MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Odd Semester/Even Semester)
Session–(2022-2023)

Name of the Teacher/s: Dr. Runjun Sarma,

Department; Physics

Class: B.Sc. I NM
Subject: VIBRATIONS, WAVES & E.M. THEORY-I
Section (s) A

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
Odd semester				
1.	17/8/2022	30/9/2022	Simple harmonic motion, energy of a SHM, Compound Pendulum, Torsional Pendulum, Electrical Oscillations, Transverse Vibrations of a mass on a string, composition of two perpendicular SHM of same period and of period in ratio 1: 2.	(i) Lecture Method; (ii) Online Sources;
2.	01/10/2022	31/10/2022	Decay of free vibrations due to damping, differential equation of motion, types of damping, determination of damping co-efficient; Logarithmic decrement, relaxation time and Q- Factor, Electromagnetic damping (Electrical oscillator). Differential equation for forced mechanical and electrical oscillators	(iii) Group Discussion;
3.	1/11/22	25/11/22	Transient and steady state behaviour. Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance.Power supplied to an oscillator and its variation with frequency. Q-value and band width. Q-value as an amplification factor., Stiffness, coupled oscillators, Normal co-ordinates and normal modes of vibration, Inductance coupling of electrical oscillators.	

			Even Semester	
1.	16/1/2023	28/2/2023	Waves in physical media, Wave equation and its solution, Types of waves, particle velocity, acceleration and energy in progressive waves. Longitudinal waves on a rod. Transverse waves on a string, characteristic impedance of a string, Waves in absorbing media. Reflection and Transmission of transverse waves on a string at discontinuity, Reflection and transmission of energy. Reflection and transmission of longitudinal waves at a boundary.	(i) Lecture Method; (ii) Online Sources; (iii) Group Discussion;
2.	01/3/2023	31/03/2023	Standing wave ratio, Impedance matching, Energy of vibrating string. Wave and group velocity. Physical interpretation of Maxwell's equations, E.M. waves and wave equation in a medium having finite permeability, permittivity and conductivity. Energy flow due to EM wave - Poynting vector, Impedance of a dielectric to EM waves.	
3.	01/4/2023	25/4/2023	EM waves in a conducting medium and skin depth. Impedance and Refractive index of a dielectric and a conductor. Reflection and transmission of EM waves at a boundary of two dielectric media for normal and oblique incidence. Reflection of EM waves from the surface of a conductor at normal incidence.	

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans

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*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method