

**MCM DAV College for Women, Sector – 36A, Chandigarh**  
**Monthly Teaching Plans (Odd Semester/Even Semester)**  
**Session–(2021-2022)**

**Name of the Teacher/s: Dr. Runjun Sarma, Ms. Nischal, Dr. Gurjit**

**Department; Physics**

**Class: B.Sc. I NM and Vocational**

**Subject: VIBRATIONS, WAVES & E.M. THEORY-I**

**Section (s) A**

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
<b>Odd semester</b>				
1.	24/09/2021	30/9/2021	Simple harmonic motion	(i) Lecture Method;  (ii) Online Sources;
2.	01/10/2021	31/10/2021	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. 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.	(iii) Group Discussion;

3.	1/11/21	30/11/21	Electromagnetic damping (Electrical oscillator). Differential equation for forced mechanical and electrical oscillators, Transient and steady state behaviour. Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance.	
5.	1/12/2021	31/12/2021	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.	
<b>Even Semester</b>				
8.	15/3/2021	31/3/2021	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. Standing wave ratio, Impedance matching, Energy of vibrating string. Wave and group velocity.	(i) Lecture Method; (ii) Online Sources; (iii) Group Discussion;
3.	01/4/2021	30/4/2021	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.	
4.	01/5/2021	31/5/2021	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..	
<b>Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans</b>				

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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