

Curriculum Plan (odd Semester 2024)

Teacher Name: **Dr. SHWETA GUPTA**

Course: B.Sc. (H) Chemistry, Sem I

Paper Name: (DSC-2): Basic Concepts and Aliphatic Hydrocarbons

UPC: 2172011102

S.No.	Contents	Allocation of lectures	Month wise schedule to be followed	Assignments/ Presentations etc
1	Unit II: Stereochemistry Stereoisomerism: Optical activity and optical isomerism, asymmetry, chirality, enantiomers, diastereomers. specific rotation; Configuration and projection formulae: Newman, Sawhorse, Fischer and their interconversion. Chirality in molecules with one and two stereocentres; meso configuration. Racemic mixture and their resolution. Relative and absolute configuration: D/L and R/S designations (CIP rules). Geometrical isomerism: cis-trans, syn-anti and E/Z notations. Conformational Isomerism: Alkanes (Conformations, relative stability and energy diagrams of Ethane, Propane and butane). Relative stability of cycloalkanes (Baeyer strain theory), Cyclohexane conformations with energy diagram. Conformations of monosubstituted cyclohexanes.	18hrs	first week of sep – third week of oct	-Syllabus overview -Reference books -Question paper discussion -students difficulties
2	Unit III: Alkenes and Alkynes: Methods of preparation of alkenes using Mechanisms of E1, E2, E1cb reactions, Saytzeff and Hoffmann eliminations. Electrophilic additions, mechanism with suitable examples, (Markownikoff/Anti-markownikoff addition), syn and anti-addition; addition of H ₂ , X ₂ , oxymercuration-demercuration, hydroboration-oxidation, ozonolysis, hydroxylation, reaction with NBS, Reactions of alkynes; acidity, Alkylation of terminal alkynes, electrophilic addition: hydration to form carbonyl compounds, Relative reactivity of alkenes and alkynes, 1,2-and 1,4-addition reactions in conjugated dienes, Diels Alder reaction (excluding stereochemistry) Alkanes: Preparation, Halogenation of alkanes, Concept of relative reactivity v/s selectivity.	18 hrs	third week oct –first week of dec	-Syllabus overview -Reference books -students difficulties -related problems
3	Unit I: Basic Concepts of Organic Chemistry Electronic displacements and their applications: inductive, electromeric, resonance and mesomeric effects and hyperconjugation. Dipole moment, acidity and basicity. Homolytic and heterolytic fissions with suitable examples. Types, shape and relative stability of carbocations, carbanions, carbenes and free radicals. Electrophiles & nucleophiles, and introduction to types of organic reactions: addition, elimination and substitution reactions.	9 Hours	first week of dec – third week of dec	-Syllabus overview -Reference books -Question paper discussion -students difficulties