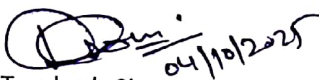


PHYSICS LESSON PLAN(Odd Semester)Session 2025-26

B.Sc 1st Sem DSC (Phy. Sci.) Th.+Lab &SEC Lab

Name of Assistant Professor	Period	Topics to be covered	Assignments/ Test
LAXMIKANT	Up to 15 th Aug	Unit-1 Rotational Dynamics:Rigid body,Moment of Inertia,Radius of Gyration.Torque.Angular momentum,Rotational kinetic energy,law of conservation of angular momentum.theorem of perpendicular and parallel axis(with proof) DSC Experiment:- Measurement of Length (or diameter)using Vernier calliper and Screw Gauge. SEC Experiment:- To use Multimeter for.measuring Resistance.A.C.and D.C.Voltage and Current.	
	16 th Aug to 31 st Aug	Moment of Inertia of Ring.Disc.solid cylinder.hollow cylinder,solid sphere,hollow sphere,Spherical Shell,solid bar of rectangular cross section.Moment of Inertia of Fly wheel,Moment of inertia of an irregular body,acceleration of a body rolling down on an inclined plane. DSC Experiment:- Measurement of Length (or diameter)using Travelling Microscope. SEC Experiment:- Determination of Impedance of an A.C.circuit and its verification.	
	1 st Sep to 15 th Sep	Unit-2 Elasticity:Elasticity,Stress and Strain,Hooke's Law,Elastic constants and their relations.Poisson's ratio,Torsion of cylinder and twisting couple,Determination of Coefficients of modulus of rigidity for the material of wire by Maxwell's needle, DSC Experiment:- Moment of Inertia of a Fly Wheel. SEC Experiment:- Frequency of A.C.mains using an electromagnet and Sonometer.	Assignment
	16 th Sep to 30 th Sep	Bending of beam (bending moment and its magnitudes). Cantilever and centrally loaded beam,Determination of Young's modulus for the material of the beam and Elastic constants for the material of the wire by Searle's method. DSC Experiment:- Moment of Inertia of irregular body using a Torsion Pendulum. SEC Experiment:- Frequency of A.C.mains by using Electrical vibrator.	
	1 st Oct to 15 th Oct	Unit-3 Theory of Relativity:Reference frames,Inertial and non-Inertial frames of references.(Galilean Transformation,Galilean Invariance and principle of Newtonian relativity. DSC Experiment:- Modulus of rigidity of material of wire by Maxwell's Needle. SEC Experiment:- To study series LCR circuit and calculation of Q factor	Mid Term Exam
	16 th Oct to 31 st Oct	Michelson-Morley's experiment and its findings.Postulates of special theory of relativity.Lorentz Transformations. Length contraction,Time Dilation and Twin Paradox,velocity addition theorem,Variation of mass with velocity.Mass Energy equivalence. DSC Experiment:- Elastic constant by Searle's method. SEC Experiment:- To study Parallel LCR circuit and calculation of Q factor	
	1 st Nov to till Exam	Revision of all theory syllabus DSC Experiment:- To compare Moment of Inertia of a solid Sphere,Hollow Sphere and solid Disc of same mass with the help of Torsion Pendulum. SEC Experiment:- To obtain the wave form of AC mains supply using a cathode ray oscilloscope.	


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PHYSICS LESSON PLAN(Odd Semester)Session 2025-26

B.Sc 1st Sem MIC(Life Sci.)Th.

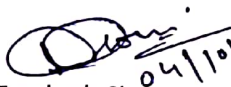
Name of Assistant Professor	Period	Topics to be covered	Assignments/ Test
LAXMIKANT	Up to 15 th Aug	Unit-1 Mechanics of single and system of particles, Conservation law of linear momentum	
	16 th Aug to 31 th Aug	Angular momentum and mechanical energy for a particle and a system of particles.	
	1 st Sep to 15 th Sep	Centre of Mass and equation of motion.	Assignment
	16 th Sep to 30 th Sep	Unit-2 Degrees of freedom and Generalized coordinates, Transformation equations	
	1 st Oct to 15 th Oct	Generalized Displacement, Velocity, Acceleration, Momentum	Mid Term Exam
	16 th Oct to 31 th Oct	Force and Potential, Hamilton's variational principle, Lagrange's equation of motion from Hamilton's principle, Linear Harmonic oscillator, Simple pendulum, and Atwood's machine.	
	1 st Nov to till Exam	Revision of all theory syllabus	


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PHYSICS LESSON PLAN(Odd Semester)Session 2025-26

B.A 1st Sem MDC (Th.+Lab)

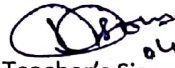
Name of Assistant Professor	Period	Topics to be covered	Assignments/ Test
LAXMIKANT	Up to 15 th Aug	Unit-1 Physical quantities-fundamental and derived,system of units, Experiment:- To measure the diameter of a solid sphere and cylindrical body by using vernier calliper.	
	16 th Aug to 31 th Aug	need of measurement.fundamental derived units, Experiment:- To measure the volume of the given rectangular block by using vernier calliper.	
	1 st Sep to 15 th Sep	dimensions of physical quantities,dimensional formulae. Experiment:- To measure the internal diameter and depth of a given beaker and hence finds its volume.	Assignment
	16 th Sep to 30 th Sep	Unit-2 Scalar and vector quantities,rest and motion,Motion of objects in one.two and threc dimensions with examples,. Experiment:- To measure the diameter of a given wire by using screw gauge.	
	1 st Oct to 15 th Oct	concept of position,distance,displacement,speed,velocity average and instantaneous speed, Experiment:- To measure the thickness of a given sheet by using screw gauge.	Mid Term Exam
	16 th Oct to 31 th Oct	average and instantaneous velocity and acceleration, uniform and non-uniform motion with examples. Experiment:- To measure the radiüs of curvature of a given spherical surface by a spherometer.	
	1 st Nov to till Exam	Revision of all syllabus	


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PHYSICS LESSON PLAN(Odd Semester)Session.2025-26

B.Sc 3rd Sem DSC(Phy. Sci.)Th.+Lab & SEC(Phy. Sci.) Lab

Name of Assistant Professor	Period	Topics to be covered	Assignments/ Test
LAXMIKANT	Up to 15th Aug	Unit-1 Interference by Division of Wave front: Young's double slit experiment, Coherence. Conditions of interference, Fresnel's biprism and its applications to determine the wavelength of sodium light and thickness of a mica sheet, phase change on reflection. DSC Experiment:- To determine Refractive index of the material of a prism using sodium source. SEC Experiment:- Verification and interpretation of truth table for AND, OR, NOT gates Verification and interpretation of truth table for NAND gate	
	16 th Aug to 31 th Aug	Interference by Division of Amplitude: Plane parallel thin film, production of colours in thin films. Interference due to transmitted light and reflected light, wedge shaped film. Newton's rings and its applications. DSC Experiment:- To determine the dispersive power and Cauchy constants of the material of a prism using Mercury discharge source. SEC Experiment:- Verification and interpretation of truth table for NOR gate Verification and interpretation of truth table for XOR gate	
	1 st Sep to 15 th Sep	Unit-2 Fresnel Diffraction: Fresnel's half period zones, zone plate, diffraction at a straight edge, diffraction at rectangular slit. DSC Experiment:- To draw a graph between wavelength and minimum deviation for various lines from a Mercury discharge source. SEC Experiment:- Verification and interpretation of truth table for XNOR gate To study and verify NAND gate as a universal gate	Assignment
	16 th Sep to 30 th Sep	Fraunhofer diffraction: single slit diffraction, double slit diffraction, Plane Diffraction grating, limit of resolution, Rayleigh's criterion, resolving power of telescope and a grating. DSC Experiment:- Determination of wave length of sodium light and the number of lines per centimetre using a diffraction grating. SEC Experiment:- To study and verify NOR gate as a universal gate Design and verification of truth table of Half adder circuit.	
	1 st Oct to 15 th Oct	Unit-3 Polarization: Polarisation by reflection, refraction and scattering, Malus Law, Phenomenon of double refraction, Huygens's wave theory of double refraction, Nicol prism. DSC Experiment:- Determination of wave length of sodium light using Newton's Rings. SEC Experiment:- Design and verification of truth table of Full adder circuit. Design and verification of truth table of Half Subtractor circuit.	Mid Term Exam
	16 th Oct to 31 th Oct	Quarter wave plate and half wave plate, production and detection of (i) Plane polarized light (ii) Circularly polarized light and (iii) Elliptically polarized light, Optical activity, Fresnel's theory of optical rotation, Specific rotation. DSC Experiment:- Resolving power of a telescope. SEC Experiment:- Design and verification of truth table of Full Subtractor circuit.	
	1 st Nov to till Exam	Revision of all syllabus	


Teacher's Signature

PHYSICS LESSON PLAN(Odd Semester)Session 2025-26

B.Sc 3rd Sem MIC(Life Sci.)Th.

Name of Assistant Professor	Period	Topics to be covered	Assignments/ Test
LAXMIKANT	Up to 15 th Aug	Unit-1 Vector background and electric field Gradient of a scalar and its physical significance, Line, Surface and Volume integrals of a vector and their physical significance, Flux of a vector field, Divergence and Curl of a vector and their physical significance,	
	16 th Aug to 31 st Aug	Gauss's divergence theorem, Stoke's theorem. Derivation of electric field from potential as gradient. Derivation of Laplace and Poisson equations, Electric flux, Gauss's Law. Mechanical force of charged surface, Energy per unit volume.	
	1 st Sep to 15 th Sep	Unit-2 Magnetism Magnetic induction, Magnetic flux, Solenoidal nature of vector field of induction. properties of B. (i) $\nabla \cdot \mathbf{B} = 0$, (ii) $\nabla \times \mathbf{B} = \mu_0 \mathbf{J}$, Electronic theory of dia and paramagnetism, Domain theory of ferromagnetism (Langevin's theory), Cycle of Magnetization-Hysteresis loop (Energy dissipation. Hysteresis loss and importance of Hysteresis Curve).	Assignment
	16 th Sep to 30 th Sep	Unit-3 Electromagnetism Maxwell equations and their derivations, Displacement current, Vector and Scalar potentials. Boundary conditions at interface between two different media, Propagation of electromagnetic wave (Basic idea, no derivation), Poynting vector and Poynting theorem.	
	1 st Oct to 15 th Oct	Unit-4 A.C. Analysis A.C. circuit analysis using complex variable with (a) Capacitance and Resistance (CR) (b) Resistance and Inductance (LR)	Mid Term Exam
	16 th Oct to 31 st Oct	(c) Capacitance and Inductance (LC) and (d) Capacitance, Inductance and Resistance (LCR). Series and parallel resonance circuit, Quality factor (sharpness of resonance).	
	1 st Nov to till Exam	Revision of all Theory syllabus	


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PHYSICS LESSON PLAN(Odd Semester)Session 2025-26

B.Sc 5th Sem(Non Med)Th.+Lab

Name of Assistant Professor	Period	Topics to be covered	Assignments/ Test
LAXMIKANT	Up to 15 th Aug	Nuclear Physics Unit I: Nuclear Structure and Properties of Nuclei Nuclear composition (p-e and p-n hypotheses), Nuclear properties; Nuclear size, spin, parity, statistics, magnetic dipole moment, quadruple moment (shape concept). Determination of mass by Bain-Bridge, Bain-Bridge and Jordan mass spectrograph. Determination of charge by Mosley Law. Determination of size of nuclei by Rutherford Back Scattering, mass and binding energy, systematic of nuclear binding energy, nuclear stability. Experiment:-Study the C E transistor amplifier	
	16 th Aug to 31 st Aug	Unit II: Nuclear Radiation decay Processes Alpha-disintegration and its theory. Energetics of alpha-decay, Origin of continuous beta spectrum (neutrino hypothesis), types of beta-decay and energetics of beta-decay. Nature of gamma rays, Energetics of gamma rays. Radiation interaction Interaction of heavy charged particles (Alpha particles); Energy loss of heavy charged particle (idea of Bethe formula, no derivation), Range and straggling of alpha particles. Geiger-Nuttal law. Interaction of light charged particle (Beta-particle), Energy loss of beta-particles (ionization), Range of electrons, absorption of beta-particles. Interaction of Gamma Ray; Passage of Gamma radiations through matter (Photoelectric, Compton and pair production effect) electron-positron annihilation. Absorption of Gamma rays (Mass attenuation coefficient) and its application. Experiment:-Study the C B transistor amplifier	Assignment 1
	1 st Sep to 15 th Sep	Unit III: Nuclear Accelerators Linear accelerator, Tandem accelerator, Cyclotron and Betatron accelerators. Nuclear Radiation Detectors. Gas filled counters; Ionization chamber; proportional counter, G.M. Counter (detailed study), Scintillation counter and semiconductor detector. Experiment:-Study the B H curve using oscilloscope	
	16 th Sep to 30 th Sep	Unit IV: Nuclear reactions. Nuclear reactions, Elastic scattering, Inelastic scattering, Nuclear disintegration, Photonicuclear reaction, Radiative capture, Direct reaction, Heavy ion reactions and spallation Reactions. Conservation laws, Q-value and reaction threshold. Nuclear Reactors. Nuclear Reactors, General aspects of Reactor Design. Nuclear fission and fusion reactors, (Principle, construction, working and use). Experiment:-Study the Hall effect	

PHYSICS LESSON PLAN(Odd Semester)Session 2025-26

1 st Oct to 15 th Oct	Unit I: Origin quantum physics (Experimental basis) Overview, scale of quantum physics, boundary between classical and quantum phenomena, Photon, Photoelectric effect, Compton effect (theory and result), Frank- Hertz experiment, de-Broglie hypothesis. Davisson and Germer experiment, G.P. Thomson experiment. Phase velocity, group velocity and their relation. Heisenberg's uncertainty principle. Time energy and angular momentum, position uncertainty. Uncertainty principle from de Broglie wave. (Wave-particle duality). Gamma Ray Microscope, Electron diffraction from a slit. Derivation of 1-D time-dependent Schrodinger wave equation (subject to force, free particle). Time-independent Schrodinger wave equation, eigen values, eigen functions, wave functions and its significance. Orthogonality and Normalization of function, concept of observer and operator. Expectation values of dynamical quantities, probability current density. Experiment:-Determine the diameter of a wire using (He-Ne Laser) diffraction method	Test
16 th Oct to 31 st Oct	Unit II: Application of Schrodinger wave equation: Free particle in one-dimensional box (solution of Schrodinger wave equation, eigen functions, eigen values, quantization of energy and momentum, nodes and anti nodes, zero point energy). One dimensional step potential $E > V_0$ (Reflection and Transmission coefficient) One dimensional step potential $E < V_0$ (penetration depth calculation). One dimensional potential barrier, $E > V_0$ (Reflection and Transmission coefficient) One-dimensional potential barrier, $E < V_0$ (penetration or tunneling coefficient). Solution of Schrodinger equation for harmonic oscillator (quantization of energy, Zero-point energy, wave equation for ground state and excited states).	Assignment 2
1 st Nov to 15 th Nov	Unit III: Laser Physics – I Absorption and emission of radiation, 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 absorption ((two and three level rate equation, Fuchbauer landerburg formula). population inversion: A necessary condition for light amplification, resonance cavity, laser pumping, Threshold condition for laser emission, line broadening mechanism, homogeneous and inhomogeneous line broadening (natural, collision and Doppler broadening).	
15 th Nov to till Exam	Unit IV: Laser Physics – II He-Ne laser and RUBY laser (Principle, Construction and working), Optical properties of semiconductor, Semiconductor laser (Principle, Construction and working), Applications of lasers in the field of medicine and industry.	Test


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