FINITE ELEMENT ANALYSIS IN THERMOFLUIDS									
1	Course Title:	FINITE I	ELEMENT ANALYSIS IN THERMOFLUIDS						
2	Course Code:	MAK522	5						
3	Type of Course:	Optional							
4	Level of Course:	Third Cy	cle						
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.	İRFAN KARAGÖZ						
15	Course Lecturers:								
16	Contact information of the Course Coordinator:	Prof. Dr. Muhsin Kılıç mkilic@uludag.edu.tr Adres: Uludağ Üniversitesi Mühendislik-Mimarlık Fakültesi Ali Durmaz Makine Mühendisliği Binası DM:220 16059 Görükle/BURSA Tel: 0224 294 1953							
17	Website:								
18	Objective of the Course:	The aim of the course is to teach the basics of the finite element methods and its applications on the heat transfer and fluid flow applications.							
19	Contribution of the Course to Professional Development:								
20	Learning Outcomes:								
		1	Introduction of the basics of the finite element methods.						
		2	Heat transfer analysis with FEM can be learnt.						
		3	Fluid flow analysis with FEM can be learnt.						
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		5 6 7 8 9							
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21	Course Content:	5 6 7 8 9 10							
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Week	Theoretical	5 6 7 8 9 10 Co	ourse Content: Practice						
		5 6 7 8 9 10 Cc							

3	Elemei	nts and ional e			ions: m	nulti										
4	Element characteristics and formulation: Ritz method															
5	Element characteristics and formulation: Rayleigh-Ritz method															
6	The method of weighted residuals															
7	Repeating courses and midterm exam															
8	Formulation for the heat conduction equations						s									
9	Requirements for interpolation functions.															
10	Steady state heat conduction analysis															
11	Transient state heat conduction analysis															
12	Convection heat transfer: Governing equations, FEM formulations															
13	Convection heat transfer: Solutions algorithms, mesh structure and stability.															
14	Conve isother	ction he mal flov			Lamina	r non	-									
22	Textbooks, References and/or Other Materials:					US 2.1	 J.N. Ready. Finite Element Method, McGraw-Hill, USA,1993. R.W. Lewis, P. Nithiarasu, K.N. Seetharamu. Fundamentals of the Finite Element Method for Heat and 									
Activites					_	Fluid Flow, Wiley, USA, 2			-i	2004. Duration (hour)			Total Work Load (hour)			
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Contrib ution	1 very low	2 low	3 Medium	4 High	5 Very High
Level:					