

PHYSICAL CHEMISTRY (BS-ADP 7th Semester)

Module Code:	Chem-401
Module title:	Colloids
Name of Scheme:	BS-ADP 7th Semester
Department:	School of Chemistry
Faculty:	Science
Module Type:	Compulsory
Module Rating:	2 credits

OBJECTIVES

Students will acquire knowledge and understanding about the theoretical as well as application related aspects of various types of colloids and surfactants.

SYLLABUS OUTLINES

Colloids, Colloidal dispersions, sols and their preparation, properties of suspensions, Optional properties of sols, determination of particle size, kinetic properties of sols, sedimentation of suspensions, electrical properties of sols, electrophoresis and electro osmosis, stability of suspensoids, precipitation of sols, associated colloids, macromolecular properties in solutions and molecular weight determinations.

Classification, Preparation and Characterization of emulsions, Emulsifiers and their properties, Gibbs surface excess, Micellization, Theories of emulsion type; Orientation wedge theory, kinetic theory. Emulsification and wetting, Stability of emulsions. Classification and properties of gels.

RECOMMENDED BOOKS

1. Physical Chemistry by Kundu, N and Jain, S.K.S. Chand and Company Ltd. 1984.
2. Fundamentals of chemical kinetics by Logan, S.R, Longman Group Ltd. 1996.
3. Elementary reaction kinetics by Latham.J.L. And Burgess, A.E.3rd Ed., Butterworths, London, 1977.
4. Bhatti, H. N. and Farooqi, Z. H., Modern Physical Chemistry, Revised ed., Caravan Book House, (2014).
5. Physical chemistry by Atkins, P.W. 5th Ed., W.H.Freeman and Company, New York, 1994.
6. Physical Chemistry by Alberty, R.A. and Silbey. R.J., John Wiley, New York, 1995.
7. Physical chemistry by Engel, T. and Ried, P., 1st Ed., Pearson Education, Inc. 2006.
8. Hand book of surface and Colloid Chemistry by Birdi, K.S., CRC Press, 1997.
9. Heterogeneous Catalysis: Principles and applications by Bond, G.C., 2nd Ed., Oxford, Clarendon press, 1987.
10. Surfactants and interfacial Phenomena by Rosen, Milton J., John Wiley, New York, 1978.