ME2320
Thermodynamics I
Syllabus - Fall 2013

Class Schedule
Lecture: MW 2:30-3:45PM, CEAS D208
Office Hours: M 9:00-11:00AM, Tu 2:00-3:00PM

Instructor
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Text Book

Course Description
Fundamental laws of thermodynamics including ideal and non-ideal processes. Applications are studied in relation to the thermodynamic cycles.

Objectives
- To teach the students the basic principles of classical thermodynamics and the properties of pure substances.
- To train students to identify, formulate and solve engineering problems in thermodynamics involving closed and open systems for both steady state and transient processes.
- To teach students concepts and applications of second-law analysis method for thermodynamics systems.
- To teach students the introductory concepts of power cycle and refrigeration cycle.

Grading
Homework Assignments: 10%
Quizzes: 10%
Tests (three): 60% (20% each)
Final Exam: 20%
90-100 A
85-89 BA
80-84 B
75-79 CB
70-74 C
65-69 DC
60-64 D
0-59 E
Test Dates
Test#1: September 30, 2013
Test#2: October 30, 2013
Test#3: December 2, 2013
Final Exam: 2:45PM-4:45PM, Monday, December 9, 2013.

Tentative List of Subjects
1. Definitions (systems, process, properties) and unit.
2. Work, heat, internal energy, First Law of Thermodynamics.
3. Properties of single component systems, non-ideal substances.
4. Ideal gases.
5. Control volume analysis, steady state and transient systems.
7. Inequality of Clausius, Entropy

Notes:
1. Bring your textbook to every class. No textbook sharing during quizzes and exams.
2. No make-up exams will be given for reasons other than documented medical emergencies. In any case, the students must inform the instructor prior to the test. The points for that test will be added to the final exam. If a student misses more than one test, the other tests will be graded as zero.
3. Solve homework problems on engineering paper. Begin each problem on a new page. One of each assignment will be collected at the beginning of the class and graded based on the number drawn. Points will be deducted for digression of format from discussed in class.
4. Late homework penalty: 30% for one day late, 60% for two days and no credit for more than two days late.
5. You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate and Graduate Catalogs that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. [The policies can be found at http://catalog.wmich.edu under Academic Policies, Student Rights and Responsibilities.] If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test. You are encouraged to visit www.wmich.edu/conduct, www.wmich.edu/Registrar and www.wmich.edu/disabilityservices to access the Code of Honor and general academic policies on such issues as diversity, religious observance, student disabilities, etc.
6. In class, all electronic devices should be turned off. Non-class-related uses of any PC platforms are discouraged.
Problem 1.1
Given:

Brief description of the given problem (with sketch if necessary)

\[ T_1 = 200 \text{ K} \]
\[ P_1 = 1 \text{ atm} \]
\[ V_1 = 20 \text{ m/s} \]

Required:
\[ T_2 = ? \]
\[ V_2 = ? \]

Solutions:

Give details of solutions steps

Results:
\[ T_2 = 300 \text{ °C} \]