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

COURSE TITLE: **ANALYTICAL CHEMISTRY PRACTICAL**

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 (VI)
No. of Credits	:	02
Title of the Course	:	Analytical Chemistry Practical
Course Code	:	S316CHP
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)		

Syllabus for Third Year of Bachelor of Science in Chemistry

(With effect from the academic year 2025-2026)

SEMESTER-VI **Paper No. III**

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

Type of Vertical: Elective-II **COURSE CODE:** S316CHP

Learning Outcomes Based on BLOOM's Taxonomy:

After Completing the Programme, Student will be able to,

Bloom Level	CO No.	Course Outcome
Apply	CO1	calculate ion exchange capacity of resins and discover adulterants in food materials.
Apply	CO2	apply the principles of spectrophotometry, potentiometry, and pH-metry for the chemical analysis.
Apply	CO3	apply the principles of titrimetry for the chemical analysis.

Syllabus for Third Year of Bachelor of Science in Chemistry

(With effect from the academic year 2025-2026)

SEMESTER-VI **Paper No.– III**

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

Type of Vertical: Elective-II **COURSE CODE:** S316CHP

COURSE CONTENT			
Module No.	**Content**	**Credits**	**No. of Hours**
1	**Analytical Chemistry Practical** 1. Estimation of Chromium in water sample spectrophotometrically by using Diphenyl carbazide. 2. Estimation of reducing sugar in honey by Willstatter method. 3. Determination of the capacity of an anionic exchange resin. 4. Estimation of Mg^{2+} and Zn^{2+} by using anion exchange resin. 5. Estimation of acetic acid in Vinegar sample by using Quinhydrone electrode potentiometrically. 6. Determination of phosphoric acid in cola sample pH metrically. 7. Determination of adulterant in some common food items: i) Milk ii) Honey iii) Tea Powder iv) Chilli powder v) Turmeric powder [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 assesses at the end of each semester.

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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