

MENG 3316 – Heat Transfer
Course Syllabus

Semester / Year	Spring 2023																		
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.																		
Prerequisites	MENG 3310 Fluid Mechanics MENG 3401 Thermodynamics																		
Section Number(s)	030																		
Instructor Name	Dr. S. Maloney																		
Contact Information	smaloney@uttyler.edu , Room: HEC A206																		
Class Type /Instruction Mode/ Location	Face to Face/ Houston Engineering Center, Room A217																		
Class Times	Tue/Thur 9:30AM to 10:50AM																		
Office Hours	Tuesdays 8:00AM to 9:30AM & 11:00AM to 12:30PM or by appointment																		
No. of Credits	3 credit hours with 3 hours of lecture per week																		
Required Textbook	1. McGraw Hill Connect - Budynas and Nisbett, Shigley's Mechanical Engineering Design, 11th Edition																		
Optional References	N/A																		
Additional requirements	N/A																		
Instruction / Evaluation Method/	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">-</td> <td style="width: 75%;">Attendance</td> <td style="width: 20%; text-align: right;">5%</td> </tr> <tr> <td>-</td> <td>Quizzes</td> <td style="text-align: right;">20% (4 x 5%)</td> </tr> <tr> <td>-</td> <td>First Exam</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>-</td> <td>Second Exam</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>-</td> <td>Project Assignment</td> <td style="text-align: right;">25%</td> </tr> <tr> <td>-</td> <td>Final Exam.</td> <td style="text-align: right;">10%</td> </tr> </table>	-	Attendance	5%	-	Quizzes	20% (4 x 5%)	-	First Exam	20%	-	Second Exam	20%	-	Project Assignment	25%	-	Final Exam.	10%
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Homework	Practice questions shall be assigned but not graded.																		
Grading Policy / Scale	Grading in this course will be based on the following: Scale: A: 90 - 100, B: 80 - 89, C: 70 - 79, D: 60 - 69, F: < 60. Grade appeal: grades can be appealed by meeting the instructor during office hours, but no later than a week after the grade has been given.																		
Important events/dates	See UT Tyler Academic Calendar: https://www.uttyler.edu/schedule/files/2022-2023/academic-calendar-2022-2023-main-20221025.pdf																		
Attendance / Makeup policy	Attendance at every meeting is strongly encouraged. There will be no makeup for missed in-class work. An opportunity to make up a																		



	<p>missed exam may be available to students with an excused absence. Be advised that makeup exams may be more challenging. Excused absences include absences for university sponsored events and for religious observances (see the University policy). Other makeups are granted only in extreme cases and at the discretion of the instructor. Excused absence due to illness will require evidence of treatment by medical personnel or at a medical facility.</p>
<p>Course Learning Objectives / ABET & PEOs relation</p>	<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
<p>Tentative Topics/Course Plan</p>	<ol style="list-style-type: none"> 1. Week 1 Syllabus Overview & Introduction 2. Week 2 Basic Concepts – Relationship with Thermodynamics 3. Week 3 Introduction to conduction 4. Week 4 One dimensional conduction 5. Week 5 Two-dimensional, Steady-state Conduction. 6. Week 6 Review & First Exam 7. Week 7 Transient Conduction. 8. Week 8 Introduction to Convection. 9. Week 9 External flow convection. 10. Week 10 Internal flow convection 11. Week 11 Review & Second Exam 12. Week 12 Free convection. 13. Week 13 Heat Exchangers 14. Week 14 Radiation heat transfer 15. Week 15 Review & Final Exam
<p>University Policies</p>	<p>https://www.uttyler.edu/academic-affairs/files/syllabus_information_2021.pdf</p>