

Heat Transfer Lab Syllabus

MECH 3120, Spring 2026
Sections 101,102,103, ECSW 2.335

Section 101: Thursday 4:00pm - 6:45pm


Section 102: Thursday 10:00am - 12:45pm


Section 103: Friday 4:00pm - 6:45pm



Instructor Information

Instructor: Fatemeh Hassanipour, P.E. , ASME fellow

 Fatemeh@utdallas.edu

 972-883-2914

 ECSW 4.150H

I am happy to meet with you in-person or virtually! In-person drop-in office hours Monday-Wednesdays 11:30AM-12:30PM or email me to schedule another time.

TA Information

TA: Lizeth Gutierrez

Email: Lizeth.GutierrezPua@utdallas.edu

Office Hours (Location ECSW 2.335), Thu. 4:45-5:30 and 10:45-11:30, Fri. 4:45-5:30

Classroom Description

Project-based course associated with MECH 3320. Course emphasis is on experiments related to thermodynamics, heat transfer, and fluid mechanics. Proper experimental methods, data and uncertainty analysis related to thermal and fluids measurements are discussed.

Course Prerequisite

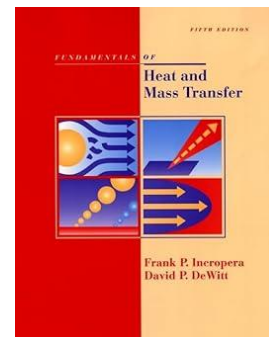
MECH 3320, Heat Transfer

Course Learning Outcomes

1. Demonstrate heat transfer principles, mainly conduction and convection, using experiments.
2. Measure efficiency of thermal systems such as heat exchangers.
3. Function as a team to plan, perform, and report a series of experiments related to heat transfer topics.

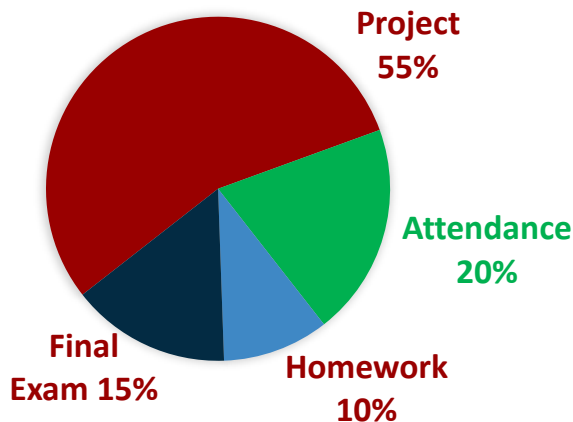
Required Text

- Class notes and slides
- Lab manuals
- Fundamentals of Heat and Mass Transfer by Frank P. Incropera
- Other required materials: Pens and notebook for writing notes in class, scientific calculator.



Grading

Assignment	Total Points
Reports	55
Homework	10
Final Exam	15
Attendance	20
Total	100



LETTER GRADES AND CORRESPONDING POINTS							
A+	95-100	B+	80-85	C+	65-70	D+	50-55
A	90-95	B	75-80	C	60-65	D	45-50
A-	85-90	B-	70-80	C-	55-60	D-	40-45
F 40 or lower							

No make-up exams are accepted in this course. Final exams are scheduled according to the UTD academic calendar and cannot be rescheduled

Lab Report Rubric

Cover page	2 points
Sample calculations	10 points
Experiments results	10 points
Graphs: Experiment 1 and 2	12 points: 4 graphs, each 3 points.
Graphs: Experiment 3	10 points: 2 graphs, each 5 points.
Graphs: Experiment 4	10 points: 4 graphs, each 3 points.
Graphs: Experiment 5	10 points: 1 graph 10 points.
Graphs: Experiment 6	10 points: 1 graph 10 points.
Discussion: Experiment 1 and 2	13 points.
Discussion: Experiment 3	10 points.
Discussion: Experiment 4	8 points.
Discussion: Experiment 5	10 points.
Discussion: Experiment 6	10 points.
Uncertainty Analysis: Kline and McClintock equations	10 points.
Samples calculations	10 points.
Error values for all experimental runs	5 points.
Picture of raw data taken in the lab during the experiment.	5 points.
Results tables (The tables must include units)	10 points.
References	5 points
Appearance and organization (formatting of tables and charts, presentation of data, organization of report, Grammar, spelling, punctuation etc.)	8 points.

Lab Format, Assignment & Academic Calendar

Course Format

This course is a traditional, in-person lab. Students are expected to attend all lab sessions, actively participate in class activities and discussions, and complete assessments in person. All course materials and announcements will be posted on eLearning, and students are responsible for checking the course site regularly. The final exam date and location will be assigned by the Registrar's Office. Makeup labs are **not allowed**, except with officially approved documentation, in which case a student may attend a different lab session. Regular and punctual attendance is expected. Students who do not contribute to their group report will be required to submit an individual report. **Late reports will not be accepted.**




GROUP A	
The week of:	
May 11	No Class
May 4	No Class
Apr. 27	Exp-6: Radiation
Apr. 20	Exp-5: Conductivity
Apr. 13	Exp-4: Forced Convection-2
Apr. 6	Exp-3: Forced Convection-1
Mar. 30	Exp-2: HX-2
Mar. 23	Exp-1: HX-1
Mar. 16	Spring Break
Mar. 9	No Class
Feb. 23	No Class
Feb. 16	Lab Report 1-Due Date
Feb. 9	No Class
Feb. 2	Home Work-Due Date
Jan. 26	Thursday sessions: closed due to inclement weather Friday sessions: Introduction and Error Analysis
Jan. 19	Introduction and Error Analysis

GROUP B	
The week of:	
May 11	No Class
May 4	No Class
Apr. 27	Exp-6: Radiation
Apr. 20	Exp-5: Conductivity
Apr. 13	Exp-4: Forced Convection-2
Apr. 6	Exp-3: Forced Convection-1
Mar. 30	Exp-2: HX-2
Mar. 23	Exp-1: HX-1
Mar. 16	Spring Break
Mar. 9	No Class
Feb. 23	Lab Report 1-Due Date
Feb. 16	No Class
Feb. 9	Home Work-Due Date
Feb. 2	Thursday sessions: closed due to inclement weather Friday sessions: Introduction and Error Analysis
Jan. 26	Introduction and Error Analysis
Jan. 19	Introduction and Error Analysis

Group Reports: Only **one** group member should submit the report on behalf of the group. Any student who does not actively participate in preparing the group report will be required to complete and submit an **individual (solo) report**.

Lecture-1	Individual Homework	Introduction and Error Analysis
Lecture-2	Group Report	Concentric Heat Exchanger
Lecture-3	Group Report	Shell and tube Heat Exchanger
Lecture-4	Group Report	Forced Convection-1 (Velocity and Pressure Measurement)
Lecture-5	Group Report	Forced Convection-2 (Heat Transfer Coefficient)
Lecture-6	Group Report	Conductivity
Lecture-7	Group Report	Radiation and Natural Convection

Course Tools

Tool	Description
<p>eLearning</p>	<p>eLearning is an online Learning Management System available for all courses. I will post the course syllabus and announcements here. You will use eLearning to access course assignments, and other materials. I will update your gradebook in eLearning so that you can see your progress in the course.</p> <p>Technical Requirements</p> <p>In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage. To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage.</p>  <p>UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Help Desk includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service. In the event of any unexpected server outage or any unusual technical difficulty which prevents you from completing a time sensitive assignments, please immediately report any problems to the Help Desk and contact me to discuss possible accommodations.</p>
<p>Microsoft Forms</p>	 <p>We will be using Microsoft Forms for in-class participation assignments. This is a quick and easy way for you to submit responses to in-class polls, quizzes, surveys, etc. Microsoft Forms is part of the Microsoft Office suite and thus as a UTD student you have access. Each time you submit a response on Microsoft Forms, you will be asked to log in with your UTD NetID and password. This ensures that your name is recorded and thus you will receive credit for your work. You will also be able you choose to receive a copy of your responses over email, and I highly encourage you to do that as it serves as your receipt of your submission. You will need a device with internet connection to be able to access these forms (Wi-Fi is available in our classroom). I will present you will a QR code and a URL address to allow you to access the assignments.</p>
<p>Microsoft Teams</p>	 <p>Microsoft Teams is a platform for communication and collaboration. It allows a safe and secure method of communication for students and faculty at UTD. You should be able to see a Team for our course when you log into MS Teams. I will be using Teams for virtual individual meetings.</p>

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies. Additional information about some of these is below:

Email

All students must use their UTD student email accounts for communication. I will only respond to email messages sent from your official UTD email address. In your email, please make sure to indicate your course title and section. I will try to respond to all emails within 24 hours during the week and by the next business day when emailed over the weekend.

Academic Dishonesty

Academic dishonesty can occur in relation to any type of work submitted for academic credit or as a requirement for a class. It can include individual work or a group project. Academic dishonesty includes plagiarism, cheating, fabrication, and collaboration/collusion. To avoid academic dishonesty, it is important for students to fully understand the expectations of their professors. This is best accomplished through asking clarifying questions if an individual does not completely understand the requirements of an assignment. **Plagiarism** occurs any time someone else's ideas or words are used without proper citation, whether it is intentional or not. This includes taking portions of a paper from the internet, copying the paper of a previous student in the class, producing the same paper as a friend, and paraphrasing someone's research without proper citation. Use of Generative Artificial Intelligence programs is prohibited in this class. Any submissions written by AI will be treated as academic dishonesty. **All academic dishonesty incidents will be reported to the Office of Community Standards and Conduct.**

Special Needs

It is the policy and practice of UT Dallas to make reasonable accommodations for students with properly documented disabilities. If you are a student with a disability and believe you will need academic accommodations for this class, you are encouraged to register with the AccessAbility Resource Center (ARC). Please speak with me if you receive any accommodations.

Helpful Resources

The [Student Counseling Center](#) offers confidential services to students either for individual appointments or as part of groups. Their main number is 972-883-2575 and the 24/7 Crisis Hotline is 972-883-8255 (972-UTD-TALK).

The [Comet Cupboard](#) is a UT Dallas food pantry initiative dedicated to helping students in need. The Comet Cupboard is located in MC 1.604, on the first floor of the McDermott Library, and can be contacted by calling 972-883-2709.

The [Student Success Center \(SSC\)](#) offers assistance to students in the areas of writing, mathematics, communication, multiple science fields, study skills, and other academic disciplines. Contact info: 972-883-6707 or by sending an email to ssc@utdallas.edu.

Comet Creed

Distance Learning Student Resources: Online students have access to resources including the McDermott Library, Academic Advising, The AccessAbility Resource, and many others. Please see the [eLearning Current Students](#) webpage for more information.

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity,
and service in all that I do."