CURRICULUM PLAN (ODD SEMESTER 2022-23)

Teacher Name: Dr Shilpika Bali Mehta

Course: B.Sc. (H) Chemistry 2nd Year (CBCS) , Semester: III

Paper Name: Organic Chemistry- II (Halogenated Hydrocarbons and Oxygen Containing Functional)

Unique Paper Code: 32171302

S. No.	Content	Allocations of Lectures	Month wise Schedule	Tutorials / Assignments/ Presentations etc.
1	**Chemistry of Halogenated Hydrocarbons:** Alkyl halides: Methods of preparation and properties, nucleophilic substitution reactions – SN1, SN2 and SNi mechanisms with stereochemical aspects and effect of solvent; nucleophilic substitution vs. elimination. Aryl halides: Preparation (including preparation from diazonium salts) and properties, nucleophilic aromatic substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl, benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. Organometallic compounds of Mg (Grignard reagent) – Use in synthesis of organic compounds.	16	3rd week of August to 3rd week of September	Syllabus Overview, Books Suggestions, Topic Related Problems Practice with solutions, Doubts Discussion, Online Quiz/ tests for Revision
2	**Alcohol, Phenol, Ether and Epoxides:** Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouveault–Blanc Reduction;Oxidation of diols by periodic acid and lead tetraacetate, PinacolPinacolone rearrangement. Phenols: Preparation and properties; Acidity and affecting factors, Ring substitutionreactions, Reimer– Tiemann and Kolbe's–Schmidt Reactions, Fries and Claisen rearrangements and their mechanism. Ethers and Epoxides: Preparation and reactions with acids. Reactions of epoxides with alcohols, ammonia and LiAlH4.	16	4th week of September to 2nd week of October	Topic Related Problems Practice, Assignment Distribution, Doubts Discussion, Online Quiz / tests for Revision
3	**Carbonyl Compounds:** Structure, reactivity, preparation and properties; Nucleophilic additions, Nucleophilic addition-elimination reactions with ammonia derivatives with mechanism. Mechanisms of Aldol and Benzoin condensation, Knoevenagel condensation, Claisen-Schmidt, Perkin, Cannizzaro and Wittig reaction, Beckmann and Benzil-Benzilic acid rearrangements, haloform reaction and Baeyer Villiger oxidation, α-substitution reactions, oxidations and reductions (Clemmensen, Wolff- Kishner, LiAlH4, NaBH4, MPV, PDC) Addition reactions of α, β- unsaturated carbonyl compounds: Michael addition. Active methylene compounds: Keto-enol tautomerism. Preparation and synthetic applications of diethyl malonate and ethyl acetoacetate.	16	3rd week of October to 1st week of November	Assignment Distribution Topic Related Numerical Problems Practice, Revision, Doubts Discussion, Class Test
4	**Carboxylic acids and their derivatives:** General methods of preparation, physical properties and reactions of monocarboxylic acids, effect of substituent on acidic strength. Typical reactions of dicarboxylic acids, hydroxy acids and unsaturated acids. Preparation and reactions of acid chlorides, anhydrides, esters and amides; Comparative study of nucleophilic substitution at acyl group-Mechanism of acidic and alkaline hydrolysis of esters, Claisen condensation, Dieckmann and Reformatsky reactions, Hoffmann-bromamide degradation and Curtius rearrangement.	12	2nd week of November to December	Assignment Collection, Topic Related Problems Practice, Revision, Doubts Discussion, Previous Year Question Papers Discussion