

MEASUREMENTS AND METROLOGY LAB

Course Code	19ME3751	Year	IV	Semester	I
Course Category:	Program Core	Branch	ME	Course Type	Lab
Credits:	1	L – T – P	0 – 0 – 2	Prerequisites:	Nil
Continuous Evaluation:	25	Semester End Evaluation:	50	Total Marks:	75

Course Outcomes

Upon successful completion of the course, the student will be able to		Level
CO1	Demonstrate the use of instruments for measuring linear, angular dimensions and surface roughness.	L3
CO2	Perform alignment tests on various machine tools.	L3
CO3	Calibration of instruments used for measuring field quantities.	L3

1: Slight (low), 2: Moderate (medium) 3: Substantial (High)

CO'S /PO'S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO 1	3	1		2					2	1		1	3	2
CO 2	3	1		2					2	1		1	3	2
CO 3	3	1		2					2	1		1	3	2

Section A: Metrology

1. Measurement of bore by internal micrometres and dial bore indicator / rollers and slip gauges.
2. Use of gear teeth vernier calipers for checking the chordal addendum and chordal thickness of spur gear.
3. Alignment test on the lathe/milling machine using dial indicators.
4. Measurement of linear and angular dimensions using Tool makers microscope.
5. Angle and taper measurements by Bevel protractor, Sine bars, spirit level etc.
6. Measurement of effective diameter of a thread using Two wire/ Three wire method.
7. Surface roughness measurement by Talysurf instrument.

Section B

1. Calibration of Pressure Gauge using dead weight pressure gauge tester.
2. Calibration of thermocouple.
3. Calibration of LVDT.
4. Calibration of capacitive transducer.
5. Calibration of photo and magnetic speed pickup transducer.
6. Calibration of Strain gauge.
7. Measurement of flow using rotameter.