Adnan Menderes Üniversitesi
Mühendislik Fakültesi

ME 202 THERMODYNAMICS (Section: AA01)

Spring 2019
Room 208 (Aydın Menderes Derslikleri)

Monday 13:30PM - 16:15PM

***Instructors*:** **Prof. Yunus ÇERÇİ,** **ycerci@adu.edu.tr**
Res. Asst. Orçun EKİN, **orcun.ekin@adu.edu.tr**

Week 1	***Feb 4***	Chapter 1 Introduction and Basic Concept
Week 2	***Feb 11***	Chapter 2 Energy and General Energy Analysis
Week 3	***Feb 18***	**Quiz #1** Chapter 2 Energy and General Energy Analysis
Week 4	***Feb 25***	Chapter 3 Properties of Pure Substances
Week 5	***March 4***	**Quiz #2** Chapter 4 First Law for Closed Systems
Week 6	***March 11***	**Quiz #3** Chapter 4 First Law for Closed Systems
Week 7	***March 18***	**Midterm week**
Week 8	***March 25***	**Midterm week**
Week 9	***April 1***	Chapter 5 First Law for Control Volumes
Week 10	***April 8***	**Quiz #4** Chapter 5 First Law for Control Volumes
Week 11	***April 15***	Chapter 5 First Law for Control Volumes
Week 12	***April 22***	**Quiz #5** Chapter 6 Second Law of Thermodynamics
Week 13	***April 29***	**Quiz #6** Chapter 6 Second Law of Thermodynamics
Week 14	***May 6***	Chapter 7 Entropy
Week 15	***May 13***	**Quiz #7** Chapter 7 Entropy
March 18 - 29: Midterm Exam **May 18 - June 2: Final Exam** **June 10 - 16: Make-up Exam**		

Textbook: (Required)	**Thermodynamics: An Engineering Approach,** 8th ed in SI Units Yunus A. Çengel-Michael A. Boles, McGraw-Hill Education. Pandora Kitapevi, www.pandora.com.tr; (212) 287-3169 İstanbul
Attendance:	At least 80% attendance required.
Grading:	Quizzes **(6)** 25%; Midterm **(1)** 35%, Final Exam **(1)** 40%
Office hours:	**Prof. Yunus ÇERÇİ: Tuesday 09:30 – 11:30** **Res. Asst. Orçun EKİN: Tuesday 09:30 – 11:30**
Notes:	• Textbook is required. The course is designed around the textbook, which is mandatory. • All quizzes will start at 13:30 on Mondays, and will be about 10 to 30-minutes long. • No make-up quizzes will be given regardless of excuse. You may miss one quiz without any penalty (if you take all quizzes, the lowest grade will be dropped). • Some quizzes shall be open-book or open-formula sheet, the midtherm and final will be **open-formula sheet**. No other reference material will be allowed except a dictionary.

Course Objectives:

The objective of this course is to gain a general understanding of energy, energy interactions and energy conversion processes, and to analyze and solve related real world engineering problems by applying the 1st and 2nd laws of thermodynamics.

Learning Outcomes:

1. Learning the basic concepts of thermodynamics and the properties of substances using property tables or property relations.
2. Understanding the different forms of energy, energy interactions by heat and work transfer, and the 1st law of thermodynamics.
3. Solving real world engineering problems related to energy by applying the 1st law of thermodynamics to closed and open systems like piston-cylinder devices, turbines, heat exchangers, and charging/discharging processes.
4. Understanding the 2nd law of thermodynamics and quantifying the performance of heat engines, heat pumps and refrigerators, reversible and irreversible processes, and second-law efficiency
5. Defining entropy, developing entropy change relations, and deriving the increase of entropy principle,
6. Performing 2nd law analysis of engineering processes by quantifying entropy generation.
7. Analyzing some basic thermodynamics cycles like the Otto, Diesel, Brayton cycles for power production and the vapor compression refrigeration cycle for cooling applications.