EQULIBRIUM OF MASS AND ENERGY									
1	Course Title:	EQULIB	RIUM OF MASS AND ENERGY						
2	Course Code:	GMD2216							
3	Type of Course:	Compuls	SOFY						
4	Level of Course:	First Cyc	sle						
5	Year of Study:	2							
6	Semester:	4							
7	ECTS Credits Allocated:	4.00							
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 face							
14	Course Coordinator:	Prof. Dr. AKIN BURAK ETEMOĞLU							
15	Course Lecturers:	Yrd.Doç.Dr. Erhan PULAT							
16	Contact information of the Course Coordinator:	e-posta: aetem@uludag.edu.tr telefon: 0 224 2941976 adres: UÜMMF, Makine Müh. Bölümü							
17	Website:								
18	Objective of the Course:	Teaching	g of fundamental principles of heat and mass balance.						
19	Contribution of the Course to Professional Development:								
20	Learning Outcomes:								
		1	Application of mass and energy conservation to open systems.						
		2	Analysis of vapour compression refrigeration and heat pump cycles and comprehension of these cycles in food processes.						
		3	Application of mass and energy conservation principals to ideal gas mixtures.						
		4	Learning of moist air thermodynamics and usage of psychrometric diagram for possible application areas in food engineering.						
		5	Calculate convective mass transfer rates in food engineering processes.						
		6	Calculate transient mass transfer rates in food engineering processes.						
		7							
		8							
		9							
		10							
21	Course Content:								
		Co	burse Content:						
Week	Theoretical		Practice						
1	Introduction to open system analysis	3							
2	Steady State Steady Flow (SSSF) p and some engineering applications	rocesses							

3	Uniform State Uniform Flow (USUF) processes and examples from application areas	ation								
4	Analysis of vapour compression refrig and heat pump cycles	geration								
5	Ideal gas mixtures and models applie mixtures	ed these								
6	Gas-water vapour mixtures, psychror and thermodynamics of moist air	netry								
7	Mass and energy balance in moist air processes and designation of these processes on the psychrometric diag	r ram								
8	Review of the preview subjects, midte	ərm								
9	Principles of mass transfer, diffusion, law	Fick's								
10	Analogy between heat and mass tran	nsfer								
11	Mass convection and applications									
12	Mixtures, Henry law									
13	Transient mass transfer									
14	Heat exchangers									
	Taythacka Deferences and/or Other		4	Mühandialik Tarmadir	amižin Tomollori (
22	Materials:		R. Yamankaradeniz, Nobel Yayın Dağıtım, Ekim 2004, Ankara.							
Activit	es			Number	Duration (hour)	Total Work Load (hour)				
Theore	tical		D€	ərneği Yayınları, 2011 Mühəndiəlik Xəklasım	Ankara.	28.00				
Practic	als/Labs		4	0	0.00	0.00				
Self stu	dy and preperation		Y 5	ayincilik 3. Basim, Eki	n 2000, Islanbul. Raineering P. P. S	28,00 D R				
Homew	vorks			4	5.00	20.00				
Project	8		o. Ki	Introduction to Food F Over Academic/Plenu	nocess Engineenni M.Publishers, 2003					
Field S	tudies			0	0.00					
Merthart	EAXENING ACTIVITIES	NUMBE	W	ÉIGHT	10.00	10.00				
Others				2	10.00	20.00				
Final F	xams	1	<u>э</u> р	1	12.00	12.00				
Total W	Vork Load					118.00				
Total w	ork load 30 hr	4				3.93				
ECTS (Credit of the Course					4.00				
Total		8	10	0.00						
Contrib Succes	oution of Term (Year) Learning Activitie as Grade	es to	50).00						
Contrib	oution of Final Exam to Success Grade	9	50.00							
Total			100.00							
Measu Course	rement and Evaluation Techniques Us	ed in the								
24	ECTS / WORK LOAD TABLE									

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	5	4	0	3	4	0	0	0	0	0	0	0	0	0	0	0
ÖK2	5	4	0	3	4	0	0	0	0	0	0	0	0	0	0	0
ÖK3	5	4	0	3	4	0	0	0	0	0	0	0	0	0	0	0
ÖK4	5	4	0	3	4	0	0	0	0	0	0	0	0	0	0	0
ÖK5	5	4	0	3	4	0	0	0	0	0	0	0	0	0	0	0
ÖK6	5	4	0	3	4	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	> 1 very low				2 low		3 Medium			4 High			5 Very High			