Course Code	Course Name	Credits
26PH152	HEAT AND THERMODYNAMICS LAB	02

Objective

The objective of this laboratory course is to enable students to understand and verify fundamental principles of heat and thermodynamics through experimental methods. Students will develop practical skills in conducting experiments, taking accurate measurements, analyzing data, and interpreting results.

1. Determine the EMF of a copper constantan thermocouple
2. Latent heat of fusion of ice with radiation correction
3. Mechanical equivalent of heat by electrical method
4. Determine heating efficiency of an electric kettle with varying voltages.
5. Determine the temperature co-efficient of resistance of a coil by P.O. box
6. Plot the thermo e.m.f. v/s temperature curve for a given thermo couple using potentiometer and measurement of inversion temperature.
7. Determination of specific heat by cooling – graphical method.
8. Determination of thermal conductivity of good conductor by Searle's method.
9. Determination of thermal conductivity of bad conductor by Lee's disc method.
10. Determination of thermal conductivity of bad conductor by Charlaton's method.
11. Determination of specific heat capacity of solid.
12. Determination of Latent heat of a vaporization of a liquid.
13. Verification of Stefan's-Boltzman's law.
14. Determination of thermal conductivity of rubber tube.
15. To verify the laws of transverse vibration using Melde's apparatus.
16. To compare the mass per unit length of two strings using Melde's apparatus.
17. Mechanical equivalent of heat – Joule's calorimeter
18. To demonstrate convection currents in a liquid and study heat transfer by convection.
19. To establish the thermodynamic (absolute) temperature scale using a gas thermometer and verify that temperature is proportional to pressure at constant volume.
20. To determine the water equivalent of a calorimeter.

Students are required to perform and record at least eight experiments in the laboratory manual as part of the course requirements.