

MAE 3309-001, Thermal Engineering, Fall 2009

TTH, 5:30-6:50 PM, NH 202

Instructor: Miguel Amaya, Ph.D.

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Textbook: Yunus A. Cengel, Introduction to Thermodynamics and Heat Transfer, 2nd. Ed. McGraw-Hill

Goals and Course Description: To obtain a foundation in Thermal Engineering through understanding of its basic concepts. This course consists of two parts: thermodynamics of closed and open systems and introduction to heat transfer. The first part deals with the relationship between heat and work through the application of the laws of thermodynamics to pure substances. The second part covers the heat transfer mechanisms: conduction, convection and radiation.

Prerequisites: Math 2325 and Phys 1444

Course Outline:

Basic Concepts of Thermodynamics	Ch. 1
Properties of Pure Substances	Ch. 2
First Law of Thermodynamics: Closed and open systems.	Chs. 3 & 4
Second Law of Thermodynamics: Entropy	Chs. 5 & 6
Heat Transfer by Conduction: Steady and Transient.	Chs. 8 & 9
Heat Transfer by Convection: Forced and Natural	Chs. 10 & 11
Heat Transfer by Radiation	Ch. 12
Heat Exchangers and the Cooling of Electronic Equipment	Ch. 13 & 14

Assignments and examinations:

One homework set per week, 2 exams and a comprehensive final.

In order to receive full credit for homework turned in, each problem should contain:

- A problem statement outlining given and required information and a diagram of the system/process as appropriate.
- An organized solution which consists of statements of assumptions, laws or formulas to be used, substitution of values and evaluation showing all relevant steps.
- Identification of final answer.

Grading Policy: Hw: 10% (no late homework accepted for points credit)
Exams 27%* 2 exams
Comprehensive Final 36%

Attendance Policy:

Students are expected to attend every class, to arrive on time, and to stay in the class until they are dismissed, with the exception of a verifiable emergency, or an incident beyond the student's control.

Americans With Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)

Student Support Services Available:

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

Final Review Week:

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. Classes are held as scheduled during this week and lectures and presentations may be given.

E-Culture Policy: The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at www.uta.edu/email. New students (first semester at UTA) are able to activate their

email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.

Make-up Exam Policy: [Optional. Insert your make-up exam policy, if any]