

Lesson Plan

Name of Institute : Ambala College of Engineering and Applied Research
 Name of the Faculty member : Ashok Kumar
 Discipline : Mechanical Engineering
 Semester : 5th
 Subject : Tribology & Mechanical Vibration (ME-305 A)
 Lesson Plan Duration : 15 weeks
 Work Load : L 3 T 0 P 0

Week	Theory	
	Lecture day	Topic (including assignment/ test)
1 st	1	Elements of a vibratory system
	2	S.H.M , Degrees of freedom, Types of vibrations
	3	Work done by a harmonic force
2 nd	4	Beats
	5	Undamped free vibrations
	6	Natural frequency by equilibrium
3 rd	7	Energy methods for solving problems
	8	Equivalent spring & linear systems
	9	Torsional systems
4 th	10	Simple & compound pendulum
	11	Bifilar and Trifilar suspensions
	12	Forced Vibrations, Sources of excitation
5 th	13	Equations of motion with harmonic force
	14	Response of rotating unbalanced system
	15	Response of reciprocating unbalanced system
6 th	16	Revision/Numerical Practice
	17	Revision/Numerical Practice
	18	Sessional- I
7 th	19	Support motion & Vibration Isolation
	20	Force and Motion transmissibility
	21	Forced vibrations with coloumb damping
8 th	22	Structural damping and viscous dampings.
	23	Multi-degree of freedom systems, Principle modes of vibrations
	24	Influence co-efficient
9 th	25	Matrix method, orthogonality principle
	26	Dunkerleys equation, Matrix iteration method
	27	Holzer Method, Rayleigh Method
10 th	28	Rayleigh-Ritz methods, Stodola method
	29	Hamilton principle, Numerical Practice
	30	Sessional-II
11 th	31	Transverse vibrations of strings
	32	Longitudinal Vibrations of bars
	33	Lateral vibration of beams
12 th	34	Torsional vibration of circular shafts

	35	Tribology in design, Tribology in industry
	36	economic aspects of Tribology, modes of lubrication, lubricants, properties of lubricants
13 th	37	Types of additives, extreme pressure lubricants, recycling of used oils
	38	Oil conservation, disposal of scrap oil, oil emulsion
	39	laws of friction, kinds of friction, causes of friction
14 th	40	friction measurement, theories of friction
	41	Effect of surface preparation. Introduction to Wear, Types of wear
	42	various factors affecting wear, measurement of wear, wear between solids and liquids
15 th	43	Theories of wear
	44	Numerical Practice
	45	Sessional-III

(Signature of the teacher concerned with date)