Code	Subject Title	Cr. Hrs	Semester
CHEM-409	**Organic Chemistry (Sp. Theory-I)**	**4**	**VII**
Year	Discipline		
4	**Chemistry**		

SYLLABUS OUTLINE:

1. **Determination of Reaction Mechanism:**
   Determination of reaction mechanism, kinetics, stereochemical, intermediate formation, spectroscopic and isotopic labeling methods

2. **Aliphatic Nucleophilic substitution:**
   Mechanism of SN1, SN2, SNi, SN1', SN2' and SNi' reactions, kinetics, stereochemical and other evidence; effects of other substrate structure, attacking nucleophile, leaving group and solvent effect, and neighbouring group participation.

3. **Elimination Reactions:**
   Mechanism of E1, E2, and E1cb elimination reactions; kinetics and stereochemical studies; applications of thermodynamically and kinetically controlled reactions (Saytzeff and Hoffmann reactions), Effects of substrates, solvent, base, leaving group and temperature on kinetics, competition between elimination and substitution reactions; pyrolytic elimination reaction mechanism and synthetic applications.

RECOMMENDED BOOKS:

1. Organic Chemistry, Volume I (6th ed.) & II (5th d.) 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 6th ed, by R. T. Morrison, R. N. Boyd, and R. K. Boyd, Benjamin Cummings, 1992,.
6. Modern Synthetic Reactions 2nd ed. by H.O.House , W.A. Benjamin Inc., Menlo Park, CA
7. Principles in Organic Synthesis by R.O.C Norman & J. M. Coxon, Chapman and Hall, 1993.
8. Organic Chemistry by Jonathan Clayden, Nick Geeves, Stuart Warren, Oxford University Press 2000.