

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-425	Inorganic Chemistry (Sp. Theory-I)	4	VIII
Year	Discipline		
4	Chemistry		

SYLLABUS OUTLINE:

1. Advances in Atomic Spectroscopy and Radio Chemistry:

Various forms of interaction of electromagnetic radiation with matter, absorption and emission spectra. Flame photometer. Atomic absorption spectrophotometer, Inductively coupled plasma emission, Applications in clinical chemistry, industry, geochemistry, soil sciences and environmental studies.

2. Some Thermodynamic aspects of Inorganic Chemistry:

Thermodynamic and kinetic stability, Interpretation of stability, Role of thermodynamics in interpretative chemistry, The lattice energy as a criterion of bond type, Quantitative uses of the lattice energy, The Kapustinskii equations, The stabilization of high oxidation states by fluorine and oxygen, The stabilization of low oxidation states by large anions, Halogen exchange reaction, The stability of halides containing protonated bases.

3. Polymeric Inorganic Compounds (Chains, Rings and Cages):

- (a) Chains: Catenation, Homocatenation, Heterocatenation, Silicones, Silicates, Zeolites, talc, mica, clay.
- (b) Rings: (i) Heterocyclic systems of borazines, Phosphazenes, S-N rings.
(ii) Homocyclic system of sulphur and selenium.
- (c) Cages compounds of phosphorus, and boron
- (d) Inorganic Polymers as Conductors.

RECOMMENDED BOOKS:

1. Structural Inorganic Chemistry by Wells, A.F. 1975, Charenden Press, London.
2. Stereochemistry and bonding in Inorganic Chemistry by J.E. Ferguson 1974, Prentice Hall, New Jersey.
3. J H Huheey, Inorganic Chemistry - Principles, structure and reactivity, Harper and Row Publisher, Inc. New York (2008)
4. Analytical chemistry, G.D Christian 2005