

## BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM- 410	Organic Chemistry (Sp. Theory-II)	4	VII
Year	Discipline		
4	Chemistry		

### SYLLABUS OUTLINE:

#### 1. Aromatic Substitution reactions:

##### (a) Electrophilic substitution:

General mechanism (kinetic, isotopic and spectroscopic evidences), nitration, sulfonation, halogenation, Friedel-Crafts alkylation and formylation, structure and reactivity, orientation; polysubstitution reactions of aromatic compounds

##### (b) Nucleophilic Substitution reactions:

$S_N1$ ,  $S_N2$  (addition and elimination), and Benzyne mechanism

#### 2. Molecular Rearrangements:

Classification of molecular rearrangements: mechanism of intramolecular 1,2-shifts involving migration of a group from carbon to carbon, carbon to nitrogen, and carbon to oxygen, mechanism and synthetic applications of Wagner-Meerwein, Pinacol-pinacolone, benzidine, benzyl, benzylic acid, Favorski, Wolff, Beckmann, Hoffmann, Curtius, Lossen and Schmidt; Baeyer-Villiger, Dakin and Fries rearrangements.

#### 3. Heterocyclic Chemistry:

Five and six membered heterocycles with one and several identical hetero-atoms, Five and six membered heterocycles with two different hetero-atoms.

### RECOMMENDED BOOKS:

1. Organic Chemistry, Volume I (6<sup>th</sup> ed.) & II (5<sup>th</sup> ed.) by I.L. Finar, Pearson Education (Singapore) Pte Ltd, 2008.
2. March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 6th ed. by Michael B. Smith, Jerry March, Wiley, 2007.
3. Organic Chemistry, 5th ed.; by S. H. Pine, McGraw Hill: New York, 1987.
4. Organic Chemistry 6th ed. by Francis A. Carey, McGraw Hill, 2005.
5. Organic Chemistry 6<sup>th</sup> ed, by R. T. Morrison, R. N. Boyd, and R. K. Boyd, Benjamin Cummings, 1992,.
6. Heterocyclic Chemistry, 4<sup>th</sup> ed. by J. A. Joule, K. Mills, Blackwell Publishing, 2000.
7. Heterocyclic Chemistry, 3rd ed. by T.L. Gilchrist, Longman, 1997.
8. Principles in Organic Synthesis by R.O.C Norman & J. M. Coxon, Chapman and Hall, 1993.
9. Organic Chemistry by Jonathan Clayden, Nick Greeves, Stuart Warren, Oxford University Press 2000.