J.J. College of Arts & Science (Autonomous), Pudukkottai

Department of Chemistry

Course Outcomes

B.Sc. Chemistry – USCH

Course Name - General Chemistry-I		Course Code - U1R1CHCC1
Upon Completion of the course students would be able to		
CO 1	Predict the atomic structure and use standardized names and symbols to represent atoms	
CO 2	Understand the concept of periodic properties and their importance	
CO 3	Predict the chemical bonding or molecular geometry based on the molecular structure	
CO 4	Understand the naming of hydrocarbons, electronic effects and	
CO 5	Learn about chemistry of alkane	
Course Name - Allied Mathematics-I		Course Code - U1R1MTAC1
Upon Completion of the course students would be able to		
CO 1	Solve problems on successive differentiation and Leibnitz theorem.	
CO 2	Understand and apply the definite integral formula.	
CO 3	Understand the general properties of definite integrals	
CO 4	Develop Fourier series for different types of functions	
CO 5	Evaluate double and triple integrals	
Course Name – Volumetric Analysis Practical		Course Code – U2R1CHCC2P
Upon Completion of the course students would be able to		
CO 1	Apply the principles of tritrimetry	
CO 2	Apply the concepts of indicator and dilution	
CO 3	Determine the concentration of different solution	
CO 4	Estimate the total hardness of water	
CO 5	Handling the class wares and chemicals	

Course Name - General Chemistry-II	Course Code – U2R1CHCC3
Upon Completion of the course students would be able to	
CO 1	Know the concepts of acid, base and tritrimetry principles
CO 2	Learn the s-block elements and their compounds
CO 3	Learn the synthetic methodology ad chemical modification of lkene, diene
CO 4	Understand the aromatic compounds and their properties
CO 5	Use accepted models to describe the reaction between gaseous system and become aware of their physical properties
Course Name - Allied Mathematics-II	Course Code – U2R1MTAC2
Upon Completion of the course students would be able to	
CO 1	Find the approximate solution of roots of polynomials by suitable methods and problems based on exponential and logarithmic series.
CO 2	Know the applications of Cayley Hamilton's Theorem.
CO 3	Find the equation of the system of planes and the length of perpendiculars to planes and the angles between the lines.
CO 4	Expand$Cos^m\theta$, $sin^n\theta$, $cos^m\theta sin^n\theta$, for different values of n & m.
CO 5	Solve problems involving hyperbolic functions.
Course Name – Allied Mathematics-III	Course Code – U2R1MTAC3
Upon Completion of the course students would be able to	
CO 1	Understand the concepts of linear equations.
CO 2	Evaluate Laplace Transforms of periodic functions.
CO 3	Apply the Inverse Laplace Transform to solve second order ODE with constant coefficients.
CO 4	Acquire the knowledge of Vector Differentiation and Integration.
CO 5	Use the vector identities, directional derivatives and divergence of a vector point function are evaluated easily.

Course Name - General Chemistry-III		Course Code – U3R1CHCC4
Upon Completion of the course students would be able to		
CO 1	Describe the hybridization and structure of molecule by VB and MO theory	
CO 2	Know the boron and carbon family and their importance of compounds	
CO 3	Understand the applications of alcohols and ether in synthetic applications	
CO 4	Learn about ester and its applications	
CO 5	Know the nature of solids and their structure	
Course Name - General Chemistry-IV		Course Code – U3R1CHCC5
Upon Completion of the course students would be able to		
CO 1	Identify the periodic trends and properties of nitrogen and oxygen families	
CO 2	Understand the compounds of oxygen group elements	
CO 3	Learn the reactions and applications of heterocyclic compounds	
CO 4	Understand stereochemistry and conventional methods of describing organic molecule	
CO 5	Know about liquid crystal and their importance	
Course Name – Allied Physics-I		Course Code – U3R1PHAC4
Upon Completion of the course students would be able to		
CO 1	Become proficient in basic concepts of elasticity and its applications	
CO 2	Ability to study viscosity and its practical applications in industry	
CO 3	Understood the concept of good and bad conductor	
CO 4	Become aware of applications of ultrasonic waves in diverse fields.	
CO 5	Acquired the basic knowledge of optics and optical fiber communication	

Course Name - Semimicro Qualitative Inorganic Analysis Practical		Course Code – U4R1CHCC6P
Upon Completion of the course students would be able to		
CO 1	The fundamentals of qualitative analysis	
CO 2	Qualitative analysis of common metals and rare metals	
CO 3	The application of the concepts of solubility product and common ion effect in separation of ions experiments and interpretation of their results	
CO 4	Identify the interfering and non interfering radicals	
CO 5	Know the techniques of semi micro qualitative analysis with inorganic salt mixtures	
Course Name - General Chemistry-V		Course Code – U4R1CHCC7
Upon Completion of the course students would be able to		
CO 1	Know the halogen compounds and noble gases	
CO 2	Know the structure of d-block elements and their biological importance	
CO 3	Learn about organometallic compounds and its importance	
CO 4	Understand the chemistry of carbohydrates and their uses	
CO 5	Understand the basic concepts of nuclear chemistry	
Course Name - Allied Physics-II Practical		Course Code – U4R1PHAC5P
Upon Completion of the course students would be able to		
CO 1	Able to understand the concepts of mechanics, properties of matter and sound through different experiments.	
CO 2	Have acquired the basic trouble shooting skills in the use of simple laboratory experiments.	
CO 3	Estimate the Specific resistance of any wire	
CO 4	Determine the wavelength of Mercury Spectrum	
CO 5	Verify the truth tables of basic logic gates	

Course Name - Allied Physics-III		Course Code - U4R1PHAC6
Upon Completion of the course students would be able to		
CO 1	The ability to apply knowledge of electricity and magnetism to explain natural physical processes and related technological advances.	
CO 2	Apply Gauss's law of electrostatics to solve a variety of problems.	
CO 3	An ability to determine and describe static and dynamic electrical and magnetic fields .	
CO 4	A fare know of atomic physics	
CO 5	The ability of understand the structure of various number systems and basic logic gates.	
Course Name - Skill Based Elective Course-I (Chemistry of Every Day Life)		Course Code - U4R1CHSBE1
Upon Completion of the course students would be able to		
CO 1	learn about in chemistry in everyday life	
CO 2	set up as small entrepreneurs	
CO 3	Get awareness on effect of cosmetics, understand more about cosmetics and their uses	
CO 4	Understand the importance of fuels and fire protection	
CO 5	appreciate the medicinal uses of chemical products	
Course Name - Organic Chemistry-I		Course Code - U5R1CHCC8
Upon Completion of the course students would be able to		
CO 1	Understand the nomenclature and mechanism in carbonyl compounds	
CO 2	Know about carboxylic acids and its derivatives	
CO 3	Learn the preparation and reaction of carboxylic acids and nitrogen compounds	
CO 4	Know the synthesis and functions of amino acids, protein and vitamins	
CO 5	Understand separation and structure of alkaloids and terpenoids	

Course Name - Inorganic Chemistry		Course Code - U5R1CHCC9
Upon Completion of the course students would be able to		
CO 1	Know the sources and reactions of lanthanides and actinides	
CO 2	Learn the theories and naming of *Coordination compounds*	
CO 3	*Know the* stability of coordination compounds	
CO 4	Understand the biological functions of coordination compounds	
CO 5	Know about importance of silicones and its uses	
Course Name - Physical Chemistry-I		Course Code - U5R1CHCC10
Upon Completion of the course students would be able to		
CO 1	Identify the rate of reaction and methods for determining order of reaction	
CO 2	Understand the terms of thermodynamics and laws of thermodynamics	
CO 3	Understand the concept of entropy and free energy	
CO 4	Learn about the electrical conductance and methods of determination	
CO 5	Know the principle and instrumentation of IR and Raman spectroscopy	
Course Name - Physical Chemistry Practical		Course Code - U5R1CHCC11P
Upon Completion of the course students would be able to		
CO 1	Apply phase rule to predict the eutectic composition temperature	
CO 2	Identify the dependency of temperature on phase transition	
CO 3	Know the liphophilic and liphophopic character of compounds	
CO 4	Calculate the molecular weight of unknown entities	
CO 5	*analyzing the colligative properties of organic compounds*	

Course Name - Major Based Elective Course –I (Polymer chemistry)		Course Code - U5R1CHMBE1
Upon Completion of the course students would be able to		
CO 1	Understand the basic concepts of polymer chemistry	
CO 2	Know the various polymerization technique and characterization	
CO 3	Understand the various polymer processing techniques	
CO 4	Know the commercial uses of polymers	
CO 5	Learn about biopolymer and silicones	
Course Name - Skill Based Elective Course-II (Agricultural Chemistry)		Course Code - U5R1CHSBE2
Upon Completion of the course students would be able to		
CO 1	Advise formers on soil chemistry	
CO 2	Recommended the kind of fertilizers they could use in their fields	
CO 3	See the role of various nutrients in plant growth	
CO 4	Take up jobs in agro-chemical industries	
CO 5	Instruct formers on entomological matters	
Course Name - IDC-I(Basic Concepts in Biochemistry)		Course Code - U5R1CHIDC1
Upon Completion of the course students would be able to		
CO 1	Know the chemistry of amino acids and protein	
CO 2	Understand the mechanism of enzyme action	
CO 3	Know the about analysis of oil and fats	
CO 4	Understand the chemistry of natural products and nucleic acids	
CO 5	Get trained as dieticians in hospitals	
Course Name - Organic Chemistry-II		Course Code - U6R1CHCC12

Upon Completion of the course students would be able to	
CO 1	Determine the functional group of organic compounds by using UV – Visible Spectroscopy
CO 2	Predict the structure of compounds through NMR and Mass spectra
CO 3	Know the synthetic applications of organo halogen compounds
CO 4	Easily identify the migration and types of rearrangements
CO 5	Know the basic theory of dying process
Course Name - Physical Chemistry-II	Course Code - U6R1CHCC13
Upon Completion of the course students would be able to	
CO 1	Know the laws of photochemistry and photochemical reactions
CO 2	Understand the concepts involved in the study of solutions and Nernst distribution law
CO 3	Learn about electrochemical cells and its reactions
CO 4	Know the phase rule and its applications
CO 5	Know about solid solution and thermodynamics phase changes
Course Name - Gravimetric and Organic Analysis Practical	Course Code - U6R1CHCC14P
Upon Completion of the course students would be able to	
CO 1	Perceive the soluble nature of organic compounds of different functional group
CO 2	Identify the structural constituents of organic compounds
CO 3	Detect the various functional group
CO 4	Apply weighment procedures
CO 5	Determine the boiling point and melting point of compounds
Course Name - Major Based Elective Course – II (Industrial Chemistry)	Course Code - U6R1CHMBE2
Upon Completion of the course students would be able to	
CO 1	Apply knowledge on glass, ceramics and refractories

CO 2	**Take up employment in chemical industries**
CO 3	**Explore anticorrosion techniques**
CO 4	**Advise people on fertilizers and fuels**
CO 5	**Appreciate the role of chemistry in daily life**
Course Name - Major Based Elective Course – III (Analytical Chemistry)	**Course Code - U6R1CHMBE3**
Upon Completion of the course students would be able to	
CO 1	**Understand the storage and handling of chemicals**
CO 2	**Perform chromatography techniques by which complex mixtures can be separated**
CO 3	**Identify the concentration of solutions through tritrimetric analyses**
CO 4	**handle the TGA and DTA instruments and interpret the TGA curves**
CO 5	**Identify elements using spectral analytical techniques**
Course Name - Skill Based Elective Course –III (Food Chemistry and Technology)	**Course Code - U6R1CHSBE3**
Upon Completion of the course students would be able to	
CO 1	**Understand about food adulteration and various methods of detecting it**
CO 2	**Identify the causes of food poisoning**
CO 3	**Get knowledge on food additives**
CO 4	**Identify the composition of beverages**
CO 5	**Know about Edible oils and their quality**