

Odd Semester Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim – Goa.

Name of Faculty: Ms. Rosalina Desilva

Subject: Chemistry

Paper code: CHC- 200 Concepts in Inorganic and Physical Chemistry

Program/Course: S.Y. B.Sc.

Division: A

Academic year: 2026 – 2027

Semester: III

Total Lectures: 15

Course Objectives: Theory - To learn the postulates of Valence Bond Theory, Molecular Orbital Theory and Valence Shell Electron Pair Repulsion Theory and To study the general characteristics of covalent and ionic compounds through theories of bonding.

Month	Lectures From: To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	ICT Tools	Reference books
June 2026	22/6/26 - 27/6/26	01	Covalent bonding, Lewis theory, octet rule, the concept of Formal Charge	Students will be able to: define important terms and explain theories	Smart board	1. Satya Prakash, G.D. Tuli, S.K. Basu, R.D. Madan, Advanced Inorganic Chemistry, Vol. I, 19th edn., S. Chand Publishers (2016) 2. P. L. Soni and Mohan Katyal, Textbook of Inorganic Chemistry by, Sultan Chand and Sons, 20th Edition 3. Puri, Sharma and Kalia, Principles of Inorganic Chemistry, 33rd Edition, Vishal Publishing Co. (2018). 4. Krishna Mohan Srivastava, Essentials of Inorganic Chemistry, Bio-Green Books 5. L. Pauling, The Nature of The Chemical Bond, 3rd Ed.; Cornell University, Press, 6. J. D. Lee, Concise Inorganic Chemistry
June- July	29/6/26 - 04/7/26	01	Valence bond theory: Interaction between two hydrogen atoms, Potential energy diagram, Corrections	Explain VBT theory	Smart board	
July	06/7/26 - 11/7/26	01	Resonance rules / Canonical Structures, sp^3 hybridisation in CH_4 , NH_3 and H_2O	Explain important concepts, hybridisation	Smart board	
July	13/7/26 - 18/7/26	01	Hybridisation - sp , sp^2 , sp^3	Explain hybridization	Smart board	
July	21/7/26 - 26/7/26	01	sp^3d , sp^3d^2 and sp^3d^3	Explain hybridization,	Smart board	

July-August	27/7/26-01/8/26	01	Co-ordinate covalent bond: VSEPR Theory:	Explain VSEPR theory	Smart board	by, Chaman and Hall, 5th ed. (1996). 1. J. Mendham, R. C. Denney, J. D. Barnes, M. Thomas, B. Sivasankar, Vogel's Textbook of Quantitative Chemical Analysis, 6th Edn. Pearson Education. 2. G. Marr and B. W. Rockett, Practical inorganic Chemistry, Van Nostrand Reinhold Company, London. (1972) 3. S. W. Rajbhoj and T. K. Chondhekar, Systematic Experimental Physical Chemistry, Anjali Publication, Second Edn 4. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi, 2018.
August	03/8/26 - 08/8/26	01	geometry H ₂ O, NH ₃ , TiCl ₄ , ClF ₃ ,	Deduce geometry	Smart board	
August	10/8/26 - 14/8/26	01	geometry of OF ₂ , NH ₄ ⁺ ICl ₂ ⁻ .		Smart board	
August	17/8/26 - 22/8/26	01	MOT-LCAO-MO diagram	Explain MOT	Smart board	
August	24/8/26 – 29/8/26	01	MOD-construction		Smart board	
September	31/08/26-05/09/25	01	MOD of O ₂ , N ₂	Draw MOD	Smart board	
September	07/09/26-12/09/26	01	MOD of CO, NO and NO ⁺	Draw MOD	Smart board	
September	12/09/26-26/09/26	01	stability/reactivity, magnetic nature O ₂ , O ₂ ⁺ , O ₂ ⁻ , O ₂ ²⁻ .	Apply MOT parameters of solids.	Smart board	
September October	28/09/26-03/10/26	01	Ionic bonding: Energy changes	Explain ionic bond .	Smart board	
October	05/10/26-10/10/26	01	Born-Landé, Born-Haber cycles	Explain energy changes		
October	12/10/26-14/10/26-	01	Polarizing power polarizability, Fajan's rules	Explain polarisation	Smart board	