

K.D.K. College of Engineering, Nagpur  
 Department of Mechanical Engineering  
 VI sem Dynamics of Machines Teaching Plan  
 Session 2021-22

S.No.	Unit	Code	Description
1	I	101	Concepts in machine element dynamics
2		102	D'Alembert's Principle
3		103	Simple precession and gyroscopic couple
4		104	Derivation for relation $C = I\omega\dot{\phi}$ and gyroscopic effect
5		105	Numerical on airplane along with gyroscopic effect
6		106	Numerical on naval ship along with gyroscopic effect
7		107	Numerical on four wheeler along with gyroscopic effect
8		108	Numerical on two wheeler and grinding mills along with gyroscopic effect
9	II	201	Dynamic force analysis of planar linkages by graphical method
10		202	Numerical on four bar chain
11		203	Numerical on four bar chain
12		204	Numerical on reciprocating mechanism
13		205	Cam dynamics and jump-off phenomenon
14		206	Numerical on eccentric cam and follower
15		207	Numerical on cam where follower is moving with parabolic motion
16		208	Numerical on follower is moving with SHM and cycloidal motion
17	III	301	Static and dynamic balancing in rotating machines
18		302	Numerical on balancing of rotating machines
19		303	Numerical on balancing of rotating machines
20		304	Numerical on balancing of rotating machines
21		305	Balancing machines and field balancing by vector diagram
22		306	Numerical on balancing of reciprocating mechanism
23		307	Numerical on balancing of reciprocating mechanism
24		308	Numerical on balancing of reciprocating mechanism
25	IV	401	T- $\theta$ diagram for single and multi cylinder engines, punching m/cs etc.
26		402	Flywheel selection
27		403	Numerical on flywheel
28		404	Numerical on flywheel
29		405	Numerical on flywheel
30		406	Speed governors, centrifugal, inertia, Watt, Portal, Proel, Hartnell etc
31		407	Operating characteristics of governors
32		408	Numerical on governors
33	V	501	Derivation of equation of motion for vibratory system
34		502	1-dof Free vibration with and without damping
35		503	Numerical on 1-dof system
36		504	Numerical on 1-dof system
37		505	Logarithmic decrement and damping estimation
38		506	Numerical on logarithmic decrement and damping ratio
39		507	Forced vibration of 1-dof system and vibration isolation
40		508	Whirling of shaft and critical speed of rotor estimation

41	VI	601	Equation of motion for 2-dof system
42		602	Natural frequencies and mode shapes, vibration absorber
43		603	Torsional oscillation of two rotor system and numerical
44		604	Three disc rotors
45		605	Numerical on three rotor system
46		606	Numerical on three rotor system
47		607	Numerical on three rotor system
48		608	Introduction to FFT analyzer for vibration measurements

Prof.A.V.Vanalkar

Subject Teacher