**Curriculum Plan (Odd Semester 2025-26)**

**Teacher Name: Dr Rajita**

**Course: BSc (Life Science), Semester 5th**

**Paper Name: Coordination Chemistry and its application in Biological systems**

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| **S.No.** | **Contents** | **Allocation of Lectures** | **Month wise schedule to be followed** | **Assignments/ Presentations etc** |
| 1 | **Unit 1:** **Introduction to Coordination Compounds**  Brief discussion with examples of types of ligands, denticity and concept of chelate. IUPAC system of nomenclature of coordination compounds (mononuclear and binuclear) involving simple monodentate and bidentate ligands. Structural and stereoisomerism in complexes with coordination numbers 4 and 6. | 6 lectures | 2nd week of August to 4th week of August | * Syllabus Discussion * References Books * Problem Solving |
| 2 | **Unit 2 : Bonding in coordination compounds :**  Valence Bond Theory (VBT): Salient features of theory, concept of inner and outer orbital complexes, Drawbacks of VBT. Crystal Field Theory: Splitting of d orbitals in octahedral symmetry. Crystal field effects for weak and strong fields, Crystal field stabilization energy (CFSE), concept of pairing energy, Factors affecting the magnitude of Δ, Spectrochemical series, Splitting of d orbitals in tetrahedral symmetry, Comparison of CFSE for octahedral and tetrahedral fields, tetragonal distortion of octahedral geometry, Jahn-Teller distortion | 14 lectures | Last week of August to 2nd week of October | * Assignment distribution * Question Solving * Doubt Session * Class Test * University Paper Discussion |
| 3 | **Unit 3: Thermodynamic and Kinetic aspects of Metal Complexes:**  A brief outline of thermodynamic and kinetic stabilities of metal complexes and factors affecting the stability. Substitution reactions of square-planar complexes – Trans effect: cisplatin and trans platin. | 6 lectures | 3rd week of October -2nd week of November | * Class test * Result discussion * Assignment collection * Discussion of previous year questions |
| 4 | **Unit 4: Application of coordination compounds in biological systems**  Haemoglobin, Myoglobin, carboxypeptidase, carbonic anhydrase | 4 lectures | 3rd week of November- Last week of November | * University Paper Discussion * Doubt Session |

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