WICHITA STATE UNIVERSITY
DEPARTMENT OF MECHANICAL ENGINEERING

ME502 – THERMODYNAMICS II

Instructor: Mr. John Branch
Office: EB 101B
Tel: 978-3402
Office Hours: As posted, otherwise by appointment

Class Schedule: Mon., Wed., Fri.: 10:30 – 11:20 AM, 102 EB

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

References: *Fundamentals of Classical Thermodynamics*, 5th Edition, Van Wylen, Sontag and Borgnakke, Willey, 1998
Themodynamics, 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 the 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 transferred between two or more phases during a change of state or an equilibrium chemical reaction occurs.

Prerequisite 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. Non-reactive, ideal gas mixtures
4. Behavior of real gases
5. Generalized thermodynamic

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.