

**PHYSICAL CHEMISTRY (BS-ADP 8<sup>th</sup>Semester)**

<b>Module Code:</b>	<b>Chem-443</b>
<b>Module title:</b>	<b>Polymer Chemistry</b>
<b>Name of Scheme:</b>	<b>BS-ADP 8<sup>th</sup>Semester</b>
<b>Department:</b>	<b>School of Chemistry</b>
<b>Faculty:</b>	<b>Science</b>
<b>Module Type:</b>	<b>Compulsory</b>
<b>Module Rating:</b>	<b>2 credits</b>

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**OBJECTIVES**

Students will learn chemistry of all types of polymers in this course. They will be able to understand synthetic techniques of various polymers. They will be able to characterize polymer samples using different analytical techniques.

**SYLLABUS OUTLINES**

An introduction to polymers, Classification of polymers, kinetics of condensation and addition (free radical, cationic and anionic polymerization), copolymers and their classification, kinetics of copolymerization, concept of molecular mass average in polymers and its determination Molecular mass distribution, determination of molecular mass average (viscosity average, number average and weight average) by different methods. Analysis techniques like spectroscopic methods (UV visible and IR) and thermal analysis.

**RECOMMENDED BOOKS**

1. Billmeyer, F, Textbook of Polymer Science, 2nd ed., John Wiley and Sons, Inc., NY (1971).
2. Physical Chemistry by Kundu, N and Jain, S.K.S. Chand and Company Ltd. 1984.
3. Physical chemistry by Atkins, P.W. 5th Ed., W.H.Freeman and Company, New York, 1994.
4. Physical Chemistry by Alberty, R.A. and Silbey. R.J., John Wiley, New York, 1995.
5. Physical chemistry by Engel, T. and Ried, P., 1st Ed., Pearson Education, Inc. 2006.
6. Hand book of surface and Colloid Chemistry by Birdi, K.S., CRC Press, 1997.
7. Te Nijenhuis, Klaas. Thermoreversible networks: viscoelastic properties and structure of gels. Vol. 130. Berlin Heidelberg: Springer, 1997.
8. Bhatti, H. N. and Farooqi, Z. H., Modern Physical Chemistry, Revised ed., Caravan Book House, (2014).