

3. I.C. Engines Performance Test (4 – S Diesel Engines)
4. I.C. Engines Performance Test (2 – S Petrol Engines)
5. Evaluation of Engine friction by conducting morse test on 4-S Multi cylinder Petrol Engine and retardation and motoring test on 4-S diesel engine.
6. I.C. Engines Heat Balance Sheet.
7. Performance Test on Variable Compression Ratio Engines, economical speed test.
8. Performance Test on Reciprocating Air-Compressor Unit
9. Study of Boilers
10. Dis-assembly / Assembly of Engines.

**Note :** A minimum of total 12 Experiments to be completed by a student.

<b>III Year B.Tech. Mechanical Engg. I - Semester</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>To</b>	<b>C</b>
	-	-	3	3	2

### ME335 MANUFACTURING DRAWING & INSTRUMENTATION LAB

**Course Description & Objective:**

*To provide basic knowledge in the preparation of production drawings and to give exposure on calibration of various instruments.*

**Course Outcomes:**

1. Able to aware of various types of measurements, requirement of calibrations, instruments used errors in measurement etc.
2. Able to perform accurate measurements and measuring instrument for any engineering system.

**I. Production Drawing :**

**Limits and Fits :** Types of fits, exercises involving selection / interpretation of fits and estimation of limits from tables.

**Form and Positional Tolerances :** Introduction and indication of the tolerances of form and position on drawings, deformation of runout and total runout and their indication.

**Surface roughness and its indication :** Definitions - finishes obtainable from various manufacturing processes, recommended surface roughness on mechanical components.

**Part and Assembly Drawings** : Drawing of parts from assembly drawings with indications of size, tolerances, roughness, form and position errors etc.

**II. Instrumentation :**

1. Study and calibration of LVDT transducer for displacement measurement.
2. Calibration of strain gauge for force measurement.
3. Calibration of thermocouple for temperature measurement.
4. Calibration of resistance temperature detector for temperature measurement.
5. Calibration of capacitive pick-ups for angular displacement.
6. Study and calibration of photo and magnetic speed pickups for the measurement of speed.