MM 489 Refrigeration Techniques				DEPARTMENT of MECHANICAL ENGINEERING					
Semester	**Methods of Education**							**Credits**	
	Lecture	**Recit.**	**Lab.**	**Project/Field Study**	**Homework**	**Other**	**Total**	**Credit**	**ECTS Credit**
7,8	42				25	8	75	3	3.0

Language	Turkish
Compulsory / Elective	Elective
Prerequisites	None
Course Contents	1. Refrigeration Cycles 2. Single and double vapor compression refrigeration cycle 3. Alternative refrigeration systems 4. Absorption refrigeration cycle 5. Cold storage design
Course Objectives	The explanations of the working principles of refrigeration cycles, the thermodynamic analysis of the single and double vapor compression refrigeration cycle and absorption refrigeration cycle, a cold storage design.
Learning Outcomes and Competences	Students will 1. learn the main and complimentary parts of the refrigeration systems. 2. understand how they can do the thermodynamic analysis of the single and double vapor compression refrigeration cycle and absorption refrigeration cycle. 3. determine which parameters are affecting the system performance. 4. design a cold storage.
Textbook and /or Reference	1. Yamankaradeniz R., Horuz İ., Kaynaklı Ö., Coşkun S., Yamankaradeniz N. Soğutma Tekniği ve Isı Pompası Uygulamaları. İkinci Baskı, Dora Yayıncılık, 2009.

Assessment Criteria		**If any, mark as (x)**	**Percentage (%)**
	Midterm Exams	X	30
	Quizzes	-	-
	Homeworks	-	-
	Projects	X	20
	Term Paper	-	-
	Laboratory Work	-	-
	Other	-	-
	Final Exam	X	50

Instructors	Prof. Dr. İlhami HORUZ
Week	**Subject**
1	Introduction and the basic principles of refrigeration
2	Refrigeration systems
3	Vapor compression refrigeration systems
4	Single and double vapor compression refrigeration systems
5	All components and applications of vapor compression refrigeration systems
6	Alternative refrigeration systems (Magnetic, desiccant, acoustic, thermoelectric and air cycle etc.)
7	Cryogenic refrigeration and liquefaction systems
8	Heat pumps
9	Absorption refrigeration systems and thermodynamic analysis
10	Midterm
11	Refrigerants
12	Cold storage; working principles and cooling load calculations
13	Cold storage design project
14	Cold storage design project