Name of the Assistant Professor: Dr. Monica
Class and Section: B.Sc.-I (Pass Course) Semester-I
Subject: Physics (Mechanics)

	Week 1	Week 2	Week 3	Week 4/Week 5
AUG	Admissions	Admissions	Admissions	Mechanics of single and system of particles, conservation of laws of linear momentum, angular momentum and mechanical energy,
SEP	Centre of mass and equation of motion Unit test	Constrained motion, degrees of freedom, Rotation of Rigid body, moment of inertia, torque,	Angular momentum, kinetic energy of rotation. Theorems of perpendicular and parallel axes with proof.	Moment of inertia of solid sphere, hollow sphere, spherical shell
OCT	Moment of inertia of hollow cylinder and solid cylinder	Moment of inertia of solid bar of rectangular cross-section.	Acceleration of a body rolling down on an inclined plane. Assignment	Generalized coordinates, displacement, Unit test
NOV	Generalized velocity, acceleration, momentum.	Generalized force and potential.	Hamilton's variational principle, Lagrange's equation of motion from Hamilton's Principle.	Linear Harmonic oscillator, simple pendulum
DEC	Atwood's machine. Assignment	Revision and Tests	Semester Exams/Winter Vacations	

Class and Section: B.Sc.-I (Pass Course) Semester-I
Subject: Physics (Electricity and Magnetism)

	Week 1	Week 2	Week 3	Week 4/Week 5
AUG	Admissions	Admissions	Admissions	Scalars and vectors, dot and cross products, integration and differentiation of vectors Physical significance of line, surface and volume integral and numerical based on dot and cross products
SEP	Concept of differential operator, physical significance of gradient and it's importance	Divergence and gauss divergence theorem and numerical	Curl and Stokes's theorem	Electric field, potential and electric field as gradient of potential, Laplace and Poisson equation
OCT	Electric flux, Guass law and it's application	Mechanical force and energy density	Queries, Numerical problems Test	Magnetic field, magnetic flux, properties of magnetic field
NOV	Langevin's theory of Dia and paramagnetic substances, domain theory of ferromagnetic	Cycle of magnetization and, hysteresis loss and importance of hysteresis loop	Maxwell equations and their derivation, current density and about scalar and vector potential	Boundary conditions at interface between two different media,
DEC	Pointing vector and pointing theorem Assignment	Queries Revision and Tests	Semester Exams/Winter Vacations	

Name of the Assistant Professor: Dr. Monica
Class and Section: B.Sc.-II(Pass Course)Semester-III **Subject:** Physics (PHY-301-ComputerProgrammingandThermodynamics)

	Week 1	Week 2	Week 3	Week 4/Week 5
AUG	Admissions	Admissions	Introduction about the paper, Unit 2:Introduction About laws of thermodynamics	Thermodynamic system and Zeroth law of thermodynamics. First law of thermodynamics and its limitations, reversible and Irreversible process, Second law of thermodynamics and its significance
SEP	Carnot Engine, Carnot theorem, Air pollution due to internal Combustion Engine, Numerical	Absolute scaleof temperature, Absolute Zero, Joule Free Expansion	Joule Thomson effect, Joule-Thomson(Porous plug)experiment, Conclusion and analytical treatment.	Entropy, calculations of entropy of reversible and irreversible process, T-S diagram ,entropy of a perfect gas, Nernst heat law
OCT	Liquefactionofgases, (oxygen,air,hydrogen andhelium)	ProblemsonUnitII,Numericalsand Assignment,Test	Clausius-Claperyron latentheateequation, Phasediagramand triple point of a substance	Maxwell thermo dynamical relations and theirapplicationsto derive relations between entropy, specific heats and thermodynamic variables
NOV	Unit3:Numerical, Assignments,Unit1: Computerorganization, Binaryrep.	Algorithm development,Flow chartsand interpretation, Fortran Preliminaries	Integerandfloating point arithmetic expression, Built in functions executable and non executable.	Input and output statements, Formats,I.F. DO and GOTO statements
DEC	Dimesionarrays statementfunction andfunction subprogram	Revision and Tests	Semester Exams/Winter Vacations	

Subject: Physics (Optics)

	Week 1	Week 2	Week 3	Week 4/Week 5
AUG	Admissions	Admissions	Introduction to paper	Introduction to light phenomenon
SEP	Introduction to interference	Interference types, Interference by division of wavefront	Young double slit experiment, Numericals	Fresnel Biprism, application Numericals
OCT	Lloyd's mirror, difference between two methods	Phase change reflections, Numericals Revision	Matrix methods in optics	Assignment, Matrix methods in optics Thin,thick lens formula
NOV	Unit plane,nodal plane, system of thin lenses,	Introduction to aberrations, type of aberrations	Chromatic, spherical aberration Astigmatism, coma Distortion	Introduction to Fourier series, transverse and longitudinal waves, triangular ,rectangular waves,
DEC	Fourier transform, properties	Revision and Tests	Semester Exams/Winter Vacations	

Name of the Assistant Professor: Dr. Monica
Class and Section: B.Sc.-III (Pass Course) Semester-V
Subject: Physics (PHY-501 – Solid State Physics)

	Week 1	Week 2	Week 3	Week 4/Week 5
AUG	Admissions	Admissions	Introduction about the paper, Introduction of Unit I	Crystalline and glassy forms, Liquid Crystals, Crystal Structure, Translation Vector, Unit and Primitive Cell
SEP	Lattice parameters, Wigner – Seitz primitive Cell	Crystal Symmetry, Bravais lattice in 2- D, Bravais Lattice in 3-D	Crystal planes and Miller indices, Interplanar Spacing	Crystal Structures (sc, bcc, fcc, hcp) NaCl, CsCl, Diamond, ZnS Structure, Numerical problems
OCT	X Ray Diffraction, Bragg's law, Experimental X ray diffraction methods	Unit 2: Test, Reciprocal Lattice and lattice vectors	Physical Significance of Reciprocal Lattice (geometrical interpretation, vector form of Bragg's law)	Atomic Scattering factor , Reciprocal lattice Of SCC, FCC, BCC; K space
NOV	Assignment, Specific heat of solids, Heat capacity	Dulong and Petit's Law, Einstein Theory of Specific heat of solids	Einstein Theory of Specific heat of solids ,	Debye Theory of lattice Specific Heats, Approximation and Special cases of Debye theory
DEC	Shortcomings of Debye Model, Assignment and Revision	Revision and Tests	Semester Exams/Winter Vacations	

Paper 2 - Quantum Mechanics PHY-502

	Week 1	Week 2	Week 3	Week 4/Week 5
AUG	Admissions	Admissions	Failure of (Classical) E.M. Theory. quantum theory of radiatio (old quantum theory), Photon,photoelectric effect and Einsteins photoelectric equation compton effect (theory and result).Inadequancy of old quantum theory, de-Broglie hypothesis.	Davisson and Germer experiment. G.P. Thomson experiment Phase velocity group velocity, Heisenberg's uncertainty principle.
SEP	Time-energy and angular momentum Position uncertainty Uncertainty principle from de-Brogliewave, (wave-partice duality).	Gamma Ray Maciroscope, Electron diffraction from a slit Derivation of time dependent Schrodinger wave equation, eigen values, eigen functions, wave functions and its significance.	Normalization of wave function, concept of observable and operator. Solution of Schrodinger equation for harmomic oscillator ground states and excited states.	Numerical Part Unit 2 time dependent Schrodinger wave equation, eigen values, eigen functions, wave Normalization of wave function,(Brief ,Numerical) operator and Expectation Value,
OCT	HARMOMIC OSCILLATOR (Detailed Solution) Energy and Wave solution	Operators, Expectation Value	Application of Schrodinger equation in the solution of the following one-dimensional problems	Diwali Break Assignment 1 , 2 Brief Unit 1,2
NOV	One-dimensional potential barrie E>V0 (Reflection and Transmission coefficient.	One-dimensional potential barrier, E>V0	Free particle in one dimensional box (solution of schrodinger wave equation, eigen function,eigen values, quantization of energy and momentum, nodes and antinodes, zero point energy).	i) One-dimensional potential barrie E>V0 ii) One-dimensional potential barrier, E>V0
DEC	Reflection Coefficient, penetration of leakage coefficient, penetration depth E>V0	ASSIGNMENTS , Brief Unit 1,2,3	Semester Exams/Winter Vacations	