Curriculum Plan

(Odd Semester 2026-2027) Semester-VII

Teacher Name: Dr. Shiv Kumar

Name of Paper: B.Sc. (P), Life Science, Reactive Intermediates of Organic Chemistry (2 Periods Per Week)

Contents	Allocations of Lectures 2 hrs/ Weeks	Month wise Schedule to be followed	Tutorials/ Assignment/ Presentation
Carbocations and Carbanions: Difference between classical and non-classical carbocations. Introduction of neighboring group participation (NGP), ion-pairs, molecular rearrangements in acyclic, monocyclic, and bicyclic systems, stability and reactivity of bridgehead carbocations. Generation, structure and stability, ambident ions and their general reactions; HSAB principle and its applications.	-	July– 28th to August – 29th	Related Problems, Class Test, Home - Register Overview, -Related Problems, -Previous Year Qsn Papers discussion, - Assignment
Carbenes and Nitrenes: Structure of carbenes, generation of carbenes, addition and insertion reactions, rearrangement reactions of carbenes such as Wolff rearrangement, generation and reactions of ylid by carbenoid decomposition. Examples of inter/intramolecular insertions. Structure of nitrene, generation and reactions of nitrene and related electron-deficient nitrogen intermediates, Curtius, Hoffmann, Schmidt, Beckmann rearrangement reactions.	-	Sep 1st to October –6th	
Ylides: Chemistry of Phosphorus and Sulfur ylides – Wittig and related reactions, Peterson olefination		October – 10th to November of 17nd week	
Radicals: Generation of radical intermediates and their addition to: i) on alkenes, alkynes (inter & intramolecular) for C-C bond formation and Baldwin's rules. ii) fragmentation and rearrangements. Name reactions involving radical intermediates, such as Barton deoxygenation and decarboxylation, McMurry coupling.	-		