



**THIRD-YEAR OF BACHELOR OF SCIENCE
CHEMISTRY (MAJOR)
REVISED SYLLABUS ACCORDING TO CBCS
NEP2020**

**COURSE TITLE: CHEMISTRY PRACTICAL-I
SEMESTER-VI
W.E.F. 2025-2026**

**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: 02/2025

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	:	Third Year
Semester	:	Sixth
No. of Credits	:	02
Title of the Course	:	Practical-I
Course Code	:	S313CHP
Name of the Vertical in adherence to NEP 2020	:	Major
Eligibility for Admission	:	Any student admitted to Third 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	:	5.5
Pattern of Marks Distribution for SEE and CIA	:	100 %
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2025-2026
Ordinances /Regulations (if any)		

Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce and Vid. Dadasaheb Pitre Science College, Devrukh (An Autonomous College Affiliated with University of Mumbai)

Syllabus for Third Year of Bachelor of Science in Chemistry

(With effect from the academic year 2025-2026)

SEMESTER-VI

Paper No.– I

Course Title: Practical-I

No. of Credits - 02

Type of Vertical: Major

COURSE CODE: S313CHP

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 acidic and basic dissociation constants of amino acid and hence to calculate isoelectric point and determine the chemical type of binary liquid-liquid and liquid-solid mixture.
CLO-02	Analyse	analyse the number of electrons in the redox reaction between ferrous ammonium sulphate and ceric sulphate potentiometrically and separate binary solid-solid mixture using separating reagent.
CLO-03	Evaluate	estimate the amount of Fe (III) in the complex formation with salicylic acid by Static Method.

Syllabus for Third Year of Bachelor of Science in Chemistry

(With effect from the academic year 2025-2026)

SEMESTER-VI

Paper No.– I

Course Title: Practical-I

No. of Credits - 02

Type of Vertical: Major

COURSE CODE: S313CHP

COURSE CONTENT			
Sr. No.	Content	Credits	No. of Hours
1	Physical Chemistry I. Non-Instrumental 1. Chemical Kinetics To interpret the order of reaction graphically from the given experimental data and calculate the specific rate constant. (No fractional order) 2. Viscosity To determine the molecular weight of high polymer polyvinyl alcohol (PVA) by viscosity measurement. II. Instrumental 1. Potentiometry To determine the number of electrons in the redox reaction between ferrous ammonium sulphate and ceric sulphate potentiometrically. 2. Conductometry To titrate a mixture of weak acid and strong acid against strong base and estimate the amount of each acid in the mixture conductometrically. 3. Colorimetry To estimate the amount of Fe (III) in the complex formation with salicylic acid by Static Method.	02	60

2	Organic Chemistry Separation of Binary liquid-liquid and liquid- solid mixture. - Minimum Six mixtures to be completed by the students. - Components of the liquid-liquid mixture should include volatile liquids like acetone, methylacetate, ethylacetate, isopropylalcohol, ethyl alcohol, EMK and non-volatile liquids like chlorobenzene, bromobenzene, aniline, N, N-dimethylaniline, acetophenone, nitrobenzene, ethyl benzoate. - Components of the liquid-solid mixture should include volatile liquids like acetone, methylacetate, ethylacetate, ethyl alcohol, IPA, EMK and solids such as water insoluble acids, phenols, bases, neutral. - A sample of the mixture one ml to be given to the student for detection of the physical type of the mixture. - After correct determination of physical type, separation of the binary mixture to be carried out by distillation method using microscale technique. - After separation into component A and component B, the compound to be identified can be decided by examiner.		
	Total	02	60

Access to the Course

The course is available for all the students admitted for Third 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.

References:

1. Practical Physical Chemistry 3rd edition A.M. James and F.E. Prichard, Longman publication
2. Experiments in Physical Chemistry R.C. Das and B. Behra, Tata Mc Graw Hill
3. Advanced Practical Physical Chemistry J.B. Yadav, Goel Publishing House
4. Advanced Experimental Chemistry. Vol-I J.N. Gurtu and R Kapoor, S. Chand and Co.
5. Experimental Physical Chemistry by V.D. Athawale.
6. Senior Practical Physical Chemistry By: B. D. Khosla, V. C. Garg and A. Gulati, R Chand and Co. 2011
7. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009).

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8. 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)
9. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic chemistry, 5th Ed., Pearson (2012)
10. 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.
