



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

2040377 THERMAL ENGINEERING LAB

B.Tech. II Year-II 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. Draw the valve and port timing diagrams for four and two stroke engines.
2. Evaluate the performance of 4-stroke Diesel engines.
3. Evaluate the performance of 2-stroke Petrol engines.
4. Evaluate the performance of 4-stroke Petrol engines.
5. Evaluation of frictional power by conducting Morse test on 4-stroke multi cylinder petrol engine.
6. Draw the heat balance sheet for 4-stroke Single cylinder Diesel engine.
7. Draw the heat balance sheet for 4-stroke multi cylinder petrol engine.
8. Calculate the performance of variable compression ration engines.
9. Performance test on reciprocating air compressor unit.
10. Study of Steam boilers.
11. Disassembly / assembly of engines.

COURSE OUTCOMES

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Course outcome

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| ME 377.1 | Identify the various parts of an IC Engine. |
| ME 377.2 | Sketch the valve and port timing diagrams for IC Engine. |
| ME 377.3 | Determine the performance of various types of IC Engine. |
| ME 377.4 | Prepare the heat balance sheet for various types of IC Engines. |
| ME 377.5 | Calculate the frictional power in various types of IC Engines. |
| ME377.6 | Analyze the performance of reciprocating air compressor. |



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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	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

LIST OF EQUIPMENTS

1. Single Cylinder 2-Stroke Petrol Engine Cut Section Model (Port Timing Diagram)
2. Single Cylinder 4-Stroke Diesel Engine Cut Section Model (Valve Timing Diagram)
3. Single Cylinder 4-Stroke Water Cooled Diesel Engine
4. Single Cylinder 2-Stroke Air Cooled Petrol Engine
5. 4-stroke multi cylinder Water cooled Petrol Engine
6. Variable compression Ratio Test Rig
7. Air compressor Test Rig
8. Boilers Models
9. Old Engines for Assembly and Disassembly



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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.