

**INORGANIC CHEMISTRY (BS-ADP 6<sup>th</sup> Semester)**

<b>Module Code:</b>	<b>Chem-322</b>
<b>Module title:</b>	<b>Coordination Chemistry</b>
<b>Name of Scheme:</b>	<b>BS-ADP 6<sup>th</sup> Semester</b>
<b>Department:</b>	<b>School of Chemistry</b>
<b>Faculty:</b>	<b>Science</b>
<b>Module Type:</b>	<b>Compulsory</b>
<b>Module Rating:</b>	<b>2 credits</b>

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**OBJECTIVES**

This course will familiarize to students about the covalent bond, co-ordination compounds and lanthanides and actinides of chemistry. The students will get knowledge about the VB theory, molecular orbitals and molecular structures of homo nuclear molecules and ions, various kinds of bonds. This course will also assist the students to know about the coordination compounds such as preparative methods, techniques of studying complexes, stability constants, nomenclature, separation and electronic configuration, applications of Lanthanides and Actinides.

**SYLLABUS OUTLINE:**

**Coordination Chemistry**

**1. Structure & Bonding**

Development of coordination compounds, Rules of nomenclature of inorganic 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.

**2. Synthesis and properties**

Preparative methods. Techniques of studying complexes, stability constants. The spectrochemical series and colour of metal complexes. Diamagnetism and Para magnetism, stereochemistry, John-Teller Theorem, Isomerism. Role of metal complexes in analytical chemistry, industry and nature.

**RECOMMENDED BOOKS:**

1. Coordination Chemistry by B.A. Basallo and R. Johnson 1972 W.A. Benhamen, London.
2. Selected topics of Inorganic Chemistry by G.D Tuli.
3. Haq Nawaz Bhatti and Rabia Rehman, Advanced Inorganic Chemistry", Carvan Book House Lahore.
4. R.D.Madan, Satya Prakash's Modern Inorganic Chemistry, S. Chand Company and Ltd, 2002.
5. J.D.Lee, Concise Inorganic Chemistry, 5<sup>th</sup> Edition.