

# SARAT CENTENARY COLLEGE

## Department of Chemistry

### Course outcome & Program Outcome

Semester	Course Code Course Outcomes	Course Outcomes
SEM-I	<b>Major Course/</b> Paper title: Basic Chemistry-I	<b>CO:</b> Students will be introduced with several basic aspects of theory and practical of chemical sciences. This will grow the foundation of the subject for studying various advanced topics in future semesters.
	<b>Minor Course</b> Paper title: General Chemistry-I	<b>CO:</b> On studying the course, the students will have an idea of chemical sciences, which may be applied for in-depth study of other science streams.
	<b>SEC</b> Drugs and pharmaceuticals	<b>CO:</b> The clear idea about the drugs may not only grow the general sense about the synthesis and mode of action of the drugs but also help them to have employment in pharmaceutical industry.
	<b>Multidisciplinary</b> Paper title: Chemistry for Household Importance	<b>CO:</b> After studying the topics these may help the students to get employment
SEM-II	<b>Major Course/</b> Paper title: Basic Chemistry-II	<b>CO:</b> The topics will grow the foundation of the students for the subject chemistry for learning any further advanced topics
	<b>Minor Course</b> Paper title: General Chemistry-II	<b>CO:</b> The idea created from this course may help to understand students for further studying physical, biological and material sciences.
	<b>SEC</b> Basic Analytical Chemistry	<b>CO:</b> This course will develop the analysis as well as separation skills of the students which may help them to motivate for joining research and/or have employment
	<b>Multidisciplinary</b> Paper title: Chemistry of Dyes, Pigments, Cosmetics and Perfumes	<b>CO:</b> Development of idea of several molecules and materials related to dye and cosmetics industry
SEM-III	<b>Major Course/</b> Paper title: Inorganic Chemistry	<b>CO1:</b> Students will go through their applications in studying coordination chemistry, s- and p-block elements. On studying different comparative properties s- and p-block elements, proper chemical logic will start to be developed among the students <b>CO2:</b> Towards qualitative detection of several radicals, different experiments have to be

		covered. <b>CO3:</b> Moreover, preparation of modern coordination compounds will create an insight to the synthetic coordination chemistry.
	<b>SEC</b> IT skills in Chemistry	<b>CO:</b> The course will help the students sound for doing several chemical computations. Mathematical tools
	<b>Multidisciplinary</b> Paper title: Chemistry of Soil, Fertilizer and detergent	<b>CO:</b> Exploring the knowledge of fundamental chemistry towards soil, fertilizer, detergent will not only create general chemical knowledge of the students but also will generate the possibility of employability.
SEM-IV	<b>Major Course/</b> Paper title: Organic Chemistry and Physical Chemistry	<b>CO1:</b> The course will help the students to develop a complete knowledge on stereochemistry, reaction mechanism and others of organic chemistry <b>CO2:</b> The course will help to develop physical chemistry knowledge of solid, liquid and gaseous states of matter. Students will also learn to do quantum chemical calculations for various systems. <b>CO3:</b> Students will have a hands-on training for detection of elements (N, S, Cl, Br, etc) and synthesis/derivatization of several organic compounds.
	<b>Minor Course</b> Paper title: General Chemistry-II	<b>CO:</b> This course will help the students to develop advanced topics of chemistry, physics and biology. Students will learn to synthesize several coordination compounds. Students will also learn to estimate hardness of water by chemical analysis.

## Program Outcomes

**PO-1:** Disciplinary knowledge and skill: A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding both theoretical and practical knowledge in all disciplines of Chemistry. Students can solve their subjective problems very methodically, independently and finally draw a logical conclusion. Further, the student will be capable of applying modern technologies, handling advanced instruments and Chemistry related soft-wares for chemical analysis, characterization of materials and in separation technology.

**PO-2:** Skilled communicator: The course curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral presentation.

**PO-3:** Critical thinker and problem solver: The course curriculum also includes components that can be helpful to graduate students to develop critical thinking and to design, carry out, record and analyze the results of chemical reactions. Students will be able to think and apply evidence based comparative chemistry approach to explain chemical synthesis and analysis.

**PO-4:** Sense of inquiry: It is expected that the course curriculum will develop an inquisitive characteristics among the students through appropriate questions, planning and reporting experimental investigation.

**PO-5:** Team player: The course curriculum has been designed to provide opportunity to act as team player by contributing in laboratory, field based situation and industry.

**PO-6:** Skilled project manager: The course curriculum has been designed in such a manner as to enabling a graduate student to become a skilled project manager by acquiring knowledge about chemistry project management, writing, planning, study of ethical standards and rules and regulations pertaining to scientific project operation.

**PO-7:** Digitally literate: The course curriculum has been so designed to impart a good working knowledge in understanding and carrying out data analysis, use of library search tools, use of chemical simulation software and related computational work.

**PO-8:** Ethical awareness: A graduate student requires understanding and developing ethical awareness or reasoning which is adequately provided through the course curriculum. Students can also create an awareness of the impact of chemistry on the environment, society, and also make development outside the scientific community.

**PO-9:** Environmental Awareness: As an inhabitant of this green planet a Chemistry graduate student should have many social responsibilities. The course curriculum is designed to teach a Chemistry graduate student to follow the green routes for the synthesis of chemical compounds and also find out new greener routes for sustainable development. The course also helps them to understand the causes of environmental pollution and thereby applying environmental friendly policies instead of environmentally hazard ones in every aspect.

**PO-10:** Lifelong learner: The course curriculum is designed to inculcate a habit of learning continuously through use of advanced ICT technique and other available e-techniques, e-books and e-journals for personal academic growth.

**PO-11:** Analytical skill development and job opportunity: The course curriculum is designed in such a way that Chemistry graduate students can handle many Chemistry based software, decent instruments and advanced technologies to synthesize, characterize and analyze the chemical compounds very skillfully. Such a wonderful practice in the graduate level will bring a good opportunity to the students for getting job in industries besides academic and administrative works.