Lesson Plan

Teacher- Anil Kumar
Class- B.Sc. Third Year, 5th Semester
Subject: solid state physics
Session- 2025-26

Week/Date	Topics Covered
1-2August2025	Introduction: Crystalline vs. amorphous solids, liquid crystals
4-9August2025	Crystal structure, lattice, basis, unit cells, conventional/Wigner-Seitz cell
11-16August2025	Symmetry operations, crystal planes, Miller indices
18-23August2025	Examples: NaCl, Diamond structure, X-ray diffraction basics
25-30August2025	Bragg's Law, X-ray diffraction experimental methods
1-6 September 2025	Reciprocal lattice, k-space, BCC, FCC lattice
8-13 September 2025	Free electron gas model failures, Sommerfeld theory
15 -20 September 2025	Sommerfeld theory cont., Hall Effect (with numericals)
22 -27 September 2025	Lattice vibrations, phonons, specific heat
29 -30 September 2025	Dulong-Petit Law, Einstein theory of specific heat

Week/Date	Topics Covered
1-4October 2025	Debye theory, magnetic classification (dia, para, ferro)
6-11 October2025	Langevin theory, Curie's law, Weiss theory
13-17 October 2025	Ferromagnetic domains, hysteresis, intro to superconductivity
18-26 October 2025	Diwali break
27-31 October 2025	Superconductivity: types and properties ,Superconducting systems and applications
3-8 November 2025	Revision (Units I & II), numerical problems
10-15 November 2025	Revision (Unit III), numerical problems
17-22 November 2025	Revision (Unit IV: superconductivity, magnetism)
24-29 November 2025	Full syllabus revision, practice test

Teacher- Anil Kumar
Class- B.A. 1st Year, First Semester
Subject: Physics Funamental-1
Session- 2025-26

Dates	Topics Covered
1-2August2025	Physics nature, scope, discoveries, Indian physicists, relation to society, science technology

Dates	Topics Covered
4-9August2025	Measurement need, process, system of units, fundamental/derived units
11-16August2025	Errors: types, definitions, accuracy, precision, least count
18-23August2025	Measuring instruments: Vernier caliper, screw gauge
25-30August2025	Position of object, reference frame, scalar and vector quantities
1-6 September 2025	Motion along straight line, displacement, uniform and non-uniform motion
8-13 September 2025	Speed: average, instantaneous, velocity, acceleration, assignment
15 -20 September 2025	Graphical analysis: distance-time, velocity-time graphs, equations of motion
22 -27 September 2025	Concept of force, Newton's 1st law, inertia, mass, test of unit-2
29 -30 September 2025	Newton's 2nd and 3rd law, applications, momentum, force
1-4October 2025	Gravitation law, acceleration due to gravity, free fall
6-11 October2025	Mass, weight Earth/Moon, thrust, pressure, buoyancy, Archimedes' principle
13-17 October 2025	Work, kinetic and potential energy, PE at height

Dates	Topics Covered
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Conservation of energy, linear/angular momentum
3-8 November 2025	Collisions: elastic, inelastic, applications
10-15 November 2025	Center of mass, applications: cycling, climbing, skating
17-22 November 2025	Test of unit-4
24-29 November 2025	Revision of all 4 Units, numerical practice, problem solving

Teacher- Anita Yadav
Class- B.A. 1st Year, First Semester
Subject: Physics Funamental-1
Session- 2025-26

Dates	Topics Covered
1-2August2025	Physics nature, scope, discoveries, Indian physicists, relation to society, science technology
4-9August2025	Measurement need, process, system of units, fundamental/derived units
11-16August2025	Errors: types, definitions, accuracy, precision, least count
18-23August2025	Measuring instruments: Vernier caliper, screw gauge

Dates	Topics Covered
25-30August2025	Position of object, reference frame, scalar and vector quantities
1-6 September 2025	Motion along straight line, displacement, uniform and non-uniform motion
8-13 September 2025	Speed: average, instantaneous, velocity, acceleration, assignment
15 -20 September 2025	Graphical analysis: distance-time, velocity-time graphs, equations of motion
22 -27 September 2025	Concept of force, Newton's 1st law, inertia, mass, test of unit-2
29 -30 September 2025	Newton's 2nd and 3rd law, applications, momentum, force
1-4October 2025	Gravitation law, acceleration due to gravity, free fall
6-11 October2025	Mass, weight Earth/Moon, thrust, pressure, buoyancy, Archimedes' principle
13-17 October 2025	Work, kinetic and potential energy, PE at height
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Conservation of energy, linear/angular momentum
3-8 November 2025	Collisions: elastic, inelastic, applications

Dates	Topics Covered
10-15 November 2025	Center of mass, applications: cycling, climbing, skating
17-22 November 2025	Test of unit-4
24-29 November 2025	Revision of all 4 Units, numerical practice, problem solving

Lesson Plan

Teacher- Praveen Kumar
Class- B.Sc. Third Year, 5th Semester
Subject: Statistical mechanics
Session- 2025-26

Date Range	Topics Covered
1-2August2025	Probability, Permutations and Combinations, Max/Min Probability
4-9August2025	Distribution of Molecules in Two Boxes, Case with Weightage (general)
11-16August2025	Phase Space, Microstates, Macrostates, Statistical Fluctuations
18-23August2025	Constraints, Accessible States, Entropy, Thermodynamic Probability, Ensembles
25-30August2025	Postulates of Statistical Physics, Phase Space
1-6 September 2025	Application to 1D Harmonic Oscillator, Free Particle, Division of Phase Space
8-13 September 2025	Basic Approach in Three Statistics, Maxwell-Boltzmann Distribution Law
15 -20 September 2025	Thermodynamic Functions of Ideal Gas, Classical Entropy Expression, Gibbs Paradox

Date Range	Topics Covered
22 -27 September 2025	Condition of Equilibrium Between Two Systems in Thermal Contact, Entropy and Probability
29 -30 September 2025	Bose-Einstein Statistics, Thermodynamic Relations of Degenerate Bose Gas
1-4October 2025	Bose-Einstein Condensation, Liquid Helium (Qualitative Description), Photon Gas
6-11 October2025	Application of B.E. Statistics to Planck's Radiation Law
13-17 October 2025	Fermi-Dirac Statistics, Thermodynamic Relations of Degenerate Fermi Gas
18-26 October 2025	Diwali break
27-31 October 2025	Specific Heat of Metals, Thermionic Emission, White Dwarf Stars, Fermi Energy, Electron Gas in a Metal, Zero Point Energy
3-8 November 2025	Chandrasekhar Mass Limit
10-15 November 2025	Comparison of M-B, B-E and F-D Statistics
17-22 November 2025	Revision of all Units, Solving Numerical Problems
24-29 November 2025	Final Review, Question Paper Practice, Doubt Clearing

Lesson Plan

Teacher- Praveen Kumar
Class- Major in Physics, 1st Semester
Subject: Problem solving through C
Session- 2025-26

Dates	**Topics/Activities**
1-2August2025	Overview of C: History, Importance, Structure of C Program, Character Set, Constants, Variables, Identifiers,
4-9August2025	Keywords, Data Types, Assignment, Symbolic Constants, Input/Output: Formatted I/O Functions, Input Functions, Output Functions
11-16August2025	Operators & Expressions: Arithmetic, Relational, Logical, Bitwise, Unary, Assignment Operators, Conditional, Special Operators, Operator Hierarchy
18-23August2025	Arithmetic Expressions, Evaluation, Type Casting and Conversion, Decision Making (if, if-else, else-if ladder, switch-case, break, continue), Looping
25-30August2025	Looping (for, while, do-while, jumps), Small revision and practice
1-6 September 2025	Arrays: One-Dimensional Arrays (Declaration, Initialization, Memory Representation), Two-Dimensional Arrays
8-13 September 2025	Functions: Definition, Prototype, Function Call,
15 -20 September 2025	Strings: Declaration, Initialization, String I/O, Array of Strings,

Dates	Topics/Activities
22 -27 September 2025	Passing Arguments (by value, by reference), Recursive Functions ,
29 -30 September 2025	Pointers: Declaration, Initialization, Access via Pointers, Pointers and Arrays
1-4October 2025	String Manipulation Functions (Length, Copy, Compare, Concatenate, Search)
6-11 October2025	User Defined Data Types: Structures (Definition, Advantages, Declaration), Accessing Structure Members, Structure Arrays
13-17 October 2025	Structure Initialization, Arrays of Structures, Unions (Definition, Difference Between Struct and Union)
18-26 October 2025	Diwali break
27-31 October 2025	Revision of Units I-III, Short Test
3-8 November 2025	Assignment work
10-15 November 2025	Revision of Unit IV, Practice Programs
17-22 November 2025	Revision of All Units, Numerical Problem Practice

Dates	Topics/Activities
24-29 November 2025	Previous Years' Question Practice, Exam Pattern Analysis

Lesson Plan

Teacher- Anita Yadav
Class- B.Sc. Third Year, 5th Semester
Subject: solid state physics, digital electronic and microcontroller
Session- 2025-26

Week/Date	Topics Covered
1-2August2025	Introduction: Crystalline vs. amorphous solids, liquid crystals
4-9August2025	Crystal structure, lattice, basis, unit cells, conventional/Wigner-Seitz cell, Symmetry operations, crystal planes, Miller indices
11-16August2025	Examples: NaCl, Diamond structure, X-ray diffraction basics, Bragg's Law, X-ray diffraction experimental methods
18-23August2025	Reciprocal lattice, k-space, BCC, FCC lattice
25-30August2025	Free electron gas model failures, Sommerfeld theory, Hall Effect (with numericals)
1-6 September 2025	Lattice vibrations, phonons, specific heat, Dulong-Petit Law, Einstein theory of specific heat
8-13 September 2025	Debye theory, magnetic classification (dia, para, ferro), Langevin theory, Curie's law
15 -20 September 2025	Ferromagnetic domains, hysteresis, intro to superconductivity, Superconductivity:

Week/Date	Topics Covered
	types and properties ,Superconducting systems and applications
22 -27 September 2025	Revision (Units I & II), numerical problems, Full syllabus revision, practice test
29 -30 September 2025	Difference between Analog and Digital Circuits, Binary Numbers, Decimal to Binary & Binary to Decimal Conversion
1-4October 2025	AND, OR, NOT Gates (Diodes/Transistors), NAND/NOR as Universal Gates, XOR/XNOR Gates, De Morgan's Theorems, Boolean Laws, Simplification using Boolean Algebra, Fundamental Products, Minterms & Maxterms
6-11 October2025	Conversion of Truth Table to Logic Circuit (SOP & POS), Karnaugh Map (Basic), Binary Addition, Binary Subtraction (2's Complement), Half Adder, Full Adder, Subtractors, 4-bit Adders & Subtractors
13-17 October 2025	Embedded Systems: Introduction, Applications, General Purpose vs. Embedded Systems, Embedded System Types, Applications; Challenges, Design Issues; Introduction to 8051, Internal Block Diagram of 8051, Memory Map, Overview of 8051 Family, Assembly Language Introduction.
18-26 October 2025	Diwali Break
27-31 October 2025	8051 Assembly Language: Program Counter, ROM, Data Types, Direct/Indirect Addressing, Flags, I/O Ports, Counter/Timer, Serial Port Programming, Assembly Programming Basics
3-8 November 2025	Interrupts in 8051, Timer/Counter, Serial Port Assembly, I/O Programming, Embedded C Concepts, Programming in 8051 (Using Assembly & Embedded C)
10-15 November 2025	Interfacing (contd.)—Sensor Interfacing, Motor Interfacing, Interrupt Structures, Applications

Week/Date	Topics Covered
17-22 November 2025	Revision of All Units, Numerical Problem Practice
24-29 November 2025	Previous Years' Question Practice, Exam Pattern Analysis

Lesson Plan

Teacher- Anita Yadav
Class- B.Sc. 1st year, First Semester
Subject: Elementary Mechanics
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Rigid body, Moment of Inertia (definition, examples)
4-9August2025	Radius of Gyration, Theorems (Perpendicular/Parallel)
11-16August2025	Moment of inertia for ring, disc, angular disc
18-23August2025	Solid cylinder, Recap & test
25-30August2025	Deforming force, Elastic limit, Stress & strain
1-6 September 2025	Hooke's Law, Module of elasticity
8-13 September 2025	Torsion, relation between stress/strain, Poisson's ratio

Week & Dates	Topic covered
15 -20 September 2025	Torque for twisting cylinder, Recap & test
22 -27 September 2025	Michelson–Morley experiment, Postulates
29 -30 September 2025	Lorentz transformation, time dilation, length contraction
1-4October 2025	Relativistic addition of velocities, mass-energy equivalence
6-11 October2025	Review, practice, internal assessment
13-17 October 2025	Law of gravitation, Potential, Spherical mass
18-26 October 2025	Diwali break
27-31 October 2025	Forced vibrations, Vibration in springs
3-8 November 2025	Motion under central force, Normal & abnormal modes
10-15 November 2025	Compound/simple pendulum, BoB's method
17-22 November 2025	Doubt clearing, Sample test
24-29 November 2025	Revision of the syllabus

Teacher- Sonia
Class- B.Sc. Second Year, 3rd Semester
SubjectThermodynamics and Statistical mechanics
Session- 2025-26

Week	Topic
1-2August2025	thermodynamics: Zeroth law, Ist law and second law of thermodynamics, Carnot theorem,
4-9August2025	absolute scale of temperature, absolute zero, entropy.Entropy change in reversible and irreversible processes, entropy temperature diagram, applications of Ist law.
11-16August2025	Third law of thermodynamics, thermodynamical potentials, Joule's free expansion.
18-23August2025	Joule Thomson (porous plug) experiment, Maxwell relations and its applications, derivation of clausius-clapeyron equation, T- ds equation.
25-30August2025	significance, diagram and triple point of a substance, development of Maxwell phase thermodynamical relations, Thermodynamical functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them, thermodynamical probability, constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability;
1-6 September 2025	derivation of Maxwell thermodynamical relations from thermodynamical functions, Application of Maxwell relations: relations between two specific heats of gas, derivation of Stefan's law, adiabatic compression and expansion of gas & deduction of theory of Joule Thomson effect.
8-13 September 2025	Distribution of N (for N= 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size,

	microstates and macrostates,
15 -20 September 2025	Distribution of N (for N 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates, thermodynamical probability,
22 -27 September 2025	constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability; Concept of phase space,
29 -30 September 2025	division of phase space into cells, postulates of statistical mechanics; Classical and quantum statistics, basic approach to these statistics, Maxwell-Boltzmann statistics applied to an ideal gas in equilibrium-energy distribution law,
1-4October 2025	Maxwell's distribution of speed & velocity (derivation required), most probable speed,
6-11 October2025	av speed, mean energy for Maxwellian distribution.
13-17 October 2025	Dulong and Petit Law, derivation of Dulong and Petit law from classical physics;,
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Need of Quantum statistics- classical versus quantum statistics, Bose-Einstein energy distribution Law, Application of B. E. Statistics to Planck's radiation law, degeneracy
3-8 November 2025	B. E. condensation; Fermi-Dirac energy distribution Law, F.D. gas and degeneracy
10-15 November 2025	Fermi energy and Fermi temperature; zero point energy, average speed (at 0 K) of electron gas
17-22 November 2025	F. D. energy distribution Law for electron gas in metals,
24-29 November 2025	Revision and numerical practice of full syllabus

Lesson Plan

Teacher- Priya Aggarwal
Class- B.Sc. 3rd year, Fifth Semester
Subject: Basic Instrumentation Skill
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Basic of measurement, instrument accuracy, precision , sensitivity, resolution, errors in measurement and loading effect.Multimeter : principals of measurement of DC voltage and DC current ,AC voltage AC current and resistance, specification of a multimeter and their significances
4-9August2025	electronic voltmeter, advantage over conventional multimeter for voltage measurement with respected to input impedance and sensitivity . principle of voltage measurement (only block diagram) specification of an electronic voltmeter, multimeter and their significance.
11-16August2025	AC Mili voltmeter, type of AC Milli voltmeters , amplifiers, rectifiers and rectifier amplifiers(block diagram of AC Milli voltmeter) specifications and their significance
18-23August2025	Cathode ray oscilloscope ,(block diagram of basic CRO) construction of CRT electron gun, electrostatic focusing and acceleration,
25-30August2025	use of CRO for the measurement of voltage, time period. special features of dual trace,
1-6 September 2025	brief discussion on a screen phosphor, visible persistence and chemical composition. time base operation, synchronisation front panel controls, specification of a CRO and their significance

Week & Dates	Topic covered
8-13 September 2025	introduction to digital oscilloscope, props, digital stories oscilloscope block diagram ,
15 -20 September 2025	principle of working signal, generator and analysis instruments. block diagram explanation and
22 -27 September 2025	specification of low frequency signal generators ,
29 -30 September 2025	pulse generator and function generator
1-4October 2025	brief idea for testing specifications, distortion factor, metre wave analysis
6-11 October2025	specification of RLC bridge ,
13-17 October 2025	block diagram and working principle of a digital LCR bridges, characteristics of a digital metre,
18-26 October 2025	Diwali break
27-31 October 2025	digital instruments principle and working of digital metres, comparison of analogue and digital instruments

Week & Dates	Topic covered
	working principle of digital voltmeter, digital multimeter,
3-8 November 2025	Impedance bridge and block diagram of bridge , working principle of basic RLC bridge ,
10-15 November 2025	block diagram and working of a digital multimeter
17-22 November 2025	working principle of time interval, frequency and period measurement using universal counter.
24-29 November 2025	frequency counter, time based stability, accuracy and resolution

Teacher- Seema
Class- B.Sc. Second Year, 3rd Semester
Subject : Thermodynamics and Statistical mechanics
Session- 2025-26

Week	Topic
1-2August2025	thermodynamics: Zeroth law, Ist law and second law of thermodynamics, Carnot theorem,
4-9August2025	absolute scale of temperature, absolute zero, entropy.Entropy change in reversible and irreversible processes, entropy temperature diagram, applications of Ist law.
11-16August2025	Third law of thermodynamics, thermodynamical potentials, Joule's free expansion.
18-23August2025	Joule Thomson (porous plug) experiment, Maxwell relations and its applications, derivation of clausius-clapeyron equation, T- ds equation.

25-30August2025	significance, diagram and triple point of a substance, development of Maxwell phase thermodynamical relations, Thermodynamical functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them, thermodynamical probability, constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability;
1-6 September 2025	derivation of Maxwell thermodynamical relations from thermodynamical functions, Application of Maxwell relations: relations between two specific heats of gas, derivation of Stefan's law, adiabatic compression and expansion of gas & deduction of theory of Joule Thomson effect.
8-13 September 2025	Distribution of N (for N= 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates,
15 -20 September 2025	Distribution of N (for N 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates, thermodynamical probability,
22 -27 September 2025	constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability; Concept of phase space,
29 -30 September 2025	division of phase space into cells, postulates of statistical mechanics; Classical and quantum statistics, basic approach to these statistics, Maxwell-Boltzmann statistics applied to an ideal gas in equilibrium-energy distribution law,
1-4October 2025	Maxwell's distribution of speed & velocity (derivation required), most probable speed,
6-11 October2025	av speed, mean energy for Maxwellian distribution.
13-17 October 2025	Dulong and Petit Law, derivation of Dulong and Petit law

	from classical physics;,
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Need of Quantum statistics- classical versus quantum statistics, Bose-Einstein energy distribution Law, Application of B. E. Statistics to Planck's radiation law, degeneracy
3-8 November 2025	B. E. condensation; Fermi-Dirac energy distribution Law, F.D. gas and degeneracy
10-15 November 2025	Fermi energy and Fermi temperature; zero point energy, average speed (at 0 K) of electron gas
17-22 November 2025	F. D. energy distribution Law for electron gas in metals,
24-29 November 2025	Revision and numerical practice of full syllabus

Teacher- Madan Singh
Class- B.Sc. Second Year(Physics hons.), 3rd Semester
Subject: operating system
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	**Introductory Concepts**: Operating System, Functions and Characteristics.
4-9August2025	Historical Evolution of Operating Systems, Operating System Structure.
11-16August2025	**Types of OS**: Real time, Multiprogramming, Multiprocessing, Batch processing.
18-23August2025	Operating System Services, Interface, Service System Calls, System Programs.
25-30August2025	**Process Management**: Process Concepts, Operations on Processes.
1-6 September 2025	Process States, Process Control Block. **Inter-Process Communication**.
8-13 September 2025	**CPU Scheduling**: Scheduling Criteria, Levels of Scheduling,

Week & Dates	Topic covered
15 -20 September 2025	Scheduling Algorithms.
22 -27 September 2025	Multiple Processor Scheduling, Algorithm Evaluation. **Synchronization**: Critical Section Problem.
29 -30 September 2025	Semaphores, Classical Problem of Synchronization, Monitors.
1-4October 2025	**Deadlocks**: Deadlock Characterization, Methods for Handling, Deadlock Prevention.
6-11 October2025	Deadlock Avoidance, Deadlock Detection and Recovery.
13-17 October 2025	**Memory Management Strategies**: Single/Multiuser OS Memory Management, Partitioning, Swapping.
18-26 October 2025	Contiguous Memory Allocation, Paging and Segmentation.
27-31 October 2025	Diwali break
3-8 November 2025	**Virtual Memory**: Demand Paging, Page Replacement Algorithms,
10-15 November 2025	Doubt clearing, Sample test
17-22 November 2025	Assignment work
24-29 November 2025	Revision of the syllabus

Teacher- Sonia
Class- B.A., 3rd semester
Subject : Modern Physics
Session- 2025-26

1-2August2025	Atomic structure, energy levels and energy bands (basic idea), types of materials (conductors, semiconductors and insulators) their energy band diagrams and definition on the basis of energy gap, intrinsic semiconductors, extrinsic semiconductors.
4-9August2025	p-type and n-type semiconductors (basic idea), Basics of Semiconductor devices P-N junction diode depletion layer,
11-16August2025	forward biasing and reverse hiasing, V-I characteristics of PN junction diodes; ideal diode, diode as a switch,
18-23August2025	Basic idea of a Photodiode, Solar cell and Light emitting diode (LED).
25-30August2025	classification-paramagnetic, diamagnetic and ferromagnetic materials and their applications;
1-6 September 2025	Piezoelectricity and applications lications of Piezoelectric materials; Ceramics and polymers and their applications;
8-13 September 2025	Superconductivity, superconductors and their applications; Nanomaterials and their applications.
15 -20 September 2025	Idea of composition and properties of nucleus (charge, mass, size and density),
22 -27 September 2025	nucleons, atomic number, mass number, isotopes, isobars and isotones; nuclear binding energy,

29 -30 September 2025	Radioactive decaya, B, and y-decay; Idea of half-life time and decay constant, carbon dating and its importance, radioisotopes and their applications.
1-4October 2025	Idea of nuclear fission and nuclear fusion. Nuclear reactors, source of solar and stellar energy.
6-11 October2025	Introduction, absorption, spontaneous emission, stimulated emission,
13-17 October 2025	properties of laser light. Principle of laser-Light amplification, population inversion and pumping.
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Principle and working of Ruby, He-Ne and semiconductor laser (basic idea). Applications of Lasers in healthcare and different fields of science and technology.
3-8 November 2025	types of optical fiber (basic idea), applications of optical fibers in medical
10-15 November 2025	Telecommunication and sensors
17-22 November 2025	Basics of Fiber Optics-introduction to optical fibers (definition, principle and parts) light propagation and the optical fibers,
24-29 November 2025	Test and revision of whole syllabus

Teacher- Madan
Class- B.Sc. 1st, 1st semester
Paper code: 24UN-PHY-101
Subject : Mechanics
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Fundamentals of Dynamics: Rigid body, Moment of Inertia, Radius of Gyration, Theorems of perpendicular and parallel axis (with proof), Moment of Inertia of ring, Disc, Angular Disc,
4-9August2025	Solid cylinder, Solid sphere, Hollow sphere, Rectangular plate, Square plate, Solid cone, Triangular plate,
11-16August2025	Torque, Rotational Kinetic Energy, Angular momentum, Law of conservation of angular momentum, Rolling motion, condition for pure rolling, acceleration of body rolling down an inclined plane, Fly wheel, Moment of Inertia of an irregular body.
18-23August2025	Deforming force, Elastic limit, stress, strain and their types, Hooke's law, Modulus of rigidity, Relation between shear angle and angle of twist, elastic energy stored/volume in an elastic body.
25-30August2025	Elongation produced in heavy rod due to its own weight and elastic potential energy stored in it, Tension in rotating rod, Poisson's ratio and its limiting value.
1-6 September 2025	Elastic Constants and their relations. Torque required for twisting cylinder, Hollow shaft is stiffer than solid one.
8-13 September 2025	Bending of beam, bending moment and its magnitude, Flexural rigidity, Geometrical moment of inertia for beam of rectangular cross-section and circular cross-section. Bending of cantilever (loaded by a weight W at its free end).
15 -20 September 2025	Weight of cantilever uniformly distributed over its entire length. Dispersion of a centrally loaded beam supported at its ends, determination of elastic constants for material of wire by Searle's method.
22 -27 September 2025	Special Theory of Relativity: Michelson's Morley experiment and its outcomes, Postulates of special theory of relativity.
29 -30 September 2025	Lorentz Transformations, Simultaneity and order of events, Lorentz contraction, Time dilation,
1-4October 2025	Mid term exam

Week & Dates	Topic covered
6-11 October2025	Relativistic transformation of velocity, relativistic addition of velocities, of relativistic dynamics.
13-17 October 2025	Variation of mass-energy equivalence, relativistic Doppler effect, relativistic kinematics,
18-26 October 2025	Transformation of energy and momentum, transformation of force.
27-31 October 2025	Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere. Motion of a particle under central force field.
3-8 November 2025	Two body problem and its reduction to one body problem and its solution, compound pendulum or physical pendulum in form of elliptical lamina and expression of time period, determination of g by means of bar pendulum,
10-15 November 2025	Normal coordinates and normal modes, Normal modes of vibration for given spring mass system,
17-22 November 2025	Possible angular frequencies of oscillation of two identical simple pendulums of length (l) and small bob of mass (m0joined together with spring of spring constant (k).
24-29 November 2025	Revision

Teacher- Nidhi
Class- B.Sc 3rd Semester
Subject: thermodynamics and statistical mechanics
Session- 2025-26

1-2August2025	thermodynamics: Zeroth law, Ist law and second law of thermodynamics, Carnot theorem,
4-9August2025	absolute scale of temperature, absolute zero, entropy.Entropy change in reversible and irreversible processes, entropy temperature diagram, applications of Ist law.
11-16August2025	Third law of thermodynamics, thermodynamical potentials, Joule's free

	expansion.
18-23August2025	Joule Thomson (porous plug) experiment, Maxwell relations and its applications, derivation of clausius-clapeyron equation, T- ds equation.
25-30August2025	significance, diagram and triple point of a substance, development of Maxwell phase thermodynamical relations, Thermodynamical functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them, thermodynamical probability, constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability;
1-6 September 2025	derivation of Maxwell thermodynamical relations from thermodynamical functions, Application of Maxwell relations: relations between two specific heats of gas, derivation of Stefan's law, adiabatic compression and expansion of gas & deduction of theory of Joule Thomson effect.
8-13 September 2025	Distribution of N (for N= 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates,
15 -20 September 2025	Distribution of N (for N 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates, thermodynamical probability,
22 -27 September 2025	constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability; Concept of phase space,
29 -30 September 2025	division of phase space into cells, postulates of statistical mechanics; Classical and quantum statistics, basic approach to these statistics, Maxwell-Boltzmann statistics applied to an ideal gas in equilibrium-energy distribution law,
1-4October 2025	Maxwell's distribution of speed & velocity (derivation required), most probable speed,
6-11 October2025	av speed, mean energy for Maxwellian distribution.
13-17 October 2025	Dulong and Petit Law, derivation of Dulong and Petit law from classical physics;,
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Need of Quantum statistics- classical versus quantum statistics, Bose-Einstein energy distribution Law, Application of B. E. Statistics to Planck's radiation

	law, degeneracy
3-8 November 2025	B. E. condensation; Fermi-Dirac energy distribution Law, F.D. gas and degeneracy
10-15 November 2025	Fermi energy and Fermi temperature; zero point energy, average speed (at 0 K) of electron gas
17-22 November 2025	F. D. energy distribution Law for electron gas in metals,
24-29 November 2025	Revision and numerical practice of full syllabus

Teacher- Nidhi
Class- B.A., 3rd semester
Subject : Element of Modern Physics
Session- 2025-26

1-2August2025	Atomic structure, energy levels and energy bands (basic idea), types of materials (conductors, semiconductors and insulators) their energy band diagrams and definition on the basis of energy gap, intrinsic semiconductors, extrinsic semiconductors.
4-9August2025	p-type and n-type semiconductors (basic idea), Basics of Semiconductor devices P-N junction diode depletion layer,
11-16August2025	forward biasing and reverse hiasing, V-I characteristics of PN junction diodes; ideal diode, diode as a switch,
18-23August2025	Basic idea of a Photodiode, Solar cell and Light emitting diode (LED).
25-30August2025	classification-paramagnetic, diamagnetic and ferromagnetic materials and their applications;
1-6 September 2025	Piezoelectricity and applications lications of Piezoelectric materials; Ceramics and polymers and their applications;
8-13 September 2025	Superconductivity, superconductors and their applications; Nanomaterials and their applications.

15 -20 September 2025	Idea of composition and properties of nucleus (charge, mass, size and density),
22 -27 September 2025	nucleons, atomic number, mass number, isotopes, isobars and isotones; nuclear binding energy,
29 -30 September 2025	Radioactive decaya, B, and y-decay; Idea of half-life time and decay constant, carbon dating and its importance, radioisotopes and their applications.
1-4October 2025	Idea of nuclear fission and nuclear fusion. Nuclear reactors, source of solar and stellar energy.
6-11 October2025	Introduction, absorption, spontaneous emission, stimulated emission,
13-17 October 2025	properties of laser light. Principle of laser-Light amplification, population inversion and pumping.
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Principle and working of Ruby, He-Ne and semiconductor laser (basic idea). Applications of Lasers in healthcare and different fields of science and technology.
3-8 November 2025	types of optical fiber (basic idea), applications of optical fibers in medical
10-15 November 2025	Telecommunication and sensors
17-22 November 2025	Basics of Fiber Optics-introduction to optical fibers (definition, principle and parts) light propagation and the optical fibers,

24-29 November 2025	Test and revision of whole syllabus

Teacher- Priya
Class- B.Sc. Second Year(physics hons.), 4thSemester
Subject : Thermodynamics and Statistical mechanics
Session- 2025-26

Week	Topic
1-2August2025	thermodynamics: Zeroth law, Ist law and second law of thermodynamics, Carnot theorem,
4-9August2025	absolute scale of temperature, absolute zero, entropy.Entropy change in reversible and irreversible processes, entropy temperature diagram, applications of Ist law.
11-16August2025	Third law of thermodynamics, thermodynamical potentials, Joule's free expansion.
18-23August2025	Joule Thomson (porous plug) experiment, Maxwell relations and its applications, derivation of clausius-clapeyron equation, T- ds equation.
25-30August2025	significance, diagram and triple point of a substance, development of Maxwell phase thermodynamical relations, Thermodynamical functions: Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them, thermodynamical probability, constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability;
1-6 September 2025	derivation of Maxwell thermodynamical relations from thermodynamical functions, Application of Maxwell relations: relations between two specific heats of gas, derivation of Stefan's law, adiabatic compression and expansion of gas & deduction of theory of Joule Thomson effect.
8-13 September 2025	Distribution of N (for N= 2, 3, 4) distinguishable and

	indistinguishable particles in two boxes of equal size, microstates and macrostates,
15 -20 September 2025	Distribution of N (for N 2, 3, 4) distinguishable and indistinguishable particles in two boxes of equal size, microstates and macrostates, thermodynamical probability,
22 -27 September 2025	constraints and accessible states, statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes, ß-parameter, entropy and probability; Concept of phase space,
29 -30 September 2025	division of phase space into cells, postulates of statistical mechanics; Classical and quantum statistics, basic approach to these statistics, Maxwell-Boltzmann statistics applied to an ideal gas in equilibrium-energy distribution law,
1-4October 2025	Maxwell's distribution of speed & velocity (derivation required), most probable speed,
6-11 October2025	av speed, mean energy for Maxwellian distribution.
13-17 October 2025	Dulong and Petit Law, derivation of Dulong and Petit law from classical physics;,
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Need of Quantum statistics- classical versus quantum statistics, Bose-Einstein energy distribution Law, Application of B. E. Statistics to Planck's radiation law, degeneracy
3-8 November 2025	B. E. condensation; Fermi-Dirac energy distribution Law, F.D. gas and degeneracy
10-15 November 2025	Fermi energy and Fermi temperature; zero point energy, average speed (at 0 K) of electron gas
17-22 November 2025	F. D. energy distribution Law for electron gas in metals,
24-29 November 2025	Revision and numerical practice of full syllabus

Teacher- Dr Manoj Kumar
Class- B.Sc. Second Year(Major in Physics)
Paper code:24UN-PHY-302
Subject : Classical mechanics
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Newton's Laws of Motion, Limitation of Newton's programme;
4-9August2025	Space-time reference system; Introduction to different coordinate systems-Cartesian, cylindrical and spherical coordinate systems. Mechanics of single particle-
11-16August2025	Conservation Laws of linear momentum, Angular momentum and mechanical energy, First integrals of motion;
18-23August2025	Mechanics of a system of particles- Concept of external and internal forces, concept of centre of mass and centre of mass frame of reference,
25-30August2025	Conservation laws of linear momentum, Angular momentum and mechanical energy, relation between angular momentum and angular momentum about the Centre of Mass.
1-6 September 2025	Degrees of freedom; Constraints - Their classification, properties and examples; Generalized coordinates, Transformation equations, Generalized Displacement, Velocity, Acceleration, Momentum, Force and Potential;
8-13 September 2025	Principle of Virtual Work & D'Alembert's Principle, Lagrange's equations of motion from D'Alembert's Principle; Cyclic or ignorable coordinates
15 -20 September 2025	Integrals of motion; Concept of symmetry-Homogeneity and isotropy. Hamilton's Function and Hamilton's equations of motion, Properties of Hamiltonian and Hamilton's equations of motion;
22 -27 September 2025	Formation of (i) Lagrangian and Lagrange's equations of motion (ii) Hamiltonian and Hamilton's equation of motion-for-Linear Harmonic oscillator, Atwood's machine, simple pendulum & compound pendulum.
29 -30 September 2025	Definition and properties of the central force, two body central force problem-reduction to equivalent one body problem
1-4October 2025	Mid term exam
6-11 October2025	(Lagrangian and Lagrange's equations of motion); differential equation for an orbit, general features of the orbit, stability of the orbits under central force and conditions.
13-17 October 2025	Inverse square law- Kepler's law of planetary motion and their derivation; Scattering in central force field-

Week & Dates	Topic covered
18-26 October 2025	Scattering cross-section, scattering angle, impact parameter and derivation of Rutherford scattering cross-section
27-31 October 2025	Inertial and non-inertial frame of references; inertial forces in rotating frame (rotating coordinate systems) – Coriolis force and derivation of Coriolis force from.
3-8 November 2025	Lagrangian formulation, electromagnetic analogy of the inertial forces; effect of Coriolis force- on projectile motion (a) the projectile dropped from a height (h) with initial velocity zero (b) the projectile is sent vertically up with velocity vo to reach a height h above the ground and if returns to the ground
10-15 November 2025	River flow on the surface of earth, formation of cyclones, trade and tropical winds, Coriolis force effect in atomic nuclei, Coriolis phenomenon in the planetary atmospheres;
17-22 November 2025	Focault pendulum, Precession of charged particles in a magnetic field, methods of handling the situations with two rotations separated by a time varying translation
24-29 November 2025	Revision

Teacher- Manoj
Class- B.Sc. 1st, 1st semester
Paper code: 24UN-PHY-101
Subject : Mechanics
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Fundamentals of Dynamics: Rigid body, Moment of Inertia, Radius of Gyration, Theorems of perpendicular and parallel axis (with proof), Moment of Inertia of ring, Disc, Angular Disc,
4-9August2025	Solid cylinder, Solid sphere, Hollow sphere, Rectangular plate, Square plate, Solid

Week & Dates	Topic covered
	cone, Triangular plate,
11-16August2025	Torque, Rotational Kinetic Energy, Angular momentum, Law of conservation of angular momentum, Rolling motion, condition for pure rolling, acceleration of body rolling down an inclined plane, Fly wheel, Moment of Inertia of an irregular body.
18-23August2025	Deforming force, Elastic limit, stress, strain and their types, Hooke's law, Modulus of rigidity, Relation between shear angle and angle of twist, elastic energy stored/volume in an elastic body.
25-30August2025	Elongation produced in heavy rod due to its own weight and elastic potential energy stored in it, Tension in rotating rod, Poisson's ratio and its limiting value.
1-6 September 2025	Elastic Constants and their relations. Torque required for twisting cylinder, Hollow shaft is stiffer than solid one.
8-13 September 2025	Bending of beam, bending moment and its magnitude, Flexural rigidity, Geometrical moment of inertia for beam of rectangular cross-section and circular cross-section. Bending of cantilever (loaded by a weight W at its free end).
15 -20 September 2025	Weight of cantilever uniformly distributed over its entire length. Dispersion of a centrally loaded beam supported at its ends, determination of elastic constants for material of wire by Searle's method.
22 -27 September 2025	Special Theory of Relativity: Michelson's Morley experiment and its outcomes, Postulates of special theory of relativity.
29 -30 September 2025	Lorentz Transformations, Simultaneity and order of events, Lorentz contraction, Time dilation,
1-4October 2025	Mid term exam
6-11 October2025	Relativistic transformation of velocity, relativistic addition of velocities, of relativistic dynamics.
13-17 October 2025	Variation of mass-energy equivalence, relativistic Doppler effect, relativistic

Week & Dates	Topic covered
	kinematics,
18-26 October 2025	Transformation of energy and momentum, transformation of force.
27-31 October 2025	Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere. Motion of a particle under central force field.
3-8 November 2025	Two body problem and its reduction to one body problem and its solution, compound pendulum or physical pendulum in form of elliptical lamina and expression of time period, determination of g by means of bar pendulum,
10-15 November 2025	Normal coordinates and normal modes, Normal modes of vibration for given spring mass system,
17-22 November 2025	Possible angular frequencies of oscillation of two identical simple pendulums of length (l) and small bob of mass (m0joined together with spring of spring constant (k).
24-29 November 2025	Revision

Teacher- Pawan Kumar
Class- B.Sc. Third Year(Physics hons.), 5th Semester
Subject: solid state physics
Session- 2025-26

Week/Date	Topics Covered
1-2August2025	Introduction: Crystalline vs. amorphous solids, liquid crystals
4-9August2025	Crystal structure, lattice, basis, unit cells, conventional/Wigner-Seitz cell

Week/Date	Topics Covered
11-16August2025	Symmetry operations, crystal planes, Miller indices
18-23August2025	Examples: NaCl, Diamond structure, X-ray diffraction basics
25-30August2025	Bragg's Law, X-ray diffraction experimental methods
1-6 September 2025	Reciprocal lattice, k-space, BCC, FCC lattice
8-13 September 2025	Free electron gas model failures, Sommerfeld theory
15 -20 September 2025	Sommerfeld theory cont., Hall Effect (with numericals)
22 -27 September 2025	Lattice vibrations, phonons, specific heat
29 -30 September 2025	Dulong-Petit Law, Einstein theory of specific heat
1-4October 2025	Debye theory, magnetic classification (dia, para, ferro)
6-11 October2025	Langevin theory, Curie's law, Weiss theory
13-17 October 2025	Ferromagnetic domains, hysteresis, intro to superconductivity
18-26 October 2025	Diwali break
27-31 October 2025	Superconductivity: types and properties ,Superconducting systems and applications

Week/Date	Topics Covered
3-8 November 2025	Revision (Units I & II), numerical problems
10-15 November 2025	Revision (Unit III), numerical problems
17-22 November 2025	Revision (Unit IV: superconductivity, magnetism)
24-29 November 2025	Full syllabus revision, practice test

Teacher- Pawan Kumar
Class- B.A. 1st Year, First Semester
Subject: Physics Funamental-1
Session- 2025-26

Dates	Topics Covered
1-2August2025	Physics nature, scope, discoveries, Indian physicists, relation to society, science technology
4-9August2025	Measurement need, process, system of units, fundamental/derived units
11-16August2025	Errors: types, definitions, accuracy, precision, least count
18-23August2025	Measuring instruments: Vernier caliper, screw gauge
25-30August2025	Position of object, reference frame, scalar and vector quantities
1-6 September 2025	Motion along straight line, displacement, uniform and non-uniform motion

Dates	Topics Covered
8-13 September 2025	Speed: average, instantaneous, velocity, acceleration, assignment
15 -20 September 2025	Graphical analysis: distance-time, velocity-time graphs, equations of motion
22 -27 September 2025	Concept of force, Newton's 1st law, inertia, mass, test of unit-2
29 -30 September 2025	Newton's 2nd and 3rd law, applications, momentum, force
1-4October 2025	Gravitation law, acceleration due to gravity, free fall
6-11 October2025	Mass, weight Earth/Moon, thrust, pressure, buoyancy, Archimedes' principle
13-17 October 2025	Work, kinetic and potential energy, PE at height
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Conservation of energy, linear/angular momentum
3-8 November 2025	Collisions: elastic, inelastic, applications
10-15 November 2025	Center of mass, applications: cycling, climbing, skating
17-22 November 2025	Test of unit-4

Dates	Topics Covered
24-29 November 2025	Revision of all 4 Units, numerical practice, problem solving

Teacher- Rajesh Kumar
Class- B.Sc1st, first semester
Subject : Mechanics
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Fundamentals of Dynamics: Rigid body, Moment of Inertia, Radius of Gyration, Theorems of perpendicular and parallel axis (with proof), Moment of Inertia of ring, Disc, Angular Disc,
4-9August2025	Solid cylinder, Solid sphere, Hollow sphere, Rectangular plate, Square plate, Solid cone, Triangular plate,
11-16August2025	Torque, Rotational Kinetic Energy, Angular momentum, Law of conservation of angular momentum, Rolling motion, condition for pure rolling, acceleration of body rolling down an inclined plane, Fly wheel, Moment of Inertia of an irregular body.
18-23August2025	Deforming force, Elastic limit, stress, strain and their types, Hooke's law, Modulus of rigidity, Relation between shear angle and angle of twist, elastic energy stored/volume in an elastic body.
25-30August2025	Elongation produced in heavy rod due to its own weight and elastic potential energy stored in it, Tension in rotating rod, Poisson's ratio and its limiting value.
1-6 September 2025	Elastic Constants and their relations. Torque required for twisting cylinder, Hollow shaft is stiffer than solid one.
8-13 September 2025	Bending of beam, bending moment and its magnitude, Flexural rigidity, Geometrical moment of inertia for beam of rectangular cross-section and circular cross-section. Bending of cantilever (loaded by a weight W at its free end).
15 -20 September 2025	Weight of cantilever uniformly distributed over its entire length. Dispersion of a centrally loaded beam supported at its ends, determination of elastic constants for

Week & Dates	Topic covered
	material of wire by Searle's method.
22 -27 September 2025	Special Theory of Relativity: Michelson's Morley experiment and its outcomes, Postulates of special theory of relativity.
29 -30 September 2025	Lorentz Transformations, Simultaneity and order of events, Lorentz contraction, Time dilation,
1-4October 2025	Mid term exam
6-11 October2025	Relativistic transformation of velocity, relativistic addition of velocities, of relativistic dynamics.
13-17 October 2025	Variation of mass-energy equivalence, relativistic Doppler effect, relativistic kinematics, Transformation of energy and momentum, transformation of force
18-26 October 2025	Diwali break
27-31 October 2025	Gravitation and central force motion: Law of gravitation, Potential and field due to spherical shell and solid sphere. Motion of a particle under central force field.
3-8 November 2025	Two body problem and its reduction to one body problem and its solution, compound pendulum or physical pendulum in form of elliptical lamina and expression of time period, determination of g by means of bar pendulum,
10-15 November 2025	Normal coordinates and normal modes, Normal modes of vibration for given spring mass system,
17-22 November 2025	Possible angular frequencies of oscillation of two identical simple pendulums of length (l) and small bob of mass (m0joined together with spring of spring constant (k).
24-29 November 2025	Revision

Teacher- Rajesh Kumar
Class- B.Sc. (Physics Hons.), 5th semester
Subject : introduction to nanoscience
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Introduction to nanomaterials, Nanoscience and nanotechnology.
4-9August2025	Various applications and properties of materials at nano-scale
11-16August2025	Various type of Nanomaterials based on Dimensionality, Morphology and composition of materials
18-23August2025	Explanation of various method of synthesis under Bottom Up approach: Physical and chemical methods
25-30August2025	Explanation of various method of synthesis under top down approach: Physical and chemical methods
1-6 September 2025	Characterization of materials by X-Rays Diffraction and Photo luminance with details
8-13 September 2025	Characterization of materials by IR Spectroscopy and Raman Spectroscopy in details
15 -20 September 2025	Characterization of materials by Scanning electron Microscope and Transmission Electron Microscope in details
22 -27 September 2025	Characterization of materials by Atomic force Microscope and UV-vis spectroscopy in details
29 -30 September 2025	Characterization of materials by Field effect Scanning electron Microscope and

Week & Dates	Topic covered
	High Regulation Transmission Electron Microscope in details
1-4October 2025	Revision of 2nd Unit and its Test
6-11 October2025	Revision of 2nd Unit and its Test
13-17 October 2025	Study of Physical Properties of Nanomaterials : Melting Point and Phase changes occurred
18-26 October 2025	Diwali break
27-31 October 2025	Study of Physical Properties of Nanomaterials : Mechanical properties
3-8 November 2025	Study of Physical Properties of Nanomaterials : Optical properties
10-15 November 2025	Study of Physical Properties of Nanomaterials : Electrical Conductivity
17-22 November 2025	Study of Physical Properties of Nanomaterials : Magnetic properties and especially Super-paramagnatism and Unit test
24-29 November 2025	Study of Physical Properties of Nanomaterials : Lattice Constants and structure

Lesson Plan

Teacher- Saneh Lata
Class- B.Sc. Year(physics hons.), 5th Semester
Subject: Basics Electronics
Session- 2025-26

Week/Date	Topics Covered
1-2August2025	Semiconductor Physics: Intrinsic and Extrinsic semiconductors, Energy Band in semiconductors.
4-9August2025	Drift and diffusion current in semiconductors, Mobility and conductivity.
11-16August2025	Charge densities in a semiconductor, Fermi-Dirac distribution, Carrier concentration.
18-23August2025	Fermi Levels in Semiconductors, Mass action Law, Hall effect.
25-30August2025	Class test and numerical problems
1-6 September 2025	Diode Circuits and Devices: Diode as a circuit element, P-N Junction diode Vs Zener diode, Voltage Regulation using Zener Diode.
8-13 September 2025	Light emitting diode (LED), Photo diode, Thermistor.

Week/Date	Topics Covered
15 -20 September 2025	LDR, Rectifiers, Clippers and test.
22 -27 September 2025	Transistor: Potential curves in unbiased and biased transistor, working of a Transistor, Transistor characteristics, Transistor current components.
29 -30 September 2025	Static Characteristics of CB & CE configuration, active, cut off and Saturation regions.
1-4October 2025	Transistor as an Amplifier and DC Load line, Transistor current gains (Alpha, Beta, Gama).
6-11 October2025	Class test ,assignments and numerical problems.
13-17 October 2025	Number systems and Logic Gates: Binary, Octal, Hexadecimal number system and base conversions.
18-26 October 2025	Diwali break
27-31 October 2025	Logic gates AND, OR, NOT, XOR, XNOR, NOR, NAND (Definition, Symbols& Truth table); Boolean algebra: Postulates, Duality

Week/Date	Topics Covered
	Principal, De Morgan's Law.
3-8 November 2025	Binary, Arithmetic operations, 1's and 2's complement representation and there arithmetic Class test
10-15 November 2025	Class test
17-22 November 2025	Assignment work
24-29 November 2025	Revision of complete syllabus

Teacher- Monika
Class- B.Sc. 1st, 1st semester
Subject : Computational Physics
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Introduction: What is computational physics? Why do we need it?
4-9August2025	Computer hardware: basic computer architecture, hierarchical memory
11-16August2025	RAM, ROM, cache, latency and bandwidth
18-23August2025	Machine representation, precision and errors
25-30August2025	Integer representation; floating-point representation

Week & Dates	Topic covered
1-6 September 2025	Machine precision
8-13 September 2025	Errors: round-off; approximation errors; random errors; errors of the third kind
15 -20 September 2025	Algorithm: Definition, properties and development
22 -27 September 2025	Flowchart: Concept of flowchart, symbols, guidelines, types
29 -30 September 2025	Example: Roots of Quadratic Equation
1-4October 2025	Example: Sum of two matrices
6-11 October2025	Example: Sum and Product of a finite series
13-17 October 2025	Example: Calculation of sin(x) as a series
18-26 October 2025	Diwali break
27-31 October 2025	Fundamental Linux Commands (Internal and External commands)
3-8 November 2025	Development of FORTRAN
10-15 November 2025	Basic elements of FORTRAN: Character Set, Constants and their types
17-22 November 2025	Variables and their types, Keywords

Week & Dates	Topic covered
24-29 November 2025	Algorithm for plotting trajectory of a projectile thrown at an angle with the horizontal, revision

Teacher- Seema
Class- B.A., 3rd semester
Subject : Element of Modern Physics
Session- 2025-26

1-2August2025	Atomic structure, energy levels and energy bands (basic idea), types of materials (conductors, semiconductors and insulators) their energy band diagrams and definition on the basis of energy gap, intrinsic semiconductors, extrinsic semiconductors.
4-9August2025	p-type and n-type semiconductors (basic idea), Basics of Semiconductor devices P-N junction diode depletion layer,
11-16August2025	forward biasing and reverse hiasing, V-I characteristics of PN junction diodes; ideal diode, diode as a switch,
18-23August2025	Basic idea of a Photodiode, Solar cell and Light emitting diode (LED).
25-30August2025	classification-paramagnetic, diamagnetic and ferromagnetic materials and their applications;
1-6 September 2025	Piezoelectricity and applications lications of Piezoelectric materials; Ceramics and polymers and their applications;
8-13 September 2025	Superconductivity, superconductors and their applications; Nanomaterials and their applications.

15 -20 September 2025	Idea of composition and properties of nucleus (charge, mass, size and density),
22 -27 September 2025	nucleons, atomic number, mass number, isotopes, isobars and isotones; nuclear binding energy,
29 -30 September 2025	Radioactive decaya, B, and y-decay; Idea of half-life time and decay constant, carbon dating and its importance, radioisotopes and their applications.
1-4October 2025	Idea of nuclear fission and nuclear fusion. Nuclear reactors, source of solar and stellar energy.
6-11 October2025	Introduction, absorption, spontaneous emission, stimulated emission,
13-17 October 2025	properties of laser light. Principle of laser-Light amplification, population inversion and pumping.
18-26 October 2025	DIWALI BREAK
27-31 October 2025	Principle and working of Ruby, He-Ne and semiconductor laser (basic idea). Applications of Lasers in healthcare and different fields of science and technology.
3-8 November 2025	types of optical fiber (basic idea), applications of optical fibers in medical
10-15 November 2025	Telecommunication and sensors
17-22 November 2025	Basics of Fiber Optics-introduction to optical fibers (definition, principle and parts) light propagation and the optical fibers,

24-29 November 2025	Test and revision of whole syllabus

Teacher- Monika and Nidhi
Class- B.Sc. 2nd, 3rd semester
Subject : Radiation Safety
Session- 2025-26

Week & Dates	Topic covered
1-2August2025	Basics of Atomic and Nuclear Physics: Atomic structure, X-rays characteristics and production, concept of bremsstrahlung and auger electron
4-9August2025	Composition of nucleus and its properties, mass number, isotopes, binding energy, stable and unstable isotopes
11-16August2025	Law of radioactive decay, mean life and half-life, decay concepts: alpha, beta, gamma decay, concept of cross section and kinematics of nuclear reactions
18-23August2025	Types of nuclear reactions, fusion, fission, revision of Unit 1
25-30August2025	Types of Radiation: Alpha, Beta, Gamma, Neutron; their sources (sealed/unsealed), photon interactions (photoelectric, Compton, pair production)
1-6 September 2025	Linear/Mass attenuation, Charged particles: Bethe-Bloch,
8-13 September 2025	Channeling, Cherenkov radiation, beta particles (collision and radiation loss),
15 -20 September 2025	Revision of Unit 2, problem solving, short test
22 -27 September 2025	Radiation Detection and Monitoring Devices: Quantities/Units, basics of activity, KERMA, dose, absorbed dose, equivalent dose

Week & Dates	Topic covered
29 -30 September 2025	Gas detectors: Ionization chamber, Proportional counter, G-M Counter, Scintillation detector (principle, working)
1-4October 2025	Revision of Unit 3, demonstrations, exercises
6-11 October2025	Radiation Safety: Biological effects of ionizing radiation, operational limits, radiation hazards, standards, protection
13-17 October 2025	Applications: Medical (MRI, PET, Imaging Gamma Camera),
18-26 October 2025	Diwali break
27-31 October 2025	industrial uses (tracing, gauging, sterilization, food), archaeology, forensics
3-8 November 2025	neutron interactions (collision, slowing, moderation)
10-15 November 2025	Scaling laws, Mass stopping power, range, straggling
17-22 November 2025	Test and doubt clearing
24-29 November 2025	Revision of all syllabus

Teacher- Rahul
Class- B.Sc. 3rd Year(physics hons.), 5th Semester
Subject: Quantum Mechanics
Session- 2025-26

Week/Date	Topics Covered
1-2August2025	Introduction: Why quantum mechanics? Two-slit experiment, wave-particle duality, EM radiation, Davisson and Germer experiment
4-9August2025	Wave function, Schrödinger wave equation, Expectation values, Ehrenfest theorem, Postulates of quantum mechanics
11-16August2025	Hermitian operators, Eigenvalues, Eigenfunctions, Expansion and closure property, Probability functions, Expectation values
18-23August2025	Coordinate and momentum representations, Commutation rules, Uncertainty relation, Revision of Unit 1
25-30August2025	Matrix formulation introduction: Hermitian/unitary matrices, Transformations, Diagonalization, Matrices of infinite rank, Basis change
1-6 September 2025	Dynamical variables and wave function matrices, Hilbert space, Dirac notation & bras/kets, Time-evolution of quantum system
8-13 September 2025	Schrödinger, Heisenberg, and interaction pictures, Link to classical equations, Quantization of classical systems, Matrix theory of harmonic oscillator
15 -20 September 2025	Spectrum of eigenvalues & eigenfunctions, Matrices for position, momentum, energy, Applications, Revision of Unit 2
22 -27 September 2025	Solution of three-dimensional systems: Particle in a box, 1D harmonic oscillator, 3D oscillator, Cartesian & spherical coordinates, Degeneracy
29 -30 September 2025	Eigenvalues & eigenfunctions in box and oscillator, Degeneracy, Schrödinger for two-body system, Hydrogen atom problem (energy, angular momentum, eigenfunctions)

Week/Date	Topics Covered
1-4October 2025	Radial eigenfunctions, Probability distributions, Degeneracy, Examples and problem-solving
6-11 October2025	Quantum theory of angular momentum: Orbital angular momentum operator L, Cartesian & spherical representations, Commutation relations, Eigenfunctions
13-17 October 2025	Spherical harmonics, Orbital/spatial rotations, General angular momentum J, Eigenvalues, Matrix representation
18-26 October 2025	Diwali break
27-31 October 2025	Spin and angular momentum: Spin 1/2, Pauli matrices, Addition of angular momentum,
3-8 November 2025	Clebsch-Gordan coefficients, Application.
10-15 November 2025	Problem solving, revision, assignments,
17-22 November 2025	Test of syllabus
24-29 November 2025	Assignment work

Teacher- Rahul
Class- B.Sc. First Year(physics hons.), 1st Semester
Subject: Mathematical physics
Session- 2025-26

1-2August2025	Theory of Errors: Systematic and Random errors, Propagation of errors, Normal law of errors, Standard and Probable error

4-9August2025	Theory of Errors: Least square fit, error on slope and intercept of fitted line; Matrices: Normal and Orthogonal Matrices
11-16August2025	Matrices: Hermitian, Unitary, Symmetric & Anti-symmetric, Conjugate of a Matrix, Anti-hermitian Matrices, Trace/Eigenvalues/Diagonalization of Matrices
18-23August2025	Expansion of Functions: Taylor/Laurent's expansion, Power series, Partial and ordinary differential equations, Partial differential equations
25-30August2025	Differential equations: First order, method of separation of variables, Singular points, Vibrations of elastic string, Heat Flow equations
1-6 September 2025	Vibrations: Rectangular & circular membranes, Method of Frobenius, Diffusion equation, Laplace's equation (rectangular/cylindrical/spherical symmetry), Green's function
8-13 September 2025	Expansion revision, practice problems, assessment Unit II
15 -20 September 2025	Fourier Series: Introduction, Coefficient evaluation, Representation of functions (even/odd), Cosine & Sine series, Dirichlet's theorem
22 -27 September 2025	Extension of interval, Complex Fourier series form, Properties (convergence, integration, differentiation), Parseval's theorem
29 -30 September 2025	Physical applications of Fourier series, Fourier analysis of various wave forms, Fourier Integrals, Deduction and applications of Fourier Transform and its inverse
1-4October 2025	Beta and Gamma Functions: Gamma function, Beta function, Other beta forms, Relationship between beta and gamma
6-11 October2025	Legendre's equation, Legendre's Polynomial,

13-17 October 2025	Legendre's function of second kind, General solution, Generating function
18-26 October 2025	Diwali break
27-31 October 2025	Consolidated revision, intensive practice, assessment (tests/viva/project), advanced applications of all major topics, doubt clearing
3-8 November 2025	Orthogonality, Hermite Polynomial
10-15 November 2025	Hermite differential equation, Generating function of Hermite Polynomial, Recursion relations,
17-22 November 2025	Hermite polynomial practice and revision
24-29 November 2025	Revision