



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

2210376 ELEMENTS OF MECHANICAL ENGINEERING LAB

B.Tech.I 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.

COURSE OUTCOMES

CO Course outcomes

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| ME 376.1 | Understand the operation, usage and applications of various instruments and tools. |
| ME 376.2 | Examine different characteristics of instruments like accuracy, precision etc. |
| ME 376.3 | Prepare simple composite components & joining different materials using soldering process |
| ME 376.4 | Identify tools & learn practically the process of turning, milling, grinding on MS pieces. |
| ME 376.5 | Understand the basic components of IC engine, Gear box and boiler. |
| ME 376.6 | Identify the different elements of refrigeration system. |

PROGRAM EDUCATIONAL OBJECTIVES

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| 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 | Mechanical Graduates 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



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LIST OF EXPERIMENTS

1. Measurement of length, height, diameter by vernier calipers.
2. To measure diameter of a given wire and sphere, thickness of a given sheet and volume of an irregular lamina using micrometer screw gauge.
3. Use of straight edge and spirit level in finding the flatness of surface plate.
4. Determination of time period and natural frequency of simple pendulum.
5. Determination of time period and natural frequency of compound pendulum.
6. To measure the coefficients of static and kinetic friction between a block and a plane using various combination of materials.
7. To determine the radius of curvature of a given spherical surface.
8. The experimental determination of the Moment of Inertia of regular and irregular solids.
9. Metal joining process—soldering of metal alloys to any PCB board.
10. A simple composite geometry preparation by hand layup method.
11. Grouping of Dry cells for a specified voltage and current and its measurement using ammeters and voltmeters etc.
12. Demonstration of lathe, milling, drilling, grinding machine operations.
13. Study of transmission system –gear box
14. Assembly /disassembly of Engines.
15. Study of Boilers
16. Demonstration of COP of a Domestic Refrigerator.

LIST OF EQUIPMENTS

1. Vernier Calipers.
2. Screw Gauge (Micrometer)
3. Straight Edge and Spirit Level
4. Simple Pendulum.
5. Compound Pendulum.
6. Static Coefficient Of Friction
7. Kinetic Coefficient Of Friction
8. Spherometer
9. Mass Moment Of Inertia
10. Soldering Of Metal
11. Hand Layup Method.
12. Transmission System
13. Study of Boilers



DEPARTMENT OF MECHANICAL ENGINEERING

2210376 ELEMENTS OF MECHANICAL ENGINEERING 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 tools/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.