Department of Chemistry

City College, Kolkata

(Affiliated to University of Calcutta)

Programme Specific Outcome (PSO) & Course Outcome (CO)

Name ofthe Programme : B.Sc.CHEMISTRY Honours (Under CCF 2022)

Year of Introduction : Session 2023-24

Programme Specific Outcome(PSO):

- PSO 1. Students will be entirely equipped with the knowledge of all the branches of Chemistry such as physical, inorganic, organic & analytical chemistry.
- PSO 2. Students will acquire the ability to analyse and explain chemical phenomena with the basic principles and fundamentals and to write it concisely.
- PSO 3. Students will learn to analyse inorganic and organic samples qualitatively and in some cases quantitatively.
- PSO 4. Students will gain expertise to set up an experiment (estimation or synthesis of a compound) and work up.
- PSO 5. Students will be enriched with the knowledge and training to operate many physico-chemical instruments and to carry out experiments there in.
- PSO 6. Students will attain the ability to work individually or in a group following asystematic plan.
- PSO 7. Students will achieve the confidence to prepare and defend a scientific presentation in their individual capacity.

Course Outcome(CO):

CHEMISTRY MAJOR

A. DISCIPLINE SPECIFIC CORE

Semester-1

CHEM-H-CC-1-1–FUNDAMENTAL OF CHEMISTRY - I

- CO 1. Students will learn the basic concepts of atomic structure and periodic properties.
- CO 2. The fundamentals of Organic Chemistry like bonding, physical properties and stereochemistry will be acquainted.
- CO 3. Students will learn the knowledge of Thermodynamics and Chemical Kinetics.

- CO4. The practical experiments will illustrate acid-base reactions and oxidation-reduction reactions.

Semester-2

CHEM-H-CC-2-2–FUNDAMENTAL OF CHEMISTRY - II

- CO1. Students will develop the knowledge of Kinetic Theory of Gas, the properties of real gases and the different equation of states for real gases.
- CO 2. Students will be introduced to the concept of Chemical Bonding – both ionic and covalent bonding in details.
- CO 3. Students will have detailed understanding in various advanced aspects of stereochemistry. The important concepts in reaction mechanisms like reaction intermediates, reaction thermodynamics and kinetics will be illustrated.
- CO 4. Students will learn qualitative semimicro analysis of inorganic mixtures having three radicals.

B. SKILL ENHANCEMENT COURSE

Semester-1

CHEM-H-SEC1-1 Quantitative Analysis and Basic Laboratory Practices

- CO 1. Students will be introduced to the basic concepts of quantitative analysis like accuracy, precision, calibration and errors in the analysis.
- CO 2. Students will gain knowledge in different types of titrimetric analysis, namely acid-base, redox, precipitation and complexometric titrations.
- CO 3. Students will gain the practical knowledge related basic laboratory practices and also acquire knowledge on water analysis and technologies used in water treatment.

Semester-2

CHEM-H-SEC2-2-AI for Everyone

- CO 1. Students will develop concepts in Artificial Intelligence and related topics like machine learning and deep learning.
- CO 2. Students will be well enriched with the knowledge about ethical and social implications of Artificial Intelligence.

CHEMISTRY MDC

Semester-1

CHEM-MD-CC1-1–Chemistry MDC- I

- CO 1. Students will learn the basic concepts of atomic structure and periodic properties.
- CO 2. The fundamentals of Organic Chemistry like bonding, physical properties and stereochemistry will be acquainted.
- CO 3. Students will learn the knowledge of Thermodynamics and Chemical Kinetics.
- CO4. The practical experiments will illustrate acid-base reactions and oxidation-reduction reactions.

Semester-2

CHEM-MD-CC2-2–Chemistry MDC- II

- CO1. Students will develop the knowledge of Kinetic Theory of Gas, the properties of real gases and the different equation of states for real gases.
- CO 2. Students will be introduced to the concept of Chemical Bonding – both ionic and covalent bonding in details.
- CO 3. Students will have detailed understanding in various advanced aspects of stereochemistry. The important concepts in reaction mechanisms like reaction intermediates, reaction thermodynamics and kinetics will be illustrated.
- CO 4. Students will learn qualitative semimicro analysis of inorganic mixtures having three radicals.

SKILL ENHANCEMENT COURSE

CHEM-MD-SEC-CHEMISTRY IN DAILY LIFE

- CO 1. Students will gain knowledge about different types of dairy products and how to analyze fat content, minerals and added water amount and will familiar with different types of food preservatives, sweeteners and food colorants.
- CO 2. Students will learn about the usefulness of Vitamins and how to check the purity of oils and also about the way to manufacture soaps and detergents.
- CO 3. Students will acquire in-depth knowledge in applications of batteries and fuel and solar cell. Polymer science in brief and plastic waste management will be taught.