HEAT AND MASS TRANSFER											
1	Course Title:	HEAT A	T AND MASS TRANSFER								
2	Course Code:	GMD220	5								
3	Type of Course:	Compuls	ory								
4	Level of Course:	First Cyc	le								
5	Year of Study:	2									
6	Semester:	3									
7	ECTS Credits Allocated:	4.00									
8	Theoretical (hour/week):	3.00									
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.	MUHİDDİN CAN								
15	Course Lecturers:	Prof.Dr.A	kın B. ETEMOĞLU								
16	Contact information of the Course Coordinator:	e-posta: telefon: (adres: U	can@uludag.edu.tr) 224 2941957 ÜMF, Makine Müh. Bölümü								
17	Website:										
18	Objective of the Course:	The prim about he application 1. To trais and mas 2. To pro- ethical eff	hary objective of this course is to give students knowledge eat and mass transfer operations in real-world engineering ons. in students in understanding of the basic principles of heat as transfer applications. Divide knowledge about economical, environmental and effects of heat and mass transfer operations								
19	Contribution of the Course to Professional Development:										
20	Learning Outcomes:										
		1	Define and calculate heat conduction problems								
		2	Define and solve heat convection problems								
		3	Calculate radiation problems								
		4	Calculate thermo-physical properties of foods.								
		5	Define drying operations.								
		6	Design and analyse the thermal systems								
		7	Present solutions in clear and understandable way.								
		8									
		9									
		10									
21	Course Content:										
		Co	urse Content:								
Week	Theoretical		Practice								
1	Introduction, course objectives, moti application areas of heat and mass operations in food engineering.	vation, transfer									
2	Modes of heat transfer.										

3	Introd condu	roduction to heat conduction. General heat nduction equation																
4	Stead	eady-state heat conduction.																
5	Trans analys	ansient heat conduction. Lumped systems alysis.																
6	Trans walls,	Insient heat conduction in large plane Ils, long cylinders and spheres.																
7	Therm	no-p	ohysic	al pro	pertie	s of foo	ods. Q	uiz-1										
8	Midter	rm (exam															
9	Physic layer. Dimer	cal Lar nsic	mech miner onless	anism and tu numb	of co urbule ers (N	nvectio nt flows Nu, Re,	on. Bo s. Pr, G	undar ir, St).	У									
10	Differe mome	enti entu	al cor Im an	vectio d ener	n equ gy). E	ations xterna	(mass I conv	s, ectior	۱									
11	Intern	al c	onveo	ction. I	Vatura	al conv	ection	•										
12	Radia	tior	heat	transf	er.													
13	Mass	trar	nsfer	orincip	les.													
14 Drying theory.																		
22 Textbooks, References and/or Other Materials: Activites									1. Ya 2. Mc 3. Ma	KILIÇ, yınevi Y.A.Çe Graw- F.P. In ass Tra Numb	M., Yİ , Bursa engel, I Hill. Si croper ansfer. oer	ĞİT, A. I, 467 Heat Tr ngapor a, D.P. John W	2004. I s. ansfer - e, 932 r DeWitt /ilev an Dura	SI TRA - A Pra o. , Fund d Sons ition (Rİ, Alfa Approach, als of Heat and 80 p. Total Work Load (hour)			
Theore	tical						R		ŀ	14			3.00	3.00 42.00				
Practicals/Labs)			0.00	0.00 0.00				
Quiz Self stu	idy and	d pr	epera	tion			1			120			1.50	1.50			18.00	
 Homew	orks		<u>.</u>				^		8	3			4.00			32.00		
Final E	xam s						1		ю	6000				0.00			0.00	
Field St	tudies									0				0.00			0.00	
Midteln	ontribution of lerm (Year) Learning Activities to									40100				8.00			8.00	
Others	Cess Grade									1				8.00			8.00	
Final E	I Exams									i			10.00	10.00 10.00				
Total W	Total Work Load									<u> </u>				118.00				
Measw	Heasurement and Evaluation Techniques Used in the													3.93				
ECTS Credit of the Course															4	4.00		
25	25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRA QUALIFICATIONS																	
	P	Q1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16	
ÖK1	4		5	4	3	3	1	1	2	2	2	1	0	0	0	0	0	
ÖK2	4		5	4	3	3	1	1	2	2	2	1	0	0	0	0	0	
ÖK3	4		5	4	3	3	1	1	2	2	2	1	0	0	0	0	0	
ÖK4	4		5	4	3	3	1	1	2	2	2	1	0	0	0	0	0	

ÖK5	4	5	4	3	3	1	1	2	2	2	1	0	0	0	0	0
ÖK6	3	5	5	3	3	1	1	2	2	2	1	0	0	0	0	0
ÖK7	1	1	1	1	3	4	4	2	2	2	1	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	ontrib 1 very low tion evel:			2 low		3 Medium		4 High		5 Very High						