

Instructor: Xiaohua Li
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Lecture Time: Monday & Wednesday 10:30 a.m.-12:20 p.m. room NTDP B140
Office Hours: Tuesday: 2:00 p.m.-3:30.p.m and open office policy

Required Textbook: Fundamentals of Engineering Thermodynamics, 7th edition
(New version 8th edition is available now)
M. J. Moran, H. N. Shapiro, D. D. Boettner and M.B. Bailey
ISBN-10: 0470495901
ISBN-13: 978- 0470495902

Reference Book: Thermodynamics: An Engineering Approach, 7th edition
Çengel and Boles
ISBN 10: 0-07-131111-4
ISBN 13: 978-0071311113

Course Description:

Exergy analysis, Gas power cycles, Gas mixtures, reacting mixtures and combustion, chemical reactions, and chemical equilibrium. The basic laws and concepts of classical thermodynamics are reviewed as their use is encountered in the course. This course also requires group project.

Pre-requisites: MEEN 2210 Thermodynamics I.

Course Learning Outcomes (CLO):

Upon successful completion of this course, students will able to:

1. Demonstrate an ability to correctly apply the 1st and 2nd laws of thermodynamics
2. Demonstrate an ability to analyze exergy and exergy destruction for different thermodynamics systems
3. Demonstrate an understanding on how to improve thermal efficiency for different thermodynamics systems based on 1st and 2nd law of thermodynamics
4. Demonstrate an ability to model and analyze various gas power cycles/systems
5. Demonstrate an understanding of gas mixtures and psychrometrics, and be able to analyze A/C systems
6. Demonstrate an ability to analyze reacting mixtures and simple combustion processes

ABET Student Learning Outcomes (SO)

- a Ability to apply mathematics, science and engineering principles.
- b Ability to design and conduct experiments, analyze and interpret data.
- c Ability to design a system, component, or process to meet desired needs.
- d Ability to function on multidisciplinary teams.
- e Ability to identify, formulate and solve engineering problems.
- f Understanding of professional and ethical responsibility.
- g Ability to communicate effectively.

- h The broad education necessary to understand the impact of engineering solutions in a global and societal context.
- i Recognition of the need for and an ability to engage in life-long learning.
- j Knowledge of contemporary issues.
- k Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

CLO	ABET Student Outcomes (SO)										
	SO1	SO2	SO3	SO4	SO5	SO6	SO7	SO8	SO9	SO10	SO11
1	X		X		X			X			
2	X				X			X			
3	X		X		X			X			
4	X		X		X			X			
5	X		X		X			X			
6	X				X				X		X

Grades: Homework (9)	20%	≥ 90	A
Pop Quizzes (high 3/4)	15%	80-89.9	B
Exam #1 (Ch 7 only)	20%	70-79.9	C
Exam #2 (Ch 9 only)	20%	60-69.9	D
Final (Exam #3) (Ch 12 and 13)	20%	< 60	F
<u>Attendance (5/6)</u>	<u>5%</u>		
Total	100%		

Homework Policy:

1. Please turn in your homework on the due day before the lecture starts. **NO late homework will be collected.**
2. Definition of “**late**”: when class is over (12:20pm) and the instructor steps outside the classroom, homework turned in thereafter will be considered as “late” and will not be collected
3. Having no textbook is not a valid excuse for not doing the homework. It is the student’s responsibility to acquire textbook for his/her study
4. Homework can be turned in earlier than the due day
5. Homework dropped in the instructor’s departmental mailbox will **NOT** be collected;
6. Homework slid into the instructor’s office will **NOT** be collected.
7. Homework dropped in the “homework dropbox” in front of the department door will **NOT** be collected.
8. If you want to turn in your homework other than the due day or if you want to turn in your homework outside the classroom, you need to turn in your homework to the instructor either **IN PERSON** or through emails.
9. You can ask your friend/classmate to turn in the homework for you
10. You can scan (or take a good picture using your smart phone, make sure the contents are legible) and email the homework to the instructor before the class ends (12:20pm)
11. Homework must be stapled, instructor or TA will not be responsible for lost loose homework

12. Exceptions (late homework will be collected): medical emergence (student and important ones); transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Evidences must be submitted.**

Exam and Quiz Policy:

1. Quizzes are open book and open notes. **Exams are closed book closed notes with formula sheets.**
2. Formula sheets can be maximum 5 pages, A4 or letter size, both sides
3. Each student is responsible for preparing his/her own formula sheets.
4. Formula sheets could include anything BUT: solutions to homework or examples. Student who failed to follow this rule will score zero in the exam and this cheating matter will be reported to the department and university.
5. Formula sheets must be turned in with the exam papers unless stated otherwise. Student who failed to follow this rule will score zero in the exam and this cheating matter will be reported to the department and university.
6. **There will be NO make-up quiz.**
7. **There will be NO make-up exam.** Exceptions: medical emergence (student and important ones); transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Evidences must be submitted.**
8. **Final exam date: August 8th 2014, Friday, 8:00 am-10:00 am, B140, covers Chapters 12 and 13**

Disability Accommodations: If you need academic accommodations for disability you must have document which verifies the disability and makes you eligible for accommodations, then you can schedule an appointment with the instructor to make appropriate arrangements.

Academic Dishonesty:

There is a zero tolerance policy for academic dishonesty. Cheating of whatsoever will result in an automatic 'F' in this course and the matter will be turned over to the appropriate student disciplinary committee.

IMPORTANT EXAM DATES

- Exam #1 (tentative; depends on when chapter 7 is finished; Covers Ch 7 only):
 June 18th, 2014, Wednesday 10:30am-12:20 pm, B140
- Exam #2: (tentative; depends on when chapter 9 is finished; Covers Ch 9 only):
 July 14th, 2014, Monday 10:30am-12:20 pm, B140
- Exam #3 (Final):
 Aug 8th, 2014, Friday, 8:00 am-10:00 am, B140, covers Ch 12 and 13

UNT Official Academic Calendar: Summer 2014 - 10W Term

Date	Event
June 2, 2014	First Class Day
July 4, 2014	Independence Day (no classes: university closed)
August 7, 2014	Last Class Day
August 8, 2014	Finals

Thermodynamics II-MEEN 3110
Tentative Topics and Schedule

(Please note the schedule may change based on the needs during the semester)

Week	Date	Topic	HW Due
#1	Jun. 2 Jun. 4	-Course Overview; Review of Thermodynamics I -Chapter 7: 7.1-7.3 Introducing Exergy; Exergy of a System	--
#2	Jun. 9 Jun. 11	-Chapter 7: 7.4 Closed System Exergy Balance -Chapter 7: 7.5 Exergy Rate Balance for Control Volumes at Steady State	HW#1 due 6/11
#3	Jun. 16 Jun. 18	-Chapter 7: 7.6 Exergetic (Second Law) Efficiency -Exam #1: Covers Ch 7 only	HW#2 due 6/18
#4	Jun. 23 Jun. 25	-Chapter 9: 9.1-9.2 Engine Terminology; Otto Cycle -Chapter 9: 9.3-9.4 Diesel Cycle; Dual Cycle	HW#3 due 6/25
#5	Jun. 30 Jul. 2	-Chapter 9: 9.5-9.6 Brayton Cycle -Chapter 9: 9.7 Regenerative Gas Turbines	HW#4 due 7/02
#6	Jul. 7 Jul. 9	-Chapter 9, 9.8 Regenerative Gas Turbines with Reheat -Chapter 9, 9.9 Regenerative Gas Turbines with Reheat and Intercooling	HW#5 due 7/9
#7	Jul. 14 Jul. 16	-Exam #2: Covers Ch 9 only -Chapter 12: 12.1-12.3 Describing Mixture; Evaluating properties	HW#6 due 7/16
#8	Jul. 21 Jul. 23	-Chapter 12: 12.4-12.5 Systems Involving Mixtures; Psychrometric Principles -Chapter 12: 12.6-12.8 Psychrometric Charts; Dehumidification	HW#7 due 7/23
#9	Jul. 28 Jul. 30	-Chapter 12: 12.8 Analyzing Air-Conditioning Processes: Evaporative cooling -Chapter 12: 12.8 Analyzing Air-Conditioning Processes: Mixing Air Streams	HW#8 due 7/30
#10	Aug. 4 Aug. 6 Aug. 8	-Chapter 13: 13.1 Introducing Combustion -Chapter 13: 13.5 Absolute Entropy; Chemical Exergy; -Exam #3 (Final Exam): Covers Ch 12 and 13	HW#9 will NOT be collected

Document History:

Dr. Xiaohua Li prepared on 08/01/2011, modified on 08/15/2012; 06/11/2014