

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-422	Physical Chemistry (Sp. Theory-I)	4	VIII
Year	Discipline		
4	Chemistry		

SYLLABUS OUTLINE:

1. Nuclear Chemistry:

Composition of the nucleus, natural and artificial radioactivity, rate of radioactive disintegration, radioactive equilibrium, transformation of elements cyclotron and linear accelerators; nuclear processes; nuclear fission, atomic bomb, nuclear reactor, nuclear fusion, hydrogen bomb, stellar energy, radiation hazards, use of tracers in chemistry.

2. Advance Approach to Osmosis and Osmotic Pressure:

Semi Permeable membranes. The cause of semi-permeability. Mechanism of osmotic pressure. Dilute solutions and the Gas Laws. The Bombardment theory. Objections to the Bombardment theory. Review of the theories. Determination of the molecular weight by Osmometry.

3. Gels and Emulsions:

Introductions, Methods of Preparation of Emulsions. Emulsifiers, Breaking of emulsions. Orientation Theory. Emulsification and wetting, Significance.

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.