**Curriculum Plan (odd Semester 2023)**

Teacher Name: **Dr. SHWETA GUPTA**

Course: B.Sc. (P) Life Science, Sem I

Paper Name: (DSC): Basic Concepts of Organic chemistry

UPC: 2172511101

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| S.No. | Contents | Allocation of lectures | Month wise schedule to be followed | Assignments/ Presentations etc |
| 1 | UNIT -II Stereochemistry: Types of projcction formulae: Flying Wedge Formula, Newmann, Sawhorse and Fischer representations and their interconversion. Stereoisomerism: Concept of chirality (upto two carbon atoms). Configurational isomerism: geometrical and optical isomerism; enantiomerism, diastereomerism and meso compounds). Threo and erythro; D and L; Cis-trans nomenclature: CIP Rules: R/ S (for upto 2 chiral carbon atoms) and E/Z nomenclature (for upto two C-C systems). Conformational isomerism with respect to ethane, butane and cyclohexane. | 6 Hours | Third week of aug –first week of sep  | -Syllabus overview-Reference books-Question paper discussion-students difficulties |
| 2 | UNIT III Types of Organic Reactions (Including reactions of al kenes, alkyl and aryl halides, alcohols, aldehydes, ketones) Electrophilic addition reactions Electrophilic addition reaction (with respect to propene, propyne, 3,3-dimethyl-1-butene): Hydration, Addition of HX in the absence and presence of peroxide, Hydroboration Oxidation, Addition of bromine (with stereochemistry). Nucleophilic addition reactions Nucleophilic addition reaction of carbonyl compounds: Addition of HCN, ammonia derivatives (Hydroxylamine, Hydrazine, Semicarbazide and 2,4-DNP), the addition of carbanion (Aldol condensation, Claisen Schmidt, Benzoin condensation, Perkin reaction, reactions involving Grignard reagent). Elimination and Nucleophilic substitution reactions Nucleophlic substitution reaction (SNl and SN2) in alkyl halides (mechanisms with stereochemical aspect), alcohols (with nucleophiles like ammonia, halides, thiols, ambident nucleophiles (cyanide and nitrite ion), ethers (Williamson ether synthesis), Elimination reaction (E1 & E2), elimination vs substitution (w.r.t. potassium t-butoxide and KOH); Nucleophilic aromatic substitution in aryl halides-elimination addition reaction w.r.t. chlorobenzene, including the effect of nitro group (on the ring) on the reaction. relative reactivity and strength of C-X bond in alkyl, allyl, benzyl, vinyl and aryl halides towards substitution reactions Electrophilic substitution reactions Electrophilic Aromatic substitution with mechanism (benzene)- sulphonation, nitration, halogenation, Friedel craft acylation :o-, m- and p- directive influence giving examples of toluene/nitrobenzene/ phenol/ aniline/ chlorobenzene. Reactive intermediates and Rearrangement Reactions Free radicals (Birch Reduction); Carbocations (Pinacol-Pinacolone, Wagner-Meerwein, Rearrangement, and Beckmann rearrangement); Carbanions (Michael Addition); Carbenes (Reimer-Tiemann). | 18 hrs | First week sep –second week of nov | -Syllabus overview-Reference books-students difficulties-related problems |
| 3 | Unit I: Fundamentals of organic chemistry:Types of Elèctronic displacements: Inductive effect, Resonance effect, Hyperconjugation, Electromeric Effect. Reactive intermediates and their stability: carbocations, free radicals, carbanions, benzyne, carbenes. Acidity and basicity in organic compounds (comparison of 119 carboxylic acids, alcohols, phenols, primary, secondary and tertiary aliphatic amines, aniline and its deivatives) | 6Hours | fourth week of nov –second week of dec  | -Syllabus overview-Reference books-Question paper discussion-students difficulties |