



Session: 2020–2021

MERI College of Engineering and Technology (MERI - CET)

Lesson Plan

Name of the Faculty : Ms. Nidhi
Discipline : ME
Semester : 3rd
Subject : PHYSICS (BSC-ME- 201G)
Lesson Plan Duration : (from Aug., 2020 to Nov., 2020)

** Work Load (Lecture) per week (in hours): Lectures-02

Week	Theory	
	Lecture Day	Topic (including assignment/test)
1 st (01/08/20) To (08/08/20)	1 st	Simple harmonic motion, damped and forced simple harmonic oscillator ,Mechanical and electrical simple harmonic oscillators
	2 nd	differential equation of simple harmonic motion, damped harmonic oscillator
2 nd (08/08/20) To (15/08/20)	1 st	Quality factor, forced mechanical and electrical oscillators, steady state motion of forced damped harmonic oscillator.
	2 nd	Sinusoidal waves (concept of frequency and wavelength), types of waves, the one dimensional wave
3 rd (15/08/20) To (22/08/20)	1 st	Transverse vibrations of stretched strings. Longitudinal sound wave in solids,
	2 nd	The matrix method in paraxial optics (unit plane and nodal plane) wave group and group velocity
4 th (22/08/20) To (29/08/20)	1 st	Fermat's principle and its applications (mirage effect, laws of reflection and refraction),
	2 nd	Wave optics - Huygens's principle, superposition of waves and interference of light by wave front splitting and amplitude splitting

5 th (29/08/20) To (05/09/20)	1 st	Young's double slit experiment, Newton's rings
	2 nd	Michelson interferometer, Fraunhofer's diffraction from a single slit
6 th (05/09/20) To (12/09/20)	1 st	Rayleigh criterion for limit of just resolution and its application to vision, Diffraction grating (Transmission), its dispersive and resolving power
	2 nd	Lasers- Stimulated and spontaneous emission, Einstein's theory of matter-radiation interaction,
7 th (12/09/20) To (19/09/20)	1 st	Einstein's coefficients, amplification of light by population inversion
	2 nd	Pumping in lasers, three and four level laser systems, different types of lasers: gas lasers (He-Ne, CO ₂)
8 th (19/09/20) To (26/09/20)	1 st	Solid-state lasers (Ruby, Neodymium), Properties of laser beams: mono-chromaticity, coherence, directionality
	2 nd	Intensity, laser speckles, applications of lasers in science, engineering and medicine