ME 607 - Advanced Thermodynamics - Syllabus

TEXT:

Text : #1. Bejan, Advanced Engineering Thermodynamics, J Wiley

ISBN 0-471-67763-9

#2. Undergraduate Thermodynamics Text- Property Tables.

Prerequisites: Undergraduate thermodynamics, Equiv- Math 211 Cal 3.

Florio 9/2010

WEEK	TOPIC	PROBLEMS
1	Review First Law	**Class assigned**
2	Review Second Law	
3	Review continued, Availability	
4	Availability Analysis	
5	Availability-Cycles	
6	Equation of State	**To be assigned**
7	Property Relations	
	MIDTERM	**Week Oct-11**
9	Property Relations Continued	**To be assigned**
10	Homogeneous Mixtures	
11	Optimization of Systems	
12	Thermodynamic Design , Project choices approval	
13	Thermodynamic Design continued, Project	**~Nov**
14	**FINAL EXAM** and Project presentation*	

Course Grading Information. –. section ME 607-2010- All Tests-closed book and Notes- No Communication Devices-0ne sheet of notes permitted - 8.5x11-nonXerox- and containing no problem solutions nor partial solutions. Calculators required .
a. Mid-term – 35% **; Grade for any missed test will be recorded as a grade of zero ..**
b. * A homework (hw) based short quiz every other week - 15%, No Make-up. HW -15%
It is expected that the reading assignment will be complete prior to discussing material in class. On a rotating basis, HW problems will be placed on the board.
Any "Homework" specifically due is due at the beginning of class and in the format specified.
c.Class participation - +5%- Will effect your grade by at least I level. d. Final Exam - and Problem presentation 30 %
e. The NJIT Integrity Conduct Code will be strictly enforced . Any violations will be reported to the Dean of Students.
f. Work copied or the use of unauthorized aid will not be accepted or graded .

Cell phones must be turned off during class. Use of any communication device during a test(quiz) is prohibited.
Reserve right to modify as needed
Assignment Sheet also available at: ***web.njit.edu/~florio/FLORIO.htm***

Homework (HW) is an important part of the course. You are expected to solve every assigned problem. HW will be done in groups of 3. Each group will submit one copy of the HW solutions for each assignment and all members of the group will receive the same HW grade. HW will be due promptly at the beginning of class of the announced due date. Only for HW may you talk to people outside your group but a member of the class about the HW, if it helps you understand the material. However, the material submitted must be due to the work of the group.

*Any other possible take home assignments must be done solely by you without consulting with any other individual or individuals.
I reserve the right to change homework assignments or format.

Quizzes- . Any missed quiz is recorded as a grade of zero.

Mid-Term. Generally 3-4 problems which are similar to the HW, Short quizzes or class problems.

Attendance: You are expected to attend all classes

Assignment Sheet also available on highlander (course)pipeline

FLORIO-2009

Advanced Thermodynamics----ME 607
Prerequisite: undergraduate thermodynamics.

Students are expected to be able to thermodynamically analyze and apply the laws of thermodynamics to energy systems, to judge their performance and to optimize the thermodynamic processes. In addition the student should be able to analytically determine the thermodynamic properties and the relationships between thermodynamic properties of simple compressible substances through the use of the laws of thermodynamics and mathematical relationships.

Basic laws of thermodynamics are applied to various thermodynamic systems. Topics include: availability analysis, chemical availability, stability requirements, equation of state, thermodynamic property relations, thermodynamic properties of homogeneous mixtures, thermodynamic optimization ; application to system components, design of thermodynamic work producing and refrigeration cycles.