

Semester	6
Course	Major
Paper Code	C3CH230622T / C3CH230622P
Paper Title	Inorganic Chemistry 6
No. of Credits	3 Theory+1 Practical
Theory / Practical / Composite	Composite
Minimum No. of preparatory hours per week a student has to devote	10
Number of Modules	03
Syllabus	Module I: Electronic Spectra in transition metal complexes (12 Lectures) Term symbols, Selection rules for electronic transition, ligand field transitions (d-d), Orgel Diagrams and prediction of the electronic transitions; Charge Transfer spectra and comparison of colours of different compounds/ complexes. Module II: Bioinorganic Chemistry-1 (12 Lectures) Metal ions in life; oxygen binding proteins: myoglobin, hemoglobin, hemerythrin, hemocyanin and synthetic oxygen carriers; electron transport proteins: cytochromes (structure and functions), Rubredoxins, (2Fe, 2S) Ferredoxins, (4Fe, 4S) Ferredoxins and (8Fe, 8S) Ferredoxins (structure and function) Module III: Organometallic Chemistry-2 (12 Lectures) Chemistry of metal nitrosyls: synthesis, structure and stereo chemical control of valence; Zeise salt: synthesis, structure, and bonding; metallocene: synthesis, structure and reactivity of ferrocene; Fluxionality in organometallic complexes (examples only) Practical Inorganic Qualitative Analysis
Learning Outcomes	Theory: - To understand the electronic spectra of transition metal complexes - To appreciate the role of inorganic chemistry in biological systems - To understand the chemistry of select organometallic compounds Practical:

	1. To understand the basic principles of qualitative inorganic analysis and its utilization in the detection of ions in mixtures	
Reading/Reference Lists	Theory: 1. Douglas, B.E. and McDaniel, D.H. Concepts & Models of Inorganic Chemistry Oxford, 1970. 2. Atkin, P. Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010). 3. Cotton, F.A., Wilkinson, G. and Gaus, P.L., Basic Inorganic Chemistry 3rd Ed.; Wiley India. 4. Sharpe, A.G., Inorganic Chemistry, 4th Indian Reprint (Pearson Education) 2005. 5. Huheey, J. E.; Keiter, E.A. & Keiter, R.L. Inorganic Chemistry, Principles of Structure and Reactivity 4th Ed., Harper Collins 1993, Pearson, 2006. 6. Mingos, D.M.P., Essential trends in inorganic chemistry. Oxford University Press (1998). 7. Housecraft, C. E.; Sharpe, A. G., (2018), Inorganic Chemistry, 5th Edition, Pearson. Wulfsberg, G (2002), Inorganic Chemistry, Viva Books Private Limited. Practical 1. <i>University Hand Book of Undergraduate Chemistry Experiments</i>, edited by Mukherjee, G. N. University of Calcutta, 2003. 2. <i>Practical Workbook Chemistry (Honours)</i>, UGBS, Chemistry, University of Calcutta, 2015	
Evaluation	Theory: 60 Internal: 15 (CIA: 10; Other form of Assessment: 2; Attendance: 3) Semester Exam: 45	Practical: 40 CA: 38; Attendance: 2
Paper Structure for Theory Semester Exam	Answer THREE out of FOUR questions, of 15 marks each.	

