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

COURSE TITLE: **POLYMER 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	:	Polymer Chemistry Practical
Course Code	:	S309CHP
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
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-V **Paper No. IV**

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

Type of Vertical: Elective-II **COURSE CODE:** S309CHP

Learning Outcomes Based on BLOOM's Taxonomy:

After Completing the Programme, Student will be able to,

Bloom Level	CO No.	Course Outcome
Apply	CO1	prepare different types of polymers by various methods.
Apply	CO2	determine viscosity and amount of formaldehyde in polymers.
Apply	CO3	characterize the polymers by chemical and instrumental methods.

Syllabus for Third Year of Bachelor of Science in Chemistry

(With effect from the academic year 2025-2026)

SEMESTER-V **Paper No.– IV**

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

Type of Vertical: Elective-II **COURSE CODE:** S309CHP

COURSE CONTENT			
Module No.	**Content**	**Credits**	**No. of Hours**
1	**Practicals on Polymer Chemistry** 1. Preparation of Urea-Formaldehyde resin 2. Synthesis and characterization of sodium carboxy methyl cellulose 3. Preparation of Phenol-Formaldehyde 4. Synthesis of Isotactic and Syndiotactic Poly Methyl Methacrylate (PMMA) 5. To determine the viscosity of a given unknown liquid with respect to water, at laboratory temperature, by viscometer. 6. Precipitation polymerization of acrylonitrile 7. Testing of mechanical properties of polymers. 8. Estimation of the amount of HCHO in the given solution by sodium sulphite method	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. Handbook for analysis of synthetic polymer and plastics, J. Urbanski, W. Czerwinski, K. Janicka et al., Ellis Harwood Ltd
2. Polymer Science by V. R. Gowarikar, N. V. Visvanathan, Jaydev Shreedhar, New Age International Ltd. Publisher 1996. (Reprint 2012)
3. Textbook of Polymer Science by Fred Billmeyer, 3rd Edn. John Wiley and Sons New York 1984. (Reprint2008)
4. Introductory Polymer Chemistry by G. S. Misra New Age International (P) Ltd. Publisher 1996.
5. Polymer Chemistry by Charles E. Carraher (Jr.), 6th Edn, (FirstIndian Print 2005), New York-Basel.
6. Inorganic Polymers by G. R. Chatwal Himalaya Publishing House 1st Edn. 1996
7. Polymer Science–A Text Book by V. K. Ahluwalia, Anuradha Mishra.
8. Principles of Polymer Science by P. Bahadur, N. V. Sastry, 2nd Edn, Narosa Publishing House.
9. Polymer Chemistry by Ayodhya Singh, 2008, Published by Campus Book International, New Delhi.
10. Organic Polymer Chemistry by Jagdamba Singh, R. C. Dubey, 4th Edn, 2012.
11. Advanced Polymer Chemistry by V. K. Selvaraj, 1st Edn, 2008, Published by Campus International, New Delhi.
12. Organic Polymer Chemistry by V. Jain, IVY Publishing House, New Delhi.
13. Principles of Polymerization by George Odian 3rd Edn. John Wiley & Sons New York.

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