UTTyler ENGINEERING

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MENG 3316 – Heat Transfer
Course Syllabus

Semester / Year	Spring 2026
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 3310.
Section Number	030, 050
Instructor Name	Dr. Hayder Abdul-Razzak
Contact Information	Email: habdulrazzak@uttyler.edu
Class Type / Instruction Mode / Location	030: Face to face / Lecture / HEC B210 050: Hybrid Course / Lecture / RBN 3040
Class Time	TuTh: 11:00 am to 12:20 pm
Office Hours	W: 3:30 pm to 5:00 pm, Th: 12:30 pm to 2:00 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	1. Since the mechanical engineering program is designed to prepare students for professional practice, all submitted work (e.g., homework, lab reports, projects, presentations) is expected to meet professional standards. Work that does not reflect professional quality may be subject to grade reductions, even if professionalism is not explicitly listed in the grading rubric. 2. Students can use AI programs (ChatGPT, Copilot, etc.) in this course. If you utilize an AI tool to help create content for an assignment, you must acknowledge and cite the tool's contribution to your work.
Evaluation Method	Two Mid-term Exams 50% Final Exam 25% Homework and Quizzes 25%
Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60
Important Events / Dates	Census date: 01/26/2025 Last date to withdraw from one or more 15-week courses: 03/30/2025 Final Exam: TBD
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 with 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. **Canvas:** Course syllabus, course material such as handouts and example problems with solutions, homework, assignments, homework solutions, review material, exam solutions will all be posted on Canvas. Please review all the material posted on Canvas on a regular basis.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 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	Week 1 Cover syllabus and intro to class. Week 2 Introduction to conduction. Week 3 One dimensional conduction. Week 4 Two-dimensional, Steady-state Conduction. Week 5 Transient Conduction. Week 6 Review & **First Exam.** Week 7 Introduction to Convection. Week 8 External flow convection. Week 9 **Spring Break** Week 10 Internal flow convection. Week 11 Free convection. Week 12 Review & **Second Exam.** Week 13 Radiation heat transfer. Week 14 Heat Exchangers. Week 15 Review Week 16 **Final Exam**
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information-rev122025.pdf