**Lesson Plan April – June 2022**

Name: Ms. pooja

Class: B.Sc.( Hons) 2nd Sem

Paper code: Phy- 203

Subject Name: ***magnetism***

Number of days: 1-3

|  |  |
| --- | --- |
| 01 April – 01 May | Magnetic force between current elements, definition of B, Properties of B, Ampere’s Circuital Law, Curl and divergence of B, vector potential, Magnetic flux, calculation of B for circular and solenoid currents, Torque on a current loop in a uniform magnetic field, Continue...., numericals |
| 02 May – 02 June | Magnetic dipole, Force on an isolated moving charge, B, H and their relation. Magnetic susceptibility, Stored magnetic energy in matter, Magnetic circuit B-H curve and energy loss in hysteresis, Numerical problems , test and assignment, A conducting rod moving through a uniform magnetic field, A loop through on uniform magnetic field. |
| 03 June – 20 June | A stationary loop with field source moving, Faraday’s law of induction. Curl E-D B/dt, Mutual induction – reciprocity theorem (M12 = M21) Self induction, energy stored in magnetic field. |

**Lesson Plan April- June 2022**

Name: Mrs.Renu Kumari

Class: B.Sc. Physics (H) Semester-II

Paper code: Phy-202

Subject Name: ***Mechanics***

Number of days: 1-3

|  |  |
| --- | --- |
| 1 April- 1 May | Law of gravitation. Inertial and gravitational mass, Potential energy and field due to spherical shell and solid sphere.Self-energy, Motion of a particle under central force field Angular momentum conservation one body problem, two body problem and its reduction to one body problem and its solution, The energy equation and energy diagram. Kepler’s laws. Satellites. |
| 2 May- 2 June | Inertial frame and Galilean transformation, Non-inertial frame and fictitious forces. Uniformly accelerating system, Physics in rotating coordinate systems, centrifugal and Coriolis forces. Michelson-Morley experiment and its outcome. Postulates of special theory of relativity. Lorentz transformations. Simultaneity and order of events. Lorentz contraction |
| 3 June-20 June | Time dilation. Relativistic transformation of velocity,  Velocity dependence of mass and equivalence of mass and energy, Transformation of energy and momentum |

**Lesson Plan April- June 2022**

Name: Mrs.Renu Kumari

Class: B.Sc. Physics (H) Semester-II

Paper code: Phy-201

Subject Name: ***Mathematical Physics***

Number of days: Thursday, Friday, Saturday

|  |  |
| --- | --- |
| 1 April- 1 May | Classification of differential equations: linear and nonlinear, homogeneous and non-homogenous equations, First order: Separable and exact equations. Integrating factor, Second Order: Homogeneous equations with constant coefficient’s Wronskian, General solution Statement of Existence and Uniqueness theorem for initial value problems, Solution of non-homogeneous equations by operator (D) method. Particular  integral. |
| 2 May- 2 June | Method of undetermined coefficients and variation of parameters Equations reducible to those with constant coefficient. Fourier series, Dirichlet conditions (Statement only)  Orthogonality of sine and cosine functions, Sine and cosine series. Distinctive features of Fourier expansions. Half-range expansions. |
| 3 June-20 June | Applications Square wave triangular wave, output of full wave rectifier and other simple functions Summary of infinite series, Systematic and random errors. Propagation of errors, Standard and probable error. Least square fitting of data (linear case). |

**Lesson Plan April- June 2022**

Name: Ms. SANKET

Class: B.Sc. Physics (H) Semester-II

Paper code: Phy-206

Subject Name: Linear and Digital Integrated Circuits & Instrumentation-II

Number of days: Thursday, Friday, Saturday

|  |  |
| --- | --- |
| 1 April- 1 May | Sequential circuits: flip-flops – RS, JK , D, clocked, preset and clear operation race-around conditions in JK Flip-flop, master slave JK flip-flop as building block of sequential circuits., Class test , Shift registers: Serial-in-serial-out, serial-in-parallel-out parallel-in-parallel-out, parallel-in-paralleled-out (only upto 4 bits).Counters: Asynchronous counters, synchronous counter ,decade counter D/A and A/D conversion: D/A converter-resistive network, accuracy and resolution, assignment., A/D converter (only counter method) – accuracy and resolution |
| 2 May- 2 June | Timer: Simple applications of 555 timer circuits ,Timer continues. class test. Power supply: requirement of ideal voltage and current source, voltage source, half-wave and full-wave rectifier,bridge rectifier, L and C filters, some idea of ripple.Oscilloscope: Input attenuators, DC, AC and ground, horizontal and vertical deflecting system, test. time base generation and synchronization |
| 3 June-20 June | measurement of positive, positive-negative wave shape,rise time and fall time; frequency amplitude and phase of sinusoidal waves  *Revision and test* |

**Lesson Plan**

**(April - June 2022)**

Name: Dr. Manju Vashistha,

Class: B.Sc I(NM) 2nd Sem, Sec A, Sec B, Sec C

Paper code: Phy-201

Subject Name: Properties of Matter, Kinetic theory, Relativity

Number of days: 4-6,1 -3

|  |  |
| --- | --- |
| .Week | Syllabus covered |
| 01 April -01May | Unit I introduction, elssticity, hooke’s law, elastic constants and their relations, poisson’s ratio  Torsion of cylinder and twisting couple bending of beam, Cantilevers, centrally loaded beam, Test and assignment of unit I, introduction to unit II, assumptions of kinetic theory of gases, Law of equipartition of energy and its applications for specific heats of gases |
| 02May –02 June | Maxwell distribution of speeds and velocities, experimental verification of Maxwell’s law of speed distribution, Most probable speed, average and r.m.s speed, mean free path, Transport of energy and momentum, diffusion of gases, Brownian motion Real gases, van der waal’s equation, Test and assignment of unit II, introduction to unit III, reference systems, inertial frames, Michelson-Morley experiment: search for ether, Lorentz transformations |
| 03 June – 20 June | Length contraction, time dilation, velocity addition theorem, Variation of mass with velocity and mass energy equivalence. *Revision and test* |

**Lesson Plan**

**(April -June 2022)**

Name: Dr. Sonu Kumar,

Class: B.Sc I(NM) 2nd Sem, Sec A, Sec B, Sec C

Paper code: Phy-202

Subject Name: Electro Magnetic Induction and Electronic Devices

Number of days: 4-6,1 -3

|  |  |
| --- | --- |
| Month | Syllabus covered |
| 01 April -01May | Electromagnetic Induction : Growth and decay of current in a circuit with (a) Capacitance and resistance (b) resistance and inductance (c) Capacitance and inductance (d) Capacitance resistance and inductance.  AC circuit analysis using complex variables with (a) capacitance and resistance, (b) resistance and inductance (c) capacitance and inductance (d) capacitance, inductance and resistance Series and parallel resonant circuit. Quality factor (Sharpness of resonance). |
| 02May –02 June | Semiconductor Diodes: Energy bands in solids. Intrinsic and extrinsic semiconductor, Hall effect, P-N junction diode and their V-I characteristics. Zener and avalanche breakdown.  Resistance of a diode, Light Emitting diodes (LED). Photo conduction in semiconductors, Photo diode, Solar Cell.  Diode Rectifiers: P-N junction half wave and full wave rectifier. Types of filter circuits (L and - with theory). Zener diode as voltage regulator, simple regulated power supply. |
| 03 J une – 20 June | Transistor Amplifiers: Transistor biasing, methods of Transistor biasing and stabilization. D.C. load line. Common-base and common-emitter transistor biasing. Common-base, Common emitter amplifiers. Classification of amplifiers. Resistance-capacitance (R-C) coupled amplifier  Feed-back in amplifiers, advantage of negative feedback Emitter follower.  Oscillators : Oscillators, Principle of Oscillation, Classification of Oscillator. Condition for self sustained oscillation: Barkhousen Criterion for oscillations.  Tuned collector common emitter oscillator. Hartley oscillator. Colpitt’s oscillator. *Revision and test* |

**Lesson Plan April – June 2022**

Name: Ms. pooja

Class: B.Sc.( Hons) 4th Sem

Paper code: Phy- 403

Subject Name: ***vibration and wave optics***

Number of days: 4-6

|  |  |
| --- | --- |
| 01 April – 01 May | Kirchhoff’s integral theorem and kirchoff laws, Fresnel-Kirchhoff integral formula, its application to diffraction problems, Fraunhofer diffraction, Single slit, rectangular slit, circular aperture. Multiple slit. |
| 02 May – 02 June | Plane diffraction grating, Resolving power and depressive power of a plane diffraction, Fresnel diffraction, Fresnel’s integrals, Cornu’s spiral, Fresnel diffraction pattern at a straight edge, a slit and a wire. |
| 03 June – 20 June | wire (qualitatively using Cornu’s spiral, holographyecording and reconstruction method and its theory as interference between two plane waves, reconstruction method and its theory as interference between two plane waves. |

**Lesson Plan April 2022**

Name: Pardeep Kumar

Class: B.Sc. 4th Sem (Hons.)

Paper code: Phy- 404

Subject Name: **Atomic and Nuclear Physics**

Number of days: 4-6

|  |  |
| --- | --- |
| 01 April – 01 May | Atoms in electric and magnetic fields: Electron spin. Stern-Gerlach experiment, magnetic field from classical view point, Orbital angular momentum, dipole moment and energy in Zeeman effect. Spin-orbit coupling. Fine structure. Total angular  Momentum, Many-electron atoms: Pauli exclusion principle, Many particles in one dimensional box. Vector model. L-S and jj coupling |
| 02 May – 02 June | Symmetric and ant symmetric wave functions. Atomic shell model  Doublet Structure of alkali spectra. Empirical evidence of multiples, Selection rules, Properties: mass, size, angular momentum, constituents, binding energy, stability. |
| 03 June – 20 June | Models: Liquid drop model. Mass formula. adioactivity : Law of radioactive decay. Theory of successive radioactive, Numerical Problems Transformations. Radioactive series (mention the series-diagram not needed) Periodic table, Spectral notations for atomic states, Shell model, nuclear forces. |

**Lesson Plan April-June 2022**

Name: Ms. Anju Rani

Class: B.Sc.2nd Physics (H) Semester-IV

Paper code: Phy-401

Subject Name: Mathematical Physics-II

Number of days: Monday, Tuesday, Wednesday

|  |  |
| --- | --- |
| 1 April- 1 May | Gamma and Beta functions. Legendre, hermite and Laguerre Polynomials: Rodrigues formulae, generating functions, recurrence relations, orthogonality.  Series expansion of a function in terms of a complete set of Legendre functions.  Bessel functions : first and second kind. Generating function, recurrence formulas, zeros of Bessel functions and orthogonality. Fraunhofer diffraction integral for circular aperture. Problems and Test. |
| 2 May- 2 June | General solution of wave equation in 1 dimension. Transverse vibration of stretched string. Oscillation of hanging chain. Wave equation in 2 and 3 dimensions. Vibrations of rectangular and circular membrane. Derivation of the equation of heat conduction. Derivation of the equation of heat conduction. Heat flow in one-two-and three dimensional rectangular systems of finite boundaries, Temperature inside circular plate. |
| 3 June- 20 June | Laplace equation in Cartesian, cylindrical and spherical coordinate systems. Problems of steady flow of heat in rectangular and circular plate. Gravitational potential of a ring.  *Revision And Test* |

**Lesson Plan April-June 2022**

Name: Ms. SANKET

Class: B.Sc. Physics (H) Semester-IV

Paper code: Phy-402

Subject Name: Thermal Physics-II

Number of days: Monday, Tuesday, Wednesday

|  |  |
| --- | --- |
| 1 April- 1 May | Zeroth and first law of thermodynamics, Reversible and irreversible processes. Conversion of heat into work Carnot theorem, test , Second law of thermodynamics, Thermodynamic temperature, assignment  Clausius inequality.Entropy changes in reversible and irreversible processes , Temperature-entropy diagrams. Test, The principle of increase of entropy & its applications |
| 2 May- 2 June | Thermodynamic potentials: Enthalpy, Gibbs and Helmholtzfunctions.  Maxwell relations and their applications. Magnetic work. class test.  Magnetic cooling by adiabatic demagnetization, approach to absolute zero ,change of phase, equilibrium between a liquid and its vapour. Clausius-Clapeyron equation. |
| 3 June- 20 June | The triple point with examples from physics. test. Second order phase transitions  *Revision And Test* |

**Lesson Plan : April – June, 2022**

Name: Mrs. Neeraj Kadian

Class: B.Sc II (NM) 4th Sem, Sec A, Sec B ,Sec C

Paper code: Phy-402

Subject Name: Optics

Number of days: 1-3, 4-6

|  |  |
| --- | --- |
|  |  |
| 1 April -30 April | Introduction to unit I, Interference by division of amplitude: Colour of thin films, wedge shaped film, Newton’s ring  Continue ,Michelson Interferometers,Fresnel’s Diffraction- half period zone, zone plate, diffraction at a straight edge  Rectangular slit and circular aperture, test and assignment |
| 1 May -25 May | Introduction to unit II, Fraunhoffer diffraction-one slit, two slit, N-slit  Plane transmission grating spectrum , dispersive power of a gration  Limit of resolution, rayleigh’s criterion  Resolving power of telescope and a grating  test and assignment of unit II, |
| 26 May – 15 June | Introduction to unit III, polarisation and double refraction Polarisation by reflection and scattering, Malus law, huygen’s wave theory of double refraction,Analysis of polarised light- nicol prism, quarter wave plate and half wave plate ,Production and detection of plane, circularly and elliptical polarized light , optical activity, fresnel’s theory of rotation, specific rotation  Polarimeters.  Revision and Tests |

**Lesson Plan April 2022**

Name: Mr. Vikas

Class: B.Sc.(Non Med) 4th Sem, Sec A, Sec B, Sec C

Paper code: Phy- 401

Subject Name: Statistical Physics

Number of days: 4-6, 1-3

|  |  |
| --- | --- |
| 01 April – 01 May | Probability, some probability considerations, combinations possessing maximum probability, combinations possessing minimum probability, distribution of molecules in two boxs. Case with weightage (general), assignment, Phase space,microstates and macrostates, |
| 02 May – 02 June | statistical fluctuations constraints and accessible States Thermodynamical probability, Postulates of Statistical Physics. Division of Phase space into cell, test, Condition of equilibrium between two system in thermal contact. b-Parameter, Entropy and Probability, Boltzman’s distribution law. Evaluation of A and b. Bose-Einstein statistics, Application of B.E. Statistics to Plancks’s radiation law, B.E. gas. |
| 03 June – 20 June | Fermi-Dirac statistics, M.B. Law as limiting case of B.E. Degeneracy and B.E.,Condensation. F.D. Gas, test, electron gas in metals. Zero point energy, Specific heat of metals and its solution. |

**Lesson Plan April 2022**

Name: Pardeep Kumar

Class: B.Sc. 6th Sem (Sec A)Non med.

Paper code: Phy- 602

Subject Name: Nuclear Physics

Number of days: 1-3

|  |  |
| --- | --- |
| 01 April – 01 May | Nuclear mass and binding energy, systematics nuclear binding energy, nuclear stability, Nuclear size, spin, parity, statistics magnetic dipole moment, quadrupole moment (shape concept), Determination of mass by Bain-Bridge, Bain-Bride and Jordan mass spectrograph, Determination of charge by Mosley law Determination of size of nuclei by Rutherford Back Scattering, Interaction of heavy charged particles (Alpha particles), alpha disintegration and its theory Energy loss of heavy charged particle |
| 02 May – 02 June | Energetics of alpha-decay, Range and straggling of alpha particles. Geiger-Nuttal law.Introduction of light charged particle (Beta-particle), Origin of continuous beta-spectrum (neutrino hypothesis) types of beta decay and energetics of beta decay, Energy loss of betaparticles (ionization), Range of electrons, absorption of beta-particles, Interaction of Gamma Ray, Nature of gamma rays, Energetics of gamma rays, passage of Gamma radiations through matter (photoelectric, compton and pair production effect) electron position |
| 03 June – 20 June | neutrino hypothesis) types of beta decay and energetics of beta decay, Energy loss of betaparticles (ionization), Range of electrons, absorption of beta-particles. anhilation. Asborption of Gamma rays (Mass attenuation coefficient) and its application, Nuclear reactions, Elastic scattering, Inelastic scatting, Nuclear disintegration, photonuclear reaction, Radiative capture, Direct reaction, heavy ion reactions and spallation Reactions, conservation laws. Q-value and reaction threshold, Nuclear Reactors General aspects of Reactor design. Nuclear fission and fusion reactors,(Principles, construction, working and use) Linear accelerator, Tendem accelerator, Cyclotron and Betatron accelerators, Ionization chamber, proportional counter, G.M. counter detailed study, scintillation counter, Semiconductor detector. |

**Lesson Plan Jan 2022**

Name: Sanehaa

Class: B.Sc. 6th Sem (Sec B&C )Non med.

Paper code: Phy- 602

Subject Name: Nuclear Physics

Number of days:1-6

|  |  |
| --- | --- |
| 1 April- 1 May | Nuclear mass and binding energy, systematics nuclear binding energy, nuclear stability  Nuclear size, spin, parity, statistics magnetic dipole moment, quadrupole moment (shape concept)  Determination of mass by Bain-Bridge, Bain-Bride and Jordan mass spectrograph, Determination of charge by Mosley law Determination of size of nuclei by Rutherford Back Scattering.  Interaction of heavy charged particles (Alpha particles), alpha disintegration and its theory Energy loss of heavy charged particle  Energetics of alpha-decay, Range and straggling of alpha particles. Geiger-Nuttal law.Introduction of light charged particle (Beta-particle) |
| 2 May -2 June | Origin of continuous beta-spectrum (neutrino hypothesis) types of beta decay and energetics of beta decay, Energy loss of betaparticles (ionization), Range of electrons, absorption of beta-particles.  Interaction of Gamma Ray, Nature of gamma rays, Energetics of gamma rays, passage of Gamma radiations through matter (photoelectric, compton and pair production effect) electron position  neutrino hypothesis) types of beta decay and energetics of beta decay, Energy loss of betaparticles (ionization), Range of electrons, absorption of beta-particles. anhilation. Asborption of Gamma rays (Mass attenuation coefficient) and its application. |
| 3 June- 20 June | Nuclear reactions, Elastic scattering, Inelastic scatting, Nuclear disintegration, photonuclear reaction  Radiative capture, Direct reaction, heavy ion reactions and spallation Reactions, conservation laws. Q-value and reaction threshold  Nuclear Reactors General aspects of Reactor design. Nuclear fission and fusion reactors  (Principles, construction, working and use) Linear accelerator, Tendem accelerator, Cyclotron and Betatron accelerators.  Ionization chamber, proportional counter, G.M. counter detailed study, scintillation counter  Semiconductor detector. |
| *Revision and test* |
|  |  |

**Lesson Plan April-June 2022**

Name: Dr. Suman

Class: B.Sc. Pass course 6th Sem

Paper code: Phy- 601

Subject Name: Atomic, Molecular And Laser Physics

Sec. A (4-6) and Sec. B (1-3)

|  |  |
| --- | --- |
| 1 April – 1 May | Vector atom model, quantum numbers associated with vector atom model, penetrating and nonpenetrating orbits (qualitiative description  spectral lines in different series of ailkali spectra, spin orbit interaction and doublet term seperation LS or Russel-Saunder Coupling jj coupling (expressions for inteaction energies for LS and jj coupling required) , test Zeeman effect (normal and Anormalous) Zeeman pattern of D 1 and D2 lines of Na-atom, |
| 2 May- 2 June | Paschen, Back effect of a single valence electron system,Weak field Strak effect of Hydrogen atom. Discrete set of electronic energies of molecules, assignment , quantisation of Vibrational and ratiational energies Raman effect (Quantitative description),Stoke's and anti Stoke's lines. Test, Main features of a laser : Directionality, high intensity, high degree of coherence, spatial and temporal coherence  Einstein's coefficients and possibility of amplification,momentum transfer, life time of a level, kinetics of optical obsorption. |
| 3 June -20 June | Threshold condition for laser emission, Laser pumping  He-Ne laser and RUBY laser (Principle, Construction and Working).  Applications of laser in the field of medicine and industry.  *Revision and test* |

**Lesson Plan April-June 2022**

Name: Mrs. Anju Rani

Class: B.Sc.3rd Year Pass course (6th Sem )

Paper code: Phy- 601

Subject Name: Atomic, Molecular and Laser Physics

Number of days: 4-6 (Sec.-C)

|  |  |
| --- | --- |
| 1 April – 1 May | Vector atom model, quantum numbers associated with vector atom model, penetrating and non-penetrating orbits (qualitiative description), spectral lines in different series of ailkali spectra, spin orbit interaction and doublet term separation, LS or Russel-Saunder Coupling jj coupling (expressions for inteaction energies for LS and jj coupling required), Zeeman effect (normal and Anormalous), Zeeman pattern of D1 and D2 lines of Na-atom. |
| 2 May- 2 June | Paschen Back effect of a single valence electron system, Weak field Strak effect of Hydrogen atom. Discrete set of electronic energies of molecules, assignment , quantisation of Vibrational and ratiational energies, Raman effect (Quantitative description), Stoke's and anti- Stoke's lines. Test*.*Main features of a laser : Directionality, high intensity, high degree of coherence, spatial and temporal coherence, |
| 3 June -20 June | Einstein's coefficients and possibility of amplification, momentum transfer, life time of a level, kinetics of optical obsorption. Threshold condition for laser emission, Laser pumping, He-Ne laser and RUBY laser (Principle, Construction and Working). Applications of laser in the field of medicine and industry.  *Revision and test* |

**Lesson Plan**

**Session 2021-22 (1 April 2022-20 June 2022)**

Name: Dr. Sonu Kumar

Class: B.Sc. Ist year 2th Sem (Home Science)

Paper code:202

Subject Name:Physics

Number of days:1-3 days

|  |  |
| --- | --- |
| 01 April -01May | Properties of solids - a) Density , specific gravity , elasticity, hardness ,malleability, ductility. b) Properties of liquids :- Surface tension ,capillary action ,Archimedes principle, specific gravity of liquids  Properties of gases :- Elasticity , compressibility, atmospheric pressure, Simple machines – Mechanical advantages , efficiency lever, screw pulleys, seissors , beaters |
| 02May –02 June | Friction:- Friction ,advantages and disadvantages, concepts of ball bearing, sewing floor scrubbing machines Centripetal and centrifugal forces, spin dryer in washing machine.  Air appliances :- Vacuum cleaner. Static and current electricity, Basic electrical circuits ,units of electrical measurement ,ohm’s law and parallel circuits  Sources of electricity – Dry and storage battery ,grouping of cells ,generator, thermocouple, Thermal effect- Seebeck effect, thermoelectric thermometer, fuse circuit breaker, toaster,geysers hot plate, water heater, water boiler, steam iron |
| 03 June – 20 June | . Induced Current: - Transformer. House wiring :- Transfer of energy from the PowerPoint to home , kilowatt hour, Meter distribution of current to the house  number of circuits in a house, methods of installing the wiring circuits and switches  . Introduction to heat :- Unit of heat, Source and properties of heat , heat and temperature  Heat transfer, humidity, relative humidity and dew point. Application of heat transfer household thermometers, pressure cooker, vaccum coffee maker.  Refrigeration :- Refrigerator , Compressor and absorption type  cold storage plants. |

**Lesson Plan Session 2022**

Name: Miss Sanehaa

Class: B.Sc.( Hons) 6th Sem

Paper code: Phy- 605

Subject Name: ***Electronic devices: Physics and applications-II***

Number of days: 1-3

|  |  |
| --- | --- |
| 1 April-1May | Amplifiers – Only bipolar junction transistor, CB, CE and CC configurations  Singlestage CE amplifier (biasing and stabilization circuits, Q-point, equivalent circuit, inputimpedance, output impedance, voltage and current gain)  Class A, B. C amplifiers (definitions)RC coupled amplifiers (frequency response, Boe plot, amplitude and phase) Class B push-pull amplifier |
|  |
| 2 May -2 June | Feedback in amplifiers – Voltage feedback and current feedback Effect of negativevoltage series feedback on input impedance,  output impedance and gain, stability distortion and noise, Feedback in amplifiers cont….  Oscillators – barkhausen criterion, Colpitts, phase shift |
| 3 June -20 June | crystal oscillators.Multivibrators , Basic circuits of astable, bistable and monostable multivibrators  Multivibrators cont….Details of astable multivibrators (Derivation of time period).  Multivibrators cont… problems, Sweep circuits  Sweep circuit usingtransistor as a switch and UJT (derivation of time period). |
|  | *Revision and tests* |

**Lesson Plan April-June 2022**

Name: Mrs. EKTA

Class: B.Sc.( Hons) 6th Sem

Paper code: Phy-602

Subject Name: ***Electromagnetic Theory-II***

Number of days: 1-3

|  |  |
| --- | --- |
| 1 April- 1 May | Polarization of e.m. waves, Description of linear, circular and elliptical polarization, Propagation of e.m waves in anisotropic media Symmetric nature of dielectric tensor, Fresnel’s formula. Light propagation in uniaxial crystal, Double refraction. Nicol prism, Production of circularly and elliptically polarized light. |
| 2 May- 2 June | Babinet compensator. Analysis of polarized light, Wave guides. Coaxial transmission line, Modes in rectangular wave guide Energy flow and attenuation in wave guides, Rectangular resonant caves, Planar optical wave guides Planar dielectric wave guide. |
| 3 June -20 June | Condition of continuity at interface. Phase shift on total reflection, Eigen value equations, phase and group velocity of the guided waves, Field energy and power transmission. |

**Lesson Plan April-June 2022**

Name: Mrs. EKTA

Class: B.Sc. ( Hons) 6th Sem

Paper code: Phy-601

Subject Name:**Mathematical Physics *-II***

Number of days: 4-6

|  |  |
| --- | --- |
| 1 April- 1 May | Cartesian Tensors, Transformation of co-ordinates. Tensorial character of physical quantities. Symmetric and anti-symmetric lasers.  Contraction and differentiation, Pseudotensors, Kronecker and attempting tensors, Step function and Dirac delta function, Fourier transform, Fourier integral theorem, Sine and cosine transforms |
| 2 May- 2 June | Convolution theorem, Solution of one dimensional diffusion and wave equations, Heat flow in an infinite and semi-in-finite rod.  Laplace transform, Transform of elementary functions, Derivatives and integrals, Unit step function, Periodic function, Translation substitution and Convolution theorem |
| 3 June -20 June | Solution of first and second order ordinary differential equations Solution of partial differential equations, Evaluation of integrals using transforms. |

**Lesson Plan April 2022**

Name: Mr. Vikas Sharma

Class: B.Sc.( Hons) 6th Sem

Paper code: Phy-604

Subject Name:*Physics of Materials-II*

Number of days: 4-6

|  |  |
| --- | --- |
| 1 April- 1 May | Dielectric Properties of Materials.Polarization, Local electric field at an atom.  Depolarization field, Lorentz fields of dipoles inside a cavity.  Dielectric constant and polrizability: Electric susceptibility,polarizability, |
| 2 May- 2 June | Clausius-Mosotti equation. Qualitative discussion of ferroelectric properties of materials  P-E hysteresis loop, Qualitative description of free electron theory  Inadequacies of free electron theory with reference to Halleffect and specific heat of electrons in a metal. |
| 3 June -20 June | Elementary band theory-Bloch theorem, Kronig-Penney model  Difference between conductors, semiconductors and Insulators Band gaps  Effective mass of electron, concept of hole, Types of semiconductor  Action conductivity in semiconductors  Mobility of carriers (lattice & semiconductors (qualitative). |
|  | *Revision and test* |

**Lesson Plan 2021-2022 (April 2022-June 2022)**

Name: Ms. Neha

Class: B.Sc. Physics (H) Semester-VI

Paper code: Phy-606

Subject Name: Nano Physics

Number of days: 4-6

|  |  |
| --- | --- |
| 1 April – 30 April | Introduction of nano technology, particle size determination, XRD, PL and Raman spectroscopy for nano particles |
| 2 May – 30 May | Increase in width of nano particles, Top – Down and Bottom –Up approach, Ball milling |
| 1 June – 20 June | Method of synthesis of nano- particles, revision |

**Lesson Plan 2021-2022**

**(April 2022-June 2022)**

Name: Ms. Neha

Class: B.Sc. Physics (H) Semester-VI

Paper code: Phy-603

Subject Name: Statistical Physics

Number of days: Monday, Tuesday, Wednesday

|  |  |
| --- | --- |
| 1 April – 30 April | Introduction of Statistical physics, Bose – Einstein Statistic, Thermodynamics functions of boson gas and photon gas, B-E condensation, |
| 2 May – 30 May | Hydrogen para and ortho , Fermi- Dirac Statistics, thermodynamic function of fermion gas, electron gas |
| 1 June – 20 June | Specific heat of electrons, Fermi energy, revision |