SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

Sree Sainath Nagar, Tirupati – 517 102, A.P.

DEPARTMENT OF MECHANICAL ENGINEERING

DETAILS OF THE METROLOGY LABORATORY

Name of the Laboratory	:	METROLOGY
Name of the Lab In-charge	:	Dr. N. Anantha Krishna
Name of the Lab-Technician In-charge	:	S. BHAVEEN
Area of the Lab	:	82 Sq. mtrs
Lab Occupancy	:	18 STUDENTS PER BATCH
Description of the Lab	:	Metrology is the science of measurement.
		Metrology is playing an important role in the production of many of the products we use on a day to day basis—from laptop to the car we drive. A metrologist ensures whether the parts produced meet the specifications required for the finished product or not. If the measurements are off, the machines can then be adjusted to bring the parts back into specifications. The knowledge on the basic instruments for precision measuring will be introduced to the students in the Metrology laboratory.

LIST OF LAB EXPERIMENTS

1.	Measurement of lengths, heights, diameters, internal bores by Vernier, Micrometer, internal micrometer and dial bore indicators.
2.	(a) Measurement of angle and taper by using Bevel protractor, sine bars. (b)Measurement of angle of taper plug gauge, taper ring gauge, V- groove, radius of given ring by using spheres and height gauge.
3.	(a) Measurement of straightness and flatness using autocollimator. (b) Measurement of coordinates of a jig plate.
4.	(a) To find module, addendum, dedendum, pitch circle diameter, tooth width, pressure angle of a given spur gear by using gear teeth vernier (b) Measurement of effective diameter of an external thread by using Two Wire/Three wire method.
5.	(a) Study of screw thread profile using Tool Makers microscope. (b) Measurement of gear elements using profilometer.
6.	Measurement of surface measurement by using Talysurf instrument.
7.	Checking the limits of dimensional tolerances using comparators Mechanical/Pneumatic/Electrical)
8.	(a) Alignment test on lathe machine (b) Alignment on milling machine

LIST OF LAB EQUIPMENT		
S.No.	**Name of the Major Equipment(Above Rs. 50,000)**	**Quantity**
1.	Tool maker's Microscope	1
2.	Surface Roughness Tester	1
3.	Slip Gauges – Set of 87 pieces	1
4.	Autocollimator	1
5.	Profile Projector	1
6.	Digital Read Out System	1
7.	Electrical Comparator	1

S.No.	**Name of the Minor Equipment(Below Rs. 50,000)**	**Quantity**
1.	Vernier Caliper Analog 0-150 mm	2
2.	Vernier Caliper Digital 0-150 mm	1
3.	Vernier Height Gauge 0-300 mm	2
4.	Dial Vernier Caliper 0-150 mm	1
5.	Vernier Depth Gauge 0-200 mm	1
6.	Depth Micrometer 0-100 mm	2
7.	Outside Micrometer 0-25 mm	2
8.	Outside Micrometer 25- 50 mm	1
9.	Outside Micrometer Digital	1
10.	Inside Micrometer 5-25 mm	1
11.	Gear Tooth Caliper	1
12.	Gear Tooth Micrometer 0-25 mm	1
13.	Dial Gauge Range 10 mm	4
14.	Magnetic Stand for Dial gauge	4
15.	Dial gauge Range 1 mm	3
16.	Dial gauge Stand	3
17.	Digital Dial Gauge	1
18.	Digital Dial Gauge Stand	1
19.	Dial Indicator	1
20.	Lever type Dial Indicator	1
21.	Universal Bevel Protractor	1
22.	Sine Bar	1
23.	Spirit Level	1
24.	Three Wire Set	1
25.	Granite Surface Plate	4
26.	Cast Iron Surface Plate	1
27.	Screw Thread Plug Gauge M10	1
28.	Screw Thread Plug Gauge M12	1
29.	Screw Thread Plug Gauge M16	1
30.	Screw Thread Ring Gauge M12	1
31.	Screw Thread Ring Gauge M16	1
32.	Micrometer Stand	2
33.	Magnetic V-Block	1
34.	Feeler Gauge Set	1
35.	Bore Gauge	1
36.	Screw Thread Micrometer	1
37.	Angle Plate	1
38.	Screw Pitch Gauge	1
39.	Center Holding Device Attachment	1
40.	Pair of V-Blocks	1
41.	Thread Pitch Gauges	1
42.	V-Block with Clamp	1

43.	Taper Plug Gauge	2
44.	Plain Ring gauge	2
45.	Taper Ring gauge	2
46.	Screw Thread Ring gauge	1

Profile Projector

Tool Maker's Microscope

Sine Bar Apparatus

Vernier Height Gauge

Electronic Comparator

Mechanical Comparator

Surface Roughness Tester

Bevel Protractor

Metrology Laboratory