Teaching Plan (Session 2022-23)

Class- B.Sc. 1 (Sem I&II) Teacher Name - Sunita Saini Subject-Physics

Period No. 2 Name of Paper -Mechanics, Electricity and Magnetism

Sr. No.	Date(Weekly)	Topics to be covered
1.	01/09/2022-05/09/2022	Cartesian and spherical polar co-ordinate systems, area, volume, displacement, velocity and acceleration in these systems. Group discussion
2.	07/09/2022-12/09/2022	Solid angle, Various forces in Nature (brief introduction), Centre of mass, Equivalent one body problem, Central forces, Equation of motion under central force. Class test
3.	14/09/2022-19/09/2022	Equation of orbit in inverse square, Force field and turning points, Kepler laws and their derivations. Test
4.	21/09/2022-26/09/2022	Relationship of conservation laws and symmetries of space and time.
5.	28/09/2022-03/10/2022	Inertial frame of reference. Galilean transformation and invariance, Non-inertial frames of reference, Coriolis force and its applications.
6.	05/10/2022-10/10/2022	Variation of acceleration due to gravity with latitude. Focault's pendulum (qualitative).
7.	12/10/2022-17/10/2022	POWER POINT PRESENTATION BY STUDENTS
8.	26/10/2022-31/10/2022	Elastic collision in Laboratory and C.M system, velocities, angles and energies, Cross section of elastic scattering. Rutherford scattering (qualitative). Test for asseeement
9.	02/11/2022-07/11/2022	Work and potential difference. Potential difference as line integral of electric field. Electric potential due to a point charge, a group or point charges. Discussion
10.	08/11/2022-14/11/2022	Dipole and quadruple moments, long uniformly charged wire, charged disc. Stoke's theorem and its application in Electrostatic field, curl E=O. Electric field as gradient of scalar potential. Calculation of E due to a point charge and dipole from potential. Class test
11.	16/11/2022-21/11/2022	Potential due to arbitrary charge distribution and multipole moments. Poisson and Laplace's Equation and their solutions in Cartesian and concept of electrical images. Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet. Discussion about performance in exams
12.	23/11/2022-03/12/2022	Revision and MST
13.	6/2/2023-11/2/2023	Rigid body motion, Rotational motion, principal moments and axes. Euler's equations; precession and elementary gyroscope.
14.	13/2/23-18/2/23	Galilean transformation and Invariance Class test
15.	20/2/23-25/2/23	Non-Inertial frames, concept of stationary universal frame of reference

		and ether. Michelson-Morley experiment and its result. Postulates of special theory of relativity. Lorentz transformations. Group discussion
16.	27/2/23-4/3/23	Observer and viewer in relativity. Relativity of simultaneity. Length, Time, Velocities, Relativistic Doppler effect. Class test
17.	6/3/23-11/3/23	Variation of mass with velocity, mass-energy equivalence, rest mass in an inelastic collision, Relativistic momentum and energy, their transformation. Discussion
18.	13/3/23-18/3/23	Minkowski space, four vector formulation, Lorentz's force. Definition of B. Biot Savart's Law and its applications to long straight wire.
19.	20/3/23-25/3/23	Circular current loop and solenoid. Ampere's Circuital law and its application. Divergence and curl of B. Hall effect expression and co-efficient. Vector potential. Class test
20.	27/3/23-1/4/23	Definition and derivation of current density-definition its use in calculation or change in magnetic field at a current sheet Transformation equation or E and B from one frame to another. Faraday's Law of EM induction. Displacement current. Discussion
21.	3/4/23-8/4/23	Maxwell's equations. Mutual inductance and reciprocity theorem. Self-inductance L for solenoid. Coupling of Electrical circuits. Analysis of LCR series and parallel resonant circuits. Q—factor. Power consumed power factor.
22.	10/4/23-15/4/23	MST EXAMS
23.	17/4/23-22/4/23	Revision
24.	24/4/23-29/4/23	Revision

Signature of teacher