Department of Chemistry (Undergraduate)

After successful completion of the course the students will be benefitted by various **programme specific outcomes** which are likely as follows:

1. The students will understand bonding, physical properties, stereochemistry and reaction mechanism in organic molecules.
2. They will understand reactions in unsaturated, carbonyl and associated compounds and organometallics.
3. Study of the nitrogenous compounds, rearrangement reactions and logical synthesis of organic molecules can be done the students.
4. Students can study and analyze organic spectroscopy.
5. In depth study of the carbocyles, heterocycles, pericyclic reactions, carbohydrate and biomolecules are also done in the course.
6. Analyzing solid binary mixtures; determination of boiling points of organic liquid samples; preparation of small scale organic compounds; identification of pure solid and liquid samples, separation of organic mixture in chromatographic method and analyzing of organic compounds by spectroscopy are also taught in this course.
7. The students will understand atomic structure, radioactivity, periodic properties and acid base reactions in addition to the in depth understanding of chemical bonding, structure and properties of covalent compound, structure, defects and properties and chemical forces of ionic and non ionic crystalline solids.
8. The study about the preparation, bonding, structure and properties and reactions of compounds of s, p, d and f block elements are also included in the course.
9. The students will get chance to study of the organometallic and coordination compounds and bioinorganic chemistry.
10. They will understand principles of separation techniques, quantitative estimation of metal ion, single or present in a mixture, ore and mineral analysis, spectroscopic techniques.
11. It is very much expected that the students will be able to identify cation and anion present in a mixture of inorganic salts, oxides, hydroxides or carbonates after successful completion of the course.
12. They will be able to estimate the metal ions present in mixture in quantitative manner by volumetric analysis.
13. Understanding of the basic principal of thermodynamics, thermochemistry, equilibrium, colligative properties, phase rule and statistical thermodynamics are also the outcomes of the course.
14. Properties of ideal gases; speed, kinetic energy heat capacity, real gases, intermolecular forces, liquefaction process are also studied. In depth understanding of the properties of liquid; viscosity and surface tension are also outcomes of the course.
15. The course will induce the students to understand principle of quantum mechanics and analyze related phenomenon, study quantum mechanical model.
16. The students will understand and analyze molecular spectroscopy and will be able to

determine physical properties like surface tension, viscosity, partition coefficient, rate constant of a reaction, pka, pkin etc.

Course outcomes are as follows:

1. The students will understand physical and chemical properties of chemical compounds and correlate these properties with their structure, bonding, intermolecular forces and other features as explained by different theories and principles of chemistry.
2. They will be able to understand periodic correlation of properties of metals, nonmetals and metalloids.
3. Understanding and a good practice of the basic principle of analytical techniques used for identification, separation and estimation of chemical species is a positive outcome of the course.
4. The students will understand laws of nature and apply them to explain the behavior of solid, liquid and gases and their mixture.
5. They will understand different laws which guide the physical processes and chemical reactions and measure the parameters involved in addition to that understanding of the principle of spectroscopy and analyzing of the molecules by spectroscopic techniques are also expected from the students after successful completion of the course.
6. They will understand and practice instrumental methods used in chemical analysis.