

KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

Re-accredited by NAAC with 'A+' Grade (4th Cycle)

College of Excellence (UGC)

Coimbatore – 641 029

DEPARTMENT OF CHEMISTRY

COURSE OUTCOMES (CO)

B.SC. CHEMISTRY

**For the students admitted
in the
Academic Year 2020-2021**

Subject code : 20UCH101

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER – I INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY – I | | | |
| Batch 2020 – 2021 | Hours / Week 6 | Total Hours 90 | Credits 5 |

Course Objectives

1. To know the concept of qualitative inorganic analysis.
2. To acquaint knowledge about electron displacement effects, hybridization and conformations.
3. To know about the structure of an atom.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K2 | CO1 | Explain the basic analytical knowledge and group separation of elements. |
| K2, K3 | CO2 | Understand and apply the nomenclature of inorganic and organic compounds. |
| K2, K3 | CO3 | Explain the isomerism of alkanes and cycloalkanes. |
| K2 | CO4 | Acquire the knowledge about the structure of atoms. Understand characteristics of gases. |

Subject code : 20UCH202

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|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER – II INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 6 | Total Hours 90 | Credits 5 |

Course Objectives

1. To learn the basic principles and concepts of metallurgy and their applications
2. Know about metallurgy, importance of periodic table and atomic properties.
3. To learn about alcohols and aromatic compounds.
4. To study the fundamentals of thermodynamics and thermochemistry.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1, K3 | CO1 | Obtain problem solving skills in order to modify industrial processes in extraction metallurgy. |
| K1, K2 | CO2 | Gain knowledge about periodic properties and understand the basic aspects of alcohols and aromatic compounds. |
| K1, K3 | CO3 | Learn about concepts of thermodynamics. |
| K1, K4 | CO4 | Acquire the knowledge in thermochemistry. |

Subject code : 20UCH2CL

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PRACTICAL – I INORGANIC QUALITATIVE ANALYSIS AND PREPARATIONS | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 90 | Credits 2 |

Course Objectives

1. To demonstrate the basic laboratory technique of semimicro qualitative analysis.
2. To understand about the interfering anions, its elimination and group separation.
3. To prepare inorganic complexes.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1,K2 | CO1 | Build the knowledge in principles of semi micro qualitative analysis. |
| K2 | CO2 | Know about the interfering and non interfering anions. |
| K2, K4 | CO3 | Experience to remove interfering anion and group separation of various cations. |
| K2, K3 | CO4 | Learn the preparation of inorganic complexes. |

Subject code : 20UCH303

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER – III INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY - III | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To know the basic concepts in quantitative analysis.
2. To observe the chemistry of dicarboxylic acids and reactions involving carbonyl compounds.
3. To enumerate second law of thermodynamics, state functions S, A, G and chemical equilibrium.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K2, K3 | CO1 | Gain knowledge in preparation, standardization of solution and principles of volumetric analysis. |
| K1, K2 | CO2 | Study the preparation, properties and reactions of dicarboxylic acids, unsaturated acids and hydroxy acids. |
| K1, K2 | CO3 | Study on the preparation and properties of aldehydes and ketones. |
| K3, K4 | CO4 | Analyze and apply laws of thermodynamics and thermodynamic properties. |

Subject code : 20UCH404

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER – IV INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY - IV | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To learn group IA elements.
2. To know about preparation and properties of phenols, amines and diazo compounds.
3. To study phase equilibrium- one and two component systems and solutions.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K2, K3 | CO1 | Gain the knowledge about the properties of alkali metals. |
| K1, K2 | CO2 | Understand the basic aspects of phenols, amines and its derivatives. |
| K1, K2 | CO3 | Analyze and apply phase rule to various systems. |
| K3, K4 | CO4 | Understand colligative properties and their determinations. |

Subject code : 20UCH4S2

| | | | |
|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : SKILL BASED SUBJECT-II WATER POLLUTION AND MANAGEMENT | | | |
| Batch 2020 – 2021 | Hours / Week 2 | Total Hours 30 | Credits 3 |

Course Objectives

1. To know about the sources and characteristics of water.
2. To learn about the analysis of the pollutants in water.
3. To learn the methods of purification and management of water.

Course Outcomes (CO)

| | | |
|----|-----|---|
| K1 | CO1 | Understand the importance of water. |
| K2 | CO2 | Studying the different types of water pollution. |
| K4 | CO3 | Analyze and measurement of toxic chemical substances. |
| K2 | CO4 | Gain the knowledge of purification and management of water. |

Subject code : 20UCH4CM

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORECHEMISTRY PRACTICAL – II INORGANIC VOLUMETRIC AND ORGANIC QUALITATIVE ANALYSIS | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 90 | Credits 3 |

Course Objectives

1. To demonstrate the concept of quantitative volumetric analysis.
2. To understand the various types of titrametric analysis.
3. To identify the functional groups of unknown organic compounds.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K1,K2 | CO1 | Gain the knowledge in principles of volumetric analysis. |
| K2 | CO2 | Estimating the amount of substances present in solutions. |
| K2, K4 | CO3 | Learn to approach a problem systematically and to interpret the results logically. |
| K2, K3 | CO4 | Detect various functional groups present in an <i>organic</i> compound. |

Subject code : 20UCH505

| | | | |
|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER – V SPECTROSCOPY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 3 |

Course Objectives

1. To know about the region of electromagnetic spectrum, fundamentals of ultra – violet visible spectroscopy and Infrared spectroscopy.
2. To study Nuclear Magnetic Resonance (NMR) spectroscopy and Mass spectrometry and to interpret and solve problems using various spectra.
3. To have insight about Raman spectral techniques.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1,K2 | CO1 | Understand the basic principles, instrumentation of UV-Visible spectroscopy and to utilize their basic aspects to identify various organic compounds. |
| K2 | CO2 | Gain the knowledge in principles, instrumentation and functions of IR and Raman spectroscopy. |
| K2, K4 | CO3 | Study the basic principles and instrumentation of NMR spectroscopy and apply to identify the organic compounds. |
| K2, K3 | CO4 | Know about basic principles and instrumentation of mass spectroscopy technique and the application of various spectral techniques to elucidate the structure of organic molecules. Exploring the various chromatography techniques and their applications in separation of organic mixtures. |

Subject code : 20UCH506

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper: CORE CHEMISTRY PAPER – VI INORGANIC CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To understand the key features of coordination compounds, including: the variety of structures, ligands, various theories of coordination complexes, stability of complexes.
2. To know the basics of Organometallic chemistry and instrumental methods of analysis for samples
3. To identify what radioisotopes and acquaint knowledge about nuclear reactions.
4. To describe about Inorganic acids, bases, Inorganic Solvents and Inorganic Polymers.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K2 | CO1 | Understand the theories of co-ordination compounds. |
| K4,K2 | CO2 | Knowledge about basics organometallic compounds and instrumental methods of chemical analysis |
| K1, K4 | CO3 | Analyze the importance of radioactive isotopes and nuclear reactions. |
| K2, K4 | CO4 | Describe about the different concepts of Inorganic acids, bases, Inorganic Solvents and Inorganic Polymers. |

Subject code : 20UCH507

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper: CORE CHEMISTRY PAPER – VII ORGANIC REACTION MECHANISM | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To study asymmetry and optical activity of organic molecules and basics in carbohydrate.
2. To understand the mechanisms of important organic rearrangements and chemistry of amino acids, proteins and peptides .
3. To study preparation and properties of heterocyclic compounds

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1,K2 | CO1 | Understanding the fundamental aspects of stereochemistry. |
| K1,K2 | CO2 | Learn about preparation, properties and structural elucidation of carbohydrates. |
| K2, K4 | CO3 | Study on the various naming reactions and their detailed mechanistic pathway. |
| K1, K3 | CO4 | Acquire the knowledge of preparation, synthesis and properties of amino acids, proteins, peptides and heterocyclic compounds. |

Subject code : 20UCH508

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER - VIII PHYSICAL CHEMISTRY - I | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To understand the fundamentals of electrochemistry.
2. To know the types and importance of electrodes and electro chemical cells.
3. To study about corrosion, batteries and Electroanalysis.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1,K4 | CO1 | Understanding the concept of conductance and its applications. |
| K2 | CO2 | Acquire basic knowledge about electrode potential, electrochemical cell and potentiometric titrations. |
| K2, K4 | CO3 | Understanding the fundamental principles of corrosion, protective coatings electroplating and its significance. |
| K2, K3 | CO4 | Know about basic principles and instrumentation of Electrochemical Power Systems, Polarography and its applications. Gain knowledge about Electro analysis. |

Subject code : 20UCH5ED3

| | | | |
|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : EXTRA DEPARTMENTAL COURSE (EDC) - CHEMISTRY IN DAY TODAY LIFE | | | |
| Batch 2020 – 2021 | Hours / Week 2 | Total Hours 30 | Credits 3 |

Course Objectives

1. To gain knowledge about water treatment in industrial plant and its usage.
2. To get the knowledge about industrial fermentation process, oil, wax and soap preparation.
3. To have a holistic idea about food adulteration, food hygiene and paints manufacture.

Course Outcomes (CO)

| | | |
|------------------------|-----|--|
| K1, K2,K3,K4, K5 | CO1 | Basic understanding of water technology and acquire knowledge in the treatment of water for multi-purpose. |
| K2, K3, K4,K5 | CO2 | Study on the manufacture of alcohol and alcoholic beverages. |
| K1, K2,K3,K5 | CO3 | To understand the chemistry involved in manufacture of fatty acids. |
| K2, K3, K4, K5 | CO4 | To design a demonstration, that provides an opportunity to identify adulteration in food standards. Broadening the knowledge about paints and pigments. |

Subject code : 20UCH609

| | | | |
|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper: CORE CHEMISTRY PAPER – IX SOLID STATE AND COORDINATION CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 5 | Total Hours 75 | Credits 4 |

Course Objectives

1. To know about fundamentals of crystallography, defects in crystals, metallic bonding and alloys.
2. To learn about liquid crystals.
3. To study about reactions of complexes and bio-inorganic chemistry.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K1, K2 | CO1 | Knowing the difference between amorphous and crystalline solids and their arrangement in crystal lattice. |
| K2, K3 | CO2 | Learn about defects in crystals, various theories of metallic bonding and alloys. |
| K2, K3 | CO3 | Decide the various crystal structures using X-ray diffraction techniques and study about liquid crystals. |
| K3, K4 | CO4 | Study about various ligand substitution reactions, electron transfer reactions in complexes and Bio-inorganic Chemistry. |

Subject code : 20UCH610

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER – X CHEMISTRY OF NATURAL PRODUCTS | | | |
| Batch 2020 – 2021 | Hours / Week 5 | Total Hours 75 | Credits 4 |

Course Objectives

1. To study about Terpenoids and Alkaloids.
2. To understand about Vitamins and Hormones.
3. To learn about Chromatographic Technique.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K2, K3 | CO1 | Study on the classification, structural elucidation and synthesis of few important terpenoids. |
| K2, K3 | CO2 | Learn about structural determination and synthesis of alkaloids. |
| K1, K3 | CO3 | Acquire basic knowledge about vitamins and hormones. |
| K2, K3 | CO4 | Learning about purification of isolated compounds. |

Subject code : 20UCH611

| | | | |
|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORE CHEMISTRY PAPER - XI PHYSICAL CHEMISTRY - II | | | |
| Batch 2020 – 2021 | Hours / Week 5 | Total Hours 75 | Credits 4 |

Course Objectives

1. To understand the basics and theoretical aspects of Chemical kinetics.
2. To learn about kinetics of thermal and photochemical reactions.
3. To gain knowledge about importance of catalysis, colloids and Liquid state.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1,K2 | CO1 | Understand the basic principles, various experimental techniques and theories of chemical kinetics. |
| K2,K4 | CO2 | Gain the knowledge about principles of photochemical and photosensitized process. |
| K2, K3 | CO3 | Study the basic principles and types of catalysis and colloids. |
| K1, K3 | CO4 | Explore the fundamentals of Liquid State |

Subject code : 20UCH6S3

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|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : SKILL BASED SUBJECT – III FOOD CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 2 | Total Hours 30 | Credits 3 |

Course Objectives

1. To have an idea about food adulteration and food preservation techniques.
2. To understand the chemistry of vinegar, fruit juices, vegetable acids and beverages.
3. To analyse and characterize chemical aspects of milk.

Course Outcomes (CO)

| | | |
|------------------------|-----|--|
| K1, K2,K3,K4, K5 | CO1 | Know about the nutrition values in food, food adulteration, standards of food, contamination and food poisoning. |
| K1, K2, K3, K4,K5 | CO2 | Understand about the different preservatives in packaged food. |
| K1, K2,K3,K4, K5 | CO3 | Acquiring knowledge about amino acids in vegetables, vinegar, fruit juice, pH value and mineral acids in vinegar. Know about characteristics and adulterations in beverages. |
| K2, K3, K4 | CO4 | Understand the detailed information about milk , commercially important dairy products and value added foods. |

Subject code : 20UCH6CN

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|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORECHEMISTRY PRACTICAL – III GRAVIMETRIC ANALYSIS | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 90 | Credits 3 |

Course Objectives

1. To understand the concept of gravimetric analysis.
2. To get acquainted with the experimental procedure of gravimetric analysis.
3. To determine the quantity of analyte in solution.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1, K2 | CO1 | Understand the basic principles of Gravimetric analysis. |
| K2, K4 | CO2 | Understand about the various precipitating agents. |
| K3, K4 | CO3 | Determination of analyte masses through the gravimetric analysis. |
| K4 | CO4 | Improve the accuracy of analysis. |

Subject code : 20UCH6CO

| | | | |
|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORECHEMISTRY PRACTICAL – IV PHYSICAL CHEMISTRY EXPERIMENTS | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 90 | Credits 3 |

Course Objectives

1. Transformation of theoretical knowledge gain to practical aspects.
2. To have experience in handling electrical and non-electrical equipments.
3. To determine the strength of various solutions through spectrometric and electrochemical techniques.

Course Outcomes (CO)

| | | |
|--------|-----|---|
| K1, K2 | CO1 | The results of physical chemistry experiments are incorporated in both theoretical and practical aspects. |
| K2, K4 | CO2 | Gain familiarity with a variety of physico-chemical measurement techniques. |
| K3, K4 | CO3 | Interpret data from an <i>experiment</i> , including the construction of appropriate graphs and the evaluation of errors. |
| K4 | CO4 | Obtain the knowledge about the theories of electrolysis and Chemical kinetics. |

Subject code : 20UCH6CP

| | | | |
|--|------------------------|--------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : CORECHEMISTRY PRACTICAL – V APPLICATION ORIENTED PRACTICAL | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 120 | Credits 4 |

Course Objectives

1. To demonstrate the basic laboratory techniques and application oriented physical constants.
2. To prepare organic dyes, organic compounds and home care products.
3. To estimate the hardness of water, DO, available chlorine in bleaching powder and saponification value of an oil.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K1,K2 | CO1 | Gain the knowledge of physical constants and preparation of dyes. |
| K2 | CO2 | Know about the preparation of organic compounds. |
| K2, K4 | CO3 | Learn about the preparation method of home care products. |
| K2, K3 | CO4 | Learn about estimation of hardness of water, dissolved oxygen, saponification of oil and isolation of citric acid. |

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|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : MAJOR ELECTIVE - I POLYMER TECHNOLOGY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 5 |

Course Objectives

1. To know about basics of polymers, polymerization and plastic materials
2. To learn about polymer processing and synthesis of some commercially important polymers and to know about various polymer processes techniques.
3. To know different type of plastics, advancements, disposal, applications

Course Outcomes (CO)

| | | |
|----------------|-----|--|
| K1, K2 | CO1 | Know about the types of polymers, chemical and physical properties, its industrial applications and uses. |
| K2, K3, K4 | CO2 | Understand the various polymerization techniques, processing and different types of individual polymer products. |
| K1, K2, K3, K5 | CO3 | Acquiring knowledge of commercially important polymer products and its applications. |
| K2, K3 | CO4 | know about the recent advances in polymer products and their applications. |

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : MAJOR ELECTIVE - II NANO AND GREEN CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 3 |

Course Objectives

1. To gain knowledge about in - depth look at the basics of Nano Chemistry and to know the methods to prepare Nano materials.
2. To get the knowledge about Green Chemistry and its limitations.
3. To have a holistic idea about Green solvents in laboratory as well as in Industry and also to study the Reactions and applications of Green Chemistry.

Course Outcomes (CO)

| | | |
|------------------------|-----|---|
| K1, K2,K3,K4, K5 | CO1 | To understand the basics of Nano Chemistry To know the methods to prepare Nano materials |
| K2, K3, K4,K5 | CO2 | To have an idea about Green Chemistry and its limitations |
| K1, K2,K3,K5 | CO3 | To gain knowledge about Green solvents in laboratory and also in Industry |
| K2, K3, K4, K5 | CO4 | To study the Reactions and applications of Green Chemistry |

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|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : MAJOR ELECTIVE - III PHARMACEUTICAL CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 5 |

Course Objectives

1. To know about the common diseases and cure-terms of pharmacology and drug action.
2. To get introduced to chemotherapy – antibiotics.
3. To know the drugs meant for diabetes.

Course Outcomes (CO)

| | | |
|-------------------|-----|--|
| K1, K2 | CO1 | gain the knowledge about the common diseases and cure-terms of pharmacology. |
| K2, K3, K4, K5 | CO2 | Understand about chemotherapy – antibiotics. |
| K2,K3,K4 | CO3 | Learn about drugs meant for diabetes. |
| K2, K3, K4 | CO4 | Basic ideas about various health promoting drugs. |

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|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : MAJOR ELECTIVE - IV AGRICULTURAL CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 5 |

Course Objectives

1. To know about basics of soil chemistry and the physical properties of soil.
2. To get introduced to chemistry aspects of soil and various nutrients present in soil- waste for one, food for another.
3. To know the chemistry of pesticides, fungicides and herbicides.

Course Outcomes (CO)

| | | |
|---------|-----|---|
| K1, K2 | CO1 | To gain the knowledge about the origin soil. |
| K3, K4, | CO2 | To understand about physical and chemical properties of soil. |
| K2, K4 | CO3 | To learn about plant nutrients. |
| K2, K3 | CO4 | basic ideas about pesticides, fungicides and herbicides. |

| | | | |
|--|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : MAJOR ELECTIVE - V DAIRY CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 5 |

Course Objectives

1. To know the chemistry of milk and milk products
2. To know the basics of milk proteins, milk lipids, milk carbohydrates, and milk vitamins.
3. To acquire knowledge of dairy products, analyze the constituents of milk products.

Course Outcomes (CO)

| | | |
|---------|-----|--|
| K1, K2 | CO1 | Learning the chemistry of milk and milk products |
| K3, K4, | CO2 | Knowing the basics of milk proteins, milk lipids, milk carbohydrates, and milk vitamins. |
| K2, K4 | CO3 | Understanding the production and composition of milk products. |
| K2, K3 | CO4 | By applying the acquired knowledge of dairy products, analyze the constituents of milk products. |

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|---|------------------------|-------------------|--------------|
| Programme Code: 04 | B.Sc. Chemistry | | |
| Title of the paper : MAJOR ELECTIVE - VI LEATHER CHEMISTRY | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 45 | Credits 5 |

Course Objectives

1. To obtain the knowledge on the structure and composition of the hides, skin and Leather.
2. To know the basic principles involved in the pre-training methods of leather manufacture.
3. To understand the problems caused by tannery effluents and to develop the method to dispose the tannery waste in safe manner.

Course Outcomes (CO)

| | | |
|---------|-----|--|
| K1, K2 | CO1 | Learning the basic principles involved in the pre-training methods of leather manufacture. |
| K3, K4, | CO2 | Understanding the different types of tanning and the physico-chemical principles. |
| K2, K4 | CO3 | Widening a skill on the preparation and chemistry of chrome tanning liquids and their factors involving in it. |
| K2, K3 | CO4 | Gaining the broad idea on the chemical methods of curing and preserving the hides in different medium. |

Subject Code : 20UCH1A1/20UCH2A1

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|---|---|-------------------|--------------|
| | B.Sc., Bio Technology (I Year), Physics (II year), Botany (II Year), Bio-Chemistry (II Year) | | |
| Title of the paper: ALLIED CHEMISTRY PAPER - I | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To understand the fundamentals of Chemical bonding.
2. To study Hybridizations, asymmetry and optical activity of organic molecules.
3. To study the basic principles of thermodynamics and electrochemistry.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K1,K2 | CO1 | Understanding the fundamental aspects of chemical bonding and interhalogen compounds. |
| K1,K2 | CO2 | Learn about the fundamental aspects of Hybridization, stereochemistry which includes asymmetric carbon, optical isomerism, resolution and Geometrical isomerism. |
| K2, K4 | CO3 | Study on the various concepts in Thermodynamics and electrochemistry. |
| K1, K3 | CO4 | Acquiring knowledge about Fuel gases and fertilizers. |

Subject Code : 20UCH1A2/20UCH2A2

| | | | |
|---|---|-------------------|--------------|
| | B.Sc., Bio Technology (I Year), Physics (II year), Botany (II Year), Bio-Chemistry (II Year) | | |
| Title of the paper : ALLIED CHEMISTRY PAPER - II | | | |
| Batch 2020 – 2021 | Hours / Week 4 | Total Hours 60 | Credits 4 |

Course Objectives

1. To know the fundamentals of Coordination compounds.
2. To learn about some natural products, amino acids and proteins.
3. To study about chemical kinetics and synthetic polymer.

Course Outcomes (CO)

| | | |
|--------|-----|--|
| K1,K2 | CO1 | Understanding the fundamental aspects and applications of coordination chemistry. |
| K1,K2 | CO2 | Study on the various heterocyclic compounds, carbohydrates and amino acids which include their classification, preparation and properties. |
| K2, K4 | CO3 | Know about the rates of the reaction. |
| K1, K3 | CO4 | Acquire the knowledge about of synthetic polymers, fibres and plastics. |

Subject Code : 20UCH2AL/20UCH4AL

| | | | |
|--|---|-------------------|--------------|
| | B.Sc., Bio Technology (I Year), Physics (II year), Botany (II Year), Bio-Chemistry (II Year) | | |
| Title of the paper : ALLIED CHEMISTRY PRACTICAL – I VOLUMETRIC AND ORGANIC ANALYSIS | | | |
| Batch 2020 – 2021 | Hours / Week 3 | Total Hours 90 | Credits 2 |

Course Objectives

1. To demonstrate the basic laboratory technique of titration.
2. To gain deep knowledge about analysis of organic substances.
3. To identify the functional groups of unknown compounds.

Course Outcomes (CO)

| | | |
|-------|-----|--|
| K1,K2 | CO1 | Remember the basics of volumetric titrations. |
| K2,K3 | CO2 | Studying the use of indicators for various titrations. |
| K2 | CO3 | Understanding about preliminary analysis of organic compounds. |
| K4 | CO4 | Identification of the functional groups. |