



Code	Subject Title	Cr. Hrs	Semester
CHEM-403	Physical Chemistry (Sp. Theory-I)	4	VII
Year	Discipline		
4	Chemistry		

**SYLLABUS OUTLINE:****1. Colloids and Surfactants:**

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.

**2. Advance approach to homogenous and heterogeneous kinetics:**

Adsorption isotherms, single system, double system, study of gas reactions on solid surfaces, retardation, the Eley-Rideal mechanism and the Langmuir-Hinshelwood mechanism to study some organic and inorganic reactions, Catalysis, Autocatalysis, enzyme catalysis and enzyme inhibition.

**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. Physical chemistry by Atkins, P.W. 5th Ed., W.H.Freeman and Company, New York, 1994.
5. Physical Chemistry by Alberty, R.A. and Silbey. R.J., John Wiley, New York, 1995.
6. Physical chemistry by Engel, T. and Ried, P., 1st Ed., Pearson Education, Inc. 2006.
7. Hand book of surface and Colloid Chemistry by Birdi, K.S., CRC Press, 1997.
8. Heterogeneous Catalysis: Principles and applications by Bond, G.C., 2nd Ed., Oxford, Clarendon press, 1987.
9. Surfactants and interfacial Phenomena by Rosen, Milton J., John Wiley, New York, 1978.