



VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

(Accredited by NAAC & NBA, Approved by AICTE New Delhi & Permanently Affiliated to JNTUH)
Aziznagar Gate, C.B. Post, Hyderabad – 500 075

DEPARTMENT OF MECHANICAL ENGINEERING

III B.Tech I Semester

METROLOGY & MACHINE TOOLS LAB (A15387)

OUTCOMES: Upon the completion of the lab, the students should be able to

1	Identify suitable instrument for measuring dimensions and surface roughness of a given component.
2	Perform alignment and flatness tests on given machine and component.
3	Perform wear resistance test and know the usage of tool makers microscope.
4	Operate lathe, milling machines, drilling machine, grinding machines.
5	Select suitable machining operation to fabricate the required product from the given raw material.



LIST OF EXPERIMENT

S.No.	NAME OF THE EXPERIMENT
1	Measurement of lengths, heights, diameters by vernier calipers micrometer etc.
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	Machine tool alignment test on the lathe.
5	Tool makers microscope and its application.
6	Angle and taper measurements by Bevel protractor & sine bars.
7	Use of spirit level in finding the flatness of surface plate.
8	Thread measurement by two wire/Three wire method or Tool makers microscope.
9	Introduction of general purpose machines-Lathe, Drilling machine, Milling machine, Shaper,



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10	Planing machine, slotting machine, Cylindrical Grinder surface grinder and tool, cutter grinder
11	Step turning and taper turning on lathe machine.
12	Thread cutting and knurling on lathe machine.
13	Drilling and Tapping
14	Shaping and Planing
15	Slotting
16	Milling
17	Cylindrical surface Grinding

LIST OF EQUIPMENT

MACHINE TOOLS

S/NO.	Name of Equipment
1	Lathe machine accessories
2	Radial drilling machine
3	Milling machine accessories
4	Surface grinder
5	Cutter and tool grinder
6	Slotting machine
7	Shaping machine
8	Planing machine
9	Cylindrical grinder
10	Bench grinder

METROLOGY

S/NO.	Name of Equipment
1	Gear tooth vernier caliper
2	Bevel protractor
3	Sine bar
4	Slip guage box
5	Spirit level
6	Tool makers microscope
7	Granite surface plate
8	Vernier caliper
9	Dial bore gaug
10	Dial indicator
11	Outside micrometer
12	Inside micrometer
13	Cast iron surface plate
14	Test mandrel
15	Thread measuring equipment