

CH-421 Organic Synthesis I

Credit Hours: 3-0

Prerequisite: Nil

Course Objectives

1. Students will acquire knowledge and understanding to design protocols for synthesis of small to medium sized organic compounds and be able to carry out retrosynthetic analysis, and propose alternative routes to synthesize a compound.

Course Contents

2- C-C, C-N and C-O bond formation. Using carbon Nucleophiles (enolates and organometallic nucleophiles) Functional group inter-conversion (FGI), C=C and C≡C formation. Applications to the synthesis of various target molecules. Difunctionalized compounds. Role of crown ethers and quaternary ammonium salts in organic synthesis. Protective groups. Recent trends in organic synthesis.

Course Outcomes

3. After successful completion of this course, students will be able to understand different synthetic strategies for the synthesis of compounds of various types.

Recommended Books:

1. Fox, M. A. and Whitsell, J. K., *Organic Chemistry*, 3rd ed., Jones & Bartlett Publishers (1997).
2. Clayden, J., Greeves, N., and Warren, S., *Organic Chemistry*, 2nd ed., Oxford University Press, New York, (2012).
3. Loudon, M., *Organic Chemistry*, 6th ed., Roberts Company Publishers, (2016).
4. Smith, J. G., *Organic Chemistry*, 3rd ed., McGraw-Hill, (2010).
5. Norman, R. O. C. and Coxon, J. M., *Principles of Organic Synthesis*, 3rd ed., CRC Press, (1993)
6. Warren, S. and Wyatt, P., *Workbook for Organic Synthesis: The Disconnection Approach*, 2nd ed., John-Wiley & Sons, Inc., (2010)