



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
(An Autonomous Institution Affiliated to Madurai Kamaraj University)
(Accredited with "A" Grade by NAAC)
Pasumalai, Madurai -625004

V & VI SEMESTER - COURSE OUTCOMES
SCIENCE

B.Sc., CHEMISTRY

18UCHC51

ORGANIC CHEMISTRY –II

Course outcomes:

On successful completion of the course, the learners should be able to:

- CO1:** Recall the general characteristics of aromatic compounds and discuss the reaction mechanism of aromatic compounds. [K1 & K2]
- CO2:** Prepare the aromatic compounds like aromatic hydrocarbons, halogen, amino, substituted acids, isolated and condensed systems. [K3]
- CO3:** Examine the effect of substituents on acidic/basic character of aromatic compounds. [K4]
- CO4:** Interpret the directive influence of substituent on electronic effects and properties of aromatic compounds. [K5]
- CO5:** Integrate the reaction mechanism of aromatic compounds and formulate in the synthetic applications. [K6]

18UCHC52

PHYSICAL CHEMISTRY – II

Course outcomes:

On successful completion of course, Students will be able to:

- CO1:** Outline the basic principles and applications of chemistry in detail. [K1&K2]
- CO2:** Apply the concept of duality, spectroscopic techniques, symmetry aspects, theory of dilute solutions and phase equilibrium for chemical systems. [K3]
- CO3:** Analyze the concept of quantum theory, the physical properties of various equilibria and spectroscopic parameters. [K4]
- CO4:** Evaluate the practical utility of complicated problem-solving skill aspects. [K5]
- CO5:** Develop a strategy to acquire advanced knowledge in various analytical techniques. [K6]

18UCHCP3

PHYSICAL CHEMISTRY EXPERIMENTS (PRACTICAL)

Course outcomes:

On successful completion of the course, the learners should be able to:

- CO1:** Recall the molecular weight of chemical compounds and discuss the determination of molecular weight by various methods. [K1 & K2]

- CO2:** Determine the CST of phenol-water system, cell constant and conductivity titrations. [K3]
CO3: Inspect the phase diagram involving simple eutectic and compound formation. [K4]
CO4: Interpret the relative strength of acids by hydrolysis of ester [K5]
CO5: Predict the effect of impurity on CST of phenol-water system. [K6]

18UCHCP4

GRAVIMETRIC ANALYSIS AND ORGANIC PREPARATION (PRACTICAL)

Course outcomes:

On successful completion of the course, the learners should be able to:

- CO1:** Relate and classify between gravimetric analysis and organic preparation [K1 & K2]
CO2: Estimate lead, barium, calcium, copper and nickel. [K3]
CO3: Analyze the various types of organic preparation. [K4]
CO4: Interpret the organic preparation like nitration, bromination, hydrolysis, oxidation, benzoylation and acetylation. [K5]
CO5: Assemble the analyzed and prepared organic compounds samples. [K6]

18UCHCP5 ORGANIC ANALYSIS AND ESTIMATION (PRACTICAL)

Course outcomes:

On successful completion of the course, the learners should be able to:

- CO1:** State functional group and classify the organic compounds containing one or two functional groups. [K1 & K2]
CO2: Estimate the organic compound like phenol, aniline and glucose. [K3]
CO3: Distinguish between organic analysis and organic estimation. [K4]
CO4: Justify the conformation by the preparation of a solid derivative. [K5]
CO5: Assemble the analyzed and estimated given organic compounds. [K6]

18UMCA52

ALLIED MATHEMATICS – III

Course Outcomes:

- CO1:** To develop the skills in Mathematical formulation and Solving of LPP.
CO2: To learn about different techniques on solving LPP
CO3: To solve specialized LPP like transportation and assignment problems.
CO4: To introduce about Network problems.

18UCHE51

INORGANIC AND ANALYTICAL CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

- CO1:** Recall the general characteristics of acids & bases and solid state and discuss the various concepts and methods involved in it. [K1 & K2]
CO2: Determine the classification of solvents and role of alkali and alkaline earth metal in biological systems. [K3]

CO3: Examine the bio inorganic compounds on its structure and analytical methods of obtaining precipitate. [K4]

CO4: Interpret the biological functions and toxicity of elements and basic principles of common types of chromatography. [K5]

CO5: Integrate the types of crystals and point defects. [K6]

18UCHE52

BIOINORGANIC CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Identify the fundamentals of biomolecules and metals in biological systems and generalize their structures. [K1 & K2]

CO2: Estimate the structures of myoglobin & hemoglobin, copper & nitrogen enzymes. [K3]

CO3: Comment the behavior of dioxygen bound to metals and role of metals in medicine. [K4]

CO4: Interpret the structure of the active site in myoglobin & hemoglobin. [K5]

CO5: Integrate the metals containing proteins and enzymes and metal toxicity. [K6]

18UCHE53

CLINICAL AND MEDICINAL CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Define health, drugs, enzymes and outline the clinical hygiene, manufacture of drugs and classification of enzymes. [K1 & K2]

CO2: Estimate the testing of drugs, coenzymes and biotechnology. [K3]

CO3: Examine the types of drugs and their modes of action and body fluid. [K4]

CO4: Interpret the disease affecting red cells and recombinant DNA, Genetic engineering and its possible hazards. [K5]

CO5: Formulate the treatment for specific poisons and drug manufacture based on fermentation. [K6]

18UCHS51

DRUG CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Mention and outline the action of drugs. [K1 & K2]

CO2: Identify role of drug as therapeutic. [K3]

CO3: Justify and write various chemical processes taking place in all derivatives of drug. [K4]

CO4: Identify various types of reactions and can illustrate its scope to wider areas. [K5]

CO5: Describe feasibility and the extent of application of drug. [K6]

18UCHC61

ORGANIC CHEMISTRY – III

Course outcomes:

On successful completion of the course the learners should be able to:

CO1: Reminisce the alicyclic compounds, free radicals and proteins and deliberate the reaction mechanism of aromatic compounds. [K1 & K2]

CO2: Prepare the heterocyclic compounds, short lived and long-lived free radicals. [K3]

CO3: Differentiate between configuration and conformation and between proteins and nucleic acids. [K4]

CO4: Interpret the directive influence of substituents on electronic effects and properties of aromatic compounds. [K5]

CO5: Integrate the reaction mechanism of aromatic compounds and formulate in the synthetic applications. [K6]

18UCHC62

PHYSICAL CHEMISTRY – III

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Define thermodynamic terms and photochemical reaction and describe the study of thermal and photochemical reaction. [K1 & K2]

CO2: Relate the thermodynamic process and conductance. [K3]

CO3: Differentiate between reversible and irreversible cells and between photochemical reactions. [K4]

CO4: Evaluate the types of electrodes and determine the emf of cells. [K5]

CO5: Compile Nernst heat Theorem and state the third law of thermodynamics and its applications. [K6]

18UCHCP3

PHYSICAL CHEMISTRY EXPERIMENTS (PRACTICAL)

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Recall the molecular weight of chemical compounds and discuss the determination of molecular weight by various methods. [K1 & K2]

CO2: Determine the CST of phenol-water system, cell constant and conductivity titrations. [K3]

CO3: Inspect the phase diagram involving simple eutectic and compound formation. [K4]

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18UCHCP4

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18UCHCP5 ORGANIC ANALYSIS AND ESTIMATION (PRACTICAL)

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On successful completion of the course, the learners should be able to:

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CO2: Estimate the organic compound like phenol, aniline and glucose. [K3]

CO3: Distinguish between organic analysis and organic estimation. [K4]

CO4: Justify the conformation by the preparation of a solid derivative. [K5]

CO5: Assemble the analyzed and estimated given organic compounds. [K6]

18UMCA62 ALLIED MATHEMATICS – IV

Course outcomes:

CO1: To develop skills in Bilinear transformations.

CO2: To introduce different techniques of finding Analytic functions.

CO3: To familiarize concepts of Matrices.

CO4: To teach various types of Groups through examples.

18UCHE61

APPLIED CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Define insecticides, pesticides, petrochemicals and fertilizers and discuss their classification. [K1 & K2]

CO2: Determine water quality, raw materials needed for match and silicate industries. [K3]

CO3: Distinguish between water and sewage treatment and chemicals used between petrochemicals and paints and lacquers. [K4]

CO4: Interpret the preparation of domestically useful chemical products. [K5]

CO5: Integrate the method of sewage treatment and fertilizer industries in India. [K6]

18UCHE62

NANO CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Define nanotechnology and nanosensors and elaborate the synthesis in confined media. [K1 & K2]

CO2: Estimate the synthesis of quantum dots, Nobel metal materials on its electronic structure of nanocrystals. [K3]

CO3: Differentiate between nanotechnology and biology and between biomolecules and nanoparticles. [K4]

CO4: Interpret the electrochemical sensors – Sensor based on physical properties. [K5]

CO5: Compute nanoshells and nanotechnology in diagnostics applications. [K6]

18UCHE63 FUNDAMENTALS OF COMPUTER AND GREEN CHEMISTRY

Course outcomes:

On successful completion of the course, the Students will able to:

CO1: State the characteristics, features of computer and discuss the parts of computer and fundamentals of green chemistry. [K1 & K2]

CO2: Identify the types of memory, salient features of windows and MS word and need for green chemistry. [K3]

CO3: Analyze the programming languages and evolution of green chemistry. [K4]

CO4: Interpret the parts of computer and basic concept of creating and accessing databases using MS access. [K5]

CO5: Justify the drawing chemical structure and pasting them in the text and environmental protection laws, changes ahead for a chemist. [K6]

18UCHS61 MACROMOLECULAR CHEMISTRY

Course outcomes:

On successful completion of the course, the learners should be able to:

CO1: Quote and outline the different mechanisms involved in the polymer (K1&K2)

CO2: Construct different types of polymerization techniques (K3)

CO3: Illustrate in detail about the change in temperature(K4)

CO4: Evaluate the factors influencing polymerization (K5)

CO5: Design feasibility and the extent the application of polymer (K6)