

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-426	Inorganic Chemistry (Sp. Theory-II)	4	VIII
Year	Discipline		
4	Chemistry		

SYLLABUS OUTLINE:

1. Inorganic Chemistry in Biological systems:

Energy sources for life, metalloporphyrins. Photosynthesis and respiration. Nitrogen fixation, the biochemistry of Iron essential and trace elements in biological systems biochemistry of the nonmetals medicinal chemistry organometallic in bio Inorganic Chemistry.

2. Kinetics and mechanisms of Reaction of Coordination Compounds:

Introduction of reaction rate law and mechanism of stationary state approximation. Type of reactions, nucleophilic displacements, effective collisions. Dis-placement in square planar complexes, trans-effect, replacement in octahedral complexes, inert and labile complexes, (VBT, CFT explanation), Inner and outer sphere exchange reactions.

3. Organo Metallic Compounds:

(Synthesis, Structure, Bonding & Reaction Pathways)

Nature of carbon-metal bond, classification, synthesis and properties of organometallic compounds (σ -bonded olefin, π -allylic, π -cyclopentadienyl, π -organometallic compounds) and characterization of organometallic compounds with the help of IR, NMR, mass spectrometry etc. Experimental techniques in Organometallic chemistry oxidative-addition, reductive elimination, insertion and de-insertion reactions, fluxional behaviour. Applications of organometallic compounds.

RECOMMENDED BOOKS:

1. Cullen Dolphin and James, Biological aspects of Inorganic Chemistry, 2005
2. Williams, An Introduction to Bioinorganic Chemistry, 2003
3. Organotransition metal Chemistry by Akin Yamamoto, 1996, A. Wiley Interscience Publication London.
4. Hand Book of Organic reagents in Inorganic Analysis by ZAVIX Holzbecher and other 1976 Ellis Hurwod Limited, London.
5. Structural Inorganic Chemistry by Wells, A.F. 1975, Charenden Press, London.
6. Stereochemistry and bonding in Inorganic Chemistry by J.E. Ferguson 1974, Prentice Hall, New Jersey.
7. J H Huheey, Inorganic Chemistry - Principles, structure and reactivity, Harper
8. and Row Publisher, Inc. New York (2008)