

Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim-Goa		
Name of Faculty: Dr. Dattaprasad D Narulkar	Subject: Chemistry	
Paper code: CHC-301 (Inorganic Chemistry II)	Program/Course: T.Y. B.Sc. (major)	Division: -
Academic year: 2025 - 2026	Semester: V	Total Lectures: 15 (Theory)
Course Objectives: 1. To study the preparations, chemical properties, structure and bonding of halogen compounds. 2. To understand fundamentals of the metal ligand bond in accordance with VBT and CFT. 3. To learn the fundamentals of solid-state chemistry, superconductivity and to study their applications. 4. To comprehend the concepts of acid bases and non-aqueous solvents.		
Course Learning Outcome: CO1. Define terms related to acid-base chemistry, solid state chemistry. CO2. Discuss and explain concepts in solid-state chemistry, acid-base theories. CO3. Apply principles of acid-base theories, solve problems in solid state and predict the structure .		

CO4. Compare & contrast theories of acid-base theories and analyse solid-state structures.

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/Assignment	ICT Tools	Reference books
June	23/06/2025	28/06/2025	01	Introduction to Solid State Chemistry: Structures of Solids: Importance of Solid-State Chemistry		Smart board/PPT	Ref 1-2
June-July	30/06/2025	05/07/2025	01	types of solids, crystal lattice, lattice points, unit cells, and lattice constants		Smart board/PPT	Ref 1-2
July	07/07/2025	12/07/2025	01	Close packing of rigid spheres (hcp, ccp),		Smart board/PPT	Ref 1-2
July	14/07/2025	19/07/2025	01	packing density in simple cubic, bcc, fcc and hcp lattices		Smart board/PPT	Ref 1-2
July-August	21/07/2025	26/07/2025	01	Relationship between density of unit cell and lattice parameters		Smart board/PPT	Ref 1-2
August	28/07/2025	02/08/2025	01	Tetrahedral and octahedral interstitial voids in ccp	Solid state model making	Smart board/PPT	Ref 1-2
August	04/08/2025	09/08/2025	01	Numerical problems		Smart board/PPT	Ref 1-2

August	11/08/2025	16/08/2025	01	Acid Bases and Non-aqueous Solvents Arrhenius theory, Lowry-Bronsted Theory		Smart board/PPT	Ref 3-6
August	18/08/2025	23/08/2025	01	The Lux – Flood Solvent Systems, Solvent System theory		Smart board/PPT	Ref 3-6
August-September	26/08/2025	01/09/2025	-	Ganesh Chaturthi break			
September	04/09/2025	06/09/2025	01	Lewis Concept of Acids and Bases.		Smart board/PPT	Ref 3-6
September	08/09/2025	13/09/2025	01	Classification of solvents and importance of non aqueous solvents.		Smart board/PPT	Ref 3-6
September	15/09/2025	20/09/2025	01	Supercritical carbon dioxide and ionic liquids as solvents.		Smart board/PPT	Ref 3-6
September-October	22/09/2025	27/09/2025	01	Levelling effect		Smart board/PPT	Ref 3-6
October	29/09/2025	04/10/2025	02	reactions in non-aqueous solvents with respect to liquid NH ₃ , liquid SO ₂ and liquid HF.		Smart board/PPT	Ref 3-6
October	06/10/2025	11/10/2025	02	reactions in non-aqueous solvents with respect to liquid NH ₃ , liquid SO ₂ and liquid HF.(Continued)		Smart board/PPT	Ref 3-6
October	13/10/2025	18/10/2025	02	Revision		Smart board/PPT	-

Reference Books:

1. K. V. S. Laxmi Devi, N. C. Patel, S.S. Dhume, A. Venkatachalam, S. P. Turakhia, Chhaya Dixit and R. A. Mirji, College Inorganic Chemistry for T.Y. B. Sc. 21st Edn, Himalaya Publishing House
2. Lesley E. Smart, Elaine A. Moore, Solid State Chemistry- An Introduction, 3rd Edn. Taylor and Francis, (2005)
3. J. D. Lee, *Concise Inorganic Chemistry*, 5th Edn. Wiley India. 2003.
4. P. W. Atkins, T. L. Overton, J. P. Rourke, M. T. Weller & F. A. Armstrong, *Shriver & Atkins' Inorganic Chemistry*, 5th Edn.; Oxford University Press. 2010.
5. F. A. Cottton, G. Wilkinson and P. L. Gaus, *Basic Inorganic Chemistry*. 3rd Edn. Wiley India. 2007.
6. B. R. Puri, L. R. Sharma and K. C. Kalia, *Principles of Inorganic Chemistry*, 33rd Edn, Vishal Publishing Co. 2020.

*** Assessment Rubrics**

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
ISA 3	7.5
Practical SEE	25
Semester End Exam	60

Total 100

*Best two ISA will be considered