HEAT TRANSFER LAB

Course code	19ME3652	Year	III	Semester	II
Course category	Program Core	Branch	ME	Course Type	Practical
Credits	1.5	L – T – P	0 – 0 – 3	Prerequisites:	Nil
Continuous Internal Evaluation	25	Semester End Evaluation:	50	Total Marks:	75

Course Outcomes		Levels
Upon successful completion of the course, the student will be able to		
CO1	Evaluate heat transfer through lagged pipe, Insulating powder and Drop and Film wise condensation.	L3
CO2	Experiment the Thermal conductivity of a given metal Rod.	L3
CO3	Measure the Heat transfer coefficient for Pin Fin, Forced convection, Natural Convection and parallel and counter flow heat exchanger.	L3
CO4	Test Emissivity, Stefan Boltzmann Constant and Critical Heat flux.	L3
CO5	To determine the overall heat transfer coefficient for a composite slab.	L3

	Contribution of Course Outcomes towards achievement of Program Outcomes Strength of correlations (3: High, 2: Moderate, 1: Low)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2		3									3	3
CO2	1	2		3									3	3
CO3	1	2		3									3	3
CO4	1	2		3									3	3
CO5	1	2		3									3	1

Syllabus		
Expt. No	Contents	Mapped CO
1.	Determination of Heat Transfer through Lagged Pipe.	CO1
2.	Measurement of Thermal Conductivity for a given Asbestos Insulating powder	
3.	Determination of Heat Transfer through Drop Wise and Film Wise Condensation.	
4.	Determination of Thermal Conductivity for a Given Copper Metal Rod.	CO2
5.	Determination of Heat Transfer through Pin-Fin.	CO3
6.	Determination of Heat Transfer through Forced Convection	
7.	Determination of Heat Transfer through Natural Convection.	
8.	Determination of overall heat transfer coefficient for Parallel and Counter Flow Heat Exchanger.	
9.	Emissivity Measurement	CO4
10.	Measurement of Stefan Boltzmann constant.	
11.	Determination of Critical Heat Flux for a given Nichrome wire.	
12.	Determination of Overall Heat Transfer Co-Efficient for Composite Wall.	CO5

Learning Recourse(s)
Text Book(s)
1. Heat and Mass Transfer by Y.A Cengel, A J Ghajar, Mc Graw Hill education,2011. 2. Heat transfer, by J.P.Holman, TMH publications, 2008 . 3. Heat and Mass Transfer, by Sachdeva, New age International.
Reference Book(s)
1. Engineering Heat & Mass transfer by Mahesh.M.Rathor ,University science press ,2006 2. Heat Transfer -A Basic Approach, by N.Ozisik , MC Grawhill,1985 3. Heat transfer, by S.P.Sukhatme , Orient longman Pvt. Ltd. 2005 4. Introduction to Heat Transfer, by lncropera and Dewitt, Wiley Publishers,2001 5. Heat Transfer, by D.S. Kumar, SK. Kataria & sons,2009.
e-Resources & other digital material
1. https://nptel.ac.in/courses/112/108/112108149/ 2. https://nptel.ac.in/courses/112/105/112105271/ 3. https://nptel.ac.in/courses/103/103/103103031/#