



**SHRI VISHNU ENGINEERING COLLEGE FOR WOMEN:: BHIMAVARAM**  
**(AUTONOMOUS)**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

**THERMAL ENGINEERING LAB**

**Laboratory In-charge** : Mr. B. Satya Krishna  
**Laboratory Technician** : Mr. S. V. Narasimha Raju

**OBJECTIVE:**

The objective of a Thermal Engineering Lab focusing on experiments related to the performance of Internal Combustion (IC) Engines typically revolves around several key areas:

- ✓ **Understanding Engine Performance Parameters:** The lab aims to familiarize students with various parameters used to quantify the performance of IC engines, such as power output, fuel efficiency, torque.
- ✓ **Experimental Analysis of Engine Performance:** Students conduct experiments to measure and analyze the performance of IC engines under different operating conditions. This includes testing engines at various loads, speeds, and fuel-air ratios to understand how these factors influence performance.
- ✓ **Measurement Techniques:** Students learn about instrumentation and measurement techniques used to gather data on engine performance. This may include methods for measuring power output, fuel consumption, and engine temperatures.
- ✓ **Efficiency Improvement Strategies:** The lab explores techniques for improving the efficiency and performance of IC engines. This could involve studying different combustion strategies, engine designs, and alternative fuels to optimize performance while minimizing environmental impact.



**Lab Equipment:**

S. No	Description	Stock	Cost (Rs)
1	2-stroke, 1-cylinder, petrol engine with Mechanical loading	1	1,07,792
2	4-stroke 1-cylinder diesel engine test rig with mechanical loading-water cooled	1	1,23,210
3	4-stroke 1-cylinder petrol engine test rig with mechanical loading-air cooled	1	1,18,000
4	4-stroke 4 cylinder petrol engine with eddy current dynamometer	1	3,59,690
5	Cut section model of 4- stroke Diesel engine Valve Timing diagram	1	33,000
6	Cut section model of 2-stroke petrol engine	1	18,000
7	Variable Compression ratio Petrol engine test rig with electrical loading	1	1,30,766
8	4-Stroke 1-cylinder Diesel engine test rig with electrical loading and retardation set up	1	2,05,996
<b>Total</b>			<b>10,96,454</b>

**List of Experiments:**

<b>S. NO</b>	<b>NAME OF THE EXPERIMENT</b>
1	Valve timing diagram on 4 stroke diesel engine
2	Port timing diagram on 2 stroke petrol engine
3	Performance test on 4 -stroke diesel engine with mechanical loading
4	Performance test on 2-stroke petrol engine with mechanical loading
5	Heat balance test on 4 stroke diesel engine with electrical loading
6	Determination of air/fuel ratio and volumetric efficiency on 4 stroke petrol engine
7	Performance test on variable compression ratio engine.
8	Evaluation of engine friction by conducting Morse test on 4-stroke multi cylinder petrol engine
9	Performance test on reciprocating air compressor.
10	Study of boilers.
11	Assembly and disassembly of I.C. Engines.