

ST. JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

VII SEMESTER B.Sc. HONOURS CHEMISTRY Time: 2Hrs/Week

Code CH7256(2) Revised Syllabus Under CBCS 2020-21 Marks: 50

Polymer Chemistry -Practical Syllabus

I.

Course Objectives: To train students in different polymerization techniques and also teach them different molecular weight determination methods.

Course Outcomes:

By the end of the course students will be able to

1. Determine the molecular weight of a polymer by viscometric studies
2. Prepare urea formaldehyde polymer
3. Determine the molecular weight by end group analysis

II. Practical Syllabus

Total Hours: 30h (2hrs/week)

1. Estimation of the amount of HCHO in the given solution by sodium sulphite method
2. Determination of molecular weight by viscometry: Poly vinyl propylidene (PVP) in water
3. Determination of molecular weight by end group analysis
4. Preparation of urea-formaldehyde resin
5. Precipitation polymerization of acrylonitrile
6. Redox polymerization of acrylamide

III. Co-Curricular Activities:

Mandatory: (Lab/field training of students by teacher (lab:10+field:05))

1. **For Teacher:** Training of students by the teacher in laboratory and field for not less than 15 hours on the field techniques/skills of preparation of polymers.
2. **For Students:** Student shall visit a related industry/chemistry laboratory in universities/research organizations/private sector facility and observes the preparation steps of polymers and quality polymer formed using various techniques. Write their observations and submit a hand written fieldwork/project work report not exceeding 10 pages in the given format to the teacher.

3. Max. Marks for Fieldwork/project work Report: 05.
4. Suggested Format for Fieldwork/project work: Title page, student details, index page, details of place visited, observations, findings, and acknowledgements.
5. Unit tests (IE).

IV. References:

1. Munk, P.; Aminabhavi, T. M. (2002), Introduction to Macromolecular Science, John Wiley & Sons.
2. Sperling, L.H.(2005), Introduction to Physical Polymer Science, John Wiley & Sons