LESSON PLAN OF PHYSICS

Name of College:- CH. BANSI LAL GOVT. P.G. COLLEGE LOHARU (BHIWANI)

Academic Session:- 2022-23

Semester:- B.Sc. Non Medical 6TH Sem

Subject:- ATOMIC, MOLECULAR AND LASER PHYSICS

Teacher name:- MS. SONIKA

	LESSON PLAN OF ATOMIC, MOLECULAR AND LASER PHYSICS
April	
Week 1:	Vector atom model, quantum numbers associated with vector atom model,
	penetrating and non- penetrating orbits
Week 2:	spectral lines in different series of ailkali spectra, spin orbit interaction
	doublet term seperation LS or Russel-Saunder Coupling jj coupling
	Zeeman effect (normal and Anormalous)
Week 3:	Zeeman pattern of D 1 and D2 lines of Na-atom
	Paschen, Back effect of a single valence electron system
	Weak field Strak effect of Hydrogen atom
Week 4:	Diseete set of electronic energies of molecules
	. quantisation of Vibrational and ratiational energies Raman effect
	Stoke's and anti Stoke's lines
May	
Week 1:	Main features of a laser : Directionality, high intensity,
	high degree of coherence, spatial and temporal coherence
	Einstein's coefficients and possibility of amplification
Week 2:	momentum transfer, life time of a level,
	kinetics of optical obsorption, Threshold condition for laser emission
Week 3:	Laser pumping, He-Ne laser and RUBY laser (Principle, Construction and Working
	Applications of laser in the field of medicine and industry

LESSON PLAN OF PHYSICS

Name of College:- CH. BANSI LAL GOVT. P.G. COLLEGE LOHARU (BHIWANI)

Academic Session:- 2022-23

Semester:- B.Sc. Non Medical 2nd Sem

Subject:- MECHANICS ||

Teacher name:- MS. SONIKA

	LESSON PLAN OF MECHANICS
April	
Week 1:	Degree of Freedom, Constraints and its classifications,
	Genralised coordinates, Principle of virtual work,
	D' Alembert principle, Lagrange's equations of D'Alembert principle,
Week 2:	Simple & Compound pendulum, Atwood Machine,
	Hamilton's principle, Derivation of Lagrange's from Hamilton's equation.
Week 3:	Reference system, inertial Frames, Gallilean invariance ,
	Conservation laws, Newtonian relativity principle,
	Michelson-Morley experiment, Special theory of Relativity
Week 4:	Constancy of speed of light, Postulates of Special Theory of Relativity
	Lorentz transformation, length contraction, time delation
May	
Week 1:	Relativistic velocity additiom theorm, variation of mass with velocity and mass energy equivalence,
	Massless particles, Relativistic Doppler effect,
Week 2:	Relativistic Kinematics, transformation of energy and momentum
	Elasticity: Hooke's law- Elastic Moduli
Week 3:	Relation between elastic constants- Poisson's ratio
	Expression for Poisson's ratio in terms of elastic constants, Work done in stretching and twisting of wire
Week 4:	Twisting couple on a cylinder
	Determination of Rigidity modulud by static torsion, Torsional Pendulum,
Week 5:	Determination of rigidity modulud, moment of inertia by Searles method

LESSON PLAN OF PHYSICS

Name of College:- CH. BANSI LAL GOVT. P.G. COLLEGE LOHARU (BHIWANI)

Academic Session:- 2022-23

Semester:- B.Sc. Non Medical 4th Sem

Subject:- Quantum Mechanics

Teacher name:- MS. SONIKA

	LESSON PLAN OF QUANTUM MECHANICS
April	
Week 1:	Black body radiation, quantum thery of radiation, photon,
	Photoelectric effect, Einstein photoelectric equation, Compton effect, De- Broglie Hypothesis,
	Davisson and Germer experiment. Phase velocity
Week 2:	Group velocity, Heisenberg's uncertainty principle, Time-energy and angular momentum
	Position-momentum uncertainty, uncertainty principle from de-brogliewave
Week 3:	Wave function and its physical significance, proprties, orthogonality, normalization of wave function
	Time dependent and independent Schrodinger equation
Week 4:	Momentum and energy operators, Hamiltonian operator
	Eigen value, Eigen Function, Commutator Relations
May	
Week 1:	Stationary states, Probability and normalisation,
	Probability curret density, Expectation value of Dynamical quantity, Particle in1–dimension Infinite Square Well
Week 2:	1-Dimensional Potential barrier
	Solution of Schrodinger equation for harmonic oscillator ground states and excited state
Week 3:	Schrodinger equation in Sperical co-ordinates,
	Separation of Variables for r,θ,ϕ, Solution for θ and ϕ equations
Week 4:	Spherical harmonics, Space quantization,
	Electron spin, spin angular momentum,
Week 5:	Larmor's theorm, spin magnetic moment, Stern- Gerlach Experiment, Gyromagnetic ratio, Bohr magneton