

Fall 2015

ENME 3776

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ENME 3776 - Intermediate Engineering Thermodynamics (Required Course, Fall 2015)

Catalog Data

ENME 3776 Intermediate Engineering Thermodynamics Cr. 3
Prerequisite: ENME2770. Application of principles of Thermodynamics; vapor and gas cycles; internal combustion engines; steam and gas turbines, mixtures, thermodynamic relationships.

Class Hours: 11:00 am-12:15 pm, TuTh, EN318

Instructor: Professor Ting Wang (EN932 or CERM137, 504-280-7183, twang@uno.edu)

Office Hours: Monday through Friday – 12:30 pm – 2:00 p.m. (EN932)

Grade Policy:	Homework	15%
	The Term Project	10%
	Two Tests	40%
	Final	25%

Final grade assignments will be curved, based on the total cumulative points earned during the semester. The class average will serve as the reference for grade C.

Textbook

- Michael J. Moran and Howard N. Shapiro, Fundamentals of Engineering Thermodynamics, 7th ed., John Wiley & Sons, 2011. ISBN: 9780470495902 (Hard Cover) or 9780470917688 (Loose Leaf)

References

- Yunnus A. Gengel and Michael A. Boles, Thermodynamics - an Engineering Approach, 6th Ed. 2006, McGraw-Hill
- R. E. Sonntag, C. Borgnakke, and G.J. Van Wylen, Fundamentals of Thermodynamics 6th edition, John Wiley & Sons, 2003.

Prerequisites by Topics

1. First Law of Thermodynamics
2. Open systems and conservation of mass for open systems
3. Energy equation for open systems and applications
4. Thermodynamic properties of substances and ideal gases
5. Second Law of Thermodynamics

Course Content by Topics

1. Brief review of first and second laws of thermodynamics and applications
2. Vapor power cycles: the Rankine cycle
3. Vapor refrigeration cycles: the reversed Rankine cycle
4. Power cycles: the Otto and Diesel cycles
5. Gas power and refrigeration cycles: the Brayton cycle

6. Gas power cycles with regeneration: the Stirling and Ericsson cycles
7. Thermodynamics of ideal gas and gas-vapor mixtures
8. Humidity and psychrometric analysis
9. Combustion

Course Objectives

1. Familiarize students with the laws of thermodynamics and its applications in various engineering apparatus and power plants.
2. Teach students the laws and factors that are important in increasing the efficiency or performance of various engineering apparatus and power plants.

CLASS POLICIES:

First, turn off your cell phones!

Students are not allowed to use cell phones in the classroom; this includes reading and sending messages. Each violation will result in a reduction of one final accumulated point and the violators will be requested to leave the classroom immediately.

1. The prerequisite for this course is ENME2770 (Thermodynamics 1). This course is a prerequisite to ENME 4772 (Internal Combustion Engine) and 4774 (Gas Turbine Systems).
2. Students must have Internet access to www.uno.edu and Moodle. Most of my communications will be through Moodle and e-mail. Students are responsible for maintaining their corresponding UNO e-mail boxes so that it is functioning and not overflowing. Help with Moodle can be accessed at <http://instruction.uno.edu>.
3. Students must have Internet access to www.uno.edu and Moodle. Most of the communications will be done through Moodle. Students are responsible for all e-mail communications from the instructor to their UNO e-mail drop box. Help with Moodle can be accessed at <http://instruction.uno.edu>.
4. No laptops or **e-book reading devices** are allowed during regular classes without special permission from the instructor.
5. Rules regarding exams:
 - The assigned textbook in the correct edition will be used for assigning homework and citations of equations and page numbers. Students using different textbooks or editions must be responsible for obtaining correct information. No excuses will be granted when wrong information, equations, or figures are obtained from wrong books in homework or exams.
 - The exam has two parts. Part 1 is closed books and notes. **Calculators, laptops, tablets, smart phones, Apple watches, e-books readers, and Google glasses are NOT allowed.**

- Part 2 is open notes, books, and solutions. Calculators are needed, but other electronics (laptops, tablets, smart phones, e-book readers, etc.) are NOT allowed (i.e. only hard-copy books and notes can be used.)
 - In the beginning of the test, both parts are given to students, so the students can look over Part 2 to decide how long they plan to stay in Part 1. The recommended time printed on the exam paper is only a reference. The students can stay as long as they want in Part 1. Students need to turn in Part 1 before they can start to do Part 2. Once Part 1 is turned in, it is irrevocable.
 - No calculators, notes, or books can be shared or exchanged during the exam. Violators will be requested to turn in the exam questionnaire and leave the classroom immediately.
6. If the instructor does not show up for class in **twenty minutes**, please call the instructor's office. If the instructor cannot be reached and no advanced arrangements have been made, you are authorized to leave.
 7. Late homework papers are given **half credit** if they are received before grading begins. After grading begins, no papers will be accepted.
 8. Students are welcome to consult with the instructor for help with any difficulties. However, try to make a worthy attempt to solve problems before asking for help.
 9. Those who miss the class without "**excusable**" reasons are responsible for the consequences themselves. For a student who has incurred **five** inexcusable absences, **10 points** will be taken off his/her final total cumulative score.
 10. Students are encouraged to discuss homework with peers but are prohibited from copying other people's work. If caught, both the copied and the original work will be assigned zeros.
 11. 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 <http://www.studentaffairs.uno.edu>.
 12. 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 <http://www.ods.uno.edu>.
 13. The approximate date for each test is listed below. The exact date will be announced a week before each test.

Test #1: Thursday, October 1, 2015

Test #2: Thursday, November 12, 2015

Final: 10 am – 12 noon, Tuesday, December 8, 2015 (Can't be changed.)