

Instructor: Xiaohua Li
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Lecture Time: Monday & Wednesday 12:30 p.m.-2:20 p.m. room NTDP B190
Office Hours: MTWTH: 3:00 p.m.-5:00.p.m plus open office policy

Required Textbook: Fundamentals of Engineering Thermodynamics, 8th or 7th edition
M. J. Moran, H. N. Shapiro, D. D. Boettner and M.B. Bailey
ISBN-10: 0470495901 (7th edition); ISBN-13: 978- 0470495902 (7th edition)
ISBN-13: 978-1118412930 (8th edition); ISBN-10: 1118412931 (8th edition)

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 and Exergetic efficiency, Gas power cycles (Otto Cycle, Diesel Cycle, Brayton Cycle and modified Brayton Cycle), Gas mixtures and Psychrometrics. The basic laws and concepts of classical thermodynamics are reviewed as their use is encountered in the course.

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
6. Be able to analyze A/C systems using Psychrometric chart

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 (7)	10%	≥ 90	A
Quizzes (highest 3/4)	10%	80-89.9	B
Exam #1 (Ch 7 only)	25%	70-79.9	C
Exam #2 (Ch 9 only)	25%	60-69.9	D
Final (Exam #3) (Ch 12 only)	25%	< 60	F
Attendance (5/6)	5%		
Total	100%		

Homework Policy:

1. Homework should be turned in on the due day before the lecture starts. **NO late homework will be collected, NO EXCEPTIONS**
2. Definition of “late”: when class is over and 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 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 through the door 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. Homework turned in other than the due day or outside classroom must be turned in to instructor either IN PERSON or through EMAIL.
9. If homework is turned in through email, it should be scanned (or a picture by smart phone) and emailed to instructor before the class ends (3:50p.m.)
10. Homework should be stapled, instructor or TA will not be responsible for lost loose homework
11. Exceptions (late homework will be collected): medical emergency (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.

Exam and Quiz Policy:

- (1) Quizzes are open book and open notes
- (2) **Exams are closed book and closed notes with formula sheets.**
- (3) Formula sheets could be maximum 5 pages on top of instructor’s handouts, A4 or letter size, both sides
- (4) Student is responsible for preparing his/her own formula sheet

- (5) 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 MEE department and university.
- (6) Formula sheets must be turned in with the exam papers (in the case of formula sheets were not checked by the instructor during the exam). Student who failed to follow this rule will score zero in the exam and this cheating matter will be reported to MEE department and university
- (7) **There will be NO make-up quiz, NO EXCEPTIONS**
- (8) **There will be NO make-up exam. Exceptions:** medical emergency (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.

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):
July 1st 2015, Wednesday 12:30 p.m.-2:20 p.m. room B190
- Exam #2: (tentative; depends on when chapter 9 is finished; Covers Ch 9 only):
July 27th, 2015, Monday 12:30 p.m.-2:20 p.m. room B190
- Exam #3 (Final):
Aug 14th, 2015, Friday, 12:30 p.m.-2:20 p.m. room B190 covers Ch 12 only

UNT Official Academic Calendar: Summer 2015 - 10W Term

Date	Event
June 8, 2015	First Class Day
July 4, 2015	Independence Day (no classes: university closed)
August 13, 2015	Last Class Day
August 14, 2015	Finals

Summer 2015 Final Exams

<i>This session...</i>	<i>Has final exams on this date...</i>
3W1	June 4, 2015
8W1	July 10, 2015
SUM	August 14, 2015
5W1	July 10, 2015
10W	August 14, 2015
8W2	July 31, 2015
5W2	August 14, 2015

Exams will meet at the same time and location assigned to the class unless other arrangements have been made.

Thermodynamics II-MEEN 3110 Topics and Tentative Schedule

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

Week	Date	Topic
#1	Jun. 8 Jun. 10	-Course Overview; Review of Thermodynamics I -Chapter 7: 7.1-7.3 Introducing Exergy; Exergy of a System
#2	Jun. 15 Jun. 17	-Chapter 7: 7.1-7.3 Introducing Exergy; Exergy of a System -Chapter 7: 7.4 Closed System Exergy Balance
#3	Jun. 22 Jun. 24	-Chapter 7: 7.4 Closed System Exergy Balance -Chapter 7: 7.5 Exergy Rate Balance for Control Volumes at Steady State
#4	Jun. 29 Jul. 1	-Chapter 7: 7.6 Exergetic (Second Law) Efficiency -Exam #1: Covers Ch 7 only
#5	Jul. 6 Jul. 8	-Chapter 9: 9.1-9.2 Engine Terminology; Otto Cycle -Chapter 9: 9.3-9.4 Diesel Cycle; Dual Cycle
#6	Jul. 13 Jul. 15	-Chapter 9: 9.5-9.6 Brayton Cycle -Chapter 9: 9.7 Regenerative Gas Turbines
#7	Jul. 20 Jul. 22	-Chapter 9, 9.8 Regenerative Gas Turbines with Reheat -Chapter 9, 9.9 Regenerative Gas Turbines with Reheat and Intercooling
#8	Jul. 27 Jul. 29	-Exam #2: Covers Ch 9 only -Chapter 12: 12.1-12.3 Describing Mixture; Evaluating properties
#9	Aug. 3 Aug. 5	-Chapter 12: 12.4-12.5 Systems Involving Mixtures; Psychrometric Principles -Chapter 12: 12.6-12.8 Psychrometric Charts; Dehumidification
#10	Aug. 10 Aug. 12	-Chapter 12: 12.8 Analyzing Air-Conditioning Processes: Evaporative cooling -Chapter 12: 12.8 Analyzing Air-Conditioning Processes: Mixing Air Streams
	Aug. 14	-Exam #3 (Final Exam): Covers Ch 12 only

Document History:

Dr. Xiaohua Li prepared on 08/01/2011, last updated on 05/28/2015