

February 20, 2024

Thermodynamics
MECH 5310/6310 (CRN 23640/26271)
Syllabus
Spring 2024

COURSE OBJECTIVES: This course strengthens and expands understanding of thermodynamic concepts and relations, and considers their applications to chemical reactions, chemical and phase equilibrium, and compressible flow.

TIME: MW 10:30 am – 11:50 am

LOCATION: Cotton 201

INSTRUCTOR: Dr. Evgeny Shafirovich

E-MAIL: eshafirovich2@utep.edu

If you need to contact me, send me an email from your UTEP account. Do not use MS Teams!

OFFICE: A112

OFFICE HOURS: MT 1:00 pm – 2:50 pm

TEXTBOOK: Y.A. Çengel, M.A. Boles, and M. Kanoglu, *Thermodynamics: An Engineering Approach*, 10th Edition, McGraw Hill, 2019. ISBN: 978-1-266-66448-9 or 978-1-265-89997-4

BLACKBOARD: Instructor will use Blackboard for uploading lectures and other materials, updating the syllabus, and communicating with students via announcements and email.

TESTS: There are five tests with multiple-choice questions. They will be conducted in class during regular class hours. All tests are open books and notes. Use of any electronic devices is prohibited. If you want to use slides that were uploaded to Blackboard, you will need to print them before the test.

GRADING: To adjust the results of tests with multiple-choice questions to the grade-score system commonly used in the U.S. (A: 90 or more, B: 80 or more, etc.), the score in each test will be determined using the following formula:

$$\text{Score (\%)} = \left(1 + \frac{\text{Number of obtained points}}{\text{Maximum number of points}} \right) \cdot 50\%$$

The score for the course will be determined as the average of your scores in all five tests.

COURSE CALENDAR

Week	Day	Date	Topic	Chapter
1	W	1/17	Course overview. Basic concepts	1, 2
2	M	1/22	Properties of pure substances	3
2	W	1/24	Energy and mass balances	4, 5
3	M	1/29	The second law of thermodynamics	6
3	W	1/31	Entropy	7
4	M	2/5	Entropy	7
4	W	2/7	Exergy	8
5	M	2/12	<i>Review</i>	1-8
5	W	2/14	Test 1	1 - 8
6	M	2/19	<i>Review of Test 1. Thermodynamic property relations</i>	12
6	W	2/21	Thermodynamic property relations	12
7	M	2/26	Thermodynamic property relations	12
7	W	2/28	Thermodynamic property relations	12
8	M	3/4	Thermodynamic property relations	12
8	W	3/6	Gas mixtures	13
			<i>Spring Break</i>	
9	M	3/18	<i>Review</i>	12 and 13
9	W	3/20	Test 2	12 and 13
10	M	3/25	<i>Review of Test 2. Chemical reactions</i>	15
10	W	3/27	Chemical reactions	15
11	M	4/1	Chemical reactions	15
11	W	4/3	Test 3	15
12	M	4/8	<i>Review of Test 3. Chemical and phase equilibrium</i>	16
12	W	4/10	Chemical and phase equilibrium	16
13	M	4/15	Chemical and phase equilibrium	16
13	W	4/17	Test 4	16
14	M	4/22	<i>Review of Test 4. Compressible flow</i>	17
14	W	4/24	Compressible flow	17
15	M	4/29	Compressible flow	17
15	W	5/1	Test 5	17

No Final Exam

ILLNESS PRECAUTIONS

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations.

ACCOMODATIONS POLICY

The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodations, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

CAMPUS RESOURCES

UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources.

