

MM533 Absorption Refrigeration Systems				DEPARTMENT of MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS Credit
1,2	42	-	-	-	20	8	70	3	3
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	None								
Course Contents	The introduction of Absorption Refrigeration System, the explanation of working principles, the comparison between Absorption Refrigeration System and Vapor Compression Refrigeration System, Refrigerant-absorbent solutions and comparison to each other, the properties of refrigerant-absorbent solutions, the thermodynamic analysis and simulation of the Absorption Refrigeration System, The effect of main elements on system performance, the introduction of the double-effect Absorption Refrigeration System using water-lithium bromide solution, the explanation of different types of double-effect Absorption Refrigeration Systems, the thermodynamic analysis and simulation of the double-effect Absorption Refrigeration Systems, the determination of COP values, the explanation of the Absorption Heat Transformers, the thermodynamic analysis and simulation of the thermodynamic analysis and simulation of the Absorption Heat Transformers.								
Course Objectives	Because of the rising cost of energy production, people tend to use effective and low-cost systems. In this respect, Absorption systems in comparison to Vapor Compression systems provide an alternative. The objective of this course is to explain the Absorption systems in detail and teach the design techniques.								
Learning Outcomes and Competences	Students will learn Absorption Systems and get information about how to design and also where to apply these systems.								
Textbook and /or Reference	1. Herold, K. E., et. al. Absorption Chillers And Heat Pumps. CRC Press, 1996. 2. Bogart, M. Ammonia Absorption Refrigeration in Industrial Processes, Gulf Publishing Co., 1981. 3. Yamankaradeniz, R, Horuz, I. et. al. Soğutma Tekniği ve Isı Pompası Uygulamaları. Dora Yayıncılık, 2. Baskı, 2009.								
Assessment Criteria					If any, mark as (x)			Percentage (%)	
	Midterm Exams				1			40	
	Quizzes				-			-	
	Homeworks				3			20	
	Projects				-			-	
	Term Paper				-			-	
	Laboratory Work				-			-	
	Other				-			-	
Final Exam				1			40		
Instructors	Prof. Dr. İlhami HORUZ								
Week	Subject								
1	The basics of Absorption Refrigeration Systems and working principles.								
2	The similarities and differences of Vapor Absorption Refrigeration Systems								
3	The advantages and disadvantages of Vapor Absorption Refrigeration Systems								
4	Refrigerant-absorbent types and comparison								
5	Vapor Absorption Refrigeration System thermodynamic analysis								
6	Vapor Absorption Refrigeration System thermodynamic analysis								
7	Vapor Absorption Refrigeration System simulation								
8	The effect of main component temperatures on the system performance								
9	The effect of main component temperatures on the system performance								
10	Midterm								
11	Double Vapor Absorption Refrigeration Systems; thermodynamic analysis and simulation								
12	Double Vapor Absorption Refrigeration Systems; thermodynamic analysis and simulation								
13	Vapor Absorption Heat Transformers; thermodynamic analysis and simulation								
14	Vapor Absorption Heat Transformers; thermodynamic analysis and simulation								