

Course Syllabus: (August)

Course Title: Organic Chemistry

Instructor: Dr. Sarit S Agasti

Course No: JNC 202 (Aug) 3:0

- Chemical bonding and Molecular structure, Electronic effects, Resonance, Aromaticity, Acids and Bases, Weak bonding.
- Stereochemistry and conformational analysis. Stereoisomerism definitions, optical isomerism, Resolution of racemic mixture, Enantioselective synthesis, Effect of conformation on reaction.
- Basic organic reaction and their mechanism, nucleophilic, electrophilic addition to double bond. Methods of deducing organic reaction mechanisms, Curtin-Hammett Principle, Organic Reaction Mechanism.
- Fundamental reactions of functional groups including amines, carboxylic acids, ethers, alcohols, aldehydes, ketones and aromatic compounds; functional group transformation: retrosynthetic approach.
- Organic Transformations/molecular rearrangements/ isomerizations/ reactions involving additions, eliminations and substitutions.
- Reactive Intermediates: carbocations, carbanions, free radicals, carbenes, nitrenes, arynes, radical ions, diradicals.
- Concerted reactions, thermal pericyclic reactions-Organic photochemistry, Forward and backward approach in organic synthesis.

Reference Books:

1. Smith, M. B.; March, J. March's Advanced Organic Chemistry: Reactions, Mechanisms and Structure, 6th ed. Wiley (2000)
2. Carey F. A.; Sundberg, R. J. Advanced Organic Chemistry, Part A. 5th ed. Harper & Row (1986)
3. Clayden, J.; Greeves, N.; Warren, S.; Wothers, P. Organic Chemistry. Oxford University Press, (2000).
4. Corey, E. J. Cheng, X. The Logic of Chemical Synthesis 1989
5. Warren, S. Organic Synthesis: The disconnection Approach, 1982