



DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN – PART I

Name of the programme and specialization	B.Tech., / Mechanical Engineering		
Course Title	Dynamics Of Machinery		
Course Code	MEPE21	No. of Credits	03
Course Code of Pre-requisite subject(s)	MEPC10, MAIR21, Engineering Mechanics, Complex Analysis and Differential Equations		
Session	JAN. 2020	Section (if, applicable)	A/B
Name of Faculty	YR KISHORE	Department	MECHANICAL
Name of Course Coordinator(s) (if, applicable)	-		
E-mail	kishore@nitt.edu	Telephone No.	9963298129
Course Type	<input type="checkbox"/> Core course	<input checked="" type="checkbox"/> * Elective course	

Syllabus

Single degree of freedom systems -Periodic excitations -Impulse response -Virtual work.
Forced vibrations.
Two degree of freedom systems -coupled vibrations.
Vibration of continuous systems.
Wave and Euler equations -Vibration of plates.

COURSE OBJECTIVES

- 1.To understand the force-motion relationship in components subjected to External Forces
- 2.To analyse the force-motion characteristics of standard mechanisms
- 3.To study the undesirable effects of unbalances resulting from prescribed motions in mechanism

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
On completion of this course, the students will be able to	
1.Students will be able to construct the governing differential equation and its solution for a vibrating mass subjected to an arbitrary force	1,2,3,5
2.Students will be able to do construct the governing differential equation for 2 degree of system and predict its modes of vibration	1,2,3,5
3.Students will be able to do modal analysis for continues system	1,2,3,5



COURSE PLAN – PART II

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	1	Introduction to vibration , Free vibration of undamped single degree of freedom system	Chalk and Talk/ PPT
2	2	free vibration of single degree of system-damped free and damped	Chalk and Talk/ PPT
3	3-4	Forced vibration of single degree of freedom system- damped free and damped	Chalk and Talk/ PPT
4	5	Forced vibration –due to support motion, vibration transmission and isolation	Chalk and Talk/ PPT
5	6-7	Vibration of two-degree of freedom system-modes of vibration	Chalk and Talk/ PPT
6	8	Coupled oscillations	Chalk and Talk/ PPT
7	9-10	Vibration of continues systems- transverse vibrations of strings and beams	Chalk and Talk/ PPT
8	11-12	Vibration of membrane and plates	Chalk and Talk/ PPT
9	13	Modal analysis	Chalk and Talk/ PPT

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Cycle Test - I	6 th Week	1 hour*	20
2	Cycle Test - II	10 th Week	1 hour*	20
3	Assignment /Tutorial problems-Edmodo	-	-	10
CPA	Compensation Assessment	11 th Week	1 hour*	20
4	Final Assessment	14 th Week	3 hours	50

(* Assessment time duration will be more than 1 hour for mode of test 1, 2 and 3)

ESSENTIAL READINGS: Textbooks & Reference books:

1. Dr. Debabrata, 'Nag Mechanical vibrations', Wiley India Pvt. Ltd.
2. Rao, J.S. and Gupta, K., Introductory Course on Theory and Practice of Mechanical Vibration, New Age International Pvt. Ltd., 2004.

COURSE EXIT

- Feedback from the students during class committee meetings.
- Anonymous feedback through questionnaire and unknown formats.

COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, academic honesty and plagiarism)

MODE OF CORRESPONDENCE (email/ phone)

All the students are advised to come to the class regularly. All the correspondence (schedule of



classes/ schedule of assessment/ course material/any other information regarding this course) will be intimated in the Class only.

ASSESSMENTS:

- Attending all the assessments are MANDATORY for every student.
- If any student is not able to attend any of the continuous assessments (CAs: 1 and 2 only) due to genuine reason, student is permitted to attend the compensation assessment (CPA) with % weightage equal to maximum of the CAs.
- At any case, CPA will not be considered as an improvement test.
- The minimum marks for passing this course and grading pattern will adhere to the regulations of the Institute.

ATTENDANCE

- At least 75 % attendance in each course is mandatory.
- A maximum of 10 % shall be allowed under On Duty (OD) category.
- Students with less than 65 % of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC HONESTY & PLAGIARISM

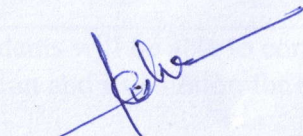
- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

ADDITIONAL INFORMATION

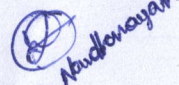
- The faculty is available for consultation at times as per the intimation given by the faculty.
- Queries (if required) to the course teacher shall only be emailed to the email id specified by the teacher(kishore@nitt.edu)

FOR APPROVAL


Course Faculty


Y.R. KISHORE

CC-Chairperson


Anandharam

HOD


10/2/2020