**BS 4th Year**

**Semester-VII (INORGANIC CHEMISTRY)**

**Course Title: π- ACEPTOR LIGANDS AND INORGANIC POLYMERS**

Code: CHEM- Credit Hours: 3

**Course Objective:** Student will acquire sound knowledge about π-acceptor ligands and different types of inorganic polymers.

**Course Contents:** π-Acceptor Ligands: Introduction to π-acceptor ligands, effective atomic number (EAN) rule and chemistry of metal carbonyls, nitrosyls, and isocyanides, structure elucidation based on spectroscopic evidences, applications and uses of metal carbonyls and their derivatives for catalysis and organic synthesis.

**Inorganic Polymers:** Introduction to homoatomic and heteroatomic inorganic polymers, chains and cages of boron, silicon, nitrogen, phosphorous and sulphur, synthesis and applications, Polyionic species, Isopoly and heteropoly, anions of transition metals, silicates, borates, condensed phosphates, zeolites.

**Recommended Books:**

1. Brady, J. E., and Sense, F., Chemistry-The Study of Matter and Its Changes, 5 th ed., Wiley Plus, (2009).

2. Miessler, G. L.,Tarr, D. A., Inorganic Chemistry, 4 th ed., Prentice-Hall International, New Jersey, USA, (2010).

3. Douglas, B., McDanial, D., Alexander, J., Concepts and Models of Inorganic Chemistry, 3 rd ed., John-Wiley & Sons, New York, (1994).

4. Huheey, J. E., Keiter, E. A., Keiter, R. L., Inorganic Chemistry: Principles of Structure and Reactivity, 4th ed., Prentice Hall, (1997).

5. Shriver, D. F., Atkins, P. W., Langford, C. H., Inorganic Chemistry, 2nd ed., Oxford University Press, (1994).

6. Cotton, F. A., Wilkinson, G., Murillo, C. A. and Bochmann, M., Advanced Inorganic Chemistry, 6 th ed., Wiley-Interscience, (1999).

7. Atkins, P. and Jones, L., Chemicals Principles: The Quest for Insight, 5 th ed., W. H. Freeman, (2010).

8. Mandelkern, L., An Introduction to Macromolecules, 2 nd ed., Springer Verlag, New York, (1983).

9. Ravve, A., Principles of Polymer Chemistry, 2nd ed., Plenum Publishers, (2000).

10. Crabtree, R. H., The Organometallic Chemistry of the Transition Metals, 5 th ed., John-Wiley and Sons, New Jersey, (2011).

11. Yamamoto, A., Organotransition Metal Chemistry, Prentice Hall, (1992).

12. Billmeyer, F. W., A Text Book of Polymer Science, 3rd, John-Wiley and Sons, (2003).

13. Malmcoim, P.S., Polymer Chemistry: An Introduction, 3rd ed.,Oxford University Press, (2005).