



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

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

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

## COURSE CONTENT

THERMAL ENGINEERING-I LAB								
I Semester: ME								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
2540380	Foundation	L	T	P	C	CIA	SEE	Total
		0	0	2	1	40	60	100
<b>Contact Classes: 32</b>	<b>Tutorial Classes: Nil</b>	<b>Practical Classes: Nil</b>			<b>Total Classes: 36</b>			
<b>Prerequisites:</b> There are no prerequisites to take this course.								

### Course Overview:

The Thermal Engineering Laboratory is designed to provide practical exposure to the operation, testing, and performance evaluation of internal combustion engines. The course enables students to understand real-time engine behavior, analyze performance parameters, and correlate experimental results with theoretical concepts studied in Thermal Engineering and IC Engines

### Course Objectives:

1. To provide the knowledge to the student about working of IC Engines.
2. To train the student to conduct performance and heat balance test on IC Engines.
3. To practice the student to calculate the frictional losses in an IC Engine.
4. To impart practical exposure on performance of Reciprocating air compressor.
5. To make the student to understand the working principle of various types of boilers.

### Course Outcomes: After Completion of the Course, Students should be able to

1. Identify the various parts of an IC Engine.
2. Sketch the Valve and Port Timing diagrams for IC Engines.
3. Determine the performance and friction power various types of IC Engines.
4. Prepare the heat balance sheet for various types of IC Engines.
5. Analyze the performance of reciprocating air compressor.

### LIST OF EXPERIMENTS:

#### I.C. Engines:

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 engine.
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 / Petrol engines.
7. Draw the heat balance sheet for 4- stroke multi cylinder petrol engine.
8. Calculate the performance of variable compression ratio engines.
9. Effect of Air Fuel Ratio in a SI engine.

**Other Experiments:**

10. Study of Steam boilers
11. Disassembly / assembly of engines.
12. Volumetric efficiency of Air Compressor Unit.