Fall 2015

ENME 2770

Kazim Akyuzlu
University of New Orleans

COURSE SYLLABUS

ENME 2770 – Thermodynamics (Required Course)

Catalog Data

ENME 2770 Thermodynamics Cr. 3

Prerequisites: credit or registration in Mathematics 2109 or 2112 and Physics 1062. Basic laws of thermodynamics; equilibrium; entropy; availability; flow and non-flow processes.

Course Schedule

Two 1 hour 15 minutes lectures per week.

Course Coordinator

Kazim Akyuzlu, Professor of Mechanical Engineering

Textbook

R. E. Sonntag, C. Borgnakke, and G.J. Van Wylen, Fundamentals of Thermodynamics. 6th or more recent edition, John Wiley & Sons, 2002.

References

Y. A. Cengel and M. A. Boles, Thermodynamics- An Engineering Approach. 6th edition, McGraw-Hill, 2008

R. E. Sonntag and G. J. Van Wylen, Introduction to Thermodynamics - Classical and Statistical. 3rd edition, John Wiley & Sons, 1991.

Haberman & John, Engineering Thermodynamics. Allyn & Bacon, 1980.

Course Objectives (*Student Learning Objectives*)

1. Learn the basics laws of thermodynamics.
2. Learn how to analyze and predict the thermodynamical state of various open and closed systems using the basic laws of thermodynamics.

Course Content by Topics

1. Introduction to Thermodynamics: systems, thermodynamic properties, and equilibrium.
2. First law for closed systems: heat and work, internal energy, closed systems, 1st law applications.
3. First Law of Thermodynamics for open systems: conservation of mass in open systems, conservation of energy in open systems, enthalpy, applications to steady flow open systems.
4. Thermodynamic properties: properties of water (liquid and vapor phases), independent thermodynamic properties, thermodynamic properties of other common substances, ideal gases.
5. The Second Law of Thermodynamics: reversible processes, reversible cycles, Carnot cycle, thermodynamic temperature scale, Clausius' inequality entropy, entropy and irreversibility, numerical evaluation of entropy, applications of the Second Law
6. Thermodynamic processes: constant volume, constant pressure, constant enthalpy, constant temperature, adiabatic and isentropic processes, polytropic processes.

Class Schedule

MW 3:30 - 4:15 pm in EN317

Instructor Office Hours and Contact information

T TH 2:00- 4:00 pm in EN928/514/407/106/104
Office Phone: 280 6186
e-mail address: kakyuzlu@uno.edu
Write to above e-mail address for appointment if you cannot meet me during office hrs.

Grading Criteria

Homeworks	-
2 quizzes	30% each
Final	40%

Note: Homeworks are due one week after it is assigned.

Attendance Policy:

Attendance is required. All assignments are to be submitted in person and in class. Missing assignments will be counted as zero.

Academic Dishonesty /Academic Integrity

Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty.

Refer to the Student Code of Conduct for further information. The Code is available online at www.studentaffairs.uno.edu .

Statement on Accommodations for Students with Disabilities

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For more information, please go to www.ods.uno.edu .

Prepared by: Kazim Akyuzlu **Date:** Fall 2015