

INSTRUMENTATION AND METROLOGY LABORATORY

A. Instrumentation Laboratory

OBJECTIVES:

- To learn calibration of instruments and to minimize any measurement uncertainty by ensuring the accuracy of test equipment. Calibration quantifies and controls errors or uncertainties within measurement processes to an acceptable level.
- To measure unknown process parameters such as temperature, pressure, speed etc.

LIST OF EXPERIMENTS:

1. Calibration of Pressure Gauge
2. Calibration of Thermostat
3. Calibration of LVDT Module
4. Calibration of Strain Gauge
5. Calibration of Thermocouple Module
6. Calibration of Capacitive Transducer
7. Calibration of Photo And Magnetic Speed Pickups
8. Calibration of RTD
9. Calibration of Rotameter
10. Calibration of Seismic Pickup Transducer
11. Calibration of McLeod Gauge



B. Metrology Laboratory

OBJECTIVES:

- To educate on different measurement systems and on common types of errors
- To learn alignment tests on Lathe, Drilling, Milling and Grinding machines.
- To introduce with measuring equipment used for linear and angular measurements.
- To get familiarized with surface roughness measurements on machine components.

LIST OF EXPERIMENTS:

1. Measurement of lengths, heights and diameters by vernier calipers and micrometers.
2. Measurement of bores by internal micrometers and dial bore indicators.
3. Use of gear teeth, vernier calipers and checking the chordal addendum and chordal height of spur gear.
4. Alignment Tests on Lathe Machine
5. Alignment Tests on Drilling
6. Alignment Tests on milling
7. Alignment Tests on lathe
8. Alignment Tests on grinding Machine
9. Tool makers microscope and its applications
10. Angle and taper measurements by Bevel protractor and Sine bars
11. Flatness testing of surface plate.
12. Thread measurement by Three wire method.
13. Usage of Ring and Plug Gauges.
14. Surface roughness measurement using Tally surf..

