

MM 435 Design of Heat Exchangers				DEPARTMENT OF MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project /Field Study	Homework	Other	Total	Credit	ECTS Credit
7	42	0	-	20	11	2	75	3	3.0
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	MM 309 E								
Course Contents	Heat exchanger types and their characteristics. Classification of heat exchangers. Methods for the heat transfer analysis of heat exchangers: the heat exchanger effectiveness (ϵ) – Number of Transfer Units (NTU), the Logarithmic Mean Temperature Difference (LMTD), the temperature effectiveness (P) – Number of Transfer Units based on cold side fluid variables (NTU _c), the ratio of temperature differences (ΔT) – temperature effectiveness (P) Methods. Pressure drop and pumping power in heat exchangers. Heat exchanger fouling. Compact heat exchangers. Heat exchanger applications; condensers, evaporators, heaters, economizers and cooling towers. Regenerator types and calculations.								
Course Objectives	The objective of the course is to give the students the basics of heat exchanger analysis.								
Learning Outcomes and Competences	The students will be able to analyze heat exchangers.								
Textbook and /or Reference	Kakaç, S. ve Liu, H.,1998, “Heat Exchangers”, Selection, Rating and Thermal Design, CRC Press LLC.								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		36	
	Quizzes								
	Homeworks					X		9	
	Projects					X		10	
	Term Paper								
	Laboratory Work								
	Other					X		5	
Final Exam					X		40		
Instructors	Assist.Prof. Oguz TURGUT								
Week	Subject								
1	Classification of Heat Exchangers								
2	Classification of Heat Exchangers								
3	Basic Design Methods of Heat Exchangers								
4	Basic Design Methods of Heat Exchangers								
5	Basic Design Methods of Heat Exchangers								
6	Heat Exchanger Pressure Drop and Pumping Power								
7	Heat Exchanger Pressure Drop and Pumping Power								
8	Fouling of Heat Exchangers (Midterm I)								
9	Shell and tube heat exchangers								
10	Shell and tube heat exchangers								
11	Compact Heat Exchangers								
12	Compact Heat Exchangers								
13	Types of Application								
14	Types of Application (Midterm II)								