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

COURSE TITLE: CHEMISTRY PRACTICAL-II
SEMESTER-III
W.E.F. 2024-2025

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:

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	:	Second Year
Semester	:	Third
No. of Credits	:	02
Title of the Course	:	Chemistry Practical-II
Course Code	:	S204CHP
Name of the Vertical in adherence to NEP 2020	:	Major and Minor
Eligibility for Admission	:	Any student admitted to Second Year of B.Sc. 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	:	2024-2025
Ordinances /Regulations (if any)		

Syllabus for Second Year of Bachelor of Science in Chemistry

(With effect from the academic year 2024-2025)

SEMESTER-III

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

Type of Vertical: Major and Minor **COURSE CODE: S204CHP**

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	Apply	determine purity of potassium iodate and investigate reaction between copper sulfate and Sodium Hydroxide.
CLO-02	Analyse	analyse water sample for its hardness; soaps or detergents for their free alkali content; organic compounds for identification of functional groups

Syllabus for Second Year of Bachelor of Science in Chemistry

(With effect from the academic year 2024-2025)

SEMESTER-III

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

Type of Vertical: Major and Minor **COURSE CODE: S204CHP**

COURSE CONTENT			
Sr. No.	**Content**	**Credits**	**No. of Hours**
1	**Inorganic Chemistry** 1. Identification of cations in a given mixture and analytically separating them. [From a mixture containing not more than two of the following: Pb(II), Ba(II), Ca(II), Sr(II), Cu(II), Cd(II), Mg(II), Zn(II), Fe(II), Fe(III), Ni(II), Co(II) Al(III), Cr(III)] 2. Estimation of total hardness 3. Estimation of free alkali present in different soaps/detergents. 4. Investigation of the reaction between copper sulfate and Sodium Hydroxide (Standard EDTA solution to be provided to the learner).	02	60
2	**Organic Chemistry** Qualitative Analysis of bi-functional organic compounds on the basis of 1. Preliminary examination 2. Solubility profile 3. Detection of elements [Compounds Containing only C, H, (O), N] 4. Detection of functional groups 5. Determination of physical constants (M.P./B.P.) Solid or liquid Compounds containing not more than two functional groups from among the following classes may be given for analysis to be given: Carboxylic acids, phenol, carbohydrates, aldehydes, ketones, ester, amides, nitro, anilides, amines, alkyl and aryl halides. Students are expected to write balanced chemical reactions wherever necessary. (Minimum 8 compounds to be analyzed)		
	Total	**02**	**60**

Access to the Course

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

Methods of Assessment

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

Reference Books

1 Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.
2 Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
3 Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000). Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
4 Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic chemistry, 5th Ed., Pearson (2012)
5 Vogel, A.I., Tatchell, A.R., Furnis, B.S., Hannaford, A.J. & Smith, P.W.G., Textbook of Practical Organic Chemistry, Prentice-Hall, 5th edition, 1996
6 Vogel's Qualitative Inorganic Analysis, A.I. Vogel, Prentice Hall, 7th Edition.
7 Practical Inorganic Chemistry by G. Marr and B. W. Rockett van Nostrand Reinhold Company (1972)
8 Vogel's Text Book of Quantitative Chemical Analysis, G. H. Jeffery, J. Bassett, J. Mendham, R. C. Denney; 5th Edition, Longman Scientific & Technical, 1989. 2.
9 Advanced Practical Inorganic Chemistry, Gurdeep Raj; 4th Edition, Goel Publishing House, 2000.
10 A Textbook of Inorganic Chemistry-I, B. R. Puri, L. R. Sharma, K. C. Kalia, G. Kaushal; Vishal Publishing Co., Delhi, 2018