PROCESS HEAT TRANSFER LAB

Course Code: 22CH1112

L	T	P	C
0	0	3	1.5

Course Outcomes: At the end of the lab the student shall be able to
CO1:operate conduction, convection & radiation laboratory test equipment. (L5)
CO2:compare theoretical and experimental heat transfer coefficient based on convection equipment's. (L5)
CO3:calculate the effectiveness of heat transfer in a double pipe heat exchanger. (L3)
CO4:determine the temperature distribution along the length of pin- fin apparatus. (L3)
CO5:predict the critical heat flux in pool boiling. (L5)

*Student should also submit a detailed report for all the above laboratory practical's.

List of Experiments

1. Determination of total thermal resistance and thermal conductivity of composite wall.
Major equipment - Composite wall Assembly

2. Determination of thermal conductivity of a metal rod.
Major equipment - Thermal Conductivity apparatus

3. Determination of natural convective heat transfer coefficient for a vertical tube.
Major equipment - Natural convection heat transfer apparatus

4. Determination of critical heat flux point for pool boiling of water.
Major equipment- Pool boiling apparatus

5. Determination of forced convective heat transfer coefficient for air flowing through a pipe
Major equipment – Forced convection heat transfer apparatus

6. Determination of overall heat transfer coefficient in double pipe heat exchanger.
Major equipment - Double pipe heat exchanger apparatus

7. Study of the temperature distribution along the length of a pin-fin under natural and forced convection conditions
Major equipment - Pin fin apparatus

8. Estimation of unsteady state film heat transfer coefficient between the medium in which the body is cooled.
Major equipment - Heat transfer coefficient determination apparatus

9. Determination of Stefan – Boltzmann constant.
Major equipment - Stefan Boltzmann apparatus

10. Determination of emissivity of a given plate at various temperatures.
Major equipment - Emissivity determination apparatus

11. Determination of heat transfer coefficient in drop and film wise condensation
Major equipment – Drop wise and film wise condensation apparatus

12. Determination of thermal conductivity of insulating powder
Major equipment - Thermal Conductivity apparatus