M.Sc. Physics

Course Outcome

Semester 1

Course	Outcomes After Completion of these courses students should be able to;
PH1CO1: Mathematical Methods in Physics-I	CO-1. To Know the idea of vector, its applications & physical interpretations CO-2. To familiarize the different Coordinates systems CO3- To capable of matrix calculations and its applications CO4- To Understand the tensors and its applications. CO-5. To Study the Generating function For Legendre, Hermite polynomials
PH1CO2: Classical &Quantum Mechanics	CO-1.To understand the fundamental concepts of the Lagrangian and the Hamiltonian methods and will be able to apply them to various problems; CO-2. understand the physics of small oscillations and the concepts of canonical transformations and Poisson brackets ; CO-3.To understand the basic ideas of central forces and rigid body dynamics; CO-4 to understand the Hamilton-Jacobi method and the concept of action-angle variables. CO-5 To aware the Lagrangian formulation of relativistic mechanics.
PH1CO3: Electrodynamics	CO1-. to impart proper understanding of electricity magnetism and electrodynamics; CoCo-2. To know the wave nature of electromagnetic field and its properties; electromagnetic field radiating out of accelerated charges and the impact of relativity in electromagnetism along with confined propagation of electromagnetic wave
PH1CO4: Electronics	CO-1. To study of the flow of charge (electron) through various materials and devices such as semiconductors, resistors, inductors, capacitors, nanostructures etc. CO-2. To Understanding all the applications of electronics involve the transmission of power and possibly information.

Semester 2

Course	Outcomes After Completion of these courses students should be able to
PH2CO5: Mathematical methods in Physics -II	CO-1. To know the concepts of Laplace and Fourier transforms. Co-2. To understand the Fourier series and it's application to solutions of partial differential equations. CO-3 To know the complex numbers and its applications in Physics.
PH2CO6 Quantum Mechanics -I	CO-1. To understand the fundamental concepts of the Dirac formalism CO-2. To understand how quantum systems evolve in time; CO-3. To understand the basics of the quantum theory of angular momentum. CO-4. To enable the student to solve the hydrogen atom problem which is a prelude to more complicated problems in quantum mechanics.
PH2CO7 Statistical Mechanics	CO-1. To Know the Basics of thermodynamics , entropy &its applications CO-2. – To Understand the different types of ensembles CO-3. To know the different Statistical Distributions & its applications in gas
PH2CO8: Condensed Matter Physics	CO-1.Know the principles of structures determination by diffraction Co-2. To understand the principles and techniques of X-rays diffraction CO-3.Know the fundamental principles of semiconductors and be able to estimate the charge carrier mobility and density CO-4.To give an extended knowledge about magnetic properties

Semester 3

Course	Outcome After Completion of these courses students should be able to
PH3CO9 -Quantum Mechanics II	CO-1. To understand the different stationary state approximation methods and be able to apply them to various quantum systems; CO-2. To understand the basics of time dependent perturbation theory and its application to semi-classical theory of atom radiation interaction; CO-3. To understand the theory of identical particles and its application to helium CO-4. To understand the idea of Born approximation and the method of partial waves. CO-5. To aware the basic concepts of relativistic quantum mechanics.
PH3C10: Computational physics	CO-1. To know the basic idea about the techniques used in physics to solve problems with the help of computers when they cannot be solved analytically with pencil and paper since the underlying physical system is very complex. CO-2. To able to develop their own Algorithms of every method described in the syllabus.
PH3EC2 Crystal Growth Techniques	CO-1 familiarize various crystal growth methods from solution and vapour CO-2. Understand the practical application of crystal growth such semiconductor devices , optoelectronics devices , photo cathodes etc
PH3EC1 Solid State Physics	CO-1. Know the Crystal defects and dislocations CO-2.Understand the phase diagrams in crystal CO-3.Know the crystal binding , excitations in solids

Semester 4

Course	Outcome After Completion of these courses students should be able to
PH4C11 Atomic &Molecular Physics	CO-1 understand the atomic structure and spectra of typical one- electron and two-electron systems. Co-2 know the theory of microwave and infrared spectroscopies as well as the electronic spectroscopy of molecules; CO-3 Know the basics of Raman spectroscopy and the nonlinear Raman effects; Co-4 Know the spin resonance spectroscopies such as NMR and ESR. This course also introduces the student to the ideas of Mossbauer spectroscopy
PH4C12 Nuclear &Particle Physics	CO-1 Know the basic properties of the nucleus and the nuclear forces. Co-2 Understand Major models of the nucleus and the theory behind the nuclear decay process; CO-3. Know the physics of nuclear reactions CO-4 . Know the interaction between elementary particles and the conservation laws in particle physics. CO-5.impart some idea about nuclear astrophysics and the practical applications of nuclear physics
PH4EC3 Nano structures and Characterisation	CO-1. Know the nanostructures synthesis and its properties CO-2. Understand Nanomaterials and applications CO-3. Know the Optical absorption and emission spectroscopy CO-4. Understand the chemical , thermal and Different X-ray diffraction methods
PH4OE1- Optoelectronics	CO-1. Familiarize with various optoelectronics such as Photo transistors, photo diodes, lasers CO-2. Fabrication techniques of opto electronic devices