

LESSON PLAN SESSION 2022-2023 (PHYSICS)**MECHANICS (Sem. 1ST)**

S.No	WEEK	TOPIC	REMARK
		UNIT I	
1	12 Sept-17 Sept	Moment of inertia, torque, angular momentum, kinetic energy of rotation.	
2	19 Sept-24 Sept	Theorems of Parallel and perpendicular axes with proof.	
3	26 Sept-30 Sept	Moment of inertia of solid sphere, spherical shell, solid cylinder	
4	3 Oct- 8 Oct	Acceleration of a body rolling down an inclined plane	
5	10 Oct- 15 Oct	Test	
		UNIT II	
6	17 Oct- 22 Oct	Hamilton's variation principle, Lagrange's equation of motion	
7	24 Oct- 26 Oct	DIWALI BREAK	
8	27 Oct- 31 Oct	Hamilton's Principle, Linear harmonic oscillator	
9	1 Nov- 5 Nov	Simple Pendulum, Atwood's machine	
10	7 Nov- 12 Nov	Test	
		UNIT III	
11	14 Nov- 19 Nov	Conservation laws of linear momentum, angular momentum and mechanical energy for single particle	
12	21 Nov- 26 Nov	Conservation laws of linear momentum, angular momentum for systems of particle	
13	28 Nov- 30 Nov	Conservation laws of mechanical energy for systems of particle	
14	1 Dec-3 Dec	REVISION & TEST	
15	5 Dec-10 Dec	REVISION & TEST	
16	12 Dec-15 Dec	REVISION & TEST	

LESSON PLAN SESSION 2022-2023 (PHYSICS)
Computer Programming, Thermodynamics (Sem. 1ST)

S.No	WEEK	TOPIC	REMARK
1	12 Sept-17 Sept	Unit-I Binary representation, Algorithm development, flow charts and their interpretation.	
2	19 Sept-24 Sept	Unit-II Thermodynamics-I : Second law of thermodynamics, Carnot theorem	
3	26 Sept-30 Sept	Absolute scale of temperature, Absolute Zero	
4	3 Oct- 8 Oct	Entropy, show that $dQ/T=O$, T-S diagram	
5	10 Oct- 15 Oct	Joule's free expansion, Joule Thomson (Porous plug) experiment. Joule - Thomson effect	
6	17 Oct- 22 Oct	Liquefaction of gases.	
7	24 Oct- 26 Oct	DIWALI BREAK	
8	27 Oct- 31 Oct	Air pollution due to internal combustion Engine	
9	1 Nov- 5 Nov	Unit-III Thermodynamics-II : Derivation of Clausius - Claperyron latent heat equation.	
10	7 Nov- 12 Nov	Phase diagram and triple point of a substance	
11	14 Nov- 19 Nov	Development of Maxwell thermo dynamical relations	
12	21 Nov- 26 Nov	Application of Maxwell relations in the derivation of relations between entropy, specific heats and thermodynamic variables.	
13	28 Nov- 30 Nov	Thermodynamic functions : Internal energy (U), Helmholtz function (F)	
14	1 Dec-3 Dec	Thermodynamic functions : Enthalpy (H), Gibbs function (G)	
15	5 Dec-10 Dec	Relations between Thermodynamic functions	
16	12 Dec-15 Dec	REVISION & TEST	

LESSON PLAN SESSION 2022-2023 (PHYSICS)
SOLID STATE PHYSICS (Sem. 5th)

S.No	WEEK	TOPIC	REMARK
1	12 Sept-17 Sept	Unit-I Crystalline and glassy forms, liquid crystals, symmetry operations for a two dimensional crystal, Unit cell and primitive cell	
2	19 Sept-24 Sept	Bravais lattices in two and three dimensions, Wigner Seitz primitive Cell	
3	26 Sept-30 Sept	Test	
4	3 Oct- 8 Oct	Unit-II Miller indices, Crystal planes, Interplanar spacing, Crystal structures of Zinc sulphide, Sodium Chloride and diamond	
5	10 Oct- 15 Oct	X-ray diffraction, Bragg's Law, x-ray diffraction methods	
6	17 Oct- 22 Oct	Test	
7	24 Oct- 26 Oct	DIWALI BREAK	
8	27 Oct- 31 Oct	Unit –III Reciprocal lattice and its physical significance, Reciprocal lattice vector to a simple Cubic lattice, b.c.c. and f.c.c.	
9	1 Nov- 5 Nov	Einstein theory of specific heat	
10	7 Nov- 12 Nov	Debye model of specific heat of solids	
11	14 Nov- 19 Nov	Test	
12	21 Nov- 26 Nov	Revision and Test	
13	28 Nov- 30 Nov	Revision and Test	
14	1 Dec-3 Dec	Revision and Test	
15	5 Dec-10 Dec	Revision and Test	

LESSON PLAN SESSION 2022-2023
Paper I- PHY 201 : PROPERTIES OF MATTER, KINETIC THEORY AND
RELATIVITY
Sem. 2nd

S.No	WEEK	TOPIC
1	18.01.2023-21.01.2023	Unit - I Properties of Matter (Elasticity) : Elasticity, Hooke's law, Elastic constants and
2	23.01.2023-28.01.2023	Relations between Elastic constants, Poisson's ratio
3	01.02.2023-04.02.2023	Torsion of cylinder and twisting couple
4	06.02.2023-11.02.2023	Bending of beam (bending moment and its magnitude) cantilevers Centrally loaded beam
5	13.02.2023-18.02.2023	Unit - II Kinetic Theory of Gases: Assumptions of Kinetic Theory of gases, Law of equipartition of energy and its applications for specific heats of gases.
6	20.02.2023-25.02.2023	Maxwell distribution of speeds and velocities (derivation required)
7	27.02.2023-04.03.2023	Experimental verification of Maxwell's Law of speed distribution : most probable speed, average and r.m.s. speed, mean free path.
	05.03.2023-12.03.2023	HOLI BREAK
8	13.03.2023-18.03.2023	Transport of energy and momentum, diffusion of gases. Brownian motion (qualitative), Real gases, Van der Waal's equation
9	20.03.2023-25.03.2023	Unit - III Theory of Relativity : Reference systems, inertial frames, Gallilean invariance and Conservation laws,
10	27..03.2023-01.04.2023	Newtonian relativity principle,
11	03.04.2023-08.04.2023	Michelson - Morley experiment
12	10.04.2023-15.04.2023	Search for ether. Lorentz transformations length contraction
13	17.04.2023-22.04.2023	Lorentz transformations, time dilation, velocity
14	24.04.2023-29.04.2023	Addition theorem, variation of mass with velocity and mass energy equivalence
15	01.05.2023-06.05.2023	REVISION

LESSON PLAN SESSION 2022-2023
Paper I- PHY 401 : Statistical Mechanics
Semester IV

S.No	WEEK	TOPIC
1	18.01.2023-21.01.2023	Unit-I Probability, some probability considerations, combinations possessing maximum probability
2	23.01.2023-28.01.2023	combinations possessing minimum probability, distribution of molecules in two boxes
3	01.02.2023-04.02.2023	Case with weightage (general). Phase space,
4	06.02.2023-11.02.2023	Microstates and macro states, statistical fluctuations constraints and accessible States Thermo dynamical probability.
5	13.02.2023-18.02.2023	Unit-II Postulates of Statistical Physics. Division of Phase space into cells, and
6	20.02.2023-25.02.2023	Condition of equilibrium between two systems in thermal contact. B-Parameter. Entropy
7	27.02.2023-04.03.2023	Probability, Boltzmann's distribution law Evaluation of A and b.
	05.03.2023-12.03.2023	HOLI BREAK
8	13.03.2023-18.03.2023	Bose-Einstein statistics, Application of B.E. Statistics to Planck's radiation law
9	20.03.2023-25.03.2023	B.E. gas.
10	27..03.2023-01.04.2023	Unit-III Fermi-Dirac statistics, M.B. Law as limiting case of B.E
11	03.04.2023-08.04.2023	Degeneracy and B.E.,
12	10.04.2023-15.04.2023	Condensation. F.D. Gas
13	17.04.2023-22.04.2023	Electron gas in metals. Zero point energy
14	24.04.2023-29.04.2023	Specific heat of metals and its solution
15	01.05.2023-06.05.2023	REVISION

LESSON PLAN SESSION 2022-2023 Paper I- PHY 601 : ATOMIC MOLECULAR AND LASER PHYSICS Semester -VI		
S.No	WEEK	TOPIC
1	18.01.2023-21.01.2023	Unit -I Vector atom model, quantum numbers associated with vector atom model, penetrating and non-penetrating orbits (qualitative description)
2	23.01.2023-28.01.2023	spectral lines in different series of alkali spectra
3	01.02.2023-04.02.2023	spin orbit interaction and doublet term separation LS or Russel-Saunders Coupling jj coupling
4	06.02.2023-11.02.2023	Expressions for interaction energies for LS and jj coupling required
5	13.02.2023-18.02.2023	Unit-II Zeeman effect (normal and Anomalous) Zeeman pattern of D1 and D2 lines of Na-atom
6	20.02.2023-25.02.2023	Paschen, Back effect of a single valence electron system. Weak field Stark effect of Hydrogen atom.
7	27.02.2023-04.03.2023	Raman effect (Quantitative description)
	05.03.2023-12.03.2023	HOLI BREAK
8	13.03.2023-18.03.2023	Stoke's and anti Stoke's lines.
9	20.03.2023-25.03.2023	Unit-III Main features of a laser : Directionality, high intensity, high degree of coherence, spatial and temporal coherence
10	27..03.2023-01.04.2023	Einstein's coefficients and possibility of amplification, momentum transfer
11	03.04.2023-08.04.2023	life time of a level, kinetics of optical absorption
12	10.04.2023-15.04.2023	Threshold condition for laser emission, Laser pumping,
13	17.04.2023-22.04.2023	He-Ne laser and RUBY laser (Principle, Construction and Working).
14	24.04.2023-29.04.2023	Applications of laser in the field of medicine and industry.
15	01.05.2023-06.05.2023	REVISION