College Code : 7631

ಎಸ್.ಈ.ವಿ. ವಿಜ್ಞಾನ ವಾಣಿಜ್ಯ ಮತ್ತು ಕಲಾ ಕಾಲೇಜು

(ಬೆಂಗಳೂರು ಉತ್ತರ ವಿಶ್ವವಿದ್ಯಾಲಯದಿಂದ ಸಂಯೋಜನೆಗೊಂಡಿದೆ ಹಾಗೂ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಮಾನ್ಯತೆ ಪಡೆದಿದೆ)

S.E.A COLLEGE OF SCIENCE, COMMERCE & ARTS

(Affiliated to Bengaluru North University, and Recognized by Govt. of Karnataka)

NAAC Accredited with 'B' Grade

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Department of Post-Graduation

In Chemistry

PO & CO

Master of Organic Chemistry	
PROGRAMME OUTCOME	**PO1 Knowledge** Capable of demonstrating comprehensive disciplinary knowledge gained during course of study **PO2 Research Aptitude** Capability to ask Levant/appropriate questions for identifying, formulating and analyzing the research problems and to draw conclusion from the analysis **PO3 Communication** Ability to communicate effectively on general and scientific topics with the scientific community and with society at large **PO4 Problem Solving** Capability of applying knowledge to solve scientific and other problems **PO5 Individual and Team Work** Capable to learn and work effectively as an individual, and as a member or leader in diverse teams, in multidisciplinary settings. **PO6 Investigation of Problems** Ability of critical thinking, analytical reasoning and research based knowledge including design of experiments, analysis and interpretation of data to provide conclusions **PO7 Modern Tool usage** Ability to use and learn techniques, skills and modern tools for scientific practices **PO8 Science and Society** Ability to apply reasoning to assess the different issues related to society and the consequent responsibilities relevant to the professional scientific practices **PO9 Life-Long Learning** Aptitude to apply knowledge and skills that are necessary for participating in learning activities throughout life **PO10 Ethics** Capability to identify and apply ethical issues related to one‘s work, avoid unethical behaviour such as fabrication of data, committing plagiarism and unbiased truthful actions in all aspects of work **PO11 Project Management** Ability to demonstrate knowledge and understanding of the scientific principles and apply these to manage project

PROGRAM SPECIFIC OUTCOMES (PSOs)

The program specific outcomes (PSO's) are the statement of competencies/abilities that describes the knowledge and capabilities of the post-graduate will have by the end of program studies. After successful completion of M. Sc. organic Chemistry, the students will be able to

PSO1	The detailed functional knowledge of theoretical concepts and experimental aspects of chemistry.
PS01	To integrate the gained knowledge with various contemporary and evolving areas in chemical sciences like analytical, synthetic, pharmaceutical etc.
PSO3	To understand, analyze, plan and implement qualitative as well as quantitative analytical synthetic and phenomenon-based problems in chemical sciences.
PSO4	Provide opportunities to excel in academics, research or Industry.

SEMESTER I

ORGANIC CHEMISTRY I	**CO1:** Students attained the detail knowledge of biomolecules like carbohydrates & vitamins . **CO2** :student attained the knowledge of synthesis of heterocyclic compounds and their biological uses
INORGANIC CHEMISTRY I	**CO 1**: To predict the nature of the bond formed between different elements **CO 2**: Student able to attained the knowledge of nuclear active elements **CO 3**: To explain covalent nature in ionic compounds **CO 4:** To write the M.O. energy diagrams for diatomic molecules
PHYSICAL CHEMISTRY I	**CO 1** To describe the limitations of Classical Mechanics which necessitated the development of Quantum Mechanics. **CO 2**: To solve the Schrodinger's equation to obtain wave function for a basic type of Potential in one dimension and predict the shapes of orbitals as well as probability Distributions **CO 3**: To justify the need for quantum mechanical structure of atoms

BIOPHYSICAL BIOORGANIC AMS MEDICINAL CHEMISTRY	**CO 1** Student attained the detail knowledge on Bioenergetics and properties of water **CO 2** Students attained the detail knowledge on , biopolymers application and activities. **CO 3** students attained drug discovery and application and classification **CO 4** students attained fatty acids and metabolism **CO 5** students attained medicine and terminology in medicinal chemistry
PHOTO CHEMISTRY	**CO 1** Student are able to understand importance of photochemistry and its laws **CO 2** Students attained Quantum mechanical formulation **CO 3** Students attained the knowledge of semiconductor and photo electrochemistry

SEMESTER II

INORGANIC CHEMISTRY II	**CO1** Electronic spectra of coordina medition compunds; students gained knowledge about spectroscopic gound state, orgel diagrams, Tanaube-Sugano diagrams, spectral properties of Lanthanides and actinides metal complexes **CO2** Magnetic properties of coordination compounds; students gained knowledge about types of magnetic behaviour, susceptibility and its determination, photochemical reactions of transition metal complexes
ORGANIC CHEMISTRY II	**CO1** Students gained detailed knowledge on rearrangement reaction of organic compounds and their mechanism **CO2** Students gained knowledge on Vitamins, synthesis and their biological roles **CO3** Students gained detailed knowledge on Amino acids and peptides synthesis
PHYSICAL CHEMISTRY II	**CO 1**. Students gained knowledge in thermodynamics-I: partial molar properties, phase rule, introduction to statistical thermodynamics **CO 2**. Students are able to understand concept of distribution laws of statistical thermodynamics and non equilibrium thermodynamics **CO 3**. Students gained knowledge in Electrochemistry: Debye-Huckel theory of strong electrolytes, Thermodynamics of electrified interfaces **CO 4**. Students gained knowledge in Electrochemistry-II; Structure of electrical double layers, over potential, polarography
SPECTROSCOPHY I	**C O 1**Students attained knowledge of Group ,subgroup and simple theory of group theory **CO 2** Students able to understand different type of spectroscopy and properties **CO 3** Students attained the Mulliken symbols for irreducible representation

MATHEMATICS FOR CHEMSIT	**CO 1** Students able to solve the problems on inverse, crammers rule determinants of matrices etc **C0 2** Students able to solve problems on differentiation ,maxima and minima problems **CO 3** Problems on integration, Integra by parts, spherical and cylindrical coordinates and Fourier series, permutations and combinations

SEMESTER III

ORGANIC REACTION MECHANISMS	**CO 1** Organic Reaction Mechanism- Offers aliphatic substitution reactions, free radical chemistry, photochemistry and pericyclic chemistry and structural, mechanistic, functional and regulatory aspects of enzymes and coenzymes. **CO 2** Students are getting exposed to various sort of reactions with different mechanistic approach. **CO 3** All these preliminary concepts will be continued through Organic reaction paper-II. **CO 4** This paper gives the knowledge of advanced biochemical reaction, photochemistry and pericyclic chemistry to students by the end of the course
CHEMISTRY OF NATURAL PRODUCTS	**CO 1** Students attained the knowledge of Terpenoids and carotenoids **CO 2** Students attained the knowledge of Alkaloids i.e. nomenclature, Isolation, structure elucidation, synthesis and biosynthesis. **CO 3** Students attained the Detailed knowledge of porphyrins-haemin and chlorophyll and vit B12 **CO 4** student learned the detailed knowledge of synthesis of oligonucleotides **CO** 5 Students attained the detail knowledge of synthesis of prostaglandins and Insect Pheromones
ORGANIC SPECTROSCOPY	**CO 1** Organic Spectroscopy- Offers UV- Vis spectroscopy, Infrared Spectroscopy, NMR spectroscopy and Mass Spectroscopy. **CO 2** Students are getting exposed to various spectroscopic techniques which are essential for structural elucidation. **CO 3** This paper gives the knowledge of organic spectroscopy to students by the end of the course **CO 4** At the end of the course students are able to carryout single step synthesis. **CO** 5 At the end of the course students are able to identify the functional group by qualitative analysis **CO 6** At the end of the course students are able to carryout Multi-step synthesis.

SEMESTER IV

ORGANOMETALLIC AND HETROCYCLIC CHEMISTRY	**CO 1** Student able to understand chemistry of organ transition metal complex and their reactions **CO 2** students are able to gain knowledge of carboxylation reaction and their applications **CO 3** At end of course students understand properties and reaction of heterocyclic compounds
STEREOCHEMISTRY AND RETROSYNTHETIC ANALYSIS	**CO 1** Student's are able to distinguish between optical active complex compounds in absence of chiral atoms and presence in hetero atoms **CO 2** Student's gain knowledge about ring synthesis and principle **CO 3** Student's gain knowledge about configuration and optical rotation in a compounds.
ORGANIC SYNTHESIS	**CO 1** Student's gain knowledge about reagents in organic synthesis and their mechanisms. **CO 2** Student's gain knowledge about C-C C-N formation reaction and their mechanisms **CO 3** Student's gain knowledge about oxidation reduction and their mechanisms **CO 4** Oxidising agents and reducing agents and their mechanisms
MEDICINAL ORGANIC CHEMISTRY	**C0 1** Students attained the detail knowledge on steroids **CO2** Students attained the detail knowledge on antibiotics **CO3** Students attained the detail knowledge on synthesis of drugs and their mode of action