Teaching Plan (Session 2023-24)

Class- B.Sc. I (SEM I)   Teacher Name- Sunita Saini   Subject-Physics

Period No. 1   Name of Paper -Mechanics, Electricity and Magnetism

Sr.No.	Date(Weekly)	Topics to be covered
1.	1-5 Aug	**Section A** Cartesian and spherical polar co-ordinate systems, area, volume, displacement, velocity and acceleration in these systems. **Group discussion about covered topics**
2.	7-12 Aug	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** **Topic** Equivalent one body problem
3.	14-19 Aug	Equation of orbit in inverse square, Force field and turning points, Kepler laws and their derivations. **Section – B** Relationship of conservation laws and symmetries of space and time. Inertial frame of reference. **Group discussion**
4.	21-26 Aug	Galilean transformation and invariance, Non-inertial frames of reference. Centrifugal force and its effect on acceleration due to gravity. Coriolis force and its applications.. **Class Test** **Topic**: Galilean transformation and invariance, Non-inertial frames of reference
5.	28 Aug-02 Sep	Variation of acceleration due to gravity with latitude. Focault pendulum (qualitative). Elastic collision in Laboratory and C.M. system.
6.	4-9 Sep	Velocities, angles and energies. Cross section of elastic scattering. Rutherford scattering (qualitative). **Paper C** **Section A** Basic ideas of Vector Calculus, Gradient, Divergence, curl and their physical significance.
7.	11-16 Sep	Laplacian in rectangular, Coulomb's Law for point charges. Conservation and quantization of charge.
8.	18 - 23 Sep	**Assignment on topics** Work and potential difference. Potential difference as line integral of electric field. Electric potential due to a point charge. (BOYS) A group or point charges, dipole and quadruple moments, long uniformly charged wire, charged disc. (GIRLS) **Group discussion about topics given in Assignment**
9.	25 -30 Sep	Electric field due to dipole line charge and sheet of charge. Electric flux. Gauss's Law and its applications.
10.	2-7 Oct	Gauss's divergence theorem and differential form of Gauss's Law. Green's theorem. **Class Test** **Topic-Green's** theorem.
11.	9 – 14 Oct	**Section – B** Stoke's theorem and its application in Electrostatic field, curl E=O. Electric field as gradient of scalar potential.
12.	16 – 21 Oct	Calculation of E due to a point charge and dipole from potential.
13.	23 – 28 Oct	**MST**

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14.	30 Oct –4Nov	Potential due to arbitrary charge distribution and multipole moments.
15.	6-11 Nov	Poisson and Laplace's Equation and their solutions in Cartesian and concept of Electrical images. **Class Test** **Topic** Poisson and Laplace's Equation and their solutions
16.	13-18 Nov	Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet.
17.	20-25 Nov	**REVISION**