

Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa		
Name of Faculty: Dr. Dipesh Sakharam Harmalkar	Subject: Basic Concepts in Chemistry (Minor)	
Paper code: CHC-111	Program/Course: F.Y.BSc.	Division:
Academic year: 2026 - 2027	Semester: I	Total Lectures: 15
Credits: 3+1		
Course Objectives: • To define the terms and state laws involved in thermodynamics and chemical equilibrium. • To solve numerical based on chemical energetics and chemical equilibrium. • To understand the development of periodic table and periodic trends. • To explain the theories of acids and bases. • To understand IUPAC nomenclature of organic compounds. • To understand the types of organic reactions, reactive intermediates and importance of selected organic compounds.		
Expected Course Outcome: At the end of the course students will be able to: CO-1 List and recall key terms in organic chemistry, thermodynamics, chemical equilibrium and solution concentrations; classify elements and outline acid-base theories. CO-2 Explain thermodynamic and chemical equilibrium concepts, solution laws, organic reactions, aromaticity, and periodic trends. CO-3 Apply thermodynamic concepts, concentration laws, acid-base principle, periodic trends, IUPAC rules, and predict equilibrium changes and products of organic reactions CO-4 Analyse and evaluate thermodynamic relationships, equilibrium factors, acid-base theories, periodic trends, and organic reactions.		
Learning Outcome: • At the end of the course students will be able to: • Define essential concepts in organic chemistry and thermodynamics, identify solution concentration measures and key laws, and describe acid-base theories and the periodic table classification. • Explain thermodynamic principles such as Raoult's and Henry's laws and solution behavior deviations. Analyze organic compound classifications, IUPAC naming rules, periodic trends, and acid-base theories.		

- Apply thermodynamic equations and solution concentration principles to solve numerical problems. Utilize IUPAC rules for naming organic compounds and predict outcomes using Le Chatelier's principle.
- Evaluate the relationships among thermodynamic parameters, factors influencing equilibrium, and acid-base behavior. Compare periodic trends and assess organic reaction mechanisms critically.

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/Assignment	ICT Tools	Reference books
June	19-06-2026	30-06-2026	01	Carbon, IUPAC nomenclature of organic compounds and aromaticity: Valency of carbon-structure of methane,		Smart board, Power point presentation, Google classroom.	[1-3]
July	01-01-2026	31-01-2026	05	Carbon, IUPAC nomenclature of organic compounds and aromaticity: Valency of carbon-structure of methane, selected functional group of organic compounds with IUPAC nomenclature (alkanes, alkenes, alkynes, alcohols, ethers, carboxylic acids, esters, thiol, amine, amides, halides, nitriles, nitro compounds aldehydes and ketones).	ISA I	Smart board, Power point presentation, Google classroom, Google quiz	[1-3]
August	07-08-2026	14-08-2026	02	Carbon, IUPAC nomenclature of organic compounds and aromaticity: Concept of aromaticity, nomenclature of benzenoid compounds (halo, nitro, alkyl).		Smart board, Power point presentation, Google classroom.	[1-3]
August	21-08-2026	28-08-2026	02	Types of organic reactions and structure, properties and uses of selected organic compound: Types of organic reactions with two examples of each: addition/elimination, substitution,	ISA -II	Smart board, Power point presentation, Google classroom, Google quiz	[1-3]
September	01-09-2026	30-09-2026	04	Types of organic reactions and structure, properties and uses of selected organic compounds: Types of organic reactions with two examples of each: addition/elimination, substitution, oxidation, reduction and rearrangement. Structure properties and uses of the following selected organic compounds. Ethanol, acetone, ethyl acetate, formaldehyde, acetylene, benzoic acid, n-butane, chloroform, diethyl ether, cresol, benzaldehyde,		Smart board, Power point presentation, Google classroom, Google quiz	[1-3]

				aniline, urea, glucose, lauric acid.			
October	01-09-2026	30-09-2026	02	Types of organic reactions and structure, properties and uses of selected organic compounds: n-butane, chloroform, diethyl ether, cresol, benzaldehyde, aniline, urea, glucose, lauric acid.	ISA -III	Smart board, Power point presentation, Google classroom.	[1-3]

References:

- [1] Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.
- [2] Bahl, A. & Bahl, B.S. Advanced Organic Chemistry, S. Chand, 2010.
- [3] Singh, J. & Yadav, L. Undergraduate Organic Chemistry, Vol 1, 6th edition, 2004.

* Assessment Rubrics	
Component	Max Marks
ISA	15
Practical	25
Semester End Exam	60
	100