

MECH 332-01 – Thermodynamics
California State University, Chico
Fall Semester 2007

- Catalogue Description:** Properties of substances, ideal gas equation of state, heat and work, first and second laws of thermodynamics, steady-state analysis of closed and open systems, entropy, gas and vapor power cycles, introduction to renewable energy sources.
- Instructor:** Dr. C. H. Hsu, OCNL 415, Phone: 530.898.5374, e-mail: chhsu@csuchico.edu
Office hours: TF 9:00 – 9:50 a.m. W 2:00 – 4:50 p.m.
- Prerequisites:** PHYS 204A (Mechanics)
PHYS 204C (Heat, Wave Motion, Sound, Light, and Modern Topics) is recommended.
- Class Times:** MWF 1:00 – 1:50 p.m., OCNL 120
- Textbook:** *Thermodynamics - An Engineering Approach*, 6th edition by Y. A. Cengel and M. A. Boles, McGraw-Hill, 2007.
- Resources:** Additional student resources are available at <http://www.mhhe.com/cengel>
- Homework:** There will be homework problems assigned on a regular basis. The problems typically are selected from the *Problems* section at the end of each chapter. These problems usually are due a week after they are assigned. Problems sets are collected at the beginning of the class period. Homework submitted at the end of the class period on the due day is considered to be late. *NO LATE HOMEWORK WILL BE ACCEPTED.*
- Solutions to the assigned problems should be written and arranged in numerical order of problem numbers on engineering computation paper. For each problem, the 7-step solution procedure described in section 1.12 (Problem-Solving Techniques) should be followed. All pages should be stapled together at the top center with course number and student's name shown on every page. The assignments will be returned to the students with about half of the problems graded. Solutions to the problems will be posted in the display case outside the instructor's office.
- Exams:** There will be four term tests and a final exam. Each short term test mainly covers a specific area while the final examination is comprehensive with emphasis on topics covered after the last short term test.
- Answers to the test problems should include relevant work in a logical order with explanation where necessary. The solution should also include formulas and numerical substitutions in correct units to arrive at the final answer.
- All tests are open-book tests. Material allowed include textbook and one-page summary notes. Homework problems and solutions are not allowed. There will be no make-up tests. Students will take the final examination on the day and time scheduled by the university. Any scheduling conflicts with other final exams should be brought to the instructor's attention as early as possible.

Grading: The final grade for the class will be based on homework assignments, midterm tests and final examination:

Homework Assignments	20%
Term Tests (4 × 13.75%)	55%
Final Exam	25%

Add/Drop: The last day to add or drop the class without permissions is Friday, September 3.

Course Outline:

Week (of)	Topics	Reading
1 (8/27)	Introduction and Basic Concepts	Chapter 1
2 (9/ 3)	Energy, Energy Transfer, and General Energy Analysis	Chapter 2
3 (9/10)	Properties of Pure Substances	Chapter 3
4 (9/17)	Energy Analysis of Closed Systems, Term Test No. 1	Chapter 4
5 (9/24)	Energy Analysis of Closed Systems	Chapter 4
6 (10/ 1)	Mass and Energy Analysis of Control Volumes	Chapter 5
7 (10/ 8)	Mass and Energy Analysis of Control Volumes, Term Test No. 2	Chapter 5
8 (10/15)	Second Law of Thermodynamics	Chapter 6
9 (10/22)	Entropy	Chapter 7
10 (10/29)	Entropy, Term Test No. 3	Chapter 7
11 (11/ 5)	Gas Power Cycles	Chapter 9
12 (11/12)	Gas Power Cycles	Chapter 9
13 (11/19)	University Holidays, No Classes Held	-----
14 (11/26)	Gas Power Cycles, Term Test No. 4	Chapter 9
15 (12/ 3)	Vapor Power Cycles	Chapter 10
16 (12/10)	Vapor Power Cycles	Chapter 10
17	Final Exam, Wednesday (12/19) 2:00 – 3:50 p.m., OCNL 120	