

MENG 3316 – Heat Transfer
Course Syllabus

Semester / Year	Spring 2025
Catalog Description	Fundamentals and applications of conduction, convection, and radiation heat transfer. Analysis of steady-state and transient conduction employing analytical methods and numerical techniques. The simple theory of laminar and turbulent, free and forced convection, and the use of practical correlations. Basic thermal radiation concepts and applications. Three hours of lecture per week.
Prerequisites	MENG 3401 and MENG/CENG 3310.
Section Number	001
Instructor Name	Hamed Hosseinzadeh
Contact Information	Email: Hamed@uttyler.edu
Class Type / Instruction Mode / Location	Face to face / Lecture / Ratliff Building North 03038
Class Time	Tuesday and Thursday, 3:30 pm - 4:50 pm
Office Hours	Tuesday and Thursday: 12:00 pm - 1:30 pm or by appointment
No. of Credits	3 credits
Required Textbook	Fundamentals of Heat and Mass Transfer, 8th edition, by Bergman, Lavine, Incropera, DeWitt, Wiley, 2018 (ISBN 978-1- 119-35388-1)
Optional References	1. Schaum's Outline of Heat Transfer, 2nd Edition (SCHAUMS' ENGINEERING) Paperback by Donald Pitts, Leighton E. Sissom, 2011 2. Heat Transfer, 1st edition, by Nellis and Klein, Cambridge University Press, 2009 (ISBN 978-1-107-67137-9)
Additional Rules and Requirements	Students may discuss their homework solutions with one another, but each student must submit their own, independent solution (i.e., you may not just copy someone else's homework). Students are permitted to use AI tools like ChatGPT, Copilot, and similar programs for specific assignments as designated by the instructor in this course.
Evaluation Method	Mid-term Exam(s) 35% Final Exam 45% Homework 20%
Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60
Important Events / Dates	https://www.uttyler.edu/schedule/files/2024-2025/academic-calendar-2024-2025-main-20240222.pdf
Attendance / Makeup policy / other rules	Regular attendance is required. In case you have to miss a class, it is your responsibility to keep up with the class work and be informed of all announcements made in the class. Homework Assignments: Homework will be assigned according to the topics covered in lectures. Assignments are considered very important for the understanding of the course material. Completing your homework independently is an absolute necessity to do well in this course.



	<p>Canvas: The course syllabus, course material such as handouts and example problems with solutions, homework, assignments, homework solutions, review material, and exam solutions will all be posted on Canvas. Please review all the material posted on Canvas on a regular basis.</p>
Course Learning Objectives / ABET & PEOs Relation	<p>By the end of this course, students will be able to:</p> <ol style="list-style-type: none">1. apply the conservation of energy to basic heat transfer analysis.2. apply the heat conduction equation in one-dimensional and limited multi-dimensional situations.3. use a computer numerical solution for the numerical analysis of heat transfer.4. apply engineering analysis to unsteady heat conduction.5. apply convective heat transfer correlations to external and internal flows.6. apply radiative heat transfer analysis techniques to engineering situations
Tentative Topics / Course Plans	<p>Week 1: Cover the syllabus and introduce yourself to the class. Week 2 Basic Concepts – Relationship with Thermodynamics. Week 3 Introduction to conduction. Week 4 One-dimensional conduction. Week 5 Two-dimensional, Steady-state Conduction. Week 6 Transient Conduction. Week 7 Review & Midterm Exam. Week 8 Introduction to Convection. Week 9 External flow convection. Week 10 Internal flow convection. Week 11 Review. Week 12 Free convection. Week 13 Heat Exchangers. Week 14 Radiation heat transfer. Week 15 Review</p>
University Policies	<p>https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf</p>