



Syllabus for ENGR135-01: Heat Transfer

Fall 2021

Instructor: Gerardo Diaz

Designation:	Heat Transfer
Catalog Description:	Study of conduction, convection, and radiation heat transfer, with applications to engineering problems.
Text Books and Other Required Materials:	Fundamentals of Heat and Mass Transfer; Bergman, Lavine 8th Ed. John Wiley
Course Objectives/ Student Learning Outcomes:	<p>After successful completion of this class, the students will:</p> <ol style="list-style-type: none">1) Understand the fundamentals of heat transfer processes occurring in natural and engineered systems.2) Possess the ability to apply analytic procedures and numerical tools in the analysis of heat transfer problems.3) Have problem solving abilities applied to energy transfer.4) Understand the basics of experimental techniques for heat transfer measurements.5) Be able to produce a written laboratory report.6) Understand the professional and ethical responsibilities of their field.
Program Learning Outcomes:	
Prerequisites by Topic:	<p>ENGR 120: Fluid Mechanics ENGR 130: Thermodynamics MATH 131: Numerical Methods for Scientists and Engineers</p>
Course Policies:	<p>1. In general, please try to maximize the opportunity to learn from the posted material. Please avoid activities that may distract those around you. 2. Please silence all electronic devices and refrain from using them during Labs. 3. Homework assignments will be due at 11:59pm of the due date. Homework assignments need to be uploaded to CatCourses before the deadline. No late work will be accepted. 4. There will be no make-ups for missed exams. No points will be awarded for a missed midterm exam, except in case of properly documented (e.g. doctor's note) medical or family emergency or other University approved absence. In cases of documented and approved absences, the student's grade will be determined based on the remainder of the work for the course. The final exam is required.</p>
Academic Dishonesty Statement:	<p>a. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work.</p> <p>b. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e mail, an e mail attachment file, a diskette, or a hard copy. Should copying occur, both the</p>

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	<p>student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.</p> <p>c. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.</p>
Disability Statement:	<p>Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations.</p>
Topics:	<p>Introduction to Heat Transfer, Elementary Modes of Heat Transfer, Lumped Capacity Modeling, Energy Balances; Conduction Heat Transfer, Fourier's Law, 1-D Conduction, Fins, Multi-dimensional Conduction, Heat Conduction Equation, Unsteady Conduction, Numerical Methods in Conduction; Fundamentals of Convection, Convection Correlations, Problem Solving, Internal and External Flows, Basic Principles of Heat Exchangers, Basic Radiation Theory, Surface Radiation, View Factors, Directional and Spectral Characteristics of Radiation, Radiation Transfer in Engineering.</p>
Class/laboratory Schedule:	Class: REMOTE (ASYNCHRONOUS) Lab: SCIENG 158
Midterm/Final Exam Schedule:	Final Exam: Dec 15, 11:30-2:30pm (REMOTE)
Course Calendar:	
Professional Component:	Engineering Science 100%;
Assessment/Grading Policy:	Midterm exam: 20%; Final exam: 20%; Homework: 10%; Project: 20%, Lab reports: 20%; Quizzes: 10%
Coordinator:	
Contact Information:	<p>Gerardo Diaz SRE 343 gdiaz@ucmerced.edu</p>
Office Hours:	<p>Mondays: 12pm to 1pm Wednesdays: 12pm to 1pm</p>