

**MIDDLE EAST TECHNICAL UNIVERSITY
DEPARTMENT OF CHEMICAL ENGINEERING
ChE 522 - Advanced Heat Transfer**

COURSE OUTLINE FOR SPRING 2015

Instructor

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Classroom Hours

W 8.40-10.30 **F** 8.40 (Room: Z-120)

Course Description

Application of analytical and computational techniques to the solution of steady and transient problems in heat conduction and convection in various geometries.

Office Hours

Students are welcome (and encouraged) to come as needed. If I am in my office and not on the phone or with another person, I will make time for you. At minimum, we will arrange a time to meet that will accommodate both of our schedules.

Course Website

The course outline, homework assignments, and all handouts will be posted on **METU-Class** (<https://metuclass.metu.edu.tr>).

Exams

Midterm Exam # 1: April 1, 2015

Midterm Exam # 2: May 13, 2015

Recommended Textbooks

H.S. Carslaw, J.C. Jaeger, *Conduction of Heat in Solids*, 2nd Ed., Oxford, 1959.

R.B. Bird, W.E. Stewart, E.N. Lightfoot, *Transport Phenomena*, 2nd Ed., Wiley, 2002.

İ. Tosun, *Modeling in Transport Phenomena: A Conceptual Approach*, 2nd Ed., Elsevier, 2007.

A. Bejan, *Convection Heat Transfer*, Wiley, 1984.

T.L. Bergman, A.S. Lavine, F.P. Incropera, D.P. Dewitt, *Fundamentals of Heat and Mass Transfer*, 7th Ed., Wiley, 2011.

Policies and Procedures

- All tests will be open-book (one **ORIGINAL** book on heat transfer) and open-notes (no photocopies, no homework solutions, only your **own handwritten notes** and class handouts). It is your responsibility to understand the exam questions. If you have difficulty with English, you may bring a dictionary with you.
- If you miss an exam with a certified medical excuse, you may take a make-up exam at a designated time during the final exams (May 25 - June 6, 2015). It will be comprehensive and **CHALLENGING**.
- You are encouraged to collaborate on the homework assignments, but you should write your answers **INDEPENDENTLY**. You should not copy solutions from a classmate. Severe penalties will be applied in cases of academic dishonesty.
- Required homework will be due at the beginning of the period on the due date. Use A-4 size paper and one side of each page. Each problem should start on a new page. The solution to each problem must be **neat** and in an **orderly** fashion. In some cases, a sketch should be given as a part of the solution. Print the following information on the cover page of all assignments:
 - ▶ ChE 522 - Advanced Heat Transfer
 - ▶ Last Name, First Name:
 - ▶ Assignment number:
 - ▶ Date:
 - ▶ Names of your collaborators:
- Late homework will be accepted up to one week after the due date and will receive a maximum grade of 60%. However, if a student abuses this privilege by routinely handing in homework late, the privilege will be withdrawn.
- A weighted average grade will be calculated as follows:
 - Midterm exams: 50% (25% each)
 - Homework: 20%
 - Final exam: 30%