

MM 401 Thermal Environmental Engineering				DEPARTMENT of MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS Credit
7	42	-	-		30	18	100	3	4.0
Language	Turkish								
Compulsory / Elective	Compulsory								
Prerequisites	MM 204 E								
Course Contents	Heating systems, heating load calculations, calculations of heating installations with hot water and steam, principles of ventilation. Cooling systems, vapor compression refrigeration cycles, refrigerants, thermodynamic properties of moist air, psychrometrics, direct heat transfer processes between moist air and water, water injection washers, cooling towers. Cooling and dehumidifying coils, comfort conditions. Cooling load calculations, air conditioning, its systems and calculations								
Course Objectives	To teach applications of theoretical principles learnt from the courses of Thermodynamics, Heat Transfer and Fluid Mechanics to the design of systems and preparation of projects in heating, ventilating, cooling and air-conditioning.								
Learning Outcomes and Competences	Understanding of heating, ventilating, cooling and air-conditioning systems. Learning the methods used for the determination of system characteristics and having the ability to practice in calculations required for the projects of these systems.								
Textbook and /or Reference	1) Thermal Environmental Engineering, T.H. Kuehn, J.M. Ramsey, T.L. Threlkeld 2) Heating, ventilating and air conditioning, EFC McQuiston and J.D. Parker. 3) Kalorifer tesisatı proje hazırlama esasları, MMO yayını.								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		50	
	Quizzes					X		10	
	Homeworks								
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam					X		40	
Instructors	Assoc.Prof. Atilla BIYIKOGLU, Assist.Prof. Nureddin DINLER								
Week	Subject								
1	Introduction: Concepts of thermal environmental engineering								
2	Refrigeration: Mechanical Vapor Compression Refrigeration Cycles								
3	Refrigeration: Mechanical Vapor Compression Refrigeration Cycles								
4	Refrigeration: Mechanical Vapor Comp. Refrigeration Components and Systems								
5	Psychrometrics:Thermodynamic properties of moist air								
6	Psychrometrics: Psychrometric processes and applications								
7	Psychrometrics: Psychrometric processes and applications								
8	Heat- and Mass-Transfer Processes and Applications								
9	Heat- and Mass-Transfer Processes and Applications								
10	Heating- and Cooling-Load Calculations in Buildings								
11	Heating- and Cooling-Load Calculations in Buildings								
12	Heating- and Cooling-Load Calculations in Buildings								
13	Air- and Water-Distribution System Design								
14	Air- and Water-Distribution System Design								