

GAZI UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

ME204 THERMODYNAMICS-II

Rules and Regulations for 2nd Semester of 2023/2024 Academic Year

Teaching Staff:

Assist. Prof. Dr. Tamer ÇALIŞIR

Credit Structure:

(3-0) ECTS: 5

Course Objectives and Related Learning Outcomes:

The course is designed for the fourth semester mechanical engineering students. The objective of the course is to give students the ability to analyze the power and cooling cycles, determine the thermodynamic properties, solve engineering problems related to the processes of psychrometrics applications and chemical and phase balance in the combustion processes of thermodynamic laws.

At the end of this course, the students will,

- Learn the methods used to calculate states and performance parameters for power and refrigeration cycles.
- Gain the ability to determine the relations among thermodynamic properties.
- Gain the ability to use equations, tables and diagrams to determine the states of gas mixtures and to learn engineering knowledge about air conditioning.
- Learn the methods to analyze systems involving combustion processes and to determine equilibrium states for chemically reacting and multiphase systems.

Textbook:

Çengel, Y.A., Boles, M.A., Kanoğlu, M., *Thermodynamics: An Engineering Approach*, 9th Ed., McGraw-Hill, 2020.

Recommended Reading:

- Moran, M.J., Shapiro, H.N., Boettner, D.D., Bailey, M.B., *Fundamentals of Engineering Thermodynamics*, 7th Ed., John Wiley & Sons, 2011.

Course Outline:

1. Vapor Power Systems.
2. Gas Power Systems.
3. Refrigeration and Heat Pump Systems.
4. Thermodynamic Relations.
5. Ideal Gas Mixtures and Psychrometric Applications.
6. Reacting Mixtures and Combustion.
7. Chemical and Phase Equilibrium.

Prerequisites:

ME203

Assessment Method:

Midterm examinations	%60
Final examination	%40

Absences:

A minimum of 70% attendance is compulsory.

GOOD LUCK