	HE	AT EX	CHANGERS							
1	Course Title:	HEAT EX	KCHANGERS							
2	Course Code:	MAK402	0							
3	Type of Course:	Optional								
4	Level of Course:	First Cyc	ele							
5	Year of Study:	4								
6	Semester:	8								
7	ECTS Credits Allocated:	3.00								
8	Theoretical (hour/week):	2.00								
9	Practice (hour/week):	0.00								
10	Laboratory (hour/week):	0								
11	Prerequisites:	-								
12	Language:	Turkish								
13	Mode of Delivery:	Face to f	ace							
14	Course Coordinator:	Prof. Dr.	Akın Burak Etemoğlu							
15	Course Lecturers:	-								
16	Contact information of the Course Coordinator:	e-posta: telefon: 2	Akın B. Etemoğlu aetem@uludag.edu.tr 224 2941976 UÜMMF, Makine Müh. Blm.							
17	Website:									
18	Objective of the Course:	Upon completion, the students should be able to explain the role of the heat exchanger in industry, be able to identify the parts of the exchanger and heat exchanger performance indicators, and be able to calculate the efficiency and performance parameters of heat exchangers.								
19	Contribution of the Course to Professional Development:	Ability to identify, formulate, and solve complex engineering problems and select and apply proper analysis and modeling methods under realistic constraints and conditions.								
20	Learning Outcomes:									
		1	Use concepts and laws governing heat transfer to heat exchange.							
		2	Identify and classify the heat exchangers.							
		3	Design and analyse the heat exchangers by using LMTD and epsilon-NTU methods.							
		4	Calculate pressure drop and pumping power of the heat exchangers.							
		5	Determine and evaluate various alternatives for heat exchangers applications.							
		6								
		7								
		8								
		9								
		10								
21	Course Content:		- October 1							
\\/	Theoretical	Co	ourse Content:							
	Theoretical Principles of heat transfer		Practice							
1	Principles of heat transfer									

2	Fundamentals of heat exchangers								
3	Classification of heat exchangers, tul heat exchangers	bular							
4	Plate type heat exchangers								
5	Flow arrangements of heat exchange	ers							
6	LMTD method								
7	Applications of LMTD								
8	Repeating courses and midterm example	m							
9	epsilon-NTU method								
10	Application of epsilon-NTU method								
11	Pressure drop in heat exchangers								
12	Heat exchangers design procedure								
13	Mechanical design of heat exchange	rs							
14	Manufacturing consideration of heat exchangers								
22	Textbooks, References and/or Other Materials:		1. Thermal Design of Heat Exchangers, E.M. Smith. 2. Heat Transfer, H. Yüncü, S. Kakaç. 3. Heat Transfer, M. Kılıç, A. Yiğit. 4. Heat Exchangers, O.F.Genceli. 5. Heat Exchagers, Theory and Practice, J.Taborek, G.F.Hewitt.						
23	Assesment								
Activit	es		Number	Duration (hour)	Total Work Load (hour)				
PHE-ore	tical	2	20100	2.00	28.00				
Practica	als/Labs		0	0.00	0.00				
Sepa Sec	xam and preperation	1	60,00	10.00	10.00				
Homew			0	0.00	0.00				
FRITTIN	ution of Term (Year) Learning Activities	es to	40 ₂ 00	10.00	20.00				
Field S	tudies		0	0.00	0.00				
Contrib Midtern	nution of Final Exam to Success Grade n exams	3	0100	10.00	10.00				
Others			2	5.00	10.00				
Maase	ള്ളൂള nt and Evaluation Techniques Us	sed in the	Exam, homework, worki	ng⊵ị n ga group	12.00				
Total W	/ork Load				90.00				
Total w	ork load/ 30 hr				3.00				
ECTS (Credit of the Course				3.00				
25	CONTRIBUTION		RNING OUTCOMES JALIFICATIONS	TO PROGRAM	IME				

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16
ÖK1	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0

ÖK5	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib 1 very low 2 low ution Level:								3 Medium 4 High 5 V						5 Very	y High	