

# B.Sc. General in Chemistry

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## PROGRAMME SPECIFIC OUTCOME

Sufficient reference books, well equipped laboratories, sophisticated instruments, digital and computational facilities, group work along with effective teaching, learning & evaluation are provided to the chemistry students by Chemistry Department for fruitful running of the UG courses in P. K. College, Contai. As a result from the above facilities the following outcomes are revealed.

### *Depth and breadth of knowledge*

- Student will be able to gather the fundamental scientific principles in the different fields of chemistry (analytical, inorganic, organic and physical) and apply these principles to solve problems.
- They will be able to apply the relevant knowledge to solve the problems that emerge from the broader interdisciplinary subfields (e.g. life, environmental and materials sciences). As a result they will be able to explore the new area of research and education.

### *Familiar with methodologies*

- Students will be able to assemble a lot of knowledge about various procedures of chemical analysis, synthesis and monitoring of chemical reactions. They can also learn the techniques for safe use and handling of chemicals.
- The students are able to use modern online searching and retrieval methods to obtain information about different chemicals, synthetic procedures or any issue relating to chemistry.

### *Application of knowledge*

- Students will be able to identify and describe the underlying principles behind the chemical techniques relevant to academia, industry and government in addition.
- Under proper guidance they will be able to apply the methodologies in order to conduct new chemical synthesis (during project work), analysis or other chemical investigations.
- Students will be able to develop a confirmable hypothesis, execute experiments related to research, compliable raw data and provide conclusion.

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### *Communication skills*

- Students can gain the power to prepare logical, organized and concise write up and oral and poster presentations that effectively communicate chemical content to other people.

### *Awareness of the limits of knowledge*

- The students can recognize assumptions and limitations in the scientific models and simulations and also propose their possible impact on the results.
- They can achieve the capability to identify source of errors in analytical experiment.

### *Scope for future in interdisciplinary field*

- Through proper learning of full UG course in chemistry, a student can get various opportunities for their future work in interdisciplinary field like biochemistry, nano fields, polymer science and industrial chemistry.

### *Job Opportunity*

- After completion of B.Sc. UG course in Chemistry, the majors are able to gain experiences in critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments. Finally, they will be sufficiently trained to get employment in Govt. sector, non Govt. sector or in chemical/ pharmaceutical industry.

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Course Code	Course Name	Course Outcome
CEMGCC01	DSC 1AT, DSC1AP	Detail knowledge of atomic Structure, Bonding, general organic chemistry & aliphatic hydrocarbons. Practically gravimetric estimation of metal ions and identification of organic functional group.
CEMGCC02	DSC1BT, DSC1BP	A detail knowledge about chemical energy, ionic equilibria, chemical equilibria and all aromatic hydrocarbons. Practical knowledge about the determination of different enthalpy and heat capacity.
CEMGCC03	DSC1CT, DSC1CP	A detail knowledge about solution chemistry, phase equilibria, conductance and electro chemistry. A conceptual idea about different bio organic compounds. Practical knowledge about the potentiometric and conductometric titration and a practical knowledge related to bioorganic compounds.
CEMGCC04	DSC1DT, DSC1DP	A vast knowledge about coordination chemistry, VBT, CFT, solid, liquid and kinetic theory of gas. Practical knowledge about cation and anion radical detection, and use spectroscopic methods related to the metal complexes.
CEMGSE01	SEC 1T, SEC1P.	A basic idea about the analysis methods of soil, water food and a concept about ion exchange and chromatography. Practical knowledge of food analysis and separation of compounds by TLC and ion exchange.
CEMGSE02	SEC 2T	Basic understanding of the structures, properties and functions of carbohydrates, lipids and proteins and related practical knowledge
CEMGSE03	SEC3T, SEC3P	conceptual knowledge about Drugs & Pharmaceutical chemistry and a practical knowledge related to this
CEMGSE04	SEC4T	A basic knowledge about fuel chemistry.
CEMGDSE01	DSE 1T, DSE 1P	conceptual idea about different spectroscopic techniques like IR, NMR, UV, thermal analysis, electro analytic methods, and some separating techniques of organic compounds. In practical separation of metal ions, and organic compounds by TLC, detection of pH and exchange capacity of ions.
CEMGDSE02	DSE 2T, DSE 2P	A vast knowledge about the application of computer in chemistry. Practical knowledge about the programming of chemical equation.