

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-111 (Basic Concepts in Chemistry)	Program/Course: F.Y. B.Sc. (minor)	Division: -
Academic year: 2025 - 2026	Semester: I	Total Lectures: 30 (Theory)
Course Objectives: 1. To outline different theories of the periodic table and classification of elements and trends in the periodic table. 2. To explain different acid-base theories 3. To discuss thermodynamics aspects and solution chemistry. 4. To clarify basic concepts in organic chemistry like nomenclature, types of intermediates and reactions, use of organic compounds.		
Course Learning Outcome: 1. List and recall key terms in organic chemistry, thermodynamics, and solution concentrations; classify elements and outline acid-base theories. 2. Explain thermodynamic concepts, solution laws, organic compound classification, IUPAC rules, aromaticity, and periodic trends.		

3. Apply thermodynamic concepts, concentration laws, acid-base principle, periodic trends, IUPAC and predict equilibrium changes.
4. Analyse and evaluate thermodynamic relationships, equilibrium factors, acid-base theories, periodic trends, and organic reaction mechanisms.

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	02	Introduction to the Periodic Table Development of the periodic table- Dobereiner's Triads, Newland's Law of Octaves		Smart board/PPT	Ref 1-4
June-July	30/06/2025	05/07/2025	02	Newland's Law of Octaves, Modern periodic table		Smart board/PPT	Ref 1-4
July	07/07/2025	12/07/2025	02	Modern periodic table, (Theories and limitations of Mendeleev's periodic table and Modern periodic table).		Smart board/PPT	Ref 1-4
July	14/07/2025	19/07/2025	02	(Theories and limitations of Mendeleev's periodic table and Modern periodic table), Classification of the elements into s,p,d and f -block elements on the basis of electronic configuration (Continued)		Smart board/PPT	Ref 1-4
July-August	21/07/2025	26/07/2025	02	Classification of the elements into s,p,d and f -block elements on the basis of electronic configuration (Continued)		Smart board/PPT	Ref 1-4

August	28/07/2025	02/08/2025	02	Trends in the periodic table (atomic and ionic size)	Assignment on periodic table	Smart board/PPT	Ref 1-4
August	04/08/2025	09/08/2025	02	Acid- Base Theories Arrhenius Concept, Bronsted Theory		Smart board/PPT	Ref 1-4
August	11/08/2025	16/08/2025	02	Bronsted Theory (continued), The Lux – Flood Solvent Systems		Smart board/PPT	Ref 1-4
August	18/08/2025	23/08/2025	02	Solvent System theory		Smart board/PPT	Ref 1-4
August-September	26/08/2025	01/09/2025	-	Ganesh Chaturthi break		Smart board/PPT	Ref 1-4
September	02/09/2025	06/09/2025	02	Lewis Concept of Acids and Bases. (Theories and limitations)	Examples of acids and bases and categorization based on various theory	Smart board/PPT	Ref 1-4
September	08/09/2025	13/09/2025	02	Carbon, IUPAC nomenclature of organic compounds, and aromaticity: Valency of carbon-structure of methane, Sp^3 hybridisation.		Smart board/PPT	Ref 5-6
September	15/09/2025	20/09/2025	02	Selected functional group of organic compounds with IUPAC nomenclature		Smart board/PPT	Ref 5-6

				(alkanes, alkenes, alkynes, alcohols, ethers, carboxylic acids)			
September-October	22/09/2025	27/09/2025	02	Selected functional group of organic compounds with IUPAC nomenclature (esters, thiol, amine, amides, halides, nitriles, nitro compounds, aldehydes and ketones)	Select an organic Compound and explore its synthesis	Smart board/PPT	Ref 5-6
October	29/09/2025	04/10/2025	02	Concept of aromaticity, Huckel's Rule,		Smart board/PPT	Ref 5-6
October	06/10/2025	11/10/2025	02	nomenclature of benzenoids (halo, nitro, alkyl), naphthalene and anthracene compounds.		Smart board/PPT	Ref 5-6
October	13/10/2025	18/10/2025	02	Revision		Smart board/PPT	-

Reference Books:

1. J. D. Lee, *Concise Inorganic Chemistry*, 5th Edn. Wiley India. 2003.
2. 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.
3. F. A. Cottton, G. Wilkinson and P. L. Gaus, *Basic Inorganic Chemistry*. 3rd Edn. Wiley India. 2007.
4. B. R. Puri, L. R. Sharma and K. C. Kalia, *Principles of Inorganic Chemistry*, 33rd Edn, Vishal Publishing Co. 2020.
5. Morrison, R.T. & Boyd, R.N. *Organic Chemistry*, Pearson, 2010.
6. Jerry March, *Advanced Organic Chemistry*; 4rd Edition, John Wiley, 2007.

*** Assessment Rubrics**

Component	Max Marks
ISA 1	10
ISA 2	10
ISA 3	10
Semester End Exam	80

Total 100

*Best two ISA will be considered