



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

**COURSE TITLE: ANALYTICAL CHEMISTRY PRACTICAL
SEMESTER-V
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	:	Fifth (V)
No. of Credits	:	02
Title of the Course	:	Analytical Chemistry Practical
Course Code	:	S307CHP
Name of the Vertical in adherence to NEP 2020	:	Elective
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-V

Paper No. III

Course Title: Analytical Chemistry Practical

No. of Credits - 02

Type of Vertical: Elective-II

COURSE CODE: S307CHP

Learning Outcomes Based on BLOOM's Taxonomy:

After Completing the Programme, Student will be able to,

Bloom Level	CO No.	Course Outcome
Understand	CO1	explain the concepts of Quality, Quality Control and Quality Assurance; Chemical Standards, Certified Reference Materials and grades of laboratory reagents.
Apply	CO2	apply the principles of spectrophotometry, atomic spectroscopy for the chemical analysis.
Apply	CO3	apply the principles of titrimetry viz. complexometry and volumetry for the chemical analysis.

Syllabus for Third Year of Bachelor of Science in Chemistry

(With effect from the academic year 2025-2026)

SEMESTER-V

Paper No. – III

Course Title: Analytical Chemistry practical

No. of Credits - 02

Type of Vertical: Elective-II

COURSE CODE: S307CHP

COURSE CONTENT			
Module No.	Content	Credits	No. of Hours
1	Analytical Chemistry Practical 1. Quality in Analytical Chemistry: Concepts of Quality, Quality Control and Quality Assurance; Chemical Standards and Certified Reference Materials - Importance in chemical analysis; Quality of materials - Various grades of laboratory reagents. 2. Spectrophotometric estimation of fluoride (<i>Theory, Principle & Instrumentation to be discussed</i>). 3. Estimation of magnesium content in Talcum powder by complexometry, using standardized solution of EDTA. 4. To determine potassium content of a Fertilizer by Flame Photometry (<i>Calibration curve method</i>). 5. To determine the amount of persulphate in the given sample solution by back titration with standard Fe (II) ammonium sulphate solution. 6. To determine the amount of sulphate in given water sample turbidimetrically (<i>Theory, Principle & Instrumentation to be discussed</i>). 7. Determination of the hardness of a given water sample by Complexometric titration. 8. Determination of COD of water sample. [Note: Calculation of percent error is expected for all the experiments.]	02	60
	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.

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References:

1. Principles of Instrumental Analysis, 5th Edition, By Skoog, Holler, Nieman.
2. Principles of Polarography by Jaroslav Heyrovský, Jaroslav Kůta, 1st Edition, Academic Press, eBook ISBN: 978148326478.
3. Solvent extraction and ion exchange, J Marcus and A. S. Kertes Wiley INC 1969. 4. D.A. Skoog D.M. West and F.J. Holler, Fundamentals of Analytical Chemistry, 7th Edition (printed in India in 2001) ISBN Publication.
4. Analytical Chemistry, J.G. Dick, 1973 Tata McGraw Hill Publishing Co. Ltd. New Delhi.
5. Quantitative analysis, Dey & Underwood, Prentice Hall of India, Pvt. Ltd. New Delhi.
6. Fundamentals of Analytical Chemistry, Skoog 8th edition, Saunders college publishing.

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