MEASUREMENTS AND METROLOGY LAB

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

Course Outcomes		Level
After successful completion of the course, the student will be able to		
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

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1: Low)													
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	1		2					2	1		1	3	2
CO2	3	1		2					2	1		1	3	2
CO3	3	1		2					2	1		1	3	2

Note: Any ***'SIX'*** experiments from Each Section are to be performed

Syllabus		
Expt. No	**Contents**	**Mapped COs**
METROLOGY		
1.	Measurement of bore by internal micro meters and dial bore indicator / rollers and slip gauges.	CO1
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.	CO2
4.	Measurement of linear and angular dimensions using Tool makers microscope.	CO1
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.	
MEASUREMENTS		
1.	Calibration of Pressure Gauge using dead weight pressure gauge tester.	CO3
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	