

Department of Physics

BIDHANNAGAR COLLEGE

EB-2, Sector-I, Salt Lake-700064

Academic Calendar 2023-2024

(Tentative)

PAPER	WEEK 1-4	WEEK 5-8	WEEK 9-12	WEEK 13-15
Mathematical Methods (DS-I)	<ul style="list-style-type: none"> ➤ Calculus (Recapitulation) Approximation: Taylor and binomial series (statements only). ➤ Vector Calculus. 	<ul style="list-style-type: none"> ➤ Calculus (1st Order and 2nd ODE) ➤ Vector Calculus (Vector Differentiation) 	<ul style="list-style-type: none"> ➤ Calculus (Calculus of functions of more than one variable) ➤ Vector Calculus. ➤ Introduction to probability. 	<ul style="list-style-type: none"> ➤ Vector Calculus (rest). ➤ Introduction to probability.
SEC-I	<ul style="list-style-type: none"> ➤ Basic measurements 	<ul style="list-style-type: none"> ➤ CRO 	<ul style="list-style-type: none"> ➤ Signal generators 	<ul style="list-style-type: none"> ➤ Digital instruments
MDC	<ul style="list-style-type: none"> ➤ Introduction ➤ How physics works 	<ul style="list-style-type: none"> ➤ Grand scheme of Physics 	<ul style="list-style-type: none"> ➤ Light 	<ul style="list-style-type: none"> ➤ EM spectrum
Mechanics (Minor-I)	<ul style="list-style-type: none"> ➤ Vectors 	<ul style="list-style-type: none"> ➤ Gravitation 	<ul style="list-style-type: none"> ➤ Particle Dynamics ➤ Elasticity 	<ul style="list-style-type: none"> ➤ Particle Dynamics ➤ Oscillations
Mechanics I (DS-2)	<ul style="list-style-type: none"> ➤ Dynamics ➤ Work & Energy 	<ul style="list-style-type: none"> ➤ Gravitation ➤ Collisions & Elasticity 	<ul style="list-style-type: none"> ➤ Rotational dynamics ➤ Fluid motion 	<ul style="list-style-type: none"> ➤ Oscillations
Electricity & Magnetism (Minor-II)	<ul style="list-style-type: none"> ➤ Vector analysis ➤ Electric Field and Electric Potential 	<ul style="list-style-type: none"> ➤ Dielectric Properties of Matter ➤ Magnetic Field 	<ul style="list-style-type: none"> ➤ Magnetic Properties of Matter ➤ Electrical Circuits 	<ul style="list-style-type: none"> ➤ Electromagnetic Induction ➤ Network theorems
SEC-II	<ul style="list-style-type: none"> ➤ Computational introduction 	<ul style="list-style-type: none"> ➤ Programming 	<ul style="list-style-type: none"> ➤ Programming & visualisation 	<ul style="list-style-type: none"> ➤ Latex
PHSACOR05T	<ul style="list-style-type: none"> ➤ Fourier Series ➤ Partial Differential Equations 	<ul style="list-style-type: none"> ➤ Frobenius Method and Special Functions (Introduction) ➤ Some Special Integrals 	<ul style="list-style-type: none"> ➤ Frobenius Method and Special Functions (Legendre Polynomials) ➤ Variational calculus in physics 	<ul style="list-style-type: none"> ➤ Frobenius Method and Special Functions (Bessel Polynomials etc.) ➤ Analytical Dynamics
PHSACOR06T	<ul style="list-style-type: none"> ➤ Introduction to Thermodynamics (0th and 1st) 	<ul style="list-style-type: none"> ➤ Introduction to Thermodynamics (2nd Law) 	<ul style="list-style-type: none"> ➤ Introduction to Thermodynamics (Carnot's 	<ul style="list-style-type: none"> ➤ Thermodynamic Potentials ➤ Kinetic Theory of Gases

	Law of Thermodynamics) ➤ Kinetic Theory of Gases (Distribution of Velocities)	of Thermodynamics) ➤ Kinetic Theory of Gases (Molecular Collisions)	Theorem & Entropy) ➤ Kinetic Theory of Gases (Real Gases)	(Real Gases)
PHSACOR07T	➤ Basic introduction ➤ IC ➤ Timers	➤ Digital Circuit ➤ Computer Organization	➤ Arithmetic circuits ➤ Data processing circuits ➤ Sequential circuits	➤ Registers ➤ Counters
PHSSSEC01M	➤ Basic of Measurement ➤ CRO	➤ Electronic Voltmeter ➤ Signal Generators and Analysis Instruments	➤ Impedance Bridges & Q- Meters ➤ Digital Instruments	➤ Digital Multimeter
PHSHGEC03T	➤ Laws of Thermodynamics ➤ Statistical Mechanics	➤ Laws of Thermodynamics ➤ Statistical Mechanics	➤ Thermodynamic Potentials ➤ Kinetic Theory of Gases	➤ Theory of Radiation ➤ Kinetic Theory of Gases
PHSACOR08T	➤ Complex Analysis ➤ Integrals Transforms (Fourier Transforms)	➤ Complex Analysis ➤ Integrals Transforms (Application)	➤ Complex Analysis ➤ Matrices	➤ Eigen-values and Eigenvectors ➤ Boundary Value Problems
PHSACOR09T	➤ Collection of Identical Entities ➤ Emergence of Quantum Theory	➤ Nuclear Physics (Introduction) ➤ Emergence of Quantum Theory	➤ Nuclear Physics (Radioactivity) ➤ Lasers	➤ Nuclear Physics (Fission and fusion) ➤ Relativistic Dynamics
PHSACOR010T	➤ Introduction to electronics ➤ Semiconductor Diodes	➤ Two-terminal Devices and their Applications ➤ BJT	➤ FET ➤ Different Amplifiers	➤ Sinusoidal Oscillators ➤ OpAmp & its application ➤ Conversion
PHSHGEC04T	➤ Superposition of 2 Collinear & Perpendicular Harmonic Oscillations	➤ Waves Motion- General ➤ Fluids ➤ Wave Optics	➤ Sound ➤ Interference ➤ Michelson's Interferometer	➤ Diffraction ➤ Polarization
PHSSSEC02M	➤ Introduction to Computational Physics	➤ Scientific Programming	➤ Scientific Programming ➤ Control Statements	➤ Control Statements
PHSACOR011T	➤ Basic Formalism	➤ Schrodinger Equation	➤ Bound states in an arbitrary potential	➤ Quantum theory of hydrogen-like atoms
PHSACOR012T	➤ Crystal Structure ➤ Elementary band theory	➤ Elementary Lattice Dynamics ➤ Drude's theory	➤ Magnetic Properties of Matter ➤ Dielectric Properties of Materials	➤ Ferroelectric Properties of Materials ➤ Superconductivity
PHSADSE02T	➤ Lagrangian & Hamiltonian Dynamics	➤ Rigid Body Mechanics ➤ Small Amplitude	➤ Dynamical Systems Oscillations ➤	➤ Fluid Dynamics

PHSADSE03T	<ul style="list-style-type: none"> ➤ General Properties of Nuclei ➤ Nuclear Models 	<ul style="list-style-type: none"> ➤ Radioactivity decay ➤ Nuclear Reactions ➤ Particle Accelerators 	<ul style="list-style-type: none"> ➤ Interaction of Nuclear Radiation with matter ➤ Detector for Nuclear Radiations 	<ul style="list-style-type: none"> ➤ Particle physics
PHSACOR013T	<ul style="list-style-type: none"> ➤ Maxwell Equations ➤ Optical Fibres 	<ul style="list-style-type: none"> ➤ EM Wave Propagation in Unbounded Media ➤ EM Wave in Bounded Media 	<ul style="list-style-type: none"> ➤ Polarization of Electromagnetic Waves 	<ul style="list-style-type: none"> ➤ Polarization of Electromagnetic Waves ➤ Wave guides
PHSACOR014T	<ul style="list-style-type: none"> ➤ Classical Statistical Mechanics 	<ul style="list-style-type: none"> ➤ Chemical Equilibrium ➤ Theory of Blackbody Radiation 	<ul style="list-style-type: none"> ➤ System of identical particles ➤ BE Statistics 	<ul style="list-style-type: none"> ➤ FD Statistics
PHSADSE04T	<ul style="list-style-type: none"> ➤ PDE ➤ Group Theory 	<ul style="list-style-type: none"> ➤ PDE ➤ Group Theory 	<ul style="list-style-type: none"> ➤ Group Theory ➤ Advanced Probability Theory (Introduction) 	<ul style="list-style-type: none"> ➤ Advanced Probability Theory (Probability distributions)
PHSADSE05T	<ul style="list-style-type: none"> ➤ Astronomical Scales ➤ Astronomical techniques 	<ul style="list-style-type: none"> ➤ Astronomical Scales ➤ Physical principles 	<ul style="list-style-type: none"> ➤ The sun and solar family ➤ The milky way 	<ul style="list-style-type: none"> ➤ Galaxies ➤ Large scale structure & expanding universe

Head, Department of Physics
Bidhannagar College