Course code	Course Name	L-T-P - Credits	Year of Introduction
ME339	Mechanical Engineering Lab	0-0-3-1	2016

Prerequisite: MP303 Thermal Engineering

Course Objectives

1. To study the basic concepts of Energy conversions and heat transfer.
2. To know conduct of the performance test on IC engines, Compressors and blowers.
3. To do tests on heat transfer equipment.

List of Exercises/Experiments

1. Study of IC engines – Types, Parts and systems.
2. Study of Dynamometers – Types, working and applications.
3. Performance test on Diesel engine.
4. Performance test on Petrol engine.
5. Morse test on Multicylinder Petrol engine.
6. Heat balance test on Diesel/Petrol engine.
7. Determination of best cooling water temperature and Economic Speed of an IC engines.
8. Retardation test on Diesel engines.
9. Determination of Volumetric efficiency, Air-fuel ratio of IC engines.
10. Determination of Flash and Fire point of Petroleum Products.
11. Determination of Viscosity of Lubricating oils.
12. Determination of Calorific value of fuels.
13. Valve timing and Port timing diagram of IC engines.
14. Performance test on Rotary Compressors.
15. Performance test on Reciprocating Compressors.
16. Determination of Thermal Conductivity of solids.
17. Determination of Heat transfer coefficient in convection heat transfer (Free and Forced).
18. Determination of LMTD, effectiveness and overall heat transfer co efficient of parallel flow, counter flow and cross flow heat exchanger.
19. Performance test on Centrifugal Blower.
20. Performance tests on Refrigeration and Air conditioning unit.

Expected outcome.

The students will be able to

i. Understand various types of engines, working of dynamometers and performance evaluation of engines.
ii. Determine various efficiencies and plot the characteristic curves of different types of Internal Combustion Engines, compressors and blowers.
iii. Conduct experiments for the determination of viscosity, calorific value, flash point, etc of petroleum products

Text Book:

1. John B. Heywood , Internal Combustion Engines Fundamentals-, McGraw Hill.
2. R K Rajput, A Text Book of Thermal Engineering, Laxmi Publications.
3. R K Rajput, A Text Book of Internal Combustion engines, Laxmi Publications,
4. V Ganesan , Internal Combustion Engines –, Tata McGraw-Hill.