

METROLOGY & INSTRUMENTATION LAB

Objective: The Metrology and instrumentation Laboratory course is designed for measuring and gauging instruments for inspection of precision linear, geometric forms, angular and surface finish measurements. The student can learn the measurement and calibration of instruments. Students will understand the machine tool alignment test. Instrumentation lab introduces the students with the theory and methods for conducting experimental work in the laboratory and calibration of various instruments for measuring pressure, temperature, displacement, speed.



Sections Handled: III/I-A, III/I-B

Major Equipment Details:

S. No	Name of the Equipment	Quantity
1	Vernier calipers, Size150 mm	1
2	Vernier calipers, Size200 mm	2
3	Vernier calipers, Size300 mm	1
4	Vernier depth gauge, Size300 mm	1
5	Vernier height gauge, Size:12"/300 mm	1
6	Outside Micrometer, Size:025 mm	1
7	Outside Micrometer, Size:25-50 mm	1
8	Outside Micrometer, Size: 50-75 mm	1
9	Inside Micrometer, Size: 5-25 mm	1
10	Gear tooth vernier Calliper	1
11	Gear tooth micrometer, Size:025 mm	1
12	Dial gauge, Range:10 mm	5
13	Dial gauge, Range:1 mm	3
14	Level type dial test indicator, L.C0.01 mm	1
15	Depth Micrometer, Size:0150 mm	1
16	Bore Gauge, Size:18-35 mm	2
17	Bore Gauge, Size:35-60 mm	1

18	Bevel Protractor	1
19	Sine Bar, Size:200 mm	1
20	Spirit level, Size:150 mm	1
21	Spirit level, Size:200 mm	1
22	Spirit level, Size:300 mm	1
23	Screw thread Micrometer, Size:025 mm	1
24	Slip Gauge	2
25	Magnetic Base, Model; 7011S	1
26	Magnetic Base, IMB106	1
27	Micrometer Stand	1
28	Thread Measuring 3 wire set, Size:0250 mm	1
29	Temperature Characteristic trainer	1
30	Temperature Calibration Trainer, RTDPT100	1
31	Temperature Calibration Trainer, T/C 3 Type	1
32	Dead Weight tester	1
33	LVDT Trainer	1
34	Strain Gauge Trainer	1
35	Speed Measurement using Magnetic pick up	1
36	Rota meter calibration trainer	1
37	Angular displacement measurement by capacitive pick up	1
38	Bubbler Level Measurement	1
39	Profile Projector	1

Faculty In charge with qualification: Dr. S. Ajaya kumar
 Lab Technician name with qualification: K. Suresh, DME

Experiment list as per curriculum:

1. Measurement of lengths, height's, diameters by vernier calipers, micrometers etc.
2. (a) Measurement of bores by dial bore indicators.
 (b) Measurement of bores by internal micrometers.
3. Use of gear tooth vernier calipers and checking the chordal thickness of spur gear.
4. Machine tool alignment test on the lathe.

5. Machine tool alignment test on milling machine.
6. (a) Angle and taper Measurement by bevel protractor.
(b) Taper angle Measurement by sine bar.
7. Thread Measurement by two wire&three wire method.
8. Finding the flatness of a surface plate using spirit level.
9. Calibration of pressure gauge
10. Study and calibration of LVDT for displacement Measurement.
11. Calibration of thermocouple & RTD for temperature measurement
12. Calibration of Capacitive transducer for angular measurement.
13. Measurement of Speed.
14. Calibration of Rota meter for Flow measurement.
15. Calibration of strain gauge

Experiment list beyond the curriculum

1.