

HEAT TRANSFER LAB

Course Code	19ME3652	Year	III	Semester	II
Course Category:	Program Core	Branch	ME	Course Type	Theory
Credits:	1.5	L – T – P	0 – 0 – 3	Prerequisites:	Nil
Continuous Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes

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

Course Articulation Matrix:

	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

LIST OF EXPERIMENTS

Expt No	Contents	Mapped CO
I	Determination of Heat Transfer through Lagged Pipe.	
II	Measurement of Thermal Conductivity for a given Asbestos Insulating powder	
III	Determination of Heat Transfer through Drop Wise and Film Wise Condensation.	
IV	Determination of Thermal Conductivity for a Given Copper Metal Rod.	
V	Determination of Heat Transfer through Pin-Fin.	
VI	Determination of Heat Transfer through Forced Convection	
VII	Determination of Heat Transfer through Natural Convection.	
VIII	Determination of overall heat transfer coefficient for Parallel and Counter Flow Heat Exchanger.	
IX	Emissivity Measurement	
X	Measurement of Stefan Boltzmann constant.	
XI	Determination of Critical Heat Flux for a given Nichrome wire.	

XII	Determination of Overall Heat Transfer Co-Efficient for Composite Wall.	
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Learning Resources	
Text Books:	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 Books:	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 Incropera and Dewitt, Wiley Publishers,2001 5. Heat Transfer, by D.S. Kumar, SK. Kataria & sons,2009.
E-Resources & other digital Material:	https://nptel.ac.in/courses/112/108/112108149/ https://nptel.ac.in/courses/112/105/112105271/ https://nptel.ac.in/courses/103/103/103103031/#