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

Department of Chemistry

Course Outcomes

M.Sc. Chemistry – PSCH

Course Name - Organic Chemistry-I	Course Code - P1R1CHCC1
Upon Completion of the course students would be able to	
CO 1	Take up further reading on nomenclature, structure and bonding
CO 2	Identify reactive intermediates and their properties
CO 3	See the aromaticity of organic compounds and its applications
CO 4	Apply Huckel's theory to various aromatic compounds and predict their stability
CO 5	Predict and confirm the Streochemical structure of compounds
CO 6	Understand the Laws of photochemistry and photochemical reactions
Course Name - Inorganic Chemistry-I	Course Code - P1R1CHCC2
Upon Completion of the course students would be able to	
CO 1	Identify main group elements and their derivatives
CO 2	Know the VB and MO theories of coordination compound
CO 3	Identify the Stability of coordination compounds and factors affecting the stability
CO 4	Demonstrate and discuss the reaction of coordination compounds by electron transfer reaction
CO 5	Understand more deeply the concepts of photochemistry
Course Name – Organic Chemistry Practical-I	Course Code – P1R1CHCC3P
Upon Completion of the course students would be able to	
CO 1	Perform qualitative separation of binary mixture of organic compounds and individual qualitative analysis of isolated compound adopting qualitative methods
CO 2	Separate the functional groups and demonstration the regeneration process
CO 3	Understanding the isolation and purification of compounds
CO 4	Separation of organic mixture containing two compounds

CO 5	Know the single stage preparation of organic compounds

Course Name - Inorganic Chemistry Practical-I		Course Code – P1R1CHCC4P
Upon Completion of the course students would be able to		
CO 1	Get better knowledge on qualitative analysis of common metals and rare metals	
CO 2	Understand the Beer's Lamberts law and colorimetric analysis of common metals	
CO 3	Set up manage experimental conditions for the preparation of complexes	
CO 4	Acquire expertise in the elimination of interrupting ions during analysis	
CO 5	Demonstrate the common ion effect and solubility product	
Course Name - Elective Course-I (Bioorganic Chemistry)		Course Code – P1R1CHEC1
Upon Completion of the course students would be able to		
CO 1	Understand the various structure of proteins and peptide synthesis from amino sequence	
CO 2	Identify enzyme action and biosynthesis of enzymes by cofactors	
CO 3	Get knowledge on structure identification of nucleic acids and proteins	
CO 4	Know about the planning of synthesis form disconnection	
CO 5	Know about the lipids and carbohydrates	
Course Name – Physical Chemistry-I		Course Code – P2R1CHCC5
Upon Completion of the course students would be able to		
CO 1	Know the basic concepts of Group theory and its application to simple systems	
CO 2	Understand more deeply processes involved in quantum mechanics	
CO 3	Understand the applications of Photochemistry and Solar cells	
CO 4	Know the applications of ARRT to solution kinetics	

CO 5	Understand Molecular Thermodynamics

Course Name - Physical Methods in Chemistry-I		Course Code – P2R1CHCC6
Upon Completion of the course students would be able to		
CO 1	Understand the principles of UV-Vis ,IR, Raman and NMR spectroscopy	
CO 2	Verify the spectroscopic selection rules applying group theory concepts	
CO 3	Generate structural elucidation of newly synthesized compounds in the research field	
CO 4	Apply the X-ray diffraction with several crystal systems	
CO 5	Know about the Mass spectrometry	
Course Name - Organic Chemistry-II		Course Code – P2R1CHCC7
Upon Completion of the course students would be able to		
CO 1	Understand the nucleophilic substitution reaction and its rearrangements	
CO 2	Understand the aromatic and aliphatic eletrophilic substitution reactions	
CO 3	Get fresh knowledge on addition and elimination reactions	
CO 4	Known about the pericyclic reaction and its rearrangements	
CO 5	Identify the reagents involved in organic synthesis	
Course Name – Organic Chemistry Practical-II		Course Code – P2R1CHCC8P
Upon Completion of the course students would be able to		
CO 1	Perform quantitative separation of binary mixture of organic compounds	
CO 2	Observe the separation and regeneration of the compounds	
CO 3	Understand isolation and purification of compounds	
CO 4	Identify the saponification value of an oil	
CO 5	Identify the Iodine value of an oil	

Course Name - Inorganic Chemistry Practical-II		Course Code – P2R1CHCC9P
Upon Completion of the course students would be able to		
CO 1	Perform qualitative separation of binary mixtures and individual quantitative estimation adapting volumetric and gravimetric methods	
CO 2	Well versed in advanced methods of estimation of metal ions through complexation	
CO 3	Apply suitable techniques to obtain maximum yield of the dried product without any wastage	
CO 4	Know about the principles of volumetric and gravimetric analysis	
CO 5	Prepare the Inorganic complex	
Course Name - Elective Course-II Industrial Chemistry		Course Code – P2R1CHEC2
Upon Completion of the course students would be able to		
CO 1	Undertake dyeing, tanning and related processes	
CO 2	Understand the classification of fuels and their importance	
CO 3	Fresh knowledge on isolation and properties of oils, fats and soaps	
CO 4	Identify the commercial perfumes and their applications	
CO 5	Easily differentiate antibiotics and anesthetics	
Course Name - Physical Chemistry-II		Course Code – P3R1CHCC10
Upon Completion of the course students would be able to		
CO 1	Understand electrolytic conductance and chronopotentiometry	
CO 2	Know about Molecular Thermodynamics and surface phenomena	
CO 3	Get knowledge on various adsorption isotherm models	
CO 4	Understand quantum chemistry and its applications in spectroscopy	
CO 5	Know about the principles of Vibrational Spectroscopy	

Course Name - Inorganic Chemistry-II		Course Code - P3R1CHCC11
Upon Completion of the course students would be able to		
CO 1	Understand the source and functions of important metal ions	
CO 2	Know the metabolism and structure of biological compounds	
CO 3	Get fresh knowledge on cytotoxic compounds and their action	
CO 4	Understand the importance of medicinal bioorganic chemistry and nitrosyl compounds	
CO 5	Know about Metallocene and Arene complexes	
Course Name - Physical Methods in Chemistry-II		Course Code - P3R1CHCC12
Upon Completion of the course students would be able to		
CO 1	Use various spectroscopic principles to characterize inorganic and organometallic compounds	
CO 2	Interpret the spectroscopic data of simple inorganic compounds	
CO 3	Identify the electronic transitions in various d^n system	
CO 4	Identify the functional group using IR data	
CO 5	Interpret the NMR signal for inorganic complexes	
Course Name - Physical Chemistry Practical-I		Course Code - P3R1CHCC13P
Upon Completion of the course students would be able to		
CO 1	Apply phase rule to predict the eutectic composition temperature	
CO 2	Identity the inter dependence of temperature, pressure and phase transitions	
CO 3	Identify the liphophilic, liphophphlic character of compounds	
CO 4	Calculate the molecular weight of unknown substances	
CO 5	Determine the parameters which are helpful to predict the reaction pathway	

Course Name - Physical Chemistry Practical-II		Course Code - P3R1CHCC14P
Upon Completion of the course students would be able to		
CO 1	Discuss the concept of electrochemistry	
CO 2	Apply the concepts of electrochemistry to make new discoveries	
CO 3	Measure various electrochemical parameters	
CO 4	Plan and perform experimental procedures	
CO 5	Know about the principles of conductometry and potentiometry	
Course Name - Elective Course-III (Natural Products)		Course Code - P3R1CHEC3
Upon Completion of the course students would be able to		
CO 1	Understand the basic concepts of natural products	
CO 2	Identify natural pigments and their uses	
CO 3	Apply their knowledge of alkaloids, terpenoids and steroids in medicinal chemistry	
CO 4	Apply their knowledge in separation and purification of natural products	
CO 5	Know about the Biosynthesis of Natural products	
Course Name - Elective Course-IV (Instrumental Methods of Analysis)		Course Code - P4R1CHEC4
Upon Completion of the course students would be able to		
CO 1	Substantiate understand the accuracy, precision and errors in measurement	
CO 2	Know about solvent extraction and recycling techniques	
CO 3	Understand the principles, instrumentation, working and uses of various chromatography technique	
CO 4	Know the basic concepts of electro analytical techniques	
CO 5	Know about the concepts of Thermo analytical methods	

Course Name - Project Work	Course Code - P4R1CHCC15PW
Upon Completion of the course students would be able to	
CO 1	Sufficient analytic powers to study issues faring society like pollution resource depletion etc and offer suitable solutions for them
CO 2	The project work will be a launch for advanced research
CO 3	Apply the various analytical techniques like IR, Mass, NMR and XRD to structural characterization of unknown compounds
CO 4	Know the basic concepts of electro analytical techniques
CO 5	Understand the various characterization techniques of nanomaterials