



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

## DEPARTMENT OF MECHANICAL ENGINEERING

### 2050379 METROLOGY AND MACHINE TOOLS LAB

B.Tech.III Year-I Sem

L/T/P/C  
0/0/2/1

#### VISION

The Mechanical Engineering Department strives for immense success in the field of education, research and development by nurturing the budding minds of young engineers inventing sets of new designs and new products which may be envisaged as the modalities to bring about a green future for humanity”

#### MISSION

Equipping the students with manifold technical knowledge to make them efficient and independent thinkers and designers in national and international arena. Encouraging students and faculties to be creative and to develop analytical abilities and efficiency in applying theories into practice, to develop and to disseminate new knowledge. Pursuing collaborative work in research and development organizations, industrial enterprises, research and academic institutions of national and international standards, to introduce new knowledge and methods in engineering teaching and research in order to orient young minds towards industrial development.

#### LIST OF EXPERIMENTS

1. Step turning and taper turning on lathe machine.
2. Thread cutting and knurling on lathe machine.
3. Machining of grooves using slotter and shaper machines
4. Machining of holes using Drilling and boring machines.
5. Gear cutting on the milling machine.
6. Grinding of tool angles using Cylindrical/Surface Grinding.
7. Measurement of lengths, heights, diameters by vernier callipers, micrometers.
8. Measurement of bores by internal micrometers and dial bore indicators.
9. Use of gear teeth vernier calipers for checking the chordal addendum and chordal height.
10. Angle and taper measurements by level protractor and sine bars.
11. Thread measurement by 2-wire and 3-wire methods.
12. Surface roughness measurements by Tally Surf.

#### COURSE OUTCOMES

CO	Course outcome
ME 379.1	Student will be able to use different measuring instruments towards quality.
ME 379.2	Measure the angle and taper using Bevel protractor and Sine bar.
ME 379.3	Measure screw thread parameters.
ME 379.4	Perform step turning, taper turning, thread cutting, drilling, and tapping operations..
ME 379.5	Perform operations on shaper and milling machine.
ME379.6	Perform various operation on slotting, shaper, and planning machines.



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### PROGRAM EDUCATIONAL OBJECTIVES

PEO1	Graduates shall emerge as successful Mechanical engineer's as their career progress
PEO2	Graduates apply fundamentals of engineering, in practical applications and engage in active research.
PEO3	<b>Mechanical Graduates</b> shall have the ability to design products with interdisciplinary skills.
PEO4	Graduates will serve the society with their professional skills

### PROGRAM SPECIFIC OUTCOMES

**PSO1-** Students acquire necessary technical skills in mechanical engineering that make them employable graduate.

**PSO2-** An ability to impart technological inputs towards development of society by becoming an entrepreneur

### LIST OF EQUIPMENTS

1. Milling Machine
2. Tool and Cutter Grinder
3. Cylindrical Grinder
4. Drilling Machine
5. Surface Grinder
6. Shaper Machine
7. Lathe Machine
8. Tapping Tools
9. Planar Machine
10. Slotter Machine



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## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **2050379 METROLOGY AND MACHINE TOOLS LAB**

#### **Do's**

- Enter laboratory with appropriate laboratory uniform and shoes.
- Keep all your belongings in the book rack or at the place suggested by lab instructor.
- Bring the laboratory manual, observation and record without fail.
- Collect the instruments and check for damage if any before carrying out the experiment.
- Eliminate potentially dangerous chemical reactions by thoroughly washing beakers, test tubes, flasks
- and other glassware before and after use. Always add concentrated chemical (e.g. acid or base) to water NOT water to concentrated chemical.
- Make sure that all equipment is clean and returned to its original place after performing experiments.
- Turn off all heating apparatus, gas valves, and water faucets when not in use.
- Wear disposable gloves, as provided in the laboratory, when handling hazardous materials.
- Remove the gloves before exiting the laboratory.

#### **Don'ts**

- Don't place glassware near edge of laboratory bench.
- Don't let water drip onto power strips.
- Never point the open end of a test tube containing a substance at yourself or others.
- Don't use mobile phones during laboratory hours.
- Don't fool around in the laboratory.
- Don't come with long hair, dangling jewelry and loose or baggy clothing which are a hazard in the laboratory.