MAHENDRA ARTS & SCIENCE COLLEGE

(Autonomous)

Affiliated to Periyar University, Salem.

Accredited by NAAC with 'A' Grade & Recognized u/s 2(f) and 12(B) of the UGC Act 1956

Kalippatti – 637 501, Namakkal (Dt), Tamil Nadu.

DEPARTMENT OF CHEMISTRY

COURSE OUTCOMES (COs)

B.Sc. CHEMISTRY

PRINCIPAL
MAHENDRA ARTS & SCIENCE COLLEGE
(Autonomous)
Kalippatti (PO) - 637 501, Namakkal (DT)

For the students admitted from the Academic Year 2019-2020 onwards

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH01**		CORE COURSE-I - **GENERAL CHEMISTRY-I**		
Batch **2019 - 2020**	Semester **I**	Hours/Week **7**	Total Hours **105**	Credits **5**

Objectives

This course gives knowledge on atomic structure, electronic configuration, periodic properties, Thermodynamics, hybridization, gaseous state, Volumetric analysis and organic reaction intermediates.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Impart essential theoretical knowledge on atomic structure, electronic structure.	K1
CO2	Sketch the periodic properties and Hydrogen.	K4
CO3	Understand the gaseous and liquid state.	K2
CO4	Know the concept of resonance effect, intermediate structure and stability.	K3
CO5	Apply the Lab safety measures and learn the principles of volumetric analysis.	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP01**		CORE PRACTICAL-I: **INORGANIC VOLUMETRIC ANALYSIS**		
Batch **2019 - 2020**	Semester **I**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

On the successful completion of the course, student will be able to

1. Learn the techniques of volumetric analysis.
2. Acquire the quantitative skills in volumetric analysis
3. Estimate the amount of metal ion and metal in the given solutions.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH02**		CORE COURSE-II - **GENERAL CHEMISTRY-II**		
Batch **2019 - 2020**	Semester **II**	Hours/Week **7**	Total Hours **105**	Credits **5**

Objectives

On accomplishment of this course the students should have understood chemical bonding, hydrides, solid state,Liquid state, organic reaction mechanism and aromaticity.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Acquire knowledge on bonding and bonding theories.	K1
CO2	Learn the hydrides and alkali metals.	K2
CO3	Categorize the reaction mechanisms in organic chemistry.	K4
CO4	Study the types of aromaticity in organic compounds.	K3
CO5	Understand and studythe crystalline structure of solids.	K2

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP02**		COREPRACTICAL-II **ORGANIC AND INORGANIC PREPARATION**		
Batch **2019 - 2020**	Semester **II**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

1. To enable the students to learn the methods of preparing inorganic and organic compounds.
2. To acquire the qualitative skills in preparation.
3. Students will become familiar with safe-handling of chemical reactions.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH03**		CORE COURSE-III - **GENERAL CHEMISTRY-III**		
Batch **2019 - 2020**	Semester **III**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

On fulfillment of this course the students should have understood Transition, Boron group and Carbon group elements, Stereoisomerism in organic chemistry and Thermodynamics first and second Law.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Learn transition elements and the principles of qualitative analysis.	K1
CO2	Study the characteristics of boron and carbon group elements	K2
CO3	Analyze stereo nature and confirmations.	K3
CO4	Understand thermodynamic first laws and its application.	K3
CO5	Understand thermodynamic second laws and thermodynamic functions.	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP03**		CORE PRACTICAL-III– **INORGANIC QUALITATIVE ANALYSIS**		
Batch **2019 - 2020**	Semester **III**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

1. To enable the students to understand the techniques of semi micro qualitative analysis of inorganic salt mixtures.
2. To create an awareness on eco-friendly approach in qualitative analysis.
3. Students become familiar with elimination of interfering acid radicals.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH04**		CORE COURSE-IV - **GENERAL CHEMISTRY-IV**		
Batch **2019 - 2020**	Semester **IV**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

In this course the students should have understood Halogens and Noble Gases, Nanochemistry, Radioactivity, Aliphatic amines,Diazonium compounds and Carbonyl compounds.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Know the characteristics of halogens and noble gases.	K1
CO2	Understand the importance of Nano chemistry and applications.	K2
CO3	Aware of radioactivity and its application.	K3
CO4	Acquire knowledge on amine compounds in organic chemistry.	K2
CO5	Correlate the reactions of Carbonyl Compounds.	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP04**		CORE PRACTICAL-IV – **ORGANIC ESTIMATION & PHYSICAL CONSTANT**		
Batch **2019 - 2020**	Semester **IV**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

On the successful completion of the course, student will be able to

1. Know the fundamental strategies of organic estimation.
2. Estimate the amount of organic compound in the given solutions.
3. Learn the determination of physical constants oforganic compounds.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH05**		CORE COURSE-V- **INORGANIC CHEMISTRY – I**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

This course gives knowledge on Coordination Compounds, Theories of bonding in complexes, Lanthanide and Actinide Elements, Acid base concepts and non aqueous solvents.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts, classification, nomenclature and isomerism in Coordination chemistry	K1
CO2	Understand the theories of bonding in complexes.	K2
CO3	Gain knowledge on reactions and applications of coordination compounds.	K3
CO4	Discuss the chemistry of Lanthanides & actinide series	K4
CO5	Learn about acids and base concept, HSAB theory and non - aqueous solvents	K2

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH06**		CORE COURSE-VI - **ORGANIC CHEMISTRY–I**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

On accomplishment of this course the students should have understoodHeterocyclic compounds, Carbohydrates, Amino acids and Proteins, Nucleic acid, Organometalliccompounds, Organic sulphur compounds and Carboxylic acids.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Learn about Chemistry of Heterocyclic compounds	K1
CO2	Summarise the concept of Carbohydrates	K2
CO3	Acquire the knowledge of Amino acids, Proteins and Nucleic acid	K3
CO4	Illustrate aboutOrganometallic compounds and Organic sulphur compounds	K4
CO5	Knowtheidea of carboxylic acid and Acids derivatives	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH07**		CORE COURSE–VII- **PHYSICAL CHEMISTRY-I**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **5**	Total Hours **75**	Credits **5**

Objectives

On fulfillment of this course the students should have understood Catalysis, Adsorption, Chemical Kinetics and Photochemistry.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Learn about catalysis and their catalytic reactions	K1
CO2	Know about basics of adsorption.	K2
CO3	Understand the concept of Chemical Kinetics and determine the rate law from initial rate.	K2
CO4	Get the principles of Collision theory of reaction ratesand to use Arrhenius equation to calculate rate constant, activation energy, and frequency factor.	K3
CO5	Illustratedifferent photochemical processes and their kinetics.	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP05**		CORE PRACTICAL-V - **ORGANIC ANALYSIS**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

On the successful completion of the course, student will be able to

1. Acquire knowledge about the analysis of simple organic compounds.
2. Create awareness on eco-friendly approach in the analysis.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP06**		CORE PRACTICAL-VI– **PHYSICAL CHEMISTRY EXPERIMENTS**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

On the successful completion of the course, students will be able to

1. Understand the concepts of physical chemistry experiments.
2. Do the physical chemistry experiments.
3. Learn the fundamentals of conductometric and potentiometric titrations.
4. Understand the method of determination of critical solution temperature, transition temperature and rate constant.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH08**		CORE COURSE-VI- **INORGANIC CHEMISTRY-II**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

On accomplishment of this course the students should have understood nitrogen and oxygen group, Organometallic Chemistry, Bio-inorganic Chemistry and metallic bond.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Learn the preparation, properties and structure of nitrogen and oxygen group.	K1
CO2	Understand theChemistry of Organometallic compounds and Structure& bonding of some important Organometallic compounds	K2
CO3	Students understand the various types of Organometallic reactions and catalysis.	K2
CO4	Students understand the bioactivity of proteins, enzymes, metals, vitamins, hemoglobin and myoglobin.	K3
CO5	Conclude the concept of Solid State and properties, theory, type of semiconductors, &defects of Solid.	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH09**		CORE COURSE-I - **ORGANIC CHEMISTRY-II**		
Batch **2019 - 2020**	Semester **IX**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

On successful accomplishment of this course the students should have understood Substitution reactions, Elimination Reactions, Molecular Rearrangement, Oxidation and Reduction,Alkynes and C-C bond formation.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Acquire knowledgeon alkene and alkane.	K1
CO2	Obtain the knowledge of Molecular Rearrangement and naming reactions	K2
CO3	Sketch the concept of Oxidation and Reduction	K3
CO4	IllustrateAlkynes and C-C bond formation	K4
CO5	Understand the mechanisms of some organic reactions	K2

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCH10**		CORE COURSE-X - **PHYSICALCHEMISTRY-II**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **6**	Total Hours **90**	Credits **5**

Objectives

On fulfillment of this course the students should have understood Phase rule andElectro Chemistry principles and applications.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Conquer the concept of phase rule and component systems	K1
CO2	Understand the principle of electrochemistry	K2
CO3	Learn about theory of strong electrolytes	K3
CO4	Get the knowledge of Galvanic cells, Reversible and Irreversible cells	K2
CO5	Illustrate the information about concentration cells	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHP07**		CORE COURSE - PRACTICAL-VII – **INORGANIC ESTIMATION**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **5**	Total Hours **75**	Credits **3**

Course Outcomes

On the successful completion of the course, students will be able to

1. Learn the techniques of gravimetric analysis.
2. Acquire knowledge on gravimetric estimation.
3. Understand the techniques of colorimetry experiments

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHA03**		ALLIED COURSE-III - **ALLIED-III - CHEMISTRY-I**		
Batch **2019 - 2020**	Semester **III**	Hours/Week **6**	Total Hours **90**	Credits **4**

Objectives

On accomplishment of this course the students should have understood acid, base, buffer solution, pH, radioactivity, vitamins, cleaning agents, plastics, paint and varnish.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts of acid base, Buffer solution and pH	K2
CO2	Acquire knowledge about radioactivity and isotopes	K1
CO3	Illustrate Vitamins and some biological related materials	K4
CO4	Sketch about different plastics and its uses	K3
CO5	Extract the preparation of paint and varnish	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHA04**		ALLILEDCOURSE–IV- **ALLIED-IV - CHEMISTRY-II**		
Batch **2019 - 2020**	Semester **IV**	Hours/Week **4**	Total Hours **60**	Credits **4**

Objectives

This course provides knowledge in water, fuel, cement, glass, rubber, drugs and batteries.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the chemistry of water.	K2
CO2	Explain the fuel types and its composition	K1
CO3	Study the manufacture of the cements, glass, rubber	K2
CO4	Relate the importance of drugs	K3
CO5	Device solar cell and batteries	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHAP03**		**ALLIED PRACTICAL-II -CHEMISTRY**		
Batch **2019 - 2020**	Semester **IV**	Hours/Week **3**	Total Hours **45**	Credits **3**

Course Outcomes

On the successful completion of the course, student will be able to

1. Learn the techniques of volumetric analysis.
2. Acquire the quantitative skills in volumetric analysis.
3. Estimate the amount of substance in the given solutions.
4. Acquire knowledge about the analysis of simple organic compounds.

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE01**		ELECTICE-I - **ANALYTICAL CHEMISTRY**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

This course summarizes the basic principles, applications and techniques to understand chromatography, TGA, EGA, colorimetry, water and fuel analysis.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Illustrate the theories, principles and industrial importance of chromatography	K2
CO2	Explains the principles and applications of Thermal analysis method.	K2
CO3	Outline the principles and applications of colorimetry	K3
CO4	Delibratewater quality assessment for portable and industrial uses.	K4
CO5	Infer basic concepts and ultimate analysis for fuels	K1

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE02**		ELECTIVE-I- **POLYMER CHEMISTRY**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

This course import knowledge in polymers preparation, structure, stereochemistry, properties, molecular weight determination and their processing techniques.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Understand basic concepts and classification of polymers.	K2
CO2	Classify the polymer based on stereochemistry of polymers.	K2
CO3	Calculate the molecular weight of polymers by various methods	K3
CO4	Understand variety of Natural and synthetic rubbers.	K2
CO5	Illustrate the different polymer processing techniques	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE03**		ELECTIVE-I– **CHROMATOGRAPHIC TECHINIQUES**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

This course gives idea about the Principles, Isolation, Identification and analysis of various components in mixtures by chromatographic techniques.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Understand and analyze different types of chromatographic techniques	K2
CO2	Examine the significance and applications of Thin layer chromatography	K4
CO3	Understand the basic theoriesand separation techniquesof paper chromatography	K2
CO4	Illustrate the techniques and application of ion exchange chromatography	K4
CO5	Discuss about working technique and application of gas chromatography	K2

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE04**		ELECTIVE-I- **MATERIAL SCIENCE**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **5**	Total Hours **75**	Credits **5**

Objectives

This course gives an insight into the fascinating area of advanced material tools and characterization techniques for magnetic and modern engineering materials.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand basic concepts of inorganic solid electrolytes with ionic conductivity thus enabling solid state batteries and fuel cells.	K2
CO2	Explain the fundamentals of Polarizable solids, Ferro electricity, and magnetism.	K2
CO3	Impart basic knowledge about modern engineering materials and biomaterials.	K1
CO4	Understandbasics of Nanochemistry.	K2
CO5	Recite synthesis and applications of nanomaterials	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE05**		ELECTIVE-II- **DAIRY CHEMISTRY**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

This course provides knowledge about the composition of Milk, Creams and Butter and factors affecting the gross composition of milk also acquire knowledge about the washing procedure using dairy detergents.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Understand the Physico-Chemical aspects of milk.	K2
CO2	Discuss about milk carbohydrate, milk proteins, minerals, water soluble vitamins.	K4
CO3	Apply basic methods using separation of Cream and Butter.	K3
CO4	Explain the manufacturing process of Milk powder and Ice cream.	K4
CO5	Discuss sterilization process and dairy detergents.	K2

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE06**		ELECTIVE-II- **SPECTROSCOPY**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

In this course student can learn the basic principle, instrumentation and identification of various structural compounds by UV, IR, NMR and Mass spectroscopy.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand about interpretation of UV-Visible spectroscopy.	K2
CO2	Analyze basic principles of IR spectroscopy, and different vibration modes of molecule.	K4
CO3	Understand thorough knowledge of the fundamentals of Raman spectroscopy.	K1
CO4	Analyze Interpretation of NMR spectra of simple organic compounds.	K4
CO5	Applythe principle of mass spectrometer and Interpretation of Mass spectra of simple organic compounds.	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE07**		ELECTIVE-II-**BIO-INORGANIC CHEMISTRY**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

This course deals the principles of bioinorganic chemistry, role of bioinorganic molecules in biology and the biological functions of co-ordination complexes

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand typical roles and chemistry of the bioinorganic elements in living system.	K2
CO2	Analyze the role of Alkali and Alkaline Earth Metal Ions for Catalysis and regulation of bioenergeticprocesses.	K4
CO3	Illustrate primary processes in Photosynthesis at the Center of metals.	K1
CO4	Understandessentialrole of Cobalamins for living system.	K2
CO5	Relate body systems involved in the copper homeostasis process.	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHE08**		ELECTIVE-II-**CORROSION SCIENCE**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **5**	Total Hours **75**	Credits **4**

Objectives

This course presents an idea about corrosion types and its reaction mechanism and corrosion prevention techniques.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand basic principles of corrosion science.	K1
CO2	Analyzevarious types corrosion including Crevice Corrosion, Pitting, Intergranular Corrosion.	K4
CO3	Apply the knowledge of a materials composition and its microstructure on its corrosion performance.	K3
CO4	Describe methodologies for predicting, measuring and analyzing corrosion performance of materials.	K2
CO5	Identify materials that will exhibit adequate corrosion resistance of metals.	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHS01**		**SEC-I - FOOD AND NUTRITION**		
Batch **2019 - 2020**	Semester **III**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

Expand and build human and institutional capacity to solve problems of food and nutrition.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Illustrate the concept of Food adulterationand the uses of food.	K4
CO2	Gain awareness about food poisoning.	K3
CO3	Learn knowledge about Food Preservation and Processing.	K2
CO4	Study the Sources and deficiency diseasesof Vitamins.	K2
CO5	Infer Knowledge about Mineral elements in food.	K1

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHS02**		**SEC-II -INDUSTRIAL CHEMISTRY**		
Batch **2019 - 2020**	Semester **IV**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

This course make the students well-grounded in the principles and thorough knowledge of scientific techniques on industrial chemistry.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Acquire knowledge about chemical explosives.	K1
CO2	Transfer the process involved in Leather Industry.	K3
CO3	Extract knowledge about fertilizer and agrochemical industries.	K2
CO4	Relate the role and need of Paints, Varnishes & Cleansing Agents	K2
CO5	Recite the knowledge onconstruction material.	K1

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHS03**		**SEC-III -PHARMACEUTICAL CHEMISTRY**		
Batch **2019 - 2020**	Semester **V**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

This course provides knowledge of human health through safe,efficacious and affordable pharmaceutical interventions**.**

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	**CO Statement**	**Knowledge Level**
CO1	Explain the significance of pharmaceutical terms in the profession.	K1
CO2	Discuss some important method of preparation of drugs and their mechanism.	K2
CO3	Interpret chemical behaviour of the Analgesics.	K4
CO4	Illustrate the importance of Anaesthetics.	K1
CO5	Bringout idea of Diabetics, AIDS and some natural medicinal plants.	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19UCHS04**		**SEC-IV -GREEN CHEMISTRY**		
Batch **2019 - 2020**	Semester **VI**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

This coursehelps to think of chemistry as a sustainable activity.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Classify the principles of green chemistry and sustainable chemistry.	K2
CO2	Sketch the processes of green chemistry.	K3
CO3	Learn alternative solvent media and energy sources for chemical processes.	K2
CO4	Understand the basics of nanochemistry.	K2
CO5	Apply analytical techniques for the synthesis.	K3

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19NCH01**		**NMEC - I - APPLIED CHEMISTRY**		
Batch **2019 - 2020**	Semester **III**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

This course gives a deep insight about the terms, facts and uses involved in material science and general chemistry.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Extract the composition and uses of natural gas, goal gas, semiwater gas.	K2
CO2	Sketch the fertilizers,Pesticides, Insecticides and Herbicides; their role in plant life.	K3
CO3	Understand production of sulphite pulp and conversion into paper in paper industry	K1
CO4	Classify the types of polymers and recognize the basic concepts	K3
CO5	Summarize manufacture and uses of Glass, Cement and Dyes in daily life	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19NCH02**		**NMEC - I - AGRO INDUSTRIAL CHEMISTRY**		
Batch **2019 - 2020**	Semester **III**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

This course gives idea exposure to agricultural chemistry, different methods of cultivation using fertilizers, pesticides,Insecticides, manures.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Interpret the basic concepts of Soil chemistry	K2
CO2	Know the uses of inorganic fertilizers	K1
CO3	Explain General methods of manure preparation and its storage	K2
CO4	Distinguish between the application and toxicity of Insecticides, fungicides and herbicides	K3
CO5	Sketch about the manufacture of sucrose from cane sugar and Beetroot.	K1

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19NCH03**		**NMEC - II - FOOD CHEMISTRYII**		
Batch **2019 - 2020**	Semester **IV**	Hours/Week **2**	Total Hours **30**	Credits **2**

Objectives

This course explains about food processing and different methods of preparing food using additives.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain food science and know about cooking objectives	K1
CO2	Classify the advantage and disadvantages of Microwave cooking & Solar cooking	K2
CO3	Identify food adulterants and Changes in food constituents due to spoilage.	K3
CO4	Examine methods offood preservation	K1
CO5	Analyze the functions and uses of food additives.	K4

Programme Code: **UCH**		**B.Sc. Chemistry**		
Course Code: **M19NCH04**		**NMEC - II - BIOLOGICAL CHEMISTRY**		
Batch	Semester	Hours/Week	Total Hours	Credits
2019 - 2020	**IV**	**2**	**30**	**2**

Objectives

This course describes the major role and function of nucleic acid, Vitamins and Minerals in biological functions of hormones and enzymes.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Acquire knowledge about essential and nonessential of amino acids for living system	K1
CO2	Explain the classification and biological functions of carbohydrate and lipids	K2
CO3	Illustrate the Deficiency diseases of Vitamins A, C, K, E1 and B6.	K4
CO4	List out deficiency disease for micro and macro minerals for Human health	K2
CO5	Predict biochemical functions ofenzymes and hormones for living system	K3

Head of the Department

HOD, Department of Chemistry,
MAHENDRA ARTS & SCIENCE COLLEGE
Kalippatti (PO.), Namakkal (Dt.)

Principal

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DEPARTMENT OF CHEMISTRY

PROGRAMME OUTCOMES (POs) OF B.Sc. CHEMISTRY

Academic year 2020-2021

PO1: Graduates will gain and apply knowledge of Chemistry, Science and Technology concepts to solve problems related to field of Chemistry.

PO2: Graduates will be able to decide and apply appropriate tools and techniques in chemical manipulation.

PO3: Graduates will be able to justify societal, health, safety and legal issues and understand his responsibilities in chemistry practices.

PO4: Graduates will be able to undertake any responsibility as an individual and as a team in a multidisciplinary environment.

PO5: Graduates will have thorough knowledge in sciences and will also be ready to engage themselves in lifelong learning.

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DEPARTMENT OF CHEMISTRY

PROGRAMME SPECIFIC OUTCOMES (PSOs) OF B.Sc. CHEMISTRY

Academic year 2020-2021

PSO 1: Graduate will learn the applications of chemical agents to provide goods and services for human community by materials processing.

PSO 2: Graduate will pursue higher education and research in reputed institute at National and International level.

PSO 3: Graduate will understand the impact of chemistry on basic human needs such as Agriculture, Industry, Medicine, Environment etc.

PSO 4: Graduate will enrich the knowledge of students on current scenario in chemistry.

PSO 5: Graduate will work as entrepreneurs and technologist with strong ethics and practical skills.

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