Government Engineering College,Dahod

સરકારી ઇજનેરી કોલેજ.દાહોદ

MECHANICAL ENGINEERING DEPARTMENT

Syllabus for Mid-Sem Examination Even 2019-2020

SUBJECT: - DYNAMICS OF MACHINERY (2161901)

Balancing of Rotating masses	**Attained Co**
Concept of static and dynamic balancing, Analysis of effect of unbalanced masses in single and multiple planes in rotating elements, Bearing reactions. Approaches and equipment for measurement of unbalanced masses.	CO2
Dynamics of Reciprocating Engines Single Cylinder Engine: Slider – Crank kinematics (Analytical), Gas force and torque; static and dynamic equivalence of models (for masses); , Inertia, shaking force and shaking torque. Analysis of pin forces, balancing. Multi Cylinder Engines: Configurations; Inline Engines : Effect of phase angles, firing order and number of strokes;	CO2
Introduction to Mechanical Vibrations	
Elements of simple harmonic motion, concept of natural frequency, types of vibrations, , Basic elements and lumping parameters of a vibratory system, lumping of physical systems, Concept of Degrees of Freedom (DOF).	CO1 & CO3
Single Degree of Freedom system (Linear and torsional) Undamped free vibrations, equivalent stiffness, equivalent systems, determination of natural frequency of undamped free vibration. Types of dampers, Viscous damping, over-damped and critically damped system, Under-damped system. Damped natural frequency and logarithmic decay and damping factor, Coulomb damping and determination of its loss of amplitude and natural frequency, Analytical solution of Forced vibrations with harmonic excitation system and vector representation, Dependence of Magnification Factor, Phase difference	CO1 & CO3

Course Code	COs	Course Outcome
2161901	2161901.1	Understand the basic terminology of Dynamics of Machinery.
	2161901.2	Analyse the unbalanced forces in rotating and reciprocating masses.
	2161901.3	Analyse and determine the natural frequency of single degree free and forced vibration systems.
	2161901.4	Analyse and determine natural frequency of multi-degree free, forced and continues vibration systems.
	2161901.5	Evaluate the critical speed of shaft with unbalanced rotors and cam follower system