FIRST-YEAR OF BACHELOR OF SCIENCE CHEMISTRY (MAJOR AND MINOR) REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE: CHEMISTRY PRACTICAL-I
SEMESTER-I
W.E.F. 2023-2024

RECOMMENDED BY THE BOARD OF STUDIES IN CHEMISTRY
AND
APPROVED BY THE ACADEMIC COUNCIL

Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal. Sangameshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No: 03 dated 08 July 2023

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Chemistry
Name of the Class	:	First Year
Semester	:	First
No. of Credits	:	02
Title of the Course	:	Chemistry Practical-I
Course Code	:	S103CHP
Name of the Vertical in adherence to NEP 2020	:	Major and Minor
Eligibility for Admission	:	Any 12^{th} Pass science learner seeking admission to Degree Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Summative at the end of semester
Level	:	UG
Pattern of Marks Distribution for SEE	:	100 %
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2023-2024
Ordinances /Regulations (if any)		

Syllabus for First Year of Bachelor of Science in Chemistry

(With effect from the academic year 2023-2024)

SEMESTER-I

Course Title: Chemistry Practical-I **No. of Credits - 02**

Type of Vertical: Major and Minor **COURSE CODE: S103CHP**

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to…		
Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Understand	explain polar graphs of S and P orbitals.
CLO-02	Apply	prepare standard solutions and perform Volumetric and Gravimetric estimations.
CLO-03	Analyse	calculate the rate of various types of reactions and analyse cold drink samples.

Syllabus for First Year of Bachelor of Science in Chemistry

(With effect from the academic year 2023-2024)

SEMESTER-I

Course Title: Chemistry Practical-I **No. of Credits - 02**

Type of Vertical: Major and Minor **COURSE CODE: S103CHP**

COURSE CONTENT			
Sr. No.	**Content**	**Credits**	**No. of Hours**
1 2	**Physical Chemistry** 1. Preparation of approximate 0.1 N succinic acid and standardization of NaOH solution using succinic acid 2. Determination of the rate constant for the hydrolysis of ester using HCl as a catalyst 3. Plotting of S and P orbitals of Polar graphs. **Inorganic Chemistry** 1. Commercial analysis of Acids (any two) a) Mineral acid (Vinegar, Citric acid from Thums Up, Phosphate from cold drinks) b) Organic acid 2. Estimation of molecular weight of organic acid (Succinic acid, Tartaric acid). 3. Titration using double indicator: analysis of solution of Na_2CO_3 and $NaHCO_3$. 4. Gravimetric analysis a) To determine the percent purity of sample of $BaSO_4$ containing NH_4Cl b) To determine the percent purity of ZnO containing $ZnCO_3$	02	30
	Total	**02**	**30**

Access to the Course

The course is available for all the students admitted for Bachelor of Science.

Methods of Assessment

Vocational Skill Courses, Skill Enhancement Courses and the courses having laboratory sessions shall be assessed at the end of each semester.

Reference Books

1. Khosla B.D., Garg V.C. and Gulati A., Senior Practical Physical Chemistry, R. Chand and Co., New Delhi (2011).

2. Garland C. W., Nibler J.W. and Shoemaker D.P., Experiments in Physical Chemistry, 8thEd., McGraw-Hill, New York (2003).

3. Halpern A.M. and McBane G.C., Experimental Physical Chemistry, 3rd Ed., W. H. Freeman and Co., New York (2003).

4. Athawale V.D. and Mathur P., Experimental Physical Chemistry, New Age International, New Delhi (2001).

5. Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.