ME 607 - Advanced Thermodynamics - Syllabus

TEXT: Wark, *Advanced Thermodynamics for Engineers* , McGraw-Hill, Inc

ISBN: 0-07068292

Prerequisites: Undergraduate thermodynamics, Equiv- Math 211 Cal 111.

Assignment Sheet also available at: ***www-ec.njit.edu/~florio/FLORIO.htm***

WEEK	TOPIC (CHAPTER)	PROBLEMS
1	Review First Law	1-7,10,16,26,28,30
2	Review Second Law	2-9,17,18,21
3	Review continued, Availability	3-2,5,8,11,16,19
4	Availability Analysis (3)	4-2,5,16,25
5	Availability-Cycles (4)	
6	Equation of State (5)	**To be assigned**
7	Property Relations (6)	6-7, 11, 13, 15
8	**MIDTERM**	
9	Property Relations Continued	**To be assigned**
10	Homogeneous Mixtures (8)	
11	Power Generating Systems	
12	Power Gen. continued, Thermodynamic Design	
13	Thermodynamic Design	
14	**FINAL EXAM**	

Course Grading Information. – ME 607
a. Midterm – 35% ; Missed Exam will be recorded as a grade of zero.
b. *In lieu of collecting homework, a hw based short quiz every other week - 15%, No Make-up. Any "Homework" specifically due is due at the beginning of class and in the format specified.
c. Final Exam - 35 %
d. Class participation - 15%.
e. The NJIT Honor Code and Professional Conduct Code will be strictly enforced

Advanced Thermodynamics----ME 607

Prerequisite: undergraduate thermodynamics.

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 applied to power generation and refrigeration cycles, and thermodynamic design of system components.

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.

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Florio 8/2005 (F05)