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: 2024 - 2025	**Semester: I**	**Total Lectures: 30**
Credits: 4		

Course Objectives:

- 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:

CO1: to explain the basics of selected topics of organic, inorganic and physical chemistry.

CO2: to explain the terms involved, evaluate different thermodynamic parameters in chemical and equilibrium.

CO3: to discuss the development of Modern Periodic table, periodic trends and classify the acids and bases using the various theories.

CO4: to write IUPAC nomenclature and the describe different types of organic reaction.

Learning Outcome:

At the end of the course students will be able:

LO1: to understand names and structures of the organic compounds using IUPAC nomenclature.

LO2: to understand different types of reactions and importance of selected organic compounds.

LO3: to understand the different thermodynamic parameters in chemical and equilibrium.

LO4: to understand the Modern Periodic table, periodic trends and classification of the acids-bases using the various theories.

Month	Lectures From	Lectures To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/Assignment	ICT Tools	Reference books
June	28-06-2024	30-06-2024	01	**Carbon, IUPAC nomenclature of organic compounds, and aromaticity:** Valency of carbon-structure of methane, sp3 hybridisation.		Smart board, Power point presentation, Google classroom	[1-3]
July	01-07-2024	31-07-2024	08	**Carbon, IUPAC nomenclature of organic compounds, and aromaticity:** 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). Concept of aromaticity, Huckel's Rule.	ISA I: Assignment	Smart board, Power point presentation, Google classroom	[1-3]
August	01-08-2024	01-08-2024	01	**Carbon, IUPAC nomenclature of organic compounds, and aromaticity:** nomenclature of benzenoids (halo, nitro, alkyl), naphthalene and anthracene compounds.		Smart board, Power point presentation, Google classroom	[1-3]
August	02-08-2024	31-08-2024	09	**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 and stability of intermediates carbocation, carbanion, free radical. Structure, properties and uses of the following selected organic compounds. Ethanol,	ISA II: Written test	Smart board, Power point presentation, Google classroom	[1-3]

				acetone, ethyl acetate, formaldehyde, acetylene, benzoic acid, n-butane, chloroform, diethyl ether, cresol, benzaldehyde, aniline, urea, glucose, lauric acid. Preparation of ethanol, benzoic acid, acetone.			
Septem ber	01-09-2024	05-09-2024	01	**Types of organic reactions and structure, properties and uses of selected organic compounds:** Preparation of acetylene, ethyl acetate, diethyl ether.		Smart board, Power point presentation, Google classroom	[1-3]
Septem ber	13-09-2024	20-09-2024	03	**Solutions:** (Ways of expressing concentration: Molarity, Normality, Molality Mole fraction, parts per million) Solutions of gases in Liquids: Factors influencing the solubility of gases. Henry's law. Numerical problems		Smart board, Power point presentation, Google classroom	[4-5]
Septem ber	21-09-2024	30-09-2024	02	**Chemical Equilibrium:** Free energy change in a chemical reaction. Thermodynamic derivation of the law of chemical equilibrium.	ISA III	Smart board, Power point presentation, Google classroom	[4-5]
October	01-10-2024	17-10-2024	05	**Chemical Equilibrium:** Solvent System theory and Lewis Concept of Acids and Bases. (Theories and limitations)	Quiz	Smart board, Power point presentation, Google classroom	[4-5]

October	18-10-2024	22-10-2024	01	Revision		Smart board, Power point presentation, Google classroom	

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.
[4] A. Bahl, B.S Bahl and G.D. Tuli, Essentials of Physical Chemistry, S. Chand Publication. 2009.
[5] Puri, Sharma and Pathania, Principles of Physical Chemistry. 47th edition. 2020.

* Assessment Rubrics	
Component	**Max Marks**
ISA	20
Semester End Exam	80