## Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim-Goa							
Name of Faculty: Dr. Dattaprasad D. Narulkar       Subject: Inorganic Chemistry (Theory) section B							
Paper code: CHC-109			Program/Course:	Program/Course: T.Y. B.Sc.			
Academic year: 2024 - 2025     Semester: VI     Total Lectures: 15 (Theorem							es: 15 (Theory)
<ol> <li>Course Objectives:         <ol> <li>To explain the effect of crystal field splitting on magnetic and spectral properties of octahedral complexes, selection rules for transitions to take place like Laporte, Orbital and Spin selection rules</li> <li>Calculate the magnetic moments of transition metal complexes.</li> <li>To discuss electronic transitions like d-d , charge transfer and ligand-ligand, different types of magnetic behaviour, measurement of magnetic susceptibility</li> </ol> </li> </ol>							
<ul> <li>Course Learning Outcome: <ul> <li>The student will be able to explain the effect of crystal field splitting on magnetic and spectral properties of octahedral complexes, selection rules for transitions to take place like Laporte, Orbital and Spin selection rules</li> <li>The student will be able to calculate the magnetic moments of transition metal complexes.</li> <li>The student will be able to interpret the UV-Vis spectra of transition metal complexes.</li> </ul> </li> </ul>							
Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/A ssignment	ICT Tools	Reference books

December	9/12/2024	14/12/2024	01	Unit 2 : Spectra and Magnetic properties Effect of Crystal Field Splitting on properties of Octahedral Complexes:		Smart board	Ref. 1 and 2
December	16/12/2024	21/07/2024	01	Magnetic, Spectral. Measurement of 10 Dq for [Ti(H <sub>2</sub> 0)6] <sup>+3</sup> Complex.		Smart board	Ref. 1 and 2
December- January	23/07/2024	01/01/2025		Christmas Break			
December	06/01/2025	11/01/2025	01	Determination of ground state term for d1 to d10 metal ions	Survey of the ground state term for different transition metal complexes	Smart board	Ref. 1 and 2
January	13/01/2025	18/01/2025	01	Determination of ground state term for d1 to d10 metal ions .		Smart board	Ref. 1 and 2
January	20/01/2025	25/01/2025	01	Electronic Spectra of transition Metal Complexes. Introduction, Types of Electronic transitions.		Smart board	Ref. 1 and 2

January	27/01/2025	01/02/2025	01	The d-d transitions (d1/d9 and d2/d8),	Smart board	Ref. 1 and 2
January	03/02/2025	08/02/2025	01	The d-d transitions (d1/d9 and d2/d8),	Smart board	Ref. 1 and 2
January/Febr uary	10/02/2025	15/02/2025	01	Charge transfer transitions and Ligand- Ligand transitions.	Smart board	Ref. 1 and 2
February	17/02/2025	22/02/2025	01	Selection Rules (LaPorte Orbitals and Spin).	Smart board	Ref. 1 and 2
February	24/02/2025	01/03/2025	01	Applications: Ligand field strength, Colour of complexes, Cis – Trans isomerism and Geometry of complexes.	Smart board	Ref. 1 and 2
February	03/03/2025	08/03/2025	01	Types of magnetic behaviour,	Smart board	Ref. 1 and 2
February /March	10/03/2025	15/03/2025	01	Methods of determining magnetic susceptibility (Gouy's method); Spin only formula	Smart board	Ref. 1 and 2

March	17/03/2025	22/03/2025	01	Methods of determining magnetic susceptibility (Gouy's method); Spin only formula		Smart board	Ref. 1 and 2
March	24/03/2025	29/03/2025	01	application of magnetic moment data for 3d – Metal complexes.		Smart board	Ref. 1 and 2
March	31/03/2025	05/04/2025	01	application of magnetic moment data for 3d – Metal complexes.	Interpretati on of UV- Vis Spectra of transition metal complexes	Smart board	Ref. 1 and 2
March	07/04/2025	11/04/2025	01	Revision			Ref. 1 and 2
April	06/01/2025	11/01/2025	01	Revision			Ref. 1 and 2

## • Assessment Rubrics

Component	Max Marks
ISA 1	10
ISA 2	10

Practical	50
Project	-
Semester End Exam	60

References

- 1. J. D. Lee, Concise Inorganic Chemistry, 5th Edn. Wiley India.
- 2. B. R. Puri, L. R. Sharma and K. C. Kalia, Principles of Inorganic Chemistry, 3rd Edn.