Course Number and Name	
BME5L3 - INSTRUMENTATION AND DYNAMICS LAB	
Credits and Contact Hours	
2 & 45	
Course Coordinator's Name	
Mr.Sabharish R	
Text Books and References	
Lab Manual	
Course Description	
To supplement the principles learnt in kinematics and Dynamics of Machinery To understand how certain measuring devices are used for dynamic testing.	
Prerequisites	Co-requisites
Metrology and Instrumentation	Nil
required, elective, or selected elective (as per Table 5-1)	
Required	
Course Outcomes (COs)	
CO1	Students will gain knowledge in kinematics and Dynamics of Machinery
CO2	Students will understand how certain measuring devices are used for dynamic testing.
CO3	Students will gain knowledge regarding various types of forces and reactions.
CO4	Students will understand the concepts of vibration
CO5	Students will learn balancing of rotors students learn how to use a tachometer
CO6	Students gain hands on experience in the use of instruments

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	H											
CO2		H										
CO3									H			
CO4										L		
CO5				M							L	
CO6							M					L

List of Topics Covered

LIST OF EXPERIMENTS:

INSTRUMENTATION LAB

1. Pressure measuring device calibrations
2. Force measurement load cell, providing ring
3. Temperature measuring devices: Thermocouple, Platinum resistance thermometer.
4. Speed measurement: Tachometer & Stroboscope
5. Torque measurement
6. Flow measurement: Orifice meter, Rotometer.
7. Vibration measurement.

DYNAMICS LAB

1. Kinematics of four bar mechanism – Slider crank chain, Quick return mechanism.
2. Kinematics of gear trains – Simple, Compound, Epicyclic
3. Determination of M.O.I by using connecting rod and flywheel
4. Governors – Watt, Porter
5. Study of cam profile
6. Motorized gyroscope and verification of losses
7. To determine the stiffness and natural frequency of spring-mass-system- single
8. D.O.F and verification of spring laws.
9. Determination of M.O.I using compound pendulum.
10. Determination of stiffness and natural frequency of single rotor and two rotor shafts.
11. Determination of critical speed of shaft with concentrated loads- Whirling of shafts.
12. Balancing of rotors.