Code	Subject Title	Cr. Hrs	Semester
CHEM-303	Inorganic Chemistry	4	V
Year	Discipline		
3	Chemistry-I, II		

SYLLABUS OUTLINE:

1. Pi- acceptor Ligands:

Transition metal carbonyls (Mononuclear, Binuclear, Poylnuclear), synthesis, bonding situation based on spectroscopic evidences; Theoretical rationalization of molecular structures, (close, nido, erachno), Synthesis. Characteristics and reactivity of derivatives of metal carbonyls (carbonylate anions, carbonyl hydrides and carbonyl halides); Metal nitrosyls including halonitrosyl and their derivatives.

2. Chemical bonding:

Metallic bond on the basis of band model, X-ray spectra and N(E) curves, n(E) curves. Binding energy in metals, conductors, semi-conductors and insulators. Effect of temperature and impurities on conductivity.

3. Coordination Compounds: (Structure & Bonding)

Development of coordination compounds, Rules of inorganic nomenclature for acids, salts, radicals, ions, iso and heteropoly anions & compounds. Hybridization in coordination compounds with coordination number from 2 to 9. MO diagrams for metal complexes of common geometry. Important features of CFT, d-orbitals splitting for various common geometries, measurement of 10 Dq., factors effecting 10 Dq. CFSE, factors influencing magnitude of variation in lattice and hydration energy for ions of first transition series.

RECOMMENDED BOOKS:

1. J H Huheey, Inorganic Chemisry - Principles, structure and reactivity, Harper and Row Publisher, Inc. New York (2008)
2. 3) J. D. Lee, Concise Inorganic Chemistry, Elbs with Chapman and Hall, London
3. Chemical Bonds, and introduction to atomic and molecular structure by H.B. Gray 1973, W.A. Benjamin, Inc., London
4. Advanced Inorganic Chemistry F.A. Cotton and G.Wilkineon 6th Ed. 2001, Interscience, Publishers, London.
5. Coordination Compounds by S.F.A. Kettle, 1999, Nelson , (Nauohi Kenya).