Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Mechanical Engineering Department
2024-2025 Spring Semester
SYLLABUS

Code/Name	SEC 402.1 / Refrigeration Technology
Type	Required
Credit/ECTS	6/6
Hour per Week	3 (3+0+0)
Level/Year	Undergraduate/4
Semester	Spring
Classroom	D204
Content	Vapor compression refrigeration cycle. Compressors, evaporators, condensers, and expansion devices. Refrigerants. Cooling load calculations. Refrigeration and freezing of foods. Alternative refrigeration systems such as gas, thermoelectric, and absorption refrigeration systems. Refrigeration applications and cryogenics.
Prerequisites	
Textbooks	***Primary*** I Dinçer, M Kanoğlu, *Refrigeration Systems and Applications*, 2nd ed. Wiley, 2010. ***Supplementary*** R J Dossat,, T J Horan, *Principles of Refrigeration*, 5th ed. Prentice Hall, 2002.
Objectives	• To provide an overview of refrigeration systems • To analyze various refrigeration processes • To analyze refrigeration and freezing of foods
Course Outcomes	In this course you will be able to: CO1 Illustrate main characteristics of refrigeration equipment CO2 Describe principles of refrigeration systems and refrigerants CO3 Apply mass and energy balances to various refrigeration processes CO4 Assess the parameters of food cooling and freezing CO5 Calculate refrigeration loads C06 Calculate energy consumption for refrigeration

Weekly Schedule of Topics

W	Topic
1	Introduction
2	Refrigerants
3	Refrigerants
4	Refrigeration system components
5	Refrigeration system components
6	Vapor-compression refrigeration cycle
7	Vapor-compression refrigeration cycle
8	Gas refrigeration cycle
9	Advanced refrigeration cycles
10	Gas liquefaction and cryogenics
11	Alternative refrigeration systems
12	Refrigeration and freezing of foods
13	Refrigeration and freezing of foods
14	Refrigeration load calculations

Professional Contribution	Ability to understand, select, analyze, and improve refrigeration systems

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	0	0	0	0	0	0	3	1	0	0	0
CO2	0	0	0	0	0	0	3	1	0	0	0
CO3	5	0	0	0	0	0	0	0	0	4	0
CO4	2	4	0	2	0	0	5	0	0	3	0
CO5	5	2	0	5	5	0	3	3	5	4	3
CO6	5	2	0	5	5	0	3	3	5	4	3

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Special Conditions	• Students work in groups for project and presentations.
Requirements	
Evaluation	Midterm Exam 40% Quizzes 15% Final Exam 45% Total 100%
Rubric	
Course Policy	1. Students are required to attend at least 70% of the theoretical courses and 80% of the courses with lab/application sessions including add-drop period. Otherwise, you will receive a grade of DZ. Health reports, and other official or nonofficial excuses are not accepted. 2. Be in the class on time. Late attendance may result in grade deductions. 3. English should always be used to communicate in the class. 4. Mobile phones should be switched off and put away during the class. 5. Illegal copies of the textbooks and other illegal course materials cannot be used for the classwork and exams. 6. Exam papers can only be checked within one week of grade announcement.
Cheating & Plagiarism	• Copying or letting someone copy your work on exams, assignments, or reports is cheating. • Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism. • A consequence of academic dishonesty is to receive a grade of FF for the course.

Instructor

Name/Surname	Mehmet Kanoglu	Email	mehmet.kanoglu@alanya.edu.tr
Room	228	Office Hours	Tuesday: 13:15 – 14:15 Thursday: 16:15 – 17:15

Prepared by Mehmet Kanoğlu