Faculty of Science and Humanities
B.Sc.(Chemistry)(Semester-6)
In Effective from Academic Year 2023-24

Branch Name:	**B.Sc. Chemistry**
Program Code:	**SC103**
Course Name:	**Inorganic Chemistry-II**
Course Code:	**2SC1030601**
Pre-requisite Course:	**Fundamentals of Chemistry (up to S.Y. B.Sc.)**

Course Objectives:

1. To meet the growing demand of Advanced Courses in Industrial chemistry.
2. To help the colleges to update and modernize their laboratories.
3. To redesign the courses the special emphasis on local requirements, environment, to link the courses with requirements of the industries and research.
4. Comprehension of principles of industrial chemistry and learning of current applications.
5. The primary goal of this course is to make students aware of how chemical process can be designed, developed and employed in as ustainable manner.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme(Marks)				
				Theory (Marks)		Practical(Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total(Marks)
3	--	-	3	70	30	-	-	100

Subject Contents:

Sr. No	Topic	Lectures	Weightage
1	**Term symbol & spectra of d1-d9 Octahedral complexes** (A) Term Symbol, L S coupling, J J coupling, Determination of ground state term by hund's rules, Determination of term symbol for all state for p2 & d2 configuration by pigeon hole diagram (B)Spectra of d1 & d9 octahedral complexes, Selection rules & intensities transitions, Oral diagram for d1-d9, d2-d8, d3-d7, d4-d6 octahedral & tetrahedral complexes, explanation of d1 & d9 spectra(only introduction-application)	**18**	**34%**
2	**Bio-Inorganic Chemistry** • Introduction, Essential elements, Trace elements, Metal porphyrine, Study of hemoglobin & myoglobin, • Nitrogen fixation: In Vivo and In Vitro	**15**	**33%**
3	**Reaction Mechanism of Coordination Compounds** Substitution reaction of square plannar complexes,Reaction of Platinum II complexes, the trans effect, theories of trans effect,use of synthesis in trans effect and analysis,Substitution reaction in octahedral complexes, Possible mechanism reactions,Ligand displacement reaction in octahedral complexes, acid hydrolysis, Base hydrolysis Electron transfer reaction, mechanism of redox reaction, mechanism of substitution in square plannar complexes	**15**	**33%**

Learning Outcomes

Students can understand the atomic and molecular basis of Inorganic chemistry. They can know the impact of chemistry on the fields of industry and its impact on the global economy. They can understand the fundamental principles of molecular structure and shape as they relate to organic molecules and their properties.

LIST OF BOOKS:

1. Valance and molecular structure by Cartmell and Flower.
2. Text book of Inorganic Chemistry by Durent and Durent.
3. Selected Topics in Inorganic Chemistry by Wahid V. Malik,Tuli,Madan.
4. A text book of inorganic polymers by Dr. Ajay Bhagi (Himalay Publishing House Pvt.Ltd)
5. Inorganic Chemistry by S. Chand.
6. Advance Inorganic Chemistry Vol-II Satya Prakash (S.Chand)
7. Concise Inorganic chemistry by J.D.Lee.
8. Metalic Corrosion By M.N. Desai
9. Advance Inorganic Chemistry J.E. Huhee. Symmetry in chemistry by Jafle and Orchin
10. Symmetry in chemistry by Jafle and Orchin

List of Open Source Software/learning website:

1. https://swayam.gov.in
2. https://nptel.ac.in
3. http://onlinelibrary.wiley.com
4. https://en.wikipedia.org/wiki/Main_Page

Course Learning Outcomes(CLO):On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To learn basic concepts of complexes and their electronic configuration and electronic and spectral property of the complexes.	Learning
CLO2	To know role of inorganic chemistry in living species and its importants.	Learning & understanding
CLO3	To learn structure, bonding and vibrational spectral studies of metal complexes including structure elucidation.	Learning
CLO4	Understand the structure and properties of complexes and applying them in research. Evaluate their application in industries for the better future.	Understanding, applying & evaluate
CLO5	Amalyze how inorganic chemistry is relates with human body and evaluate them for the better medicinal future.	Analyze & evaluate

Mapping of CLOs with Pos &PSOs

Course Learning Outcomes	Program Outcomes (POs)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CLO1	H	M	L	L	M	L	L	L	L
CLO2	H	M	H	M	M	L	L	M	M
CLO3	H	M	M	L	H	M	M	H	L
CLO4	H	H	M	M	H	M	H	H	L
CLO5	H	H	H	H	H	L	H	M	M

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H:High,M:Medium,L:Low