

K.M.G. COLLEGE OF ARTS & SCIENCE, GUDIYATTAM.
P.G. & RESEARCH DEPARTMENT OF CHEMISTRY
Programme Name : M.Sc., CHEMISTRY

<u>S.No</u>	<u>OUTCOMES</u>
PO1	Domain knowledge: Demonstrate knowledge of basic concepts, principles and applications of the specific science discipline.
PO2	Resource Utilisation: Cultivate the skills to acquire and use appropriate learning resources including library, e
PO3	Analytical and Technical Skills: Ability to handle/use appropriate tools/techniques/equipment with an understanding of the standard operating procedures, safety aspects/limitations.
PO4	Critical thinking and Problem solving: Identify and critically analyse pertinent problems in the relevant discipline using appropriate tools and techniques as well as approaches to arrive at viable conclusions/solutions.
PO5	Project Management: Demonstrate knowledge and scientific understanding to identify research problems, design experiments, use appropriate methodologies, analyse and interpret data and provide solutions. Exhibit organisational skills and the ability to manage time and resources.
PO6	Individual and team work: Exhibit the potential to effectively accomplish tasks independently and as a member or leader in diverse teams, and in multidisciplinary settings.
PO7	Effective Communication: Communicate effectively in spoken and written form as well as through electronic media with the scientific community as well as with society at large. Demonstrate the ability to write dissertations, reports, make effective presentations and documentation.
PO8	Environment and Society: Analyse the impact of scientific and technological advances on the environment and society and the need for sustainable development.
PO9	Ethics: Commitment to professional ethics and responsibilities.
PO10	Life-long learning: Ability to engage in life-long learning in the context of the rapid developments in the discipline.

Program specific Outcomes:

<u>S.No</u>	<u>OUTCOMES</u>
PSO-1	Apply principles of pharmaceutical chemistry, medicinal chemistry, analytical chemistry, organometallic chemistry, supramolecular chemistry, chemical process and laboratory skills for volumetric analysis, synthesis, separation, isolation and formulation.
PSO-2	Work with professional ethics in quality control and quality assurance sections of R&D sectors of different research laboratories
PSO-3	Apply knowledge of chemistry to excel in higher studies and field of research.
PSO-4	Application of research skills to pursue doctoral programme.
PSO-5	To be in a noble profession of teaching and helping in nation building.

SEMESTER I

Sub.Name: ORGANIC CHEMISTRY-I

No.of Hours per week:4

Sub.Code:MCH11

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-1 (REGULATION: 2017-2018)	ORGANIC CHEMISTRY-I	04	CO1-The student will be able to Describe the concept of Stereochemistry CO2-Illustrate the importance of Conformation CO3-Analyze the mechanism of Aliphatic and Aromatic Substitution reactions CO4-cquire knowledge on the various concepts of reaction kinetics and mechanism CO5-To make the students learn and understand the concept of stereochemistry, conformational analysis and their application in the determination of reaction mechanism. CO6-To understand the mechanism of nucleophilic and electrophilic substitution reactions.

ORGANIC CHEMISTRY-I

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	S	S	M
CO2	S	M	M	S	M	S	S	M	S	M
CO3	S	M	S	S	S	M	M	S	S	S
CO4	M	M	S	S	M	S	S	S	S	M
CO5	M	S	M	M	S	M	S	M	M	S
CO6	S	M	S	S	S	M	M	S	S	S

SEMESTER I

Sub.Name: INORGANIC CHEMISTRY-I

No.of Hours per week:4

Sub.Code:MCH12

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-1 (REGULATION: 2017-2018)	INORGANIC CHEMISTRY-I	03	CO1-Gain knowledge about the structure and bonding of Inorganic compounds. CO2-Explain Isopolyacids and heteropolyacids of Vanadium, Chromium, Molybdenum and Tungsten. CO3-Describe the structure, properties, correlation and applications of some Inorganic CO4-Polymers. Illustrates the chemistry of metal clusters. CO5-Discuss polyhedral boranes, carboranes and metallocarboranes. CO6-Explain the stability constant of coordination complexes. CO7-Apply the stereo chemistry for coordination complexes.

INORGANIC CHEMISTRY-I

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	M	M	S	M	M	M
CO2	S	M	M	S	M	S	S	S	M	S
CO3	S	M	S	S	S	M	M	S	S	M
CO4	S	M	S	S	M	S	S	M	M	S
CO5	M	S	M	M	S	M	S	M	S	M
CO6	S	M	S	S	S	M	M	S	S	M
CO7	S	M	S	S	M	S	S	M	M	S

SEMESTER I

Sub.Name: PHYSICAL CHEMISTRY-I

No.of Hours per week:4

Sub.Code:MCH13

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-1 (REGULATION: 2017-2018)	PHYSICAL CHEMISTRY -I	03	CO1-Explain partial molar properties and the concept of fugacity. CO2-Describe the phase diagrams of three component systems involving solid-liquid CO3-Describe the phase diagrams of three component systems involving liquid-liquid equilibria CO4-Gain the knowledge about micelles, surfactants, structure and stability of colloids. CO5-Illustrate the effect of pressure CO6- dielectric constant and ionic strength of the solution on the rate of the reaction.

PHYSICAL CHEMISTRY –I

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	S	M	M
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	M	S	M	M	M	S	M
CO4	M	M	S	S	M	S	S	S	M	S
CO5	M	S	M	M	S	M	S	M	S	M
CO6	S	M	S	M	S	M	M	M	S	M

SEMESTER I

Sub.Name: ADVANCE POLYMER CHEMISTRY

No.of Hours per week:3

Sub.Code:MCH14A

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-1 (REGULATION: 2017-2018)	ADVANCE POLYMER CHEMISTRY	03	CO1-Understand the morphology and applications of polymers. CO2-Have the knowledge on classification, nomenclature and properties of polymers. CO3-Adequate knowledge on kinetics and mechanism of polymerisation. CO4-Understanding on characterization of polymers.

ADVANCE POLYMER CHEMISTRY:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	S	M	S
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	S	S	M	M	S	M	M
CO4	M	M	S	S	M	S	S	S	S	S

SEMESTER II

Sub.Name: ORGANIC CHEMISTRY-II

No.of Hours per week:4

Sub.Code:MCH 21

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018))	ORGANIC CHEMISTRY-II	03	CO1-Elucidate the mechanism of addition and elimination reactions CO2-Appreciate the synthetic usage of various oxidizing and reducing reagents CO3- Illustrate the synthesis of heterocycles CO4- To learn the chemistry of terpenes, alkaloids and free radicals and their importance.

ORGANIC CHEMISTRY-I

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	S	M	S
CO2	S	M	M	S	M	S	S	M	S	M
CO3	S	M	S	S	S	M	M	S	S	S
CO4	M	M	S	S	M	S	S	S	M	S

SEMESTER II

Sub.Name: INORGANIC CHEMISTRY-II

No.of Hours per week:4

Sub.Code:MCH 22

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018)	INORGANIC CHEMISTRY-II	04	CO1-Explain about the structure and properties of solids. CO2-Describe the types of Nuclear reactions. CO3-Explain about the stellar energy. CO4-Discuss the types of Nuclear reactors. CO5-Illustrate the radio analytical methods CO6-Describe the chemistry of lanthanides and actinides. CO7-Applying Nanotechnology to various metals.

INORGANIC CHEMISTRY-II

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	M	S	M
CO2	S	M	M	S	M	S	S	S	M	S
CO3	S	M	S	S	S	M	M	S	M	M
CO4	M	M	S	S	M	S	S	M	M	S
CO5	M	S	M	M	S	M	S	M	S	M
CO6	S	M	M	S	M	S	S	S	M	S
CO7	S	M	S	S	S	M	M	S	M	M

SEMESTER II

Sub.Name: PHYSICAL CHEMISTRY-II

No.of Hours per week:4

Sub.Code:MCH 23

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018)	PHYSICAL CHEMISTRY -II	03	CO1-Describe the rate expression for complex reactions and experimental study of fast reactions. CO2-Describe Debeye-Huckel limiting law and Bronsted equation. □ CO3-Explain the structures of double layer and deriving Lippmann equation. CO4-Apply group theory and finding the symmetries and point group to construct CO5-character tables of C _{2v} and C _{3v} .

PHYSICAL CHEMISTRY –II

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	M	M	M
CO2	S	M	M	S	M	S	S	S	S	S
CO3	S	M	S	S	S	M	M	M	S	M
CO4	M	M	S	S	M	S	S	S	M	S
CO5	M	S	M	M	S	M	S	M	S	M

SEMESTER II

Sub.Name: MODERN SEPARATION TECHNIQUES

No.of Hours per week:3

Sub.Code:MCH 24A

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018)	MODERN SEPARATION TECHNIQUES	03	CO1-Have knowledge on principles on chromatography. CO2-Working knowledge on gas and HPCL chromatographic techniques. CO3-Adequate knowledge on application of ion-exchange chromatography.\ CO4-Understanding on solvent extraction CO5- Understanding on distillation techniques

MODERN SEPARATION TECHNIQUES:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	M	M	S
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	S	S	M	M	S	M	S
CO4	M	M	S	S	M	S	S	M	S	S
CO5	M	S	M	M	S	M	S	S	M	M

SEMESTER II

Sub.Name: ORGANIC CHEMISTRY-PRACTICAL-I

No.of Hours per week:4

Sub.Code:MCH 25

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018)	ORGANIC CHEMISTRY- PRACTICAL-I	03	CO1-An ability to separate the mixture of organic compounds CO2-An ability to analyse the compounds separated from the mixture by chemical analysis CO3-Ability to find out the melting and boiling points of the compounds CO4- Ability to prepare organic compounds by two or three steps

ORGANIC CHEMISTRY-PRACTICAL1

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	M	S	S
CO2	S	M	M	S	M	S	S	S	M	M
CO3	S	M	S	S	S	M	M	S	M	S
CO4	M	M	S	S	M	S	S	M	M	S

SEMESTER II

Sub.Name: INORGANIC CHEMISTRY-PRACTICAL-I

No.of Hours per week:4

Sub.Code:MCH26

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018)	INORGANIC CHEMISTRY- PRACTICAL1	03	CO1-Use double burette method and burette –pipette methods for titration CO2 -Prepare standard solutions CO3-Conduct acid base titrations, complexometric titrations and redox titrations like permanganometry, dichrometry and iodometric-iodimetric titrations. CO4-An ability to analyse the cation mixture CO5-Ability to estimate the ions by complexometric titrations CO6-Ability to find out intensity of colour using colorimetric methods

INORGANIC CHEMISTRY- PRACTICAL-1

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	S	M	M
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	S	S	M	M	M	S	M
CO4	M	M	S	S	M	S	S	M	S	S
CO5	M	S	M	M	S	M	S	S	S	M
CO6	M	M	S	S	M	S	S	M	S	S

SEMESTER II

Sub.Name: PHYSICAL CHEMISTRY- PRACTICAL1

No.of Hours per week:4

Sub.Code:MCH 27

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – I YEAR SEMESTER-2 (REGULATION: 2017-2018)	PHYSICAL CHEMISTRY- PRACTICAL1	03	CO1- Explain the Thermodynamics of ideal and Non-ideal solutions, Nernst distribution law and its applications. CO2- Draw and explain phase diagrams of one Component and two Component systems having congruent and incongruent melting points. CO3- Derive law of Chemical equilibrium and Van't Hoff isotherm. CO4- Determine molar mass from the colligative properties. CO5- Explain variation of conductivity with dilution, measurement of conductivity and concept of Transport Number and its determination. CO6- Explain Debye-Huckel Theory of strong electrolytes.

PHYSICAL CHEMISTRY- PRACTICAL -I

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	S	M	M
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	S	S	M	M	M	M	S
CO4	M	M	S	S	M	S	S	S	S	M
CO5	M	S	M	M	S	M	S	S	M	M
CO6	M	S	S	S	M	M	S	S	M	M

SEMESTER III

Sub.Name: ORGANIC CHEMISTRY-III

No.of Hours per week:4

Sub.Code:MCH31

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-3 (REGULATION: 2017-2018)	ORGANIC CHEMISTRY-III	04	CO1- To understand the concepts of spectral techniques and to apply these techniques for the quantitative and structural analysis of organic compounds. CO2-To learn the chemistry of terpenes, alkaloids and free radicals and their importance. CO3-Visualize the importance of UV-Visible and IR spectroscopy. CO4-Acquire knowledge of vibrational transition and identify various functional groups CO5-Apply the concept of Mass spectroscopy to different compounds CO6-Elucidate the structure of organic compounds using NMR CO7-Solve photochemical and pericyclic problems CO8-Illustrate the synthesis of heterocycles

ORGANIC CHEMISTRY-III

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	M	M	S
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	S	S	M	M	S	M	M
CO4	M	M	S	S	M	S	S	M	S	S
CO5	M	S	M	M	S	M	S	S	M	S
CO6	S	M	M	S	M	S	S	M	S	M
CO7	S	M	S	S	S	M	M	S	S	S
CO8	M	M	S	S	M	S	S	S	S	M

SEMESTER III

Sub.Name: INORGANIC CHEMISTRY-III

No.of Hours per week:4

Sub.Code:MCH32

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-3 REGULATION: (2017-2018)	INORGANIC CHEMISTRY-III	04	<p>CO1-To study about the Coordination complexes, Substitution in Coordination complexes and Inorganic Photochemistry.</p> <p>CO2-Explain about carbon donors</p> <p>CO3-Describe the structure and bonding of metallocenes (ferrocenes)</p> <p>CO4-Illustrate the different types of reaction of organo metallic compounds.</p> <p>CO5-Discuss the various catalysis processes in organo metallic chemistry.</p> <p>CO6-Explain the Electron transfer reactions of coordination compounds.</p> <p>CO7-Describe the various substitution reactions of coordination compounds.</p> <p>CO8-Analyse various types of photochemical reactions.</p>

ORGANIC CHEMISTRY-III

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	S	S	M	M	S	M	M	S
CO2	S	M	M	S	M	S	S	M	S	S
CO3	S	M	S	S	S	M	M	S	M	M
CO4	M	M	S	S	M	S	S	M	S	S
CO5	S	M	S	S	S	M	M	S	M	M
CO6	M	M	S	S	M	S	S	M	S	S
CO7	M	S	M	M	S	M	S	S	M	S
CO8	S	M	M	S	M	S	S	M	S	M

SEMESTER III

Sub.Name: PHYSICAL CHEMISTRY III

No.of Hours per week:4

Sub.Code:MCH33

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-3 REGULATION: (2017-2018)	PHYSICAL CHEMISTRY III	04	CO1-To study the electrochemical kinetics, over potential, corrossions and fuel cells. CO2-To know the solid state and its properties. To Study the principles and applications of spectroscopy. CO3-To study statistical thermodynamics, CO4-Derive Butler-Volmer equation and explain Pourbaix and Evan’s diagram of corrosion. CO5-Explain electrical and magnetic properties of solids. CO6-Describe the basic principles and applications of microwace, vibrational, Raman, NMR and electronic spectroscopy. CO7-Compare Maxwell-Boltzmann and Fermi-Dirac and Bose-Einstein statistics.

PHYSICAL CHEMISTRY III

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S
CO6	S	S	M	S	S	M	S	M	S	M
CO7	M	S	S	M	M	S	S	S	M	S

SEMESTER III

Sub.Name: SCIENTIFIC RESEARCH METHODOLOGY No.of Hours per week:3

Sub.Code: MECH34A

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-3 REGULATION: (2017-2018)	SCIENTIFIC RESEARCH METHODOLOGY	03	CO1-To study about the importance of research, CO2- To study about literature survey CO3-To study about statistical treatment. CO4-To study about the conventions of writing thesis. CO5- To study about error analysis.

SCIENTIFIC RESEARCH METHODOLOGY

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S

SEMESTER IV

Sub.Name: ORGANIC CHEMISTRY-IV

No.of Hours per week:4

Sub.Code: MCH 41

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	ORGANIC CHEMISTRY-IV	04	CO1-To understand the concepts of Aromaticity, Photochemical Reactions, Antibiotics and proteins. Applications and Techniques of Dyeing CO2-Develop problem solving skills requiring application of chemical reaction. CO3-Acquire knowledge of terpenes and alkaloids. CO4-Elucidate the structure of proteins and nucleic acids. CO5-Solve problems related to molecular rearrangements CO6-Attain skills on separation and purification of organic compounds.

ORGANIC CHEMISTRY-IV

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S
CO6	S	S	M	S	S	M	S	M	S	M

SEMESTER IV

Sub.Name: INORGANIC CHEMISTRY-IV

No.of Hours per week:4

Sub.Code: MCH 42

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	INORGANIC CHEMISTRY-IV	04	CO1-To study about the Inorganic Spectroscopy and Nuclear Chemistry CO2-Explain the different types of inorganic spectra and also interpretation. CO3-Applying and interpreting ESR spectrums of various inorganic compounds. CO4-Describe Koopman's theorem, structure, chemical shift. CO5-correlation with electronic charges of photo electron spectroscopy. CO6-Illustrate the principle, instrumentation and applications of AAS, AES and AFS.

INORGANIC CHEMISTRY-IV

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S
CO6	S	S	M	S	S	M	S	M	S	M

SEMESTER IV

Sub.Name: PHYSICAL CHEMISTRY IV

No.of Hours per week:4

Sub.Code: MCH 43

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	PHYSICAL CHEMISTRY IV	04	CO1-To study the principles of photochemical reactions. CO2-To study the Experimental methods and kinetics studies of photochemical reactions. CO3-Study of electrode - electrolytic interface. CO4-To study the fundamental principles of quantum chemistry and its application to chemical bonding. CO5- Schrödinger wave equation and its applications. CO6-To study statistical thermodynamics, quantum statistics and irreversible thermodynamics.

PHYSICAL CHEMISTRY IV

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S
CO6	S	S	M	S	S	M	S	M	S	M

SEMESTER IV

Sub.Name: ENVIRONMENTAL CHEMISTRY

No.of Hours per week:3

Sub.Code: MCH44A

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	ENVIRONMENTAL CHEMISTRY	03	CO1-To understand the concept of different types of pollution. CO2-Knowledge on sampling techniques. CO3- Classification of water pollutants: DOD,BOD CO4-To learn the various techniques involved in the analysis of pollutants. CO5-To know the methods for the control of pollution

ENVIRONMENTAL CHEMISTRY

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S

SEMESTER IV

Sub.Name: ORGANIC CHEMISTRY- PRACTICAL-2

No.of Hours per week:4

Sub.Code: MCH45

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	ORGANIC CHEMISTRY- PRACTICAL-2	03	CO1-Students can expertise the estimation of reducing sugar, amino group, phenolic group CO2-Students can expertise the estimation of esters volumetrically CO3- Students can expertise the estimation of vitamin A, drugs and anti-biotics colorimetrically CO4-Students will expertise the extraction of natural products and purification by column and TLC CO5-Students can expertise preparation of TLC plate activation and identification of compounds dyes,food additives, food colours, amino acids, sugars, pesticides and herbicides

ORGANIC CHEMISTRY- PRACTICAL-2

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S

SEMESTER IV

Sub.Name: ORGANIC CHEMISTRY- PRACTICAL-2

No.of Hours per week:4

Sub.Code: MCH46

Course Outcomes

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	INORGANIC CHEMISTRY- PRACTICAL-2	03	CO1-Ability to quantitatively separate binary mixtures of ions in solution CO2-Estimation by volumetric, colorimetric CO3Estimation by gravimetric methods CO4- Ability to separate binary mixtures by ion-exchange method CO5- Ability to prepare inorganic complexes

INORGANIC CHEMISTRY- PRACTICAL-2

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S

SEMESTER IV

Sub.Name: PHYSICAL CHEMISTRY- PRACTICAL-2

No.of Hours per week:4

Sub.Code: MCH47

Course Outcome:

Semester	Course Name	Course Credit	Course Outcomes
M.Sc – II YEAR SEMESTER-4 REGULATION: (2017-2018)	PHYSICAL CHEMISTRY- PRACTICAL 1	03	CO1- Draw and explain phase diagrams of one Component and two Component systems having congruent and incongruent melting points. CO2- Derive law of Chemical equilibrium and Van't Hoff isotherm. CO3- Determine molar mass from the colligative properties. CO4- Explain variation of conductivity with dilution, measurement of conductivity and concept of Transport Number and its determination. CO5- Explain Debye-Huckel Theory of strong electrolytes.

PHYSICAL CHEMISTRY- PRACTICAL 2

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S

SEMESTER IV

Sub.Name: BASICS OF FORENSIC SCIENCE

No.of Hours per week:3

Sub.Code:

Course Outcome:

Semester	Course Name	Course Credit	Course Outcomes
OPEN ELECTIVE	BASICS OF FORENSIC SCIENCE	03	CO1- Learn the concept and basics of forensic sciences CO2- Gaining the knowledge of microanalysis of DNA CO3- Describing the forensic engineering CO4- Describing the finger print analysis CO5- Explaining the legal aspects and trace analysis

BASICS OF FORENSIC SCIENCE:

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	S	M	M	S	S	M	S	M	M
CO2	S	M	S	M	M	S	M	M	S	S
CO3	M	M	S	S	S	M	S	M	S	M
CO4	S	S	M	S	S	S	S	S	M	M
CO5	S	M	S	M	M	S	M	S	M	S

HOD