

A. S.D.GOV.T.DEGREE COLLEGE FOR WOMEN(A), KAKINADA
DEPARTMENT OF CHEMISTRY
2024-2025

COURSE OUTCOMES

Semester-1

Course – 1: Essentials of Mathematics, Physics, Chemistry & Computer Science
Course Code : BSCM24101

On Completion of the course, the students will be able to		Cognitive Domain
CO1	Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.	Critical Thinking
CO2	To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations	Application
CO3	To Explain the basic principles and concepts underlying a broad range of fundamental areas of chemistry and to Connect their knowledge of chemistry to daily life.	Application
CO4	Trace the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.	Application

Course – 2: Advances of Mathematics, Physics, Chemistry & Computer Science
Course Code : BSCM24102

On Completion of the course, the students will be able to		Cognitive Domain
CO1	Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems.	Application
CO2	To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations.	Application
CO3	Understand the different sources of renewable energy and their generation processes and advances in nanomaterials and their properties.	Application
CO4	Understand and convert between different number systems, such as binary, decimal, and hexadecimal. Differentiate between analog and digital signals and understand their characteristics.	Application

Semester-II
Course -III: GENERAL & INORGANIC CHEMISTRY
Course Code : CHE24201

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	1. Understand the structure of atom and the arrangement of elements in the periodic table.	Understanding
CO2	2. Understand the nature and properties of ionic compounds.	Understanding
CO3	3. Explain the existence of special types of compounds through weak chemical forces.	Application
CO4	4. Define acids and bases and predict the nature of salts.	Application

Course -IV: INORGANIC CHEMISTRY
Course Code :CHE24202

On Completion of the course, the students will be able to	
CO1	Acquire knowledge on preparation and structure and Diborane and Borazole.
CO2	Identify the importance of Interhalogen compounds and pseudo halogens.
CO3	Comprehend the applications of d-block elements and f-block elements.
CO4	Identify the importance of Organo metallic compounds in Organic synthesis.

SECONDYEAR, SEMESTER-III
Course Code 5: Fundamentals in Organic Chemistry
Course Code: CHE23301

On Completion of the course, the students will be able to		Cognitive Domain
CO1	Understand and explain the differential behaviour of organic Compounds based on fundamental concepts learnt.	Critical Thinking
CO2	Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.	Application
CO3	Learn and identify many organic reaction mechanisms.	Application
CO4	Correlate and describe the stereo-chemical properties of organic Compounds and Reactions.	Application

SECOND YEAR, SEMESTER-III
Course Code-6 : Organic Chemistry
Course Code: CHE23302

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Understand the concept of SN ¹ and SN ² mechanisms	Understanding
CO2	Describe the reactivity of alkyl halides, alcohols and phenols.	Application
CO3	Achieve the skills required to propose various mechanisms	Skill
CO4	Apply the concepts for synthesising various Halogen & oxygen containing organic compounds	Application

SECOND YEAR, SEMESTER-III
Course Code-7: Physical chemistry
Course Code: CHE23303

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Understand the ideal and non ideal behaviour of solutions	Understanding
CO2	Discuss the basic concepts of Photochemistry.	Understanding
CO3	Apply the principles of electrical conductivity	Applying
CO4	. Explain the importance of emf and its applications	Applying

SECOND YEAR, SEMESTER-III
Course Code-8 : Inorganic & Physical Chemistry
Course Code: CHE23304

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Understand the IUPAC nomenclature for coordination compounds and apply it for naming these compounds	Understanding
CO2	Understand the basic concepts of thermodynamics	Understanding
CO3	Analyse Reaction mechanism in Inorganic Chemistry, stereo chemistry of coordination compounds and apply trans effect for synthesis of complexes	Application
CO4	Application and problems on 18 electron rule	Application

SECOND YEAR, SEMESTER-IV
Course Code-9: Physical Chemistry-II
Course Code : CHE23401

On Completion of the course, the students will be able to		Cognitive Domain
CO1	Explain the difference between solids liquids and gases in terms of intermolecular interactions.	Critical Thinking
CO2	Differentiate ideal and real gases.	Application
CO3	Discuss the basic concepts of two component systems	Application
CO4	Understand the basic concepts of crystallography.	Application

SECOND YEAR, SEMESTER-IV

Course Code-10: General & Physical Chemistry

Course Code : CHE23402

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Correlate and describe the stereochemical properties of organic compounds	Applying
CO2	Understand the biological significance of various elements present in the human body	Understanding
CO3	Apply the concepts of ionic equilibrium for the qualitative and quantitative analysis	Analysis
CO4	Determine the order of a chemical reaction and learn basic concepts of enzyme catalysis	Applying

SECOND YEAR, SEMESTER-IV

Course Code-11 : Nitrogen containing Organic

Compounds & Spectroscopy

Course Code : CHE23403

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Analyse the importance of natural products like aminoacids, proteins in biological system and synthesize them	Understanding
CO2	Acquire knowledge about the preparation, applications of Nitrohydrocarbons and Nitrogen Compounds	Applying
CO3	Acquire knowledge about the preparation and application of heterocyclic compounds which enables the synthesis of new organic compound	Understanding
CO4	Apply the concepts of UV and IR to ascertain the functional group in an organic compound.	Critical thinking

SEMESTER– V**Paper 6 - D (ENVIRONMENTAL CHEMISTRY)****Course Code : CHE205305-6D**

On Completion of the course, the students will be able to		Cognitive Domain
CO1	Understand the environment functions and how it is affected by human activities.	Applying
CO2	Acquire chemical knowledge to ensure sustainable use of the world's resources and ecosystems services.	Understanding
CO3	Engage in simple and advanced analytical tools used to measure the different types of pollution.	Analysis
CO4	Analyze key ethical challenges concerning biodiversity and understand the moral principles, goals and virtues important for guiding decisions that affect Earth's plant and animal life.	Applying

SEMESTER– V**Paper 7-D (GREEN CHEMISTRY AND NANOTECHNOLOGY)****Course code: CHE205306-7D**

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Understand the importance of Green chemistry and Green synthesis, green solvents in synthesis.	Understanding
CO2	Apply Green synthesis methods Microwave assisted organic synthesis, Ultrasound assisted organic synthesis and catalysis.	Applying
CO3	Analyze alternative solvents and sources of energy to carry out green synthesis.	Analysis
CO4	Apply chemical methods of nanomaterial synthesis for synthesis of nanomaterials	Applying

