

Course Description

ME 313: Heat Transfer

Instructor:

Dr. Duane L. Abata, Professor of Mechanical Engineering

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Office hours: Posted

Catalog Data:

ME 313 – *Heat Transfer*: (3-0) 3 Credits

Prerequisites:

ME 211 and Math 373 (concurrent).

In addition to the prerequisites stated in the catalogue, you will be considered knowledgeable in the following areas:

- 1) Application of the 1st and 2nd laws of thermodynamics (ME 211),
- 2) Application of integral calculus (Calculus I and II),
- 3) Application of ordinary differential equations (Math 321),

and other sophomore and junior level physics and mechanics courses taken in sequence in the ME curriculum.

Textbook:

Heat and Mass Transfer: A Practical Approach; Cengel, 3rd Ed.

Course Objectives:

The objective of this course is to provide students with the working knowledge required to formulate and analyze problems in energy transfer via heat and to take this knowledge on for application in other junior and senior level courses. Upon completion of this course, the student will show an aptitude, where required in his/her other junior and senior courses, to be able to:

- Apply the general engineering problem solving method (Given, Find, Analysis, etc.)
- Differentiate between, recognize the inter-relationships of, and perform fundamental analysis involving the three heat transfer modes: conduction, convection, and radiation,
- Perform fundamental energy balances
- Apply state-of-the-art software to fundamental design analysis.

Computer Usage:

Students will be expected to program in Excel. Students will have access to FLUENT and workstations to run the code.

Course Outcomes:

Upon completion of this course, students will have demonstrated the ability to:

- Apply skills in engineering, science, and mathematics related to heat transfer,
- Practice effective heat transfer analysis,
- Conduct data analyses and analyses verification.

Course Grade:

The grade earned by the student will be based upon the following (tentative) percentages:

In-Class Examinations	50%
Final Examination	30%
Homework, Class Participation	10%
Special Assignments	10%
Total	100%

The instructor reserves the right to modify percentages during the course.

Students with special needs or requiring special accommodations should contact the instructor, and/or the campus ADA coordinator, Jolie McCoy, at 394-1924 at the earliest opportunity.

Freedom in learning. Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.