

MECHANICAL MEASUREMENTS AND METROLOGY LAB
B.E, IV Semester, Mechanical Engineering
[As per Choice Based Credit System (CBCS) scheme]

Course Code	17MEL37B / 47B	CIE Marks	40
Number of Lecture Hours/Week	03 (1Hour instruction + 2 hours Laboratory)	SEE Marks	60
RBT Levels	L1 , L2, L3	Exam Hours	03

Credits – 02

Course Objectives:

1. To illustrate the theoretical concepts taught in Mechanical Measurements & Metrology through experiments.
2. To illustrate the use of various measuring tools measuring techniques.
3. To understand calibration techniques of various measuring devices.

PART A :MECHANICAL MEASUREMENTS

1. Calibration of Pressure Gauge
2. Calibration of Thermocouple
3. Calibration of LVDT
4. Calibration of Load cell
5. Determination of modulus of elasticity of a mild steel specimen using strain gauges.

PART B: METROLOGY

1. Measurements using Optical Projector / Toolmaker Microscope.
2. Measurement of angle using Sine Center / Sine bar / bevel protractor
3. Measurement of alignment using Autocollimator / Roller set
4. Measurement of cutting tool forces using
 - a) Lathe tool Dynamometer OR
 - b) Drill tool Dynamometer.
5. Measurements of Screw thread Parameters using two wire or Three-wire methods.
6. Measurements of Surface roughness, Using Tally Surf/Mechanical Comparator
7. Measurement of gear tooth profile using gear tooth Vernier /Gear tooth micrometer
8. Calibration of Micrometer using slip gauges
9. Measurement using Optical Flats

Course outcomes:

- To calibrate pressure gauge, thermocouple, LVDT, load cell, micrometer.
- To measure angle using Sine Center/ Sine Bar/ Bevel Protractor, alignment using Autocollimator/ Roller set.
- To demonstrate measurements using Optical Projector/Tool maker microscope, Optical flats.
- To measure cutting tool forces using Lathe/Drill tool dynamometer.
- To measure Screw thread parameters using 2-Wire or 3-Wire method, gear tooth profile using gear tooth vernier/Gear tooth micrometer.
- To measure surface roughness using Tally Surf/ Mechanical Comparator.

Scheme of Examination:

ONE question from part -A:	30 Marks
ONE question from part -B:	50 Marks
Viva -Voice:	20 Marks
Total :	100 Marks



H. O. D.

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