

HEAT CONDUCTION

1	Course Title:	HEAT CONDUCTION
2	Course Code:	MAK5223
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	1
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. MUHSIN KILIÇ
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	mkilic@uludag.edu.tr (0224) 294 19 53 U.Ü. MÜHENDİSLİK MİMARLIK FAK. ALİ DURMAZ MAKİNE MÜH. BÖLÜM BİNASI ODA NO DM220 16059 NİLÜFER BURSA
17	Website:	
18	Objective of the Course:	Advanced teaching of the theory of heat transfer by conduction and teaching of analytical and numerical methods for solving heat conduction problems in engineering applications are the main targets of the this lesson.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	To informed on basics principles, importance and application areas of the heat transfer with conduction
	2	Can solve the conduction heat transfer problems in steady state conditions in one or multi dimensional systems
	3	Learn the conduction heat transfer analyzing methods in transient conditions for one or multi dimensional systems
	4	To informed on fin (extended surface) applications and can calculate heat transfer from extended surfaces.
	5	Can design a system that include conduction heat transfer
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Introduction to conduction heat transfer and definition of general concepts.	

2	General differential equation of conduction heat transfer, boundary condition problems	
3	Steady state, one dimensional heat conduction in Cartesian coordinates	
4	Steady state, one dimensional heat conduction in Cylindrical coordinates	
5	Steady state, one dimensional heat conduction in Spherical coordinates	
6	Differential equation for extended surfaces	
7	Heat transfer in extended surfaces	
8	Problem solving for practice	
9	Multi dimensional heat conduction problems: Analytical, graphical and numerical solution methods.	
10	Negligible conduction thermal resistance systems in transient condition	
11	Negligible convection thermal resistance systems in transient condition	
12	The systems with convection and conduction thermal resistances in transient conditions.	
13	Problem solving for practice	
14	Problem solving for practice	
22	Textbooks, References and/or Other Materials:	1. M.Kılıç, A.Yiğit. Isı Transferi, 4. Baskı, Alfa Aktüel, Bursa,2010. 2.V.S. Arpacı. Conduction Heat Transfer, Addison Wesley, USA,1966. 3. S.Kakaç, Y.Yener. Heat Conduction, Hemisphere Publishing Corporation, USA, 1985.
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBE R
Midterm Exam		0
Quiz		0
Home work-project		6
Final Exam		1
Total		7
Contribution of Term (Year) Learning Activities to Success Grade		50.00
Contribution of Final Exam to Success Grade		50.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Measurement and evaluation are performed according to the Rules & Regulations of Bursa Uludağ University on Undergraduate Education.
24	ECTS / WORK LOAD TABLE	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	12	6.00	72.00
Homeworks	8	8.00	64.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	2.00	2.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	5	5	0	5	0	0	0	0	0	0	0	0	5	0	0
ÖK2	5	5	5	0	5	0	0	0	0	0	0	0	0	5	0	0
ÖK3	5	5	5	0	5	0	0	0	0	0	0	0	0	5	0	0
ÖK4	5	5	5	0	5	0	0	0	0	0	0	0	0	5	0	0
ÖK5	5	5	5	0	5	0	0	0	0	0	0	0	0	5	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							