NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL

DEPARTMENT OF MECHANICAL ENGINEERING

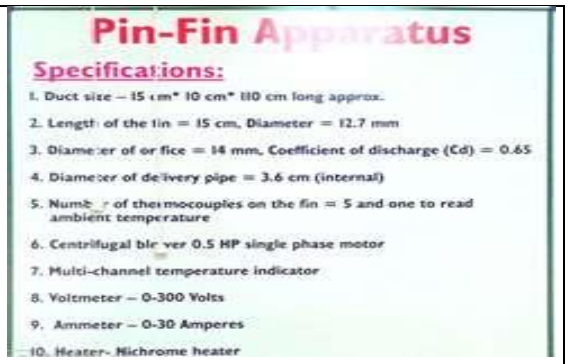
ME 356: Heat Transfer and Fuels Laboratory

List of experiments

Laboratory Incharges: Dr. V R K Raju and Dr. Ch. Sampath Kumar

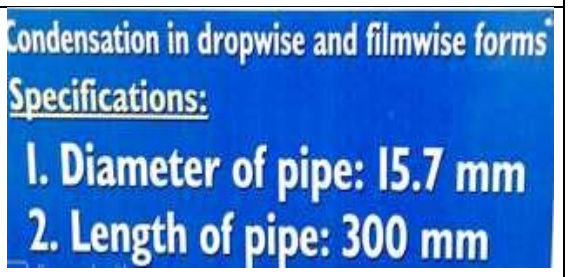
	**Composite Wall Apparatus (TEQIP)** To determine the equivalent thermal resistance of composite wall.
	**Stefan - Boltzmann Apparatus** **Specifications:** 1. Diameter of the test disc, D = 20.4 mm. 2. Mass of the test disc, m = 5.05 g. 3. Copper – Constantan thermocouples: 5 Nos. To determine the value of Stefan-Boltzmann constant by conducting an appropriate test using a Stefan-Boltzmann apparatus





To plot the temperature distribution along the length of pin fin in forced convection and to determine fin efficiency.





Determination of heat flux in drop wise and film wise condensation



EMISSIVITY MEASUREMENT APPARATUS

To determine the emissivity of a given surface at a specified temperature.



Parallel flow and Counter Flow Heat Exchanger

To determine the logical mean temperature difference (LMTD) and effectiveness (ε) of a heat exchanger working both parallel flow and counter flow modes.



Emissivity Measurement Apparatus
(TEQIP)

To determine the emissivity of a given surface at a specified temperature.



Heat Pipe Apparatus

Specifications:

1. Diameter of pipes (copper, stainless steel and heat pipe) = 32 mm
2. Length of the pipes = 38 cm
3. Condenser tank = 3 Nos.
4. Condenser tank capacity = 0.75 litre
5. Voltmeter – 0 – 300 Volts
6. Ammeter – 0 – 30 Amperes
7. Heater – 3 Nos.
8. Thermometer: 1 No.
9. Multi-channel digital temperature indicator: 0 - 300°C

To compare the working of heat pipe with those of stainless steel and copper.



Natural Convection Heat Transfer From a Vertical Cylinder

To determine the natural convection heat transfer coefficient for a vertical cylinder dissipating heat to the ambient air.



Stefan - Boltzmann Apparatus

To determine the value of Stefan-Boltzmann constant by conducting an appropriate test using a Stefan-Boltzmann apparatus.



Forced Convection Apparatus

Specifications:

1. Diameter of test section (G. I.) pipe, Di = 36 mm.
2. Length of test section, L = 45 cm.
3. Diameter of orifice = 1.4 cm.
4. Blower- 0.5 hp, single-phase with motor
5. Voltmeter: 0 - 300 V
6. Ammeter: 0-30 A
7. Temperature indicator: 0 – 300°C
8. Thermocouples: Chromel – Alumel
9. Heater: Nichrome wire heater wounded on test pipe (Band type)

To find the forced convection heat transfer coefficient in internal pipe flow.



Thermal Conductivity Apparatus (TEQIP)

To determine the thermal conductivity of insulating materials by using two slabs guarded hot plate method