ADVANCED GAS TURBINE THEORY AND DESIGN FUNDAMENTALS

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1	Course Title:	ADVANC FUNDAN	CED GAS TURBINE THEORY AND DESIGN							
2	Course Code:	OTO613	4							
3	Type of Course:	Optional								
4	Level of Course:	Third Cy	cle							
5	Year of Study:	2								
6	Semester:	4								
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 f	ace							
14	Course Coordinator:	Prof. Dr.	RUKİYE ERTAN							
15	Course Lecturers:	Yok								
16	Contact information of the Course Coordinator:	Prof. Dr. Ali Sürmen surmen@uludag.edu.tr +90 (224) 294 1965 Mühendislik Fakültesi Otomotiv Mühendisliăi Bölümü								
17	Website:									
18	Objective of the Course:	For the u Teaching transferri	the use of gas turbine engine/power plants in power generation ching the analysis, working principles of aircraft/jet engines, and sferring the theory for thermodynamic designs.							
19	Contribution of the Course to Professional Development:	Upon con following 1. Recog 2. Recog 3. To lea with gas	completion of this course, students are expected to have the ng knowledge and skills: cognizing the construction and basic structure of gas turbines cognizing the basic concepts and equipment of gas turbines earn about energy generation and thermodynamic relations as turbines.							
20	Learning Outcomes:									
		1	Thermodynamic principles of gas turbines							
		2	Ideal gas cycles and the simple Brayton cycle							
		3	The use of gas turbines in practical life, understanding of common problems and solutions, developing the working methodology.							
		4	Gas turbine cycles for aircraft (jet) engines							
		5	Thermodynamics of high speed fluids							
		6								
		7								
		8								
		9								
		10								
21	Course Content:									
		Co	urse Content:							
Week	Theoretical		Practice							
1	Introduction to gas turbines and gas engines	turbine								

2	Intro	ntroduction to gas turbine thermodynamics																
3	Idea	Ideal gas cycles and the simple Brayton cycle																
4	Bra	Brayton cycle with regenerator																
5	Brag inte	Brayton cycle with intercooling and intermediate heating																
6	Brayton cycle with intercooling - intermediate heating and regenerator																	
7	Gas	s turbi	ine cy	cle for	aircra	aft (jet)	engin	ies										
8	Ana	lysis	of jet /	/ aircra	aft eng	gines												
9	The	rmod	ynam	ics of	high s	peed f	luids											
10	Idea	al turb	oo jet o	cycle a	analys	sis												
11	Tur	bo-pr	op en	gines	(ideal	cycle o	calcula	ation)										
12	Des	sign p	arame	eters in	n turbi	ines												
13	Con (cor boile	npone npres ers)	ents o ssors,	f steai comb	m and ustion	gas tu cham	urbine: bers a	s Ind										
14	Proo gas	ductio turbii	on tecl nes	hnolog	gies of	f turbin	e blac	les and	1									
22	22 Textbooks, References and/or Other Materials:								1. 2. Hil 3. 19	 Gas Turbine Theory 5th Edition Elements of Gas Turbine Propulsion; Mattingly, McGraw Hill, 1996 Gas Türbinleri; Çetinkaya Y. ; Nobel Yayın Dağıtım, 1997 								
Activites							1	Number			Duration (hour)			Total Work Load (hour)				
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LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	Contrib 1 very low ution Level:			2 low			3 Medium			4 High			5 Very High			