COURSE OUTCOMES (CO)

Semester I

CH1CRT01: General and Analytical Chemistry

After the successful completion of the course, the learners shall be able to;
1. Describe the methodology and perspectives of Science and the importance of Science in the development of culture.
2. Do self-directed experimentation work and research in chemistry under the guidance and supervision of a mentor.
3. Explain various atomic properties of elements and learn the arrangement of elements in the periodic table
4. Analyse experimental parts of the theory and evaluate the analytical data.

Semester II

CH2CRT02: Theoretical and Inorganic Chemistry

After the successful completion of the course, the learners shall be able to;
1.Describe the various theories of chemical bonding with examples.
2. Explain various atomic models and the structure of atom.
3. Compare the properties of s,p,d and f block elements.
4.Predict the magnetic behaviour of various molecules based on Molecular orbital theory.

CHCRP01: Volumetric Analysis

After the successful completion of the course, the learners shall be able to
1. Analyse quantitatively various compounds using Acidimetry and Alkalimetry.
2. Analyse quantitatively various compounds using Complexometry.
3. Analyse quantitatively various compounds using Permanganometry dichrometry
4. Analyse quantitatively various compounds using Iodimetry and iodometry.

Semester III

CH3CRT03: Organic Chemistry-I

After the successful completion of the course, the learners shall be able to;
1. Predict the structure and stability of various reaction intermediates in organic reactions and compare various electronic displacements
2. Differentiate the optical and geometric isomers of various organic compounds
3. Predict the aromaticity of an organic compound
4. Discuss the preparation, reactions, and properties of alkanes, halo alkanes, aromatic hydrocarbons and aryl halides.

Semester IV

CH4CRT04: Organic Chemistry-II

After the successful completion of the course, the learners shall be able to;

1. Describe the preparation, reactions, and properties of alcohols, phenols, ethers and epoxides,
2. Describe the preparation, reactions, and properties of carbonyl compounds, carboxylic acids, aromatic sulfonic acids and their derivatives.
3. Explain the reaction mechanisms of various name reactions.
4. Relate various name reactions in organic chemistry.

CH4CRP02: Qualitative Organic Analysis

After the successful completion of the course, the learners shall be able to;

1. Analyse systematically different functional groups.
2. Determine Melting point of various compounds.
3. Determine Boiling point of various compounds.
4. Prepare derivatives of various of organic compounds.

Semester V

CH5CRT05: Environmental studies and Human Rights

After the successful completion of the course, the learners shall be able to;

1. Describe the status of current environmental issues.
2. Explain the basic rights of an individual living in a society.
3. Outline the preventive measures for pollutants.
4. Justify the ambient soil conditions for the growth of crops.
5. Conserve energy and explore new renewable energy sources.
6. Control pollution in air, water and soil.

CH5CRT06: Organic Chemistry-III

After the successful completion of the course, the learners shall be able to;

1. Discuss the preparation and reactions of nitrogen compounds
2. Describe the preparation and properties of heterocyclic compound
3. Describe the classification and chemical properties of polymers and carbohydrates.
4. Explain synthesis, classification and applications of dyes

CH5CRT07: Physical Chemistry-I

At the end of the course, the learners shall be able to:

1. Outline the structure, properties and defects in different types of solids
2. Explain the theory of real gases
3. Outline different adsorption isotherms and electrical properties of molecules
4. Illustrate the theories, models and properties of liquid state.

CH5CRT08: Physical Chemistry-II

The course shall make the students to:
1.Examine the chemical aspects of quantum mechanics
2. Solve Schrodinger equation.
3. Explain the interaction of various components of EM radiation with matter.
4. Calculate the rotational and vibrational energy levels and internuclear distance
5. Explain the interaction of UV/Vis radiation with molecules.
6. Predict the NMR/ESR spectra of simple molecules/and radicals.

CH5OPT01: OPEN COURSE- Chemistry in everyday life.

After the successful completion of the course, the learners shall be able to;
1. Explain the effects of food additives
2. Understand the effects of cosmetics on the body
3. Understand principle of water purification
4. Learn the fundamentals of nanomaterials

Semester VI

CH6CRT09: Inorganic Chemistry

After the successful completion of the course, the learners shall be able to;
1. Distinguish the crystal field splitting pattern in coordination compounds.
2. Describe the structure and bonding in selected organometallic compounds.
3. Assign structure to metal carbonyls based on the electron counting scheme.
4. Explain various applications of bio-inorganic compounds

CH6CRP03: Qualitative Inorganic Analysis

After the successful completion of the course, the learners shall be able to;
1. Analyse systematically the cations present in a mixture
2. Analyse systematically the anions present in mixture
3. Explain the principle involved in inorganic analysis
4. Compare the solubility product values of various ions.

CH6CRT10: Organic Chemistry-IV

After the successful completion of the course, the learners shall be able to;
1. Describe structure and functions of different natural products like carbohydrates and amino acids.
2. Describe structure and functions of different natural products like proteins, vitamins, lipids, steroids and nucleic acids
3. Compare the biological functions of different natural products.
4. Explain the basic concepts of supramolecular chemistry

CH6CRP04: Organic Preparation and Laboratory Techniques.

After the successful completion of the course, the learners shall be able to;

1. To separate two compounds by TLC.
2. To separate two compounds by distillation and solvent extraction
3. To purify compounds by crystallisation
4. To prepare different derivatives of different organic compounds

CH6CRT11: Physical Chemistry-III

After the successful completion of the course, the learners shall be able to;

1.Analyse the laws of thermodynamics.
2.Demonstrate the application of chemical equilibrium.
3.Explain various concepts in phase equilibria.
4.Discuss the kinetics of reaction.

CH6CRP05: Physical Chemistry Practical

After the successful completion of the course, the learners shall be able to;

1. To determine transition temperature of salt hydrates.
2. To find out the CST of phenol water system
3. To determine equivalence point by conductometric and potentiometric titrations
4. To determine MW of compounds by Rast's method.
5. To determine viscometrically the percentage composition of mixture.

CH6CRT12: Physical Chemistry-IV

After the successful completion of the course, the learners shall be able to;

1. Define binary liquid mixture, azeotrope, CST and Colligative properties
2. Explain the applications of conductance measurements
3. Find out the symmetry elements and point group of small molecules
4. Summarize the basics of photochemistry

CH6CRP06: Physical Chemistry Practicals

After the successful completion of the course, the learners shall be able to;

1. Estimate compounds gravimetrically.
2. Explain the principle of gravimetric analysis.
3. Analyse and explain the procedure in preparing, collecting, treating, and weighing a precipitate.
4. Explain procedures for the gravimetric estimation of various compounds

CHOICE BASED COURSE

CH6CBT03: Soil and Agricultural Chemistry

After the successful completion of the course, the learners shall be able to**;**

1. Justify the ambient soil conditions for the growth of crops
2. Illustrate various plant nutrients and fertilizers
3. Differentiate between pesticides, fungicides and herbicides.
4. Explain the different type of soils present in Kerala.