BACHELOR OF SCIENCE (HONOURS) MAJOR IN CHEMISTRY

SEMESTER-1

Course Outcome

Major in Chemistry (Hons.)

Semester	I
Title of Course	Organic Chemistry-I
Paper Code	CEMHMJ101
Credits	03
Hours	04 hours/week

The students of Chemistry (H) of Semester-I will acquire the knowledge about the Valence Bond Theory, Electronic displacements, MO theory, Mechanistic classification of ionic, radical and pericyclic, Bonding geometries of carbon compounds and representation of molecules, Concept of chirality and symmetry, Relative and absolute configuration and Optical activity of chiral compounds by studying this course.

The theory paper (CEMHMJ101T) of this course (CEMHMJ1011) provides the student with-

CO 1. Know the basic of structure, bonding, reactivity and reaction mechanisms of molecules.

CO 2. Identify the aromatic, anti-aromaticity and non-aromatic compounds.

CO 3. Identify electrophile, nucleophiles, free radicals and intermediates along the reaction pathways.

CO 4. Understand stability of organic molecules, structure & stereochemistry.

Semester	I
Title of Course	Organic Chemistry Lab- I
Paper Code	CEMHMJ101
Credits	01
Hours	04 hours/week

The students of Chemistry (H) of Semester-I will acquire the practical knowledge about the Separation & purification of the organic mixture, Determination of boiling point of common organic liquid compounds, Identification of a pure Organic Compounds by hands on practical experiment.

The lab paper (CEMHMJ101) of this course (CEMHMJ101) provides the student with-

CO 1. Judge the solubility of the mixture of compounds.

CO 2. Identify the pure organic compounds.

SEC (Hons)

Semester	I
Title of Course	Chemistry of Cosmetics & Perfumes
Paper Code	SEC1P
Credits	04
Hours	06 hours/week

The students of Chemistry (H) of Semester-I will acquire the knowledge about the talcum powder, shampoo, enamels, hair remover, face cream, nail polish and nail polish remover, Lipstick studying this course.

The theory paper (CEMSEC02T) of this course (CEMSEC02) provides the student with-

CO 1. Know the basic Preparation of talcum powder.

CO 2. Know the basic Preparation of talcum powder shampoo.

CO 3. Understand Industrial Preparation of Cosmetics & Perfumes.

Minor in Chemistry

Semester	I
Title of Course	Atomic Structure, Chemical Periodicity, Acids and Bases, Redox Reactions, & States of Matter

Paper Code	CEMMI01
Credits	03
Hours	04 hours/week

The students of other science subjects (H) of Semester-I will acquire the knowledge about the Atomic Structure, Chemical Periodicity, Acids and bases, Redox reaction, Redox reactions, Kinetic Theory of Gases and Real gases, Liquids and Solids by studying this course.

The theory paper (CEMMI01) of this course (CEMMI01) provides the student with-

CO 1. Understand the atomic theory and its development.

CO 2. Understand electronic configuration to explain periodic properties.

CO 3. Understand different acid-bases theory of organic compounds.

CO 4. Understand the different types of interactions present in

molecules.

CO 5. Know about the concepts of Gass, Solids and Liquids.

CO 6. Understand the qualitative treatment of Gas Solid and Liquid.

Semester	I
Title of Course	Atomic Structure, Chemical Periodicity, Acids and Bases, Redox Reactions, & States of Matter
Paper Code	MI-1P
Credits	01
Hours	04 hours/week

The students of other science subjects (H) of Major of Semester-I will acquire the practical knowledge about the Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture, sodium carbonate and sodium hydrogen carbonate present in a mixture, water of crystallization in Mohr's salt by titrating with $KMnO_4$ by hands on practical experiments.

The lab paper (MI-1P) of this course (MI-1P) provides the student with-

CO 1. Design Acid and Base Titrations of mixture of compounds.

CO 2. Produce the results of mixture of compounds by Oxidation-Reduction Titration.

BACHELOR OF SCIENCE (HONOURS) MAJOR IN CHEMISTRY

SEMESTER-II

Major in Chemistry (Hons.)

Semester	II
Title of Course	Inorganic Chemistry-I
Paper Code	CEMHMJ102
Credits	03
Hours	04 hours/week

The students of Chemistry (H) of Semester-II will acquire the knowledge about the Extra nuclear Structure of atom, Chemical periodicity, Acid-Base reactions and Redox Reactions reactions by studying this course.

The theory paper (CEMHMJ102T) of this course (CEMHMJ102) provides the student with-

CO 1. Understand the basics of Extra nuclear Structure of atoms.

CO 2. Understand the basics of the Chemical periodicity.

CO 3. Know the basics of Acid-Base reactions

CO 4. Know the basics of Redox Reactions and precipitation reactions.

Semester	II
Title of Course	Inorganic Chemistry Lab- I
Paper Code	CEMHMJ102
Credits	01
Hours	04 hours/week

The students of Chemistry (H) of Semester-II will acquire the practical knowledge about Acid and Base Titrations: Estimation of carbonate and hydroxide present together in mixture, carbonate and bicarbonate present together in a mixture and free alkali present in different soaps/detergents by hands on practical experiment.

The lab paper (CEMHMJ102) of this course (CEMHMJ102) provides the student with-

CO 1. Estimation of carbonate and hydroxide present together in mixture

CO 2. Estimation of carbonate and bicarbonate present together in a mixture.

CO 3. Estimation of free alkali present in different soaps/detergents.

SEC (Hons)

Semester	II
Title of Course	Medicinal & Pharmaceutical Chemistry
Paper Code	SEC2P
Credits	03
Hours	06 hours/week

The students of Chemistry (H) of Semester-2 will acquire the knowledge about the Extraction of eucalyptus leaf ingredient, eugenol from clove, nicotine from tobacco, Curumine from turmeric, caffeine from tea/coffee studying this course.

The theory paper (CEMSEC02T) of this course (CEMSEC02) provides the student with-

CO 1. Extraction of eucalyptus leaf ingredient.

CO 2. Extraction of eugenol from clove.

CO 3. Extraction of nicotine from tobacco.

CO 4. Curcumins from turmeric.

CO 5. Extraction of caffeine from tea/coffee.

Minor in Chemistry

Semester	II
Title of Course	General Organic Chemistry, Aliphatic Hydrocarbons & Chemical Kinetics
Paper Code	CEMMI02
Credits	04
Hours	04 hours/week

The students of other science subjects (H) of Semester-I will acquire the knowledge about the General Organic Chemistry, Aliphatic Hydrocarbons & Chemical Kinetics by studying this course.

The theory paper (CEMMI02) of this course (CEMMI01) provides the student with-

CO 1. Know about the concepts Fundamentals of Organic Chemistry

CO 2. Understand Stereochemistry.

CO 3. Understand the Nucleophilic Substitution and Elimination Reactions

CO 4. Understand the Aliphatic Hydrocarbons.

CO 5. Know about the concepts of Chemical Kinetics.

CO 6. Understand the qualitative treatment of Gas Solid and Liquid.

Semester	II
Title of Course	Qualitative Analysis of Single Solid Organic Compound(s)
Paper Code	MI-2P
Credits	02
Hours	04 hours/week

The students of other science subjects (H) of Minor of Semester-II will acquire the practical knowledge about the Qualitative Analysis of Single Solid Organic Compound(s) by hands on practical experiments.

The lab paper (MI-2P) of this course (MI-2P) provides the student with-

CO 1. Detection of special elements (N, Cl, and S) in organic compounds. Experiment B: Solubility and Classification (solvents: H_2O, dil. HCl, dil. NaOH)

CO 2. Detection of functional groups: Aromatic-NO_2, Aromatic -NH_2, - COOH, carbonyl (no distinction of –CHO and >C=O needed), -OH (phenolic) in solid organic compounds.

CO 3. The unknown (at least 6) solid samples containing not more than two of the above types of functional groups should be done.

CO 4. Study the kinetics of the following reactions, a) Initial rate method: Iodide-persulphate reaction, b) Integrated rate method:

CO 5. Acid hydrolysis of methyl acetate with hydrochloric acid.

CO 6. Compare the strengths of HCl and H_2SO_4 by studying kinetics of hydrolysis of methyl acetate.

CO 7. Decomposition of H_2O_2.