



# **VIDHYA SAGAR WOMEN'S COLLEGE**

(Affiliated to University of Madras)

**Accredited at 'A' Grade by NAAC**

## **DEPARTMENT OF CHEMISTRY**

### **PROGRAMME OUTCOME:**

**PO1:** Students will demonstrate an understanding of major concepts in all disciplines of chemistry.

**PO2:** Students will get an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.

**PO3:** Students will employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.

**PO-4:** To explain how the applications of chemistry relates to the real world.

**PO-5:** To be familiarized with the emerging areas of Chemistry and their applications in various spheres of chemical sciences and to enlighten the students of its relevance in future studies.

### **PROGRAMME SPECIFIC OUTCOME:**

**PSO-1:** Gain the knowledge of Chemistry through theory and practical.

**PSO-2:** The ability to explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.

**PSO-3:** Identify chemical formulae and solve numerical problems.

**PSO-4:** Know structure-activity relationship.

**PSO-5:** Understand good laboratory practices and safety.

### **COURSE OUTCOME:**

**CO1: GENERAL CHEMISTRY-I** - To enable learners to comprehend the following aspects: the fundamental concepts of atomic structure, periodicity of properties, chemical bonding, and the basic concepts of Organic Chemistry.

**CO2: ALLIED PHYSICS-I** - To enable learners to understand the waves and oscillations, to provide them with better understanding of properties of matter, to understand the concept of thermal physics, to provide them with a better understanding of Electricity and Magnetism, to know about the geometrical optics.

**CO3: GENERAL CHEMISTRY-II** - To equip learners with concepts in comparative studies of s and p block elements, to facilitate them to understand the aspects in gaseous, liquid and solid states, to enable them to understand conformational analysis and addition reaction.

**CO4: ALLIED PHYSICS-II** - To know the basic principles of physical optics, to enable learners to understand the atomic physics, nuclear physics, elements of Relativity and quantum mechanics and electronics.

**CO5: CORE PRACTICALS-I** - Students will gain an understanding of methods of analysis related to chemical analysis goals such as estimation of elements.

**CO6: ALLIED PHYSICS PRACTICALS** - Students will gain an understanding of Young's modulus, Rigidity modulus, Surface and Interfacial tension, Comparison of viscosity of two liquids, specific heat capacity of a liquid, spectrometer, potentiometer, construction of AND, OR, NOT and NAND gates.

**CO7: NME 1-CHEMISTRY IN EVERY DAY LIFE**- To enable the learners to learn about chemical components of air and water and the factors affecting that. To know about the composition of building materials, some useful polymers, components of food and nutrition, cosmetics, fertilizers, fuels, pharmaceutical drugs, colour chemicals and explosives.

**CO8: NME 2-FOOD CHEMISTRY**- To enable the learners to learn about food adulteration, food poison, food additives, beverages, and edible oils.

**CO9: GENERAL CHEMISTRY-III** - To enable learners to understand the chemistry of p-block elements, to facilitate them with concepts in colloids, to provide them with a better understanding of mechanisms of substitution and elimination reactions.

**CO10: ALLIED MATHS-I** - To Provide learners with a knowledge of Algebra, Matrices, Theory of equations, Trigonometry, Differentiation.

**CO11: INORGANIC CHEMISTRY – I** - To know the basic principles of metallurgy. To understand chemistry of d-block elements, to know the chemistry of members of f-block

elements, to understand the chemistry of organometallic compounds and their synthetic uses, to know metallic bonding and the closed packed arrangement of atoms, to understand the conducting behaviour of metals and to understand the basic concepts of nuclear chemistry.

**CO12: ALLIED MATHS-II-** To Provide learners with a knowledge of Bernoulli's formula, Reduction formula, Fourier series, Ordinary Differential Equation, Partial Differential equation, Laplace transformation, Vector Differentiation.

**CO13: PERSONALITY ENRICHMENT-** Students will apply ethical theories to leadership situations, To Identify, understand and apply contemporary theories of leadership to a wide range of situation and interaction, to learn about the relationship between curricular and co-curricular experiences as a determinant of student success. To know about self-awareness and life skills, leadership and communication skills, Team work learning to connect and work with others to achieve goals, Social justice and responsibility. They learn to balance confidence with humility.

**CO14: CORE PRACTICALS-II -** Students will gain an understanding of methods of analysis related to chemical analysis goals such as detection of elements.

**CO 15: ENVIRONMENTAL STUDIES:** To enable the learners to learn about the ecosystem, natural resources, biodiversity and conservation, various environmental pollution and how to control it, environmental policies and practices, human communities and the environment.

**CO16: PHYSICAL CHEMISTRY – I -** To know the various thermodynamic terms – systems, surroundings, reversible and irreversible terms. To understand the first, second and third law of thermo dynamics, concepts of entropy, master equations and its applications. To understand the energy changes involved in chemical equilibriums. To know the thermodynamics of solutions and phase changes.

**CO17: ORGANIC CHEMISTRY- I-** To enable learners to understand the chemistry of organic compounds containing Oxygen and Nitrogen and to familiarize them with heterocyclics and dyes.

**CO18: INORGANIC CHEMISTRY – II -** To understand the nature of bonding in co-ordination compounds. To appreciate the biological and industrial importance of coordination compounds. To understand the chemistry of S, Se, As and Sb compounds.

**CO19: ELECTIVE I-APPLIED ELECTRO CHEMISTRY** - To describe and understand the operation of electrochemical system for the production of electrical energy. To understand the electro chemical process of surface treatment and production of materials. To learn the electrochemical corrosion of materials and corrosion protection methods.

**CO20: VALUE EDUCATION-** To understand the relationship between education and values. To understand the duties and responsibilities of a good citizen. To develop moral, cultural and spiritual values. To develop the habits of truthfulness, punctuality and honesty. To understand the social evils, corruption, cybercrime and terrorism and its effects. To develop the team work, positive and creative thinking among themselves.

**CO21: ORGANIC CHEMISTRY- II-** To provide learners with knowledge of structural aspects of biomolecules. To make the students understand the mechanisms of rearrangement reactions. To familiarise them with the importance of organic spectroscopy.

**CO22: PHYSICAL CHEMISTRY – II-** To know the reaction rates and pathways, understand the energy changes involved chemical reactions, the various photochemical processes in the chemical systems, the conducting behaviour of ions, to understand the theory of electrical conductance, to understand the transformation of chemical energy into electrical energy in Galvanic cells, to understand the symmetry aspects in chemical systems

**CO23: ANALYTICAL CHEMISTRY-** To know the analytical techniques like Chromatography, AAS, MS, TGA, DTA, Polarimetry and polarography.

**CO24: ELECTIVE II-INDUSTRIAL CHEMISTRY** - Know the importance of chemical industry, classify various insecticides, Study the nutritive aspects of food constituents, Understand the characteristics of some food starches, Study the manufacture of cement, dyes, Glass, Soap and Detergents by modern methods.

**CO25: ELECTIVE III-POLYMER ELECTRO CHEMISTRY-** To enable the students to learn about the Classification of polymers, Methods of preparation of polymers, Different types of polymerization and techniques of polymerization, Processing of polymers.

**CO26: PHYSICAL CHEMISTRY PRACTICALS-** Students will gain an understanding about the Conductometric, Potentiometric titrations, and learn about the first, second order chemical kinetics, transition temperature, determination of molecular weights of solutes, distribution coefficients.

**CO27: ORGANIC CHEMISTRY PRACTICALS** - To analyze the given organic compounds and also learn the preparation of organic compounds.

**CO28: GRAVIMETRIC ANALYSIS** - To estimate the amount of metal through analytical techniques.

**CO29: TAMIL-I-** The course focuses on culture and traditional way of living, proverbs and folk songs. In addition to verbal literature, life style of ancient people and their culture, society and tradition were also been focussed. Finally, the subject motivates the students for creative writing, poetry making, and learning grammar are also included.

**CO30: TAMIL-II** – The course focuses on anthropology, reign of kings, ancient literature, prose, poetry, mystery and contemporary literature. After completing the students can develop their nobility and humanity.

**CO31: TAMIL-III** – The course mainly focuses on the importance of Religion and religious people. It spreads love, affection and self-confidence to all the people. It also focuses on life and life style of the ancient people like Kannagi, Madhavi and many epic stories.

**CO32: TAMIL –IV:** Ancient literature folks of inner and outer activities of the country are focussed in this course. It also focuses on noble culture, tradition and discipline spread among the students through the historical plays. Students are also learning climate, seasons, atmosphere, agriculture and generosity. It also focuses on ancient moral and mythical values.

**CO33: ENGLISH I** – At the end of the course the students are able to read, interpret, and write about a diverse range of texts in English, for example prose, poetry, and drama. On the basis of careful and close reading, the students understand the text analytically and critically. The students can participate clearly and appropriately through spoken and written forms. Further, students develop abilities in grammar, oral skills, reading, writing and study skills.

**CO34: ENGLISH II** – After successful completion of this course the students develop their skills in the areas of academic reading, writing, speaking, and listening. The students can apply reading and listening strategies to comprehend and evaluate a range of academic texts and talks. Identify relevant information from academic texts and talks, and utilise effective summarising techniques.

**CO35: ENGLISH III** - After successful completion of this course the students develop their skills in the areas of academic reading, writing, speaking, and listening. The students can demonstrate and understand which helps an ability to produce the structure, conventions and characteristics of a range of short academic essays. Deliver structured academic oral and written presentations.

**CO36: ENGLISH IV** – This course develops English language skills in listening, speaking, reading and writing by having learners engage in a range of communicative tasks and activities. Further the course expands the learner’s use of grammatically correct and appropriate language in speaking and writing for effective communication in a variety of interpersonal and academic situations.