

Chemistry Laboratory Skills-II

Unit- I: Preparation of solutions: [25 marks]

[15 Hours]

Definition, Calculation and theory related PPM solutions and Indicator.

Basic knowledge about Acids and Bases. Difference between true, colloid and suspension solution.

Types of Reactions like Combination reaction, Decomposition reaction, Displacement reaction and Double displacement reaction.

Unit- II: Basic laboratory Practicals: [25 marks]

[30 Hours]-

1. Preparation of litmus paper and other
2. Preparation of chemical reagent solutions
3. Preparation of Indicator
4. Preparation of PPM solutions
5. Finding the pH of the samples by using pH paper/universal indicator
6. Identification of acids and bases (HCl & NaOH) on the basis of their reaction with: Litmus solution (Blue/Red), Zinc metal and Solid sodium carbonate, etc.
7. To prepare and identification of a true solution on the basis of transparency, filtration criterion, and stability.
8. To prepare and identification of a suspension on the basis of transparency, filtration criterion, and stability.
9. Perform and Identification of following experiment into :
   a. Combination reaction i) Action of water on quicklime
   b. Decomposition reaction ii) Action of heat on ferrous sulphate crystals
10. Perform and Identification of following experiment into :
    a. Displacement reaction iii) Iron nails kept in copper sulphate solution
    b. Double displacement reaction iv) Reaction between sodium sulphate and barium chloride solutions

REFERENCE BOOKS:

1. Vogel, Arthur I: A Test book of Quantitative Inorganic Analysis (Rev. by GH Jeffery and others) 5th Ed. The English Language Book Society of Longman
2. Harris, Daniel C,Quantitative Chemical Analysis, 3 rd Edition, W.H. Freeman and Company, New York, 2001.
3. Analytical Chemistry Laboratory Manual By Birutė Staniškienė Ingrida Sinkevičienė, Kaunas, 2012.
4. Khopkar, S.M. Basic Concepts of Analytical Chemistry New Age, International Publisher, 2009.
5. Koogs, West and Holler, Fundamentals of Analytical Chemistry, 6 th Edition, Sauders College Publishing, New York. 1991
6. NCERT Practical chemistry books
7. S.P. Singh, Selina ICSE Chemistry Practical book