

Program: B.Sc. Medical

Course Outcomes

Semester-I

Course: Organic Chemistry

CO1: The main aim of this course is to provide the ground information of the organic chemistry. Learners will be able to understand the structure and bonding of the organic compounds by learning the various effects such as inductive effect, resonance effect, hyperconjugation etc.

CO2: To make students capable of understanding and studying the classification of the organic compounds and impart the students a thorough knowledge about the mechanism of the reactions which determines the completion of the reactions

Course: Inorganic Chemistry

CO1: This would facilitate students to get the knowledge about the Planck constant and describes that how the wavelength of the particle is calculated. It describes the wave mechanical model of the atom. It helps to know that how many electrons are present in the particular space

CO2: Students will make understanding with the periodic table and the terms related with that and also describes the trends that how they vary with along the period and down the group.

CO3: This will provide the knowledge of the noble gas family and their compound formation as well as reactivity

CO4: It intends the chemical bonding.

Course: Physical Chemistry

CO1: The main outcome of this course is to provide information about Mathematical concepts so that medical students would not face any difficulty in derivations and Students learn to solve differentiation, Integration of different functions which enhance their problem solving ability

CO2: Students learn to find out errors in their Practical and how to correct them. Moreover, students learn to find out errors in their Practical and how to correct them. This course aims at knowledge of problems related to standard deviation and applicability of F-test and Q-test

CO3: This course facilitates how to differentiate between different states of matter. Students also develop an idea of liquid and gaseous states in which they learn the structural differences in solids, liquids and gases.

CO4: This course aims at knowledge of gases and the most important Vander waals equation. The most interesting and useful topic 'Joule-Thomson effect' of this course tells the liquefaction of gases and the concept of Inversion Temperature.

CO5: This course facilitates the learners to grab knowledge about structure of molecules and their magnetic properties.

Semester-II

Course: Organic Chemistry

CO1: To make students capable of understanding and studying the classification of the organic compounds. To impart the students a thorough knowledge about the mechanism of the reactions which determines the completion of the reactions.

CO2: It provides the description of the alkyl and aryl halides and their uses in various fields. These properties help to describe the melting and boiling points of many compounds and their reactivity towards various reactions.

CO3: It intends the naming reactions with different functional groups. The Concept of isomerism deals with the nature of organic compounds. It gives the knowledge about the Chirality which is the necessary condition for the chirality of the molecules; it deals with the different orientations of the compounds and with different names of the compounds. By using these configurations we can find the nature of compounds

Course: Inorganic Chemistry

CO1: Students will understand concept of close packing, ionic structures and factors affecting ionic solids which help them to identify and distinguish between different crystals.

CO2: students will develop understanding about the properties of alkali and alkaline earth metals.

CO3: it would enable the learner to learn about the structure of diborane, lewis acid nature of boron trihalides, preparation of carbides, nitrides & other relevant block compounds.

CO4: This course helps in understanding preparations and applications of fullerene, fluorocarbons, silicate compounds.

CO5: It makes the students to learn and understand about types of oxides and oxyacids, their structure and reactivity in s block & p block elements, interhalogen compounds, polyhalides compounds.

Course: Physical Chemistry

CO1: The main outcome of this course is to enable the students to understand about solutions used in daily life and methods of expressing their concentration.

CO2: By studying this course learners will be able to think about the nature of solutions and their stability which would help them about the advantages and applications of various types of solutions.

CO3: This course aims at knowledge of different factors affecting rate of reaction and

role of acid and base as a catalyst

Semester-III

Course: Inorganic Chemistry

- CO1: Develop the knowledge of transition metals to understand the trends in properties and reactivity of the first series of d-block elements and to know the typical physical and chemical properties of the transition metals.
- CO2: To study the lanthanide elements to understand the trends in properties and reactivity and to develop the understanding of the typical physical and chemical properties of the transition metals.
- CO3: To explain the typical physical and chemical properties of the transition metals especially from second and third transition series. To identify simple compound classes for transition metals and describe their chemical properties
- CO4: In order to study transition metals to understand the trends in properties and reactivity of the actinides and its typical physical and chemical properties to understand its applications

Course: Organic Chemistry

- CO1: This course will facilitate the learners to classify the types of these functional groups by nomenclature.
- CO2: Through the structure and classification of the compounds containing these functional groups, they would be able to make comparison between the reactivity of these compounds.
- CO3: This course allows the students to outline the mechanism of various reactions of organic molecules containing the above mentioned functional groups.
- CO4: It would help in research work and to develop new chemical reaction with different methods.
- CO5: They would be able to grab the knowledge about various naming reactions and they will learn about their applications in field of chemistry.

Course: Physical Chemistry

- CO1: They will grab knowledge of the basic concept of thermodynamics
- CO2: They will learn how to solve exact and inexact functions
- CO3: Students will get information regarding thermo chemistry in daily life activities
- CO4: Students will be able to get knowledge of the conversant processes of steam

dryness

CO5: They will learn about uses of thermodynamics in daily life like in window A.C and refrigerators.

Semester-IV

Course: Inorganic Chemistry

CO1: Students will be able to understand the applications of various types of complex and their properties

CO2: Develop the knowledge of various processes which proceed through the oxidation and reduction and they will be able to know the applications of these reactions

CO3: It will develop the understanding of all type of acid and bases and explain the behavior of these

CO4: Students will be able to understand the applications of various non aqueous solvents and their properties with chemical behavior

Course: Organic Chemistry

CO1: Students will learn about the method of preparation, properties and uses of carboxylic acid along with their characteristic test

CO2: Students will learn about the method of preparation, properties and uses of derivatives of carboxylic acid along with their characteristic test

CO3: Students will learn about the method of preparation, properties and uses of ether along with epoxides.

CO4: Students will learn about the method of preparation, properties and uses of fats along with their commercial application.

CO5: Students will learn about the method of preparation, properties and uses of Organic compounds containing Nitrogen along with their distinguishable test

Course: Physical Chemistry

CO1: Phase diagrams are useful because they allow us to understand in what state matter exists under certain conditions. Phase equilibrium has wide range of applications in industries including production of different allotropes of carbon, lowering of freezing point of water by dissolving salt, purification of components by distillation, usage of emulsions in food production, pharmaceutical industry

CO2: Conductivity measurements are used routinely in many industrial and environmental applications as a fast, inexpensive and reliable way of measuring the ionic content in a solution.

CO3: These articles are depends on the movement of the boundary between two adjacent

electrolytes under the influence of an electric field and the speed of the moving boundary can be measured and used to determine the ion transference numbers.

CO4: Nernst equation can be used to find the cell potential at any moment in during a reaction or at conditions other than standard-state, by knowing this students can determine the equilibrium constant or Gibbs free energy .In Concentration Cell students can know about how we can select anode or cathode. Nernst equation can be used to find the cell potential at any moment in during a reaction or at conditions other than standard-state, by knowing these students can determine the equilibrium constant or Gibbs free energy. In Concentration Cell students can know about how we can select anode or cathode and also how e.m.f be calculated from those. Students will also learn about that how we can prevents our metallic things from corrosion.

Semester-V

Course: Inorganic Chemistry

CO1: Students will be able to use Crystal Field Theory to understand the magnetic properties (and in simple terms the color) of coordination compounds which facilitate them to describe the shapes and structures of coordination complexes with coordination numbers 6 and 4

Co2: Learner will develop the understanding of the stability of metal complexes by the use of formation constants and to calculate thermodynamic parameters from them. They will be able to describe rate of reactions of complexes and type of reactions in complexes

CO3: Student will be able to describe magnetic properties of complexes, various kind of magnetic materials and effect of temp on magnetic characters. They will also able to describe methods of determining magnetic moments

CO4: Student will be able to describe quantum numbers, orbital and spin angular moment of electrons. And To understand electronic transition, term symbol and concept of spectra.

Course: Organic Chemistry

CO1: It will make the learner to develop interest about the Synthesis, Properties and applications of Organo-metallic compounds

CO2: Students will learn about the Synthesis and Properties Organo-Sulphur compounds and their comparison with analogous compounds

CO3: Students will learn about the Principle, working and application of UV-Vis spectroscopy which will help them study the conjugation in organic compounds

CO4: Students will learn about the Principle, working and application of IR spectroscopy which will enable them to detect the various Functional groups in organic compounds

CO5: Students will get knowledge about Principle, working and application of NMR spectroscopy which will help them in structure elucidation through C13-NMR & PMR

Course: Physical Chemistry

CO1: The main outcome of this course is to provide information about Quantum Mechanics and Spectroscopy .and Quantum Chemistry enables them to know about Schrodinger equation and its application

CO2: Students learn about rotation & vibration spectroscopy and the electromagnetic radiations used in these spectra. And Through rotational spectroscopy they will learn the energy level diagrams of rigid & non rigid rotors. This course aims at applications of rotational and vibrational spectroscopy

Semester- VI

Course: Inorganic Chemistry

CO1: On the completion of course the student will have knowledge of Pearson's HSAB concept, acid-base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness.

CO2: The aim of the course is the teaching and understanding of the basic principles of Biological Inorganic Chemistry - Bioinorganic Chemistry that are considered necessary for the completion of postgraduate students' education. Also, the aim of this course is to present and describe bioinorganic systems through the correlation of the function, structure and activity of inorganic elements within the organisms. In particular, this course will include: a) a systematic study of trace element biosystems; b) the effect of the concentration of trace elements on health and the environment;

CO3: On the completion of course the students have knowledge of Silicones and Phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.

CO4: The focus of this course is on the synthesis, structure and bonding, properties and reactivity of main group organometallics (including Grignard reagents, organolithium reagents, organotin compounds, etc), organotransition metal chemistry and organometallic catalysis. And On the completion of course the student have knowledge of metal-ethylene complexes and homogeneous hydrogenation, mononuclear carbonyls and the nature of bonding in metal carbonyls.

Course: Organic Chemistry

CO1: Students would have knowledge about the structure, preparation and properties of heterocyclic compounds after completion of this course.

CO2: The main focus of this course is to make the Students familiar with the classification, synthesis and application of various polymers

CO3: Students will learn the importance of enolates as starting material in organic synthesis

CO4: Students will get knowledge about the classification, conversion and application of carbohydrates

CO5: Students will learn about the classification, conversion and application of protein

Course: Physical Chemistry

CO1: To make them familiar in the study of surfaces and of heterointerfaces between constituent's layers

CO2: On completion of this course they will know about the orbital concept

CO3: Helpful in determination of the geometrical structure of molecules in triplet state

CO4: Study is helpful for structure identification

CO5: Student able to know how laser and masers are work which are used in wide range of field

CO6: Student would be able to study the structure using X-rays

CO7: Complete study about structure for the compounds used in daily life.

CO8: Students would be able to know the reactions occurrence in which state

CO9: laws study helpful in research work

CO10: Mechanism of different processes is studying

CO11: Daily used light applications

CO12: Students able to know how the energy transfers in different processes

CO13: Student able to know how laser and masers are work which is used in wide range of field