



KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES
(Declared as Deemed to be University under Sec. 3 of the UGC Act 1956)
A CHRISTIAN MINORITY RESIDENTIAL INSTITUTION
AICTE Approved & NAAC Accredited
Karunya Nagar, Coimbatore - 641 114, Tamil Nadu, India

DEPARTMENT OF MECHANICAL ENGINEERING

METROLOGY LAB

The purpose of this laboratory is to familiarize students with measuring instruments, to study various methods of measurement, to learn proper measuring techniques for the measurement of mass, length, angle and quality, and to express the results of calculations so as to correctly reflect the effects of measurement uncertainty. This lab facilitates the students to see whether the result is given with sufficient correctness and accuracy for a particular need or not.

COURSE OBJECTIVES:

To impart knowledge on

1. The principle of linear and angular measurement.
2. To understand and use various measuring tools.
3. To understand calibration of various measuring devices.

COURSE OUTCOMES:

After completing the course the students will be able to

1. Demonstrate measurements using linear and angular measuring instruments.
2. Calibrate the linear and angular measuring instruments.
3. To understand the basic measurements units and calibrate the various measuring instruments.
4. To express the Error and correction factors of various measuring devices.
5. To use various tools like sine bar, sine center, bevel protractor, gear tooth micrometer, gear tooth Vernier caliper and tool maker's microscope.

Facilities available for regular class work, project, research and consultancy

- ✓ Autocollimator
- ✓ Bench Centre
- ✓ Bevel Protractor
- ✓ Bore Gauge with Stand
- ✓ Dial Gauges
- ✓ Digital Clinometer
- ✓ Digital Micrometer
- ✓ Digital Vernier Caliper
- ✓ Electronic Comparator
- ✓ Floating Carriage Micrometer
- ✓ Gear Tooth Vernier
- ✓ Gear Tooth Micrometer
- ✓ Micrometer (Outside & inside)
- ✓ Surface Measuring Station
- ✓ Optical Comparator
- ✓ Pneumatic Comparator
- ✓ Profile Projector
- ✓ Precision Spirit Level
- ✓ Roll Tester Apparatus
- ✓ Screw Pitch & Radius Gauge
- ✓ Sine Bar & Sine centre
- ✓ Slip Gauge Sets
- ✓ Surface Plates (Cast Iron)
- ✓ Surface Plates (Granite)
- ✓ Thread Plug Gauge
- ✓ Plug & Snap Gauge
- ✓ Tool Makers Microscope
- ✓ Surface Roughness Tester
- ✓ Vernier Caliper
- ✓ Vernier Depth Gauge
- ✓ Vernier Height Gauge

Major equipment's



Fig. 1 Tool makers Microscope

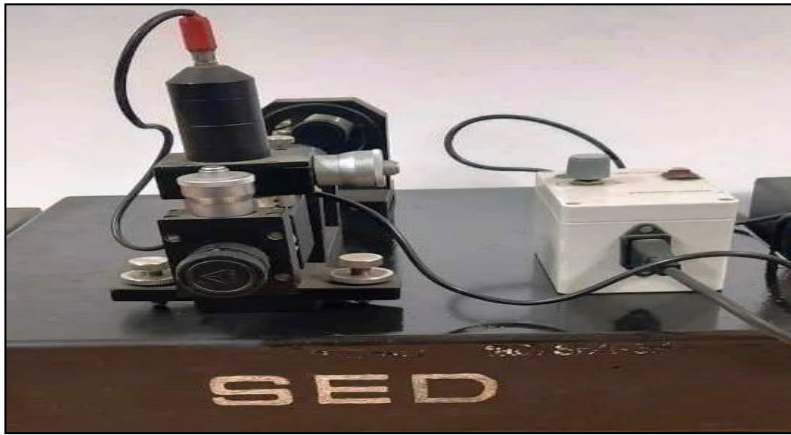


Fig. 2 Autocollimator Equipment



Fig. 3 Bench center Circularity equipment



Fig. 4 Gear testing equipment



Fig. 5 Surface roughness measuring instrument



Fig. 6 Profile projector



Fig. 7 Profile projector

Lab in charge:

Dr. Praveen Kumar B, M.E., Ph.D., Assistant Professor



Lab technicians:

Mr. K. Sivasankaran, D.M.E., B.E., Engineering Technician

