

B.Sc. Forensic Science: Semester-III	
FST303: Chemistry-III	
Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment - 6 Marks
Credits: 4	Attendance - 12 Marks
	End Semester Exam - 70 marks

Course Objective

- On the completion of this course the students will be able to understand the basic concepts of organic chemistry
- The student will be able to describe and understand the Atomic orbitals and their properties, hybridization.
- Students will gain knowledge about the hydrocarbons

Unit 1: Concepts

Atomic orbitals, hybridization, orbital representation of methane, ethane, ethyne and benzene. Polarity of bonds: Inductive, resonance and steric effects hyper conjugation, and their influence on acidity and basicity of organic compounds.

Unit 2: Hydrocarbons

Alkanes: Chlorination of methane, Alkenes: Addition reactions (Electrophilic and Free radical), Hydration, hydroxylation, hydroboration, epoxidation and ozonolysis. Alkynes: Reduction, Electrophilic addition, acidity and metal acetylides. Conjugated and isolated Dienes: 1,2- verses 1,4-addition. Diels - Alder reaction.

Unit 3: Alkyl Halides

Nucleophilic substitution: SN1, SN2 mechanisms; Eliminations reactions: E1 and E2 mechanisms, Elimination versus substitution reactions; energy profile diagrams-transition states (general considerations). Grignard reagents: Preparation and synthetic applications.

Unit 4: Alcohols

Comparative study of substitution, dehydration, oxidation, and esterification of primary, secondary and tertiary alcohols

Unit 5: Stereochemistry

Fischer, Saw-horse and Newman projection formulae, Chirality-optical activity, enantiomersim and diastereoisomerism involving one and two chiral centres. Configuration; D/L, erythrose, threose and R/S nomenclatures. Geometrical isomerism and E/Z nomenclatures. Conformations of n-butane.

Head

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