



MUTAH UNIVERSITY
Faculty of Engineering
Department of Chemical Engineering



Heat Transfer Lab Syllabus

Course Code	Course Name	Credits	Contact Hours
0404438	Heat Transfer Laboratory	3	

INSTRUCTOR/COORDINATOR

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Website	

TEXTBOOK

Course Textbook:

1. Thermodynamics: An Engineering Approach, 9th Edition, By Yunus Cengel and Michael Boles
2. Çengel, Y. and Ghajar, A., Heat and Mass Transfer, 5th ed., McGraw –Hill, New York, 2015.
3. Lab Manual

Other Supplemental Materials

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

This course aims to achieve the practical and applied concept of heat transfer processes and includes experiments of heat transfer by conduction, convection and radiation, heat exchangers, heat transfer in fluidized bed, evaporation, condensation, and drying.

B. Pre-requisites (P) or Co-requisites (C)

0404430 (P)

C. Course Type (Required or Elective)

Required (Compulsory department course)

SPECIFIC GOALS

A. Specific Outcomes of Instruction

By the end of this course, the student should be able

1. understanding how to operate educational equipment in addition to the corresponding instrumentations according to scientific and safety procedures. [SLO 3,5,6]
2. understanding and verify experimentally some heat transfer principles. [SLO 3,5,6]
- 3- understanding chemical engineering calculations related to each experiment. [SLO 3,5,6]
- 4- understanding, Interpret and discuss the results and compare the experimental results with the corresponding ones that are reported in the literature. [SLO 3,5,6]
- 5- understanding and Performing uncertainty analysis and inspect the source of errors for each experiment. [SLO 3,5,6]
6. Understanding and develop an ability to manage and perform the successive steps involved in “typical” engineering tasks, specifically (data collection, data analysis, formal report writing) [SLO 3,5,6]
7. Develop some of the organizational and leadership skills necessary for a team leader by (Organizing and directing an experimental team, working as a member of an experimental team [SLO 3,5,6]
8. Demonstrate an ability to communicate technical information in a format appropriate for your intended audience by Writing a scientific report for each experiment. [SLO 3,5,6]

B. Student Outcomes Addressed by the Course

1	2	3	4	5	6	7				
		✓		✓	✓					

BRIEF LIST OF TOPICS TO BE COVERED

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List of Topics	No. of Weeks	Contact Hours
Heat Conduction	1	3
Concentric Tube Heat Exchanger	2	3
Natural and Forced Convection.	3	3
Thermal Radiation.	4	3
Temperature Measurement	5	3
Turbulent Flow Heat Transfer Coefficient	6	3
Heat Transfer in Fluidized Beds	7	3
Boiling	8	3
Mechanical Equivalent of heat	9	3

Heat Pump Performance	10	3
Total	10	30

METHODS OF ASSESSMENT			
No.	Method of assessment	Week and Date	%
1	Reports		40
2	Midterm Exam	8th week	20
3	Final Exam	End of Semester	40
Total			100