

1/19, 2000

WICHITA STATE UNIVERSITY
DEPARTMENT OF MECHANICAL ENGINEERING

ME502 - THERMODYNAMICS II

Instructor: Dr. David N. Koert
Office: 101E EB
TEL: 978-6364
Office Hours: As posted, otherwise by appointment

Class Schedule: Mon., Wed.: 4:10-5:25 pm, 102 EB

Textbook: *Fundamentals of Engineering Thermodynamics*, 4th Edition, Moran and Shapiro, Wiley, 2000.

References: *Fundamentals of Classical Thermodynamics*, 5th Edition, Van Wylen, Sontag and Borgnakke, Wiley, 1998.
Thermodynamics, 6th Edition, Wark, McGraw-Hill, 1999.

Goals: Extend the student's understanding of the First and Second Laws of Thermodynamics; illustrate the broad application of theory to many of the processes common to energy conservation systems; develop the concepts and methods necessary to treat a broad variety of combustion problems of engineering interest; and investigate the behavior of systems in which either mass is transferred between two or more phases during a change of state or an equilibrium chemical reaction occurs.

Prerequisites by topic:

1. Integral and differential calculus
2. The First and Second Laws of Thermodynamics
3. Hydrostatics and hydrodynamics
4. Basic principles of general chemistry

Course Outline:

1. Review 2nd Law Principles
2. Gas and vapor cycles
3. Nonreactive, ideal-gas mixtures
4. Behavior of real gases
5. Generalized thermodynamic relationships
6. Combustion and thermochemistry (7 classes)
Examinations (2-3 classes)

Grading: There will be two or three, one- hour examinations during the regular term and a final examination. The hour examinations and the final will have equal value and will contribute 90% toward the course grade. The remaining 10% will come from homework grades.

Homework: Reading assignments are given as appropriate for preparation for lectures. Problem assignments will be given on a regular basis.