

**HEAT TRANSFER LAB**

**B.Tech. III Year II Sem.**  
**Course Code: ME604PC**

**L T/P/D C**  
**0 0/3/0 2**

**Pre-requisite:** Thermodynamics

**Course Objectives:** To enable the student to apply conduction, convection and radiation heat transfer concepts to practical applications

**Course Outcome:** At the end of the lab sessions, the student will be able to

- Perform steady state conduction experiments to estimate thermal conductivity of different materials
- Perform transient heat conduction experiment
- Estimate heat transfer coefficients in forced convection, free convection, condensation and correlate with theoretical values
- Obtain variation of temperature along the length of the pin fin under forced and free convection
- Perform radiation experiments: Determine surface emissivity of a test plate and Stefan- Boltzmann's constant and compare with theoretical value

**Minimum twelve experiments from the following:**

1. Composite Slab Apparatus – Overall heat transfer co-efficient.
2. Heat transfer through lagged pipe.
3. Heat Transfer through a Concentric Sphere
4. Thermal Conductivity of given metal rod.
5. Heat transfer in pin-fin
6. Experiment on Transient Heat Conduction
7. Heat transfer in forced convection apparatus.
8. Heat transfer in natural convection
9. Parallel and counter flow heat exchanger.
10. Emissivity apparatus.
11. Stefan Boltzman Apparatus.
12. Critical Heat flux apparatus.
13. Study of heat pipe and its demonstration.
14. Film and Drop wise condensation apparatus