

Teaching Plan For The Academic Year : 2023-2024

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
Dr. ARUN VIR SINGH	B. Sc. Physical Science (Chem.) I	MECHANICS - NEP	Odd Semester	None	August	unit-1Review of vectors and ordinary differential	10	10		----	11th October, 2023
Dr. ARUN VIR SINGH	B. Sc. Physical Science (Chem.) I	MECHANICS - NEP	Odd Semester	None	September	Unit-II: Fundamentals of Dynamics	25	30	class room teaching	----	11th October, 2023
Dr. ARUN VIR SINGH	B. Sc. Physical Science (Chem.) I	MECHANICS - NEP	Odd Semester	None	October	Unit-II Elastic and in-elastic collision	30	0		----	11th October, 2023
Dr. NEETI GOEL	B. Sc. (Hons.) Physics V	SOLID STATE PHYSICS	Odd Semester	None	August	Crystal Structure: Solids: Amorphous and Crystalline Materials. Lattice Translation Vectors. Lattice with a Basis– Central and Non-Central Elements. Symmetry Elements Unit Cell. Miller Indices. Reciprocal Lattice. Types of Lattices. Brillouin Zones. Diffraction of X-rays by Crystals. Bragg"s Law. Laue Condition, Atomic and Geometrical Factor.	20	20		----	18th December, 2023
Dr. NEETI GOEL	B. Sc. (Hons.) Physics V	SOLID STATE PHYSICS	Odd Semester	None	September	Elementary Lattice Dynamics: Lattice Vibrations and Phonons: Linear Monoatomic and Diatomic Chains. Acoustical and Optical Phonons. Qualitative Description of the Phonon Spectrum in Solids.Dulong and Petit"s Law, Einstein and Debye theories of specific heat of solids. T3 law. Electrons in Solids: Electrons in metals– Drude Model, Density of states (1-D,2-D,3-D), Elementary band theory:Kronig Penny model. Band Gap., Effective mass, mobility, Hall Effect (Metal and Semiconductor)	33	53.33		----	18th December, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
Dr. NEETI GOEL	B. Sc. (Hons.) Physics V	SOLID STATE PHYSICS	Odd Semester	None	October	Magnetic Properties of Matter: Dia-, Para-, Ferri- and Ferromagnetic Materials. Classical Langevin Theory of dia- and Paramagnetic Domains. Quantum Mechanical Treatment of Paramagnetism.Curie"s law, Weiss"s Theory of Ferromagnetism and Ferromagnetic Domains,B-H Curve. Hysteresis, soft and hard material and Energy Loss. (9 Lectures) Dielectric Properties of Materials: Polarization. Local Electric Field at an Atom. Depolarization Field. Electric Susceptibility. Polarizability. Clausius Mosotti Equation.Classical Theory of Electric Polarizability. Normal and Anomalous Dispersion. Cauchy and Sellmeir relations. Langevin-Debye equation. Complex Dielectric Constant.	30	83.33		----	18th December, 2023
Dr. NEETI GOEL	B. Sc. (Hons.) Physics V	SOLID STATE PHYSICS	Odd Semester	None	November	Ferroelectric Properties of Materials: Classification of crystals, Piezoelectric effect, Pyroelectric effect, Ferroelectric effect, Electrostrictive effect, Curie-Weiss Law, Ferroelectric domains, PE hysteresis loop. Superconductivity: Experimental Results. Critical Temperature. Critical magnetic field. Meissner effect. Type I and type II Superconductors, London"s Equation and Penetration Depth. Isotope effect. Idea of BCS theory (No derivation)	17	100		----	18th December, 2023
Dr. NIDHI TYAGI	B. Sc. Physical Science (Chem.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	August	unit 1	13	13.33		completed	11th October, 2023
Dr. NIDHI TYAGI	B. Sc. Physical Science (Chem.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	September	unit 2,3 and 4	28	28.33		completed	11th October, 2023
Dr. NIDHI TYAGI	B. Sc. Physical Science (Chem.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	October	Remaining unit 4 and unit 5	30	30		completed	11th October, 2023
Dr. NIDHI TYAGI	B. Sc. Physical Science (Chem.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	November	unit 5 and unit 6	28	28.33		completed	11th October, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
Dr. PRIYANKA VERMA	B. Sc. (Hons.) Physics V	QUANTUM MECHANICS AND APPLICATIONS	Odd Semester	None	August	Unit-1 (Time dependent scridinger equation)	20	0	Black board, Space Portal , You tube, e-books	----	29th August, 2023
Dr. PRIYANKA VERMA	B. Sc. (Hons.) Physics V	QUANTUM MECHANICS AND APPLICATIONS	Odd Semester	None	September	Unit-2 (Time independent Schrodinger equation)	20	0	Black board, Space Portal , You tube, e-books	----	29th August, 2023
Dr. PRIYANKA VERMA	B. Sc. (Hons.) Physics V	QUANTUM MECHANICS AND APPLICATIONS	Odd Semester	None	October	Unit-3 (General discussion of bound states in an arbitrary potential)	20	0	Black board, Space Portal , You tube, e-books	----	29th August, 2023
Dr. PRIYANKA VERMA	B. Sc. (Hons.) Physics V	QUANTUM MECHANICS AND APPLICATIONS	Odd Semester	None	November	Unit-4 (Quantum theory of Hydrogen like atoms) + Unit-5 (Atoms in Eletric and Magnetic fields)	30	0	Black board, Space Portal , You tube, e-books	----	29th August, 2023
Dr. PRIYANKA VERMA	B. Sc. (Hons.) Physics V	QUANTUM MECHANICS AND APPLICATIONS	Odd Semester	None	December	Unit-6(Many electron atoms)	10	0	Black board, Space Portal , You tube, e-books	----	29th August, 2023
Dr. RAVINDRA SINGH	B. Sc. (Hons.) Physics III	MATHEMATICAL PHYSICS III	Odd Semester	None	November	Unit I	95	100		Completed	29th December, 2023
Dr. RAVINDRA SINGH	B. Sc. (Hons.) Physics III	MATHEMATICAL PHYSICS III	Odd Semester	None	December	Unit I	100	100		Completed	29th December, 2023
Dr. RAVINDRA SINGH	B. Sc. (Hons.) Physics III	MATHEMATICAL PHYSICS II	Odd Semester	None	August	Unit-III	15	100		Completed	11th October, 2023
Dr. RAVINDRA SINGH	B. Sc. (Hons.) Physics III	MATHEMATICAL PHYSICS II	Odd Semester	None	September	Unit-III & II	40	100		Completed	11th October, 2023
Dr. RAVINDRA SINGH	B. Sc. (Hons.) Physics III	MATHEMATICAL PHYSICS II	Odd Semester	None	October	Unit-II & Unit-I	65	100		Completed	11th October, 2023
Dr. SHIV SHANKAR GAUR	B. Sc. Physical Science (C.S.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	August	unit 1	15	100	class room teaching	----	17th September, 2023
Dr. SHIV SHANKAR GAUR	B. Sc. Physical Science (C.S.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	September	unit 2 &3	25	100	class room teaching	----	17th September, 2023
Dr. SHIV SHANKAR GAUR	B. Sc. Physical Science (C.S.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	October	unit 3&4	35	100	class room teaching	----	31st December, 2023
Dr. SHIV SHANKAR GAUR	B. Sc. Physical Science (C.S.) V	ELEMENTS OF MODERN PHYSICS	Odd Semester	None	November	unit 5	25	100	class room teaching	----	31st December, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
JYOTI CHAUHAN	B. Sc. Physical Science (C.S.) I	MECHANICS - NEP	Odd Semester	None	August	Unit 1	20	20		----	14th October, 2023
JYOTI CHAUHAN	B. Sc. Physical Science (C.S.) I	MECHANICS - NEP	Odd Semester	None	September	Unit 4 and 5	45	45		----	14th October, 2023
JYOTI CHAUHAN	B. Sc. Physical Science (C.S.) I	MECHANICS - NEP	Odd Semester	None	October	Unit 3	75	0		----	14th October, 2023
JYOTI CHAUHAN	B. Sc. Physical Science (C.S.) I	MECHANICS - NEP	Odd Semester	None	November	Unit 3	100	0		----	14th October, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS	Odd Semester	None	September	Oscillations	15	15		----	7th December, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS	Odd Semester	None	October	Superposition of oscillations	40	40		----	7th December, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS	Odd Semester	None	November	Coupled oscillations	40	40		----	7th December, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS	Odd Semester	None	December	Waves	5	5		----	7th December, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS - NEP	Odd Semester	None	September	Simple harmonic motion	10	10		Up to superposition principal	19th October, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS - NEP	Odd Semester	None	October	Damped and Forced oscillations	20	40		up to damped oscillations	19th October, 2023
MOHIT	B. Sc. (Hons.) Physics I	WAVES AND OSCILLATIONS - NEP	Odd Semester	None	November	Coupled oscillations and waves	40	0		----	23rd November, 2023
Ms. BHARTI	B. Sc. (Hons.) Physics I	MECHANICS - NEP	Odd Semester	None	August	galilean and lorentz transformation	10	100		----	11th January, 2024
Ms. BHARTI	B. Sc. (Hons.) Physics I	MECHANICS - NEP	Odd Semester	None	September	lorentz transformations, relativity, center of mass, angular momentum, energy conservation	35	100		----	11th January, 2024
Ms. PREETIKA DHAWAN	B. Sc. (Hons.) Physics V	ADVANCED MATHEMATICAL PHYSICS	Odd Semester	None	August	Unit 2, Unit 3	16	13	GOOGLE MEET, JAMBOARD, QUIZZES	remaining to be covered in the following month	17th September, 2023
Ms. PREETIKA DHAWAN	B. Sc. (Hons.) Physics V	ADVANCED MATHEMATICAL PHYSICS	Odd Semester	None	September	Unit 3, Unit 1	30	40	GOOGLE MEET, JAMBOARD, QUIZZES, TELEGRAMS	remaining to be covered in the following month	17th September, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
Ms. PREETIKA DHAWAN	B. Sc. (Hons.) Physics V	ADVANCED MATHEMATICAL PHYSICS	Odd Semester	None	October	Unit 1, Unit 4, Unit 5	28	0	GOOGLE MEET, JAMBOARD, QUIZZES, TELEGRAMS	----	17th September, 2023
Ms. PREETIKA DHAWAN	B. Sc. (Hons.) Physics V	ADVANCED MATHEMATICAL PHYSICS	Odd Semester	None	November	Unit 5, Unit 6	26	0	GOOGLE MEET, JAMBOARD, QUIZZES, TELEGRAMS	----	17th September, 2023
NEETU VERMA	----	Sem. I - Physics (Generic)	Odd Semester	None	August	Unit 1 :- Vectors and ODE	18	18	chalk & board	----	12th October, 2023
NEETU VERMA	----	Sem. I - Physics (Generic)	Odd Semester	None	September	unit 3 & 6 :- Rotational Dynamics, SHM and STR	42	60	chalk & board	----	12th October, 2023
NEETU VERMA	----	Sem. I - Physics (Generic)	Odd Semester	None	October	unit 4 & 5: - Gravitation & Elasticity	18	78	chalk & board	----	12th October, 2023
NEETU VERMA	----	Sem. I - Physics (Generic)	Odd Semester	None	November	unit 2:- Fundamentals of Dynamics	22	100	chalk & board	----	12th October, 2023
NEETU VERMA	----	Sem. I - Physics (Generic)	Odd Semester	None	December	Revision	100	100	chalk & board	Revision of difficult topics from full Syllabus	12th October, 2023
NIHAL KUMAR	B. Sc. (Hons.) Physics I	MATHEMATICAL PHYSICS - NEP	Even Semester	None	January	Gradient, Curl and Divergence	30	0		----	17th January, 2024
PINKI YADAV	B. Sc. (Hons.) Physics III	THERMAL PHYSICS	Odd Semester	None	August	Fundamental idea of thermodynamic equilibrium and zeroth law of thermodynamics, concept of work and heat, first law of thermodynamics and its applications, compressibility and expansion coefficient /Unit -1	10	100	Offline	----	12th October, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
PINKI YADAV	B. Sc. (Hons.) Physics III	THERMAL PHYSICS	Odd Semester	None	September	Unit – II – Second law of Thermodynamics, Reversible and Irreversible processes, Carnot engine and Carnot's cycle, Refrigerator, efficiency of Carnot engine and refrigerator, Second Law of Thermodynamics: Kelvin-Planck and Clausius statements and their equivalence, Carnot's theorem, Applications of Second Law of Thermodynamics in the light of Phase Change, Thermodynamic Scale of Temperature and its equivalence to Perfect Gas Scale. Unit – III – Entropy -Concept of Entropy, Entropy changes in Reversible and Irreversible processes with examples, Clausius Theorem, Clausius inequality, Second Law of Thermodynamics in terms of Entropy. Temperature-Entropy diagrams for Carnot's cycle and related problems, Entropy of perfect and real gases, conceptual problems related to Entropy during a Phase Change, Nernst Heat Theorem: Unattainability of Absolute Zero and Third Law of Thermodynamics. Unit – IV - Thermodynamic Potentials and Maxwell's Relations, Basic concept of Thermodynamic Potentials, Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy: their properties and applications.	35	100	Offline	----	12th October, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
PINKI YADAV	B. Sc. (Hons.) Physics III	THERMAL PHYSICS	Odd Semester	None	October	Surface Film and variation of Surface Tension with temperature, Magnetic work, Cooling due to Adiabatic Demagnetization, Phase Transitions : First order and Second order Phase Transitions with examples, Clausius Clapeyron Equation, Ehrenfest Equations, Derivation of Maxwell's Thermodynamic Relations and their applications in Clausius Clapeyron Equation, value of $CP - Cv$, TdS equations, Energy equations, evaluation of CP /Cv and Ratio of Adiabatic to Isothermal elasticity. . Unit – V - Kinetic Theory of Gases and Molecular Collisions, Constrained maximization using Lagrange Multipliers, Maxwell-Boltzmann Law of Distribution of Velocities in an ideal gas and its experimental verification with any one method. Mean, Root Mean Square and Most Probable Speeds, Maxwell-Boltzman equation for distribution of Energy: Average Energy and Most Probable Energy,	30	0	Offline	----	12th October, 2023
PINKI YADAV	B. Sc. (Hons.) Physics III	THERMAL PHYSICS	Odd Semester	None	November	Mean Free Path, Collision Probability, estimation of Mean Free Path, Continuity Equation for Transport Phenomena in ideal gases: Viscosity, Thermal Conductivity and Diffusion Unit – VI - Real Gases, Behavior of Real Gases: Deviations from the Ideal Gas Equation, Andrew's Experiments on CO2 Gas, Virial Equation, Continuity of liquid and gaseous states, Boyle Temperature, Van der Waals Equation of State for Real Gases, Comparison with Experimental Curves: P-V diagrams, Value of Critical Constants, Law of Corresponding States, Free Adiabatic Expansion of a Perfect Gas, Joule Thomson Porous - Plug Experiment, Joule Thomson, Coefficient for Ideal and Van der Waals Gases, Temperature of Inversion and Joule Thomson cooling,	24	0	Offline	----	12th October, 2023
PINKI YADAV	B. Sc. (Hons.) Physics III	THERMAL PHYSICS	Odd Semester	None	December	Revision and doubts	1	0	Offline	----	12th October, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
SANJESH KUMAR	B. Sc. Physical Science (C.S.) III	HEAT AND THERMODYNAMICS	Odd Semester	None	September	Unit - I - Laws of Thermodynamics - Fundamental basics of Thermodynamic system and variables, Zeroth Law of Thermodynamics and temperature, First law and internal energy, various thermodynamical processes, Applications of First Law: general relation between Cp and Cv, work done during various processes, Compressibility and Expansion Coefficient, reversible and irreversible processes, Second law: Kelvin-Planck and Clausius statements,	100	95		----	30th December, 2023
SANJESH KUMAR	B. Sc. Physical Science (C.S.) III	HEAT AND THERMODYNAMICS	Odd Semester	None	October	Unit - I - Laws of Thermodynamics and Unit – II - Thermodynamic Potentials and Maxwell's Relations : Kelvin-Planck and Clausius statements, Carnot engine, Carnot cycle and theorem, basic concept of Entropy, Entropy changes in reversible and irreversible processes, Clausius inequality, Entropy-temperature diagrams , Basic concept of Thermodynamic Potentials, Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy, derivation of Maxwell's Thermodynamic Relations and their applications in Clausius Clapeyron Equation, value of Cp – Cy, TdS Equations, Energy equations for ideal gases, evaluation of Cp /Cy	100	100		----	30th December, 2023
SANJESH KUMAR	B. Sc. Physical Science (C.S.) III	HEAT AND THERMODYNAMICS	Odd Semester	None	November	Unit – III - Kinetic Theory of Gases and Molecular Collisions: Maxwell-Boltzmann Law of Distribution of Velocities in an ideal gas and its experimental verification, Mean, Root Mean Square and Most Probable Speeds, Mean Free Path (Zeroth order), Transport Phenomena in ideal gases: Viscosity, Thermal Conductivity and Diffusion (for vertical case) And Unit - IV - Theory of Radiation: Blackbody radiation, Spectral distribution, Derivation of Planck's law, Deduction of Wien's law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law	100	100		----	30th December, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
SANJESH KUMAR	B. Sc. Physical Science (C.S.) III	HEAT AND THERMODYNAMICS	Odd Semester	None	December	Unit – V - Statistical Mechanics : Macrostate and Microstate, phase space, Entropy and thermodynamic probability, Maxwell-Boltzmann law, qualitative description of Quantum statistics – Bose Einstein and Fermi Dirac, comparison of three statistics.	100	100		----	30th December, 2023
SHOBHA	B. Sc. (Hons.) Physics V	NUCLEAR AND PARTICLE PHYSICS	Odd Semester	None	August	General Properties of Nuclei: Constituents of nucleus and their Intrinsic properties, quantitative facts about mass, radii, charge density, matter density (experimental determination of each), binding energy, average binding energy and its variation with mass number, main features of binding energy versus mass number curve, N/Z plot, angular momentum, parity, magnetic moment, electric moments.	10	100	Offline	----	12th October, 2023
SHOBHA	B. Sc. (Hons.) Physics V	NUCLEAR AND PARTICLE PHYSICS	Odd Semester	None	September	Nuclear Models: Liquid drop model approach, semi empirical mass formula and significance of its various terms, condition of nuclear stability, nucleon separation energies (up to two nucleons), Fermi gas model (degenerate fermion gas, nuclear symmetry potential in Fermi gas), evidence for nuclear shell structure and the basic assumption of shell model. Radioactivity decay: Decay rate and equilibrium (Secular and Transient)(a) Alpha decay: basics of α -decay processes, theory of α -emission, Gamow factor, Geiger Nuttall law, α -decay spectroscopy, decay Chains. (b) β -decay: energy kinematics for β -decay, β spectrum, positron emission, electron capture, neutrino hypothesis. (c) Gamma decay: Gamma rmission from the excited state of the nucleus & kinematics, internal conversion.	30	100	lecture	----	12th October, 2023

Faculty Name	Course Name	Paper Name	Semester	Section	Month(s)	Topics/Units	Total Course (%)	Course Completed (%)	ICT Tools Used	Any Remarks	Saved On
SHOBHA	B. Sc. (Hons.) Physics V	NUCLEAR AND PARTICLE PHYSICS	Odd Semester	None	October	Nuclear Reactions: Types of Reactions, units of related physical quantities, Conservation Laws, kinematics of reactions, Q-value, reaction rate, reaction cross section, Concept of compound and direct reaction, resonance reaction, Coulomb scattering (Rutherford scattering). Interaction of Nuclear Radiation with matter: Energy loss due to ionization (BetheBlock formula), energy loss of electrons, Cerenkov radiation. Gamma ray interaction through matter (photoelectric effect, Compton scattering, pair production), neutron interaction with matter.	30	100	Offline	----	12th October, 2023
SHOBHA	B. Sc. (Hons.) Physics V	NUCLEAR AND PARTICLE PHYSICS	Odd Semester	None	November	Detector for Nuclear Radiations: Gas detectors: estimation of electric field, mobilityof particle for ionization chamber and GM Counter. Basic principle of Scintillation Detectors and construction of photo-multiplier tube (PMT). Semiconductor Detectors (Si 134 and Ge) for charge particle and photon detection (concept of charge carrier andmobility), neutron detector. Particle Accelerators: Accelerator facility available in India: Van-de Graaff generator(Tandem accelerator), Linear accelerator, Cyclotron, Synchrotrons (Principal, construction, working, advantages and disadvantages). Particle physics: Particle interactions (concept of different types of forces), basic features, Cosmic Rays, types of particles and its families,	25	100	offline	----	12th October, 2023



Prof (Dr.) Arun Vir Singh
TIC, Department of Physics