

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

Department of Physics

Course Outcomes

B.Sc. Physics – USPH

Course Name - Properties of Matter And Sound		Course Code - U1R1PHCC1
Upon Completion of the course students would be able to		
CO 1	Basic concepts in elastic properties of materials.	
CO 2	Importance of elasticity in beams and girders.	
CO 3	Significance of surface tension in real life.	
CO 4	Viscous properties of fluids used in industrial product development (dyes, paints, food products).	
CO 5	Applications of ultrasonic waves in diverse fields.	
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	Understanding the Fourier functions for various applications	
Course Name – ALLIED MATHEMATICS – II		Course Code – U2R1MTAC23
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 perpendicular to a plane and angle between the lines.	
CO 4	Expand $\cos^n x$, $\sin^n x$, $\cos m x \sin n x$, for different values of n & m.	
CO 5	Solve problems involving hyperbolic functions.	

Course Name - MECHANICS		Course Code – U2R1PHCC3
Upon Completion of the course students would be able to		
CO 1	Explain the basics in projectile and where it is applied	
CO 2	Concepts of rigid body dynamics in terms of moment of inertia.	
CO 3	SHM and to calculate the value of 'g' using freely suspended bodies.	
CO 4	Gravitation and centre of gravity at various locations.	
CO 5	The concepts of hydrostatics and hydrodynamics in day to day applications such as pumps and hydraulic press.	
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 – I B.Sc. Physics practical		Course Code -U2R1PHCC2P
After successful completion of the course student will be able to:		
CO 1	Conduct experiments on wooden bar and to identify its strength.	
CO 2	Test a wire or cylindrical rod for its stiffness.	
CO 3	Deal with liquids based on their viscosity.	
CO 4	Calculate the specific resistance of any conductor.	
CO 5	Analyze the effects of refractive index of medium using optical instruments.	

Course Name – THERMAL AND STATISTICAL PHYSICS		Course Code – U3R1PHCC4
Upon Completion of the course students would be able to		
CO 1	Apply both the first and second laws to determine heat transfer, work, and property changes during processes occurring in both closed and open system.	
CO 2	Have a clear understanding about Reversible and irreversible process and also working of a Carnot's engine, and knowledge of calculating changes in entropy for various processes.	
CO 3	Understand the central concepts and basic formalism of specific heat, entropy, quantum theory of radiation.	
CO 4	Realize the importance of thermodynamical functions and applications of Maxwell's relations.	
CO 5	Familiarize in depth about statistical distribution and have basic ideas about Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics and their applications.	

Course Name - ELECTRICITY AND MAGNETISM		Course Code – U3R1PHCC5
Upon Completion of the course students would be able to		
CO 1	Apply knowledge of electricity and magnetism to explain natural physical processes and related technological advances.	
CO 2	Specify the constitutive relationships for fields.	
CO 3	Apply Gauss's law of electrostatics to solve a variety of problems.	
CO 4	Demonstrate a working understanding of capacitors.	
CO 5	Have an ability to determine and describe static and dynamic electric	
Course Name - ALLIED CHEMISTRY-I		Course Code – U3R1CHAC4
Upon Completion of the course students would be able to		
CO 1	Know the periodicity and MO theory.	
CO 2	Understand the concepts of functions of biomolecules,	
CO 3	Get the knowledge on stereochemistry and photochemistry	
CO 4	Know the conductance of solutions and awareness about corrosion	
CO 5	Understand the highly chemical reactions molecules	

Course Name – BASIC ELECTRONICS		Course Code – U4R1PHCC7
Upon Completion of the course students would be able to		
CO 1	Acquire basic knowledge of p-n junction diode, different rectification process, filtering techniques	
CO 2	Understanding Thevenin's theorem and procedure for finding Thevenin's equivalent circuit and to gain knowledge of Maximum Power theorem	
CO 3	Acquiring Knowledge on Fabrication of a transistor, different configuration, Biasing, h parameters and Finding different applications of FET	
CO 4	Studying the amplitude and frequency response of common amplification circuits	
CO 5	Understanding negative and positive feed backs	

Course Name - ALLIED CHEMISTRY-III		Course Code – U4R1CHAC6
Upon Completion of the course students would be able to		
CO 1	Understand the chemical bonding and coordination compounds	
CO 2	Learn the basic reaction pathway and organic reaction	
CO 3	Get knowledge on some drugs and their functions	
CO 4	Know nature of substance and importance of Solid, colloids,	
CO 5	Understand the rate of reaction, kinetics and types of catalysis	
Course Name - LASER AND SPECTROSCOPY		Course Code – U4R1PHSBE1
Upon Completion of the course students would be able to		
CO 1	Understanding the basic concept of light behaviour	
CO 2	Acquired the knowledge of laser	
CO 3	Learning the basic concepts of LASER and application	
CO 4	Applying knowledge to Laser in communication	
CO 5	Exposing the students about spectroscopy	

Course Name - II B.Sc. Physics Practical		Course Code –U4R1PHCC6P
On completion of the course students will be able to:		
CO 1	Measure the moment of inertia of several objects, then compare experimental values with theoretical values and calculate percentage error.	
CO 2	Investigate the deformation of wire subjected to static torsion.	
CO 3	Measure the emf of an unknown cell using a potentiometer.	
CO 4	Construct a zener voltage regulator and experimentally determine the range over which the zener maintains a constant output voltage.	
CO 5	Explain precautions necessary when working around semiconductor circuits	
Course Name – OPTICS		Course Code – U5R1PHCC8
Upon Completion of the course students would be able to		
CO 1	Understands the aberration in lenses	
CO 2	Understand the working of optical instruments like eyepieces in physics lab	
CO 3	Learn the concepts of dispersion of light, interference, diffraction and polarization of light waves and their applications	
CO 4	Study the different aberrations of lens and learn different methods of minimizing the aberrations of lens.	
CO 5	Understanding the physics concepts behind the mechanism of Fresnel's biprism and Michelson's interferometer.	

Course Name - BIOMEDICAL INSTRUMENTATION		Course Code - U5R1PHSBE2
Upon Completion of the course students would be able to		
CO 1	Explain the different medical imaging systems.	
CO 2	Analyze and evaluate the effect of different diagnostic and therapeutic method.	
CO 3	Have a basic understanding of medical terminology.	
CO 4	Understand the elements of risk for different instrumentation methods and basic electrical safety.	
CO 5	Understand the position of biomedical instrumentation in modern hospital care.	

Course Name - ELEMENTS OF THEORETICAL PHYSICS		Course Code - U6R1PHCC13
Upon Completion of the course students would be able to		
CO 1	Perceive the particle behaviour when we apply the force	
CO 2	Understand the particles behavior for different coordinate	
CO 3	Understand the behaviour dual nature of matter (Particle and Energy)	
CO 4	Perceive the Schrodinger wave mechanics	
CO 5	Understand the concept of photo electric effect.	
Course Name - MICROPROCESSOR AND ITS APPLICATION		Course Code - U6R1PHCC14
Upon Completion of the course students would be able to		
CO 1	Understand the basic of intel 8085 microprocessors architecture and its instruction set	
CO 2	Write assembly language programme for the intel 8085.	
CO 3	Work to with standard microprocessor real time interfaces	
CO 4	Design system using memory chips and peripheral chips for 8 bit 8085 Microprocessor	
CO 5	Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.	

Course Name - COMPUTERPROGRAMMING–CLANGUAGE		Course Code - U6R1PHMBE2
Upon Completion of the course students would be able to		
CO 1	Understand the lexical elements in 'c'- programming.	
CO 2	Be aware of different types of operators and expressions in c language.	
CO 3	Choose the loops and decision making statements to solve the problem	
CO 4	Implement different operation an arrays.	
CO 5	Use function to solve the given problems	

Course Name - NANO-SCIENCE		Course Code - U6R1PHMBE3
Upon Completion of the course students would be able to		
CO 1	Graduate can reflect autonomously on a variation of different problems related to nanoscience.	
CO 2	Understand new discoveries and developments based on nanoscience.	
CO 3	Gathering knowledge of the methods used in nanoscience and design.	
CO 4	Able to apply knowledge from various domains and specializations in nanoscience.	
CO 5	Fundamental physical scaling laws applied to understanding the properties of materials at the nanometre scale	
Course Name - Electrical Home appliances		Course Code - U5R1PHSBE3
Upon Completion of the course students would be able to		
CO 1	Find the safety precaution for shockproof method	
CO 2	Understand the wiring technical method	
CO 3	Students acquire the knowledge of different parts of electrical measuring and its accessories	
CO 4	Students learn to produce a good quality electrical appliance using different methods	
CO 5	Construct, analyze and trouble shoot simple electromagnetic circuits	
Course Name - III B.Sc. Physics – General practical		Course Code - U6R1PHCC11P
On completion of the course students will be able to:		
CO 1	Understand the core concept of Physics subjects.	
CO 2	Acquire analytical and logical skill for higher Education.	
CO 3	Excel in Experimental and Theoretical Physics.	
CO 4	Take up jobs in allied fields.	
CO 5	Acquire confidence to take up competitive exams.	
CO 6	Demonstrate the effect of magnetic field on current carrying conductors.	
CO 7	Examine the effect of horizontal component of earth's magnetic field on magnetic materials.	

CO 8	Calibrate a voltmeter or ammeter.
CO 9	Analyze the effects of refractive index of a medium using optical instrument.
CO 10	Predict the curvature of a transparent medium.
Course Name - III- B.Sc. Physics Electronics practical outcomes	Course Code – U6R1PHCC12P
On completion of the course students will be able to:	
CO 1	Understand the differences between theoretical, practical & simulated results in integrated circuits.
CO 2	Develop a digital logic and apply it to solve real life problems.
CO 3	Know the design aspects of microprocessor and to write assembly language programs of microprocessor for various applications.
CO 4	Understand DC analysis and AC models of semiconductor devices.
CO 5	Analyze logic processes and implement logical operations using combinational logic circuits.