MECHANICAL VIBRATIONS LAB
(Lab Elective-I)

I Semester

Course Code: 19ME2157

L	P	C
0	3	1.5

Course Outcomes: At the end of the course, the student will be able to

CO1: Compare bending test and tension test results using numerical and experimental analysis.

CO2: Analyze vibration of spring mass system and validate the numerical analysis results with experimental results.

CO3: Demonstrate the gyroscopic effect and estimate the torsional fatigue strength of steels.

CO4: Demonstrate the single plane and multiplane balancing.

CO5: Analyze the mechanical faults of rotating machines using NFT test and FFT test.

List of Experiments:

Note: Any ten exercises from the following.

1. Tension test on mild steel specimen
2. Bending test on mild steel specimen
3. Numerical analysis of tension test
4. Numerical analysis of bending test
5. Free vibration analysis of spring mass system
6. Numerical (Modal and Harmonic) of spring mass system
7. Forced vibration analysis on spring mass damper system
8. Fatigue test on rotating shaft
9. Experimental analysis of gyroscope couple
10. Multi plane balancing of given masses
11. Dynamic balancing of rotating machines
12. Natural frequency test using FFT analyzer and Impact Hammer
13. Forced vibration analysis using FFT analyzer and Impact Hammer
14. Fault diagnosis of rotating machines using FFT analyzer and Impact Hammer
15. Noise and vibration analysis of axial fan using FFT analyzer
16. Single plane balancing of axial fan using FFT analyzer