SRI PADMAVATI MAHILA VISVAVIDYALAYAM
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TIRUPATI-517502.

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING

Machine Dynamics Laboratory

Key Features: The Machine Dynamics Laboratory has a range of equipment, designed to meet the needs of students who are required to understand the basic principles of machines. The Lab includes a whirling of shafts apparatus, Universal governor apparatus, a balancing of reciprocating masses apparatus, a static and dynamic balancing apparatus, in addition to a vibration apparatus, where experiments can be performed on pendulums, springs and rotors, damping, and torsional oscillations.

S.No.	Name of the Experiment	Specification and Key Equipment Details	Equipment Photo
1.	Universal Governor Apparatus	1. Fractional Horse Power Motor, having Speed:1500 RPM 1 No. 2. Closed Type Auto Transformer, Single Phase 1No. 3. Governor Unit : i. Watt Governor assembly ii. Porter Governor assembly iii.Proell Governor assembly iv. Hartnell Governor assembly 1 Each. 4. 4 kg/cm, 5 kg/cm stiffness Springs 1 Each. 5. Sleeve dead Weights: 0.5 Kg 3 Nos. 6. Sleeve displacement gauge & scale fitting 1 No.	

2	Vibration Laboratory Apparatus	1. Simple Pendulum System: 1 No. 2. Compound Pendulum System : To determine the radius of gyration 'k' of given pendulum.1 No. 3.Bifiller Suspension System : To determine the radius of gyration of given bar by using Bi-Filar suspension 1 No. 4. Longitudinal Vibration System : To study the longitudinal vibrations of helical spring & to determine the frequency or period of vibration (oscillation) theoretically & actually by experiment. 1 No. 5. Free Equivalent Spring Mass System To study the undamped free vibrations of equivalent spring mass system. 1 No. 6. Forced Equivalent Spring Mass System : To study the forced vibrations of equivalent spring mass system 1 No. 7. Torsional Vibration of Single Rotor System : To study the Torsional Vibration (undamped) of single Rotor shaft system. 1 No. 8. Torsional Vibration of Two Rotor System : To study the free vibration of two rotor system & to determine the natural frequency of vibration theoretically & experimentally. 1 No. 9. Damped Torsional Vibration of Single Rotor system : To study the damped torsional oscillations & determine the damping coefficient Ct. 1 No. 10 Forced Damped Torsional Vibration : To verify the Dunkerley's rule 1 No. 11. To study the forced lateral vibrations of the beam for different damping.1 No	
3	Whirling Of Shaft Apparatus	1. Fractional Horse Power Motor, having Speed : 3000 RPM 1 No. 2.Closed Type Auto Transformer, Single Phase 1 No 3. Fixed End Coupling 2 Nos. 4. Free End Coupling 2 Nos. 5. Spring Steel Shafts of size 3/16", ¼", 5/16" Dia x 1200 mm Long 1 Each. 6. Motor Flexible Shaft 2 Nos. 7. Allan Key Suitable for Allan Screw 1 No.	

4	.Cam Analysis Apparatus	1. Cams - Tangent, eccentric, circular arc. 2. Followers –roller, knife –edge, mushroom. 3.Compression spring 4.Weights -1kg,500gm,100gm 5.Motor – D.C.12 HP 0- 1500rev / min 6.Speed control unit 7. Cam & Followers Set of 5 Numbers 1 No.	

Lab Incharge

V. Jyotsna Kalpana