

MEEN 3110 – Thermodynamics II Spring 2020

Instructor:

Mr. Robert P Smith

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(940) 315-0450

Office: F102F

Office Hours: Tu 12:00 - 3:00 PM or by appointment

Class Schedule:

Section 1: T/Th 10:00 AM – 11:20 AM in Room: NTDP B192

Section 2: M/W 10:00 AM – 11:20 AM in Room: NTDP B158

Required Textbooks:

Fundamentals of Engineering Thermodynamics, 8th Edition, WILEY Publishing, 2014

Michael J. Moran, Howard N. Shapiro, Daisie D. Boettner, Margaret B. Bailey

ISBN-13: 978-1-118-41293-0

Catalog 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 may require group projects. Prerequisite(s): MEEN 2210 Thermodynamics I.

Required for the BS degree in Mechanical and Energy Engineering at UNT.

Course Learning Outcomes (CLO):

Upon successful completion of this course, students will be 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

Disability Policy:

All reasonable accommodations will be made to facilitate special needs. If special accommodations are required, the student must first meet with the staff of the Office of Disability Accommodation (ODA), (940) 565-4323. After meeting with that office, please contact me to discuss what accommodations will be necessary. For more information, see <http://www.unt.edu/oda>.

Attendance:

Responsibility for class attendance rests with the student. Attendance at all class meetings is expected. Five attendance surveys will be taken randomly throughout the semester and it is the student's responsibility to ensure signing the attendance survey during class. Per University policy 06.039, an absence may be excused for the following reasons: religious holy day, including travel for that purpose; active military service, including travel for that purpose; participation in an official university function; illness or other extenuating circumstances; pregnancy and parenting under Title IX; and when University is officially closed. It is the student's responsibility to provide satisfactory evidence to receive an excused absence.

Assignments:

Assignments will be posted in Canvas and are due on the date and time (beginning of class) given on the assignment. No late assignments will be accepted. An exception can be made for university excused absences and pertinent circumstances but permission must be attained from the instructor in advance and documentation may be required.

Quizzes:

Quizzes will be given during class (at any time) and the duration will vary depending on the quizzed material. They are closed book/note but pertinent formulas and tables will be provided.

Exams:

There will be two midterms and a final exam in this course.

- Formula sheets for midterms can be maximum 1 page, A4 or letter size, single side. For final exam, students can bring 2 pages (single side) of formula sheets.
- Each student is responsible for preparing his/her own formula sheets.
- Formula sheets could include anything **EXCEPT solutions to homework or examples**. Student who fail to follow this rule will score zero on the exam and this cheating matter will be reported to the department and university.
- Formula sheets must be turned in with the exam papers. Students who fail to follow this rule will score zero on the exam and this cheating matter will be reported to the department and university.
- **No cell phone usage during the exam.**
- **There will be NO make-up exams.** Exceptions: medical emergency (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. Evidence must be submitted prior to events where appropriate.

Grade Evaluation:

Assignments	10%	A – 90-100%
Midterm 1	25%	B – 80-89%
Midterm 2	25%	C – 70-79%
Final Exam	30%	D – 60-69%
Quizzes	05%	F - < 60%
Attendance	05%	

Grades in this class will **not** be curved.

Academic Integrity Standards and Consequences

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. [Insert specific sanction or academic penalty for specific academic integrity violation].

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Syllabus Changes

The Instructor reserves the right change the syllabus. Any changes will be announced in class and posted to Canvas with an accompanying email to the student's UNT email address.

Schedule

A course schedule will be uploaded to Canvas and updated as necessary.