

DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY COURSE SYLLABUS

Course Details								
Code				Acad	Academic Year			ster
EBT204				2	2			
Title				т	Α	L	ECTS	
Thermodynamics				3	2	0	6	
Language	German							
Level	Undergraduate	X	Graduate		Postgraduate			
Department / Program	Energy Science and Te	echnology						
Forms of Teaching and Learning	Face to Face							
Course Type	Compulsory		х	El	ective			
Objectives	At the end of the thermodynamics and the fundamental proc	course, st the ability cesses of th	tudents are o to think abstr nermodynamic	expected ractly in p cs.	to hav hysical i	e the models	basic ki and thu	nowledge of s to evaluate
Content	This course provides a comprehensive overview of the fundamental principles and applications of thermodynamics. Content covers topics related to understanding energy transformations and thermodynamic behavior of systems.							
Prerequisites	None							
Coordinator								
Lecturer(s)	Asst. Prof. Osman Sinan SÜSLÜ							
Assistant(s)	Rsh. Asst. Yusuf KARAKAŞ							
Work Placement	No							
Recommended or Required R	eading							
Books / Lecture Notes	 P. Stephan, KH. Schaber, K. Stephan, F. Mayinger: Thermodynamik, Grundlagen und technische Anwendungen H. D. Baehr, S. Kabelac: Thermodynamik MÜHENDİSLER İÇİN TERMODİNAMİK, Merle C. POTTER - Craig W. SOMERTON, ISBN978-605-133-548-3 							
Other Sources	 Y. A. Çengel: Thermodynamics: An Engineering Approach P. Stephan, KH. Schaber, K. Stephan, F. Mayinger: Thermodynamik, Grundlagen und technische Anwendungen H. D. Baehr, S. Kabelac: Thermodynamik K. Lucas: Thermodynamik 							
Additional Course Material								
Documents								
Assignments								
Exams								
Course Composition								



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Mathematics und Basic Sciences	45	%				
Engineering	30	%				
Engineering Design	5	%				
Social Sciences		%				
Educational Sciences		%				
Natural Sciences	20	%				
Health Sciences		%				
Expert Knowledge		%				
Assessment						
Assessment						
Activity	Count	Percentage (%)				
Activity Midterm Exam	Count 1	Percentage (%) 35%				
Activity Midterm Exam Quiz	Count 1	Percentage (%) 35%				
Activity Midterm Exam Quiz Assignments	Count 1 1	Percentage (%) 35% 20%				
Activity Midterm Exam Quiz Assignments Attendance	Count 1 1	Percentage (%) 35% 20%				
Activity Midterm Exam Quiz Assignments Attendance Recitations	Count 1 1	Percentage (%) 35% 20%				
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Activity Midterm Exam Quiz Assignments Attendance Recitations Projects Final Exam	Count 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Percentage (%) 35% 20%				

ECTS Points and Work Load

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4	Learns thermodynamic cycles.						
5	Gains knowled	Gains knowledge about ideal gas mixtures.					
6	Gains knowled	ge about comb	ustion reactions				
7	Gains knowled	ge about the st	ructure, workinរ្	g principle and c	alculation of cor	npressors and t	urbines.
8	Gains informat plants.	ion about the s	tructure, workir	g principle and o	calculation of co	olers and therm	nal power
Weekly Conter	nt						
1	Fundamentals	of thermodyna	mics				
2	First law of the	ermodynamics					
3	Second law of	thermodynamic	s and entropy				
4	Thermodynam	Thermodynamic properties of fluids and Exergy					
5	Ideal Gas						
6	Ideal Gas Mixtures and Real Gases						
7	Wet Steam						
8	Midterm Exam						
9	Humid Air						
10	Compressors						
11	Combustion						
12	Turbines						
13	Gas Power Cycles						
14	Steam Power Cycles						
15	Cooling Cycles						
16	16 Final Exam						
Contribution o	Contribution of Learning Outcomes to Program Objectives (1-5)						
	P1	P2	P3	P4	P5	P6	P7

	P1	P2	P3	P4	P5	P6	P7
1	5	4	5	5	4	5	4
2	4	5	3	4	3	4	5
3	4	5	2	5	4	5	4
4	4	5	4	4	2	5	5
5	5	4	5	4	5	4	4
6	5	4	4	5	4	2	3
7	5	4	4	5	3	2	5
Contribution Lev	Contribution Level 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High						

P1 Working with modern scientific sources.

P2 Having modern scientific knowledge and scientific analysis abilities and being able to apply them to scientific problems. P3 Having theoretical and practical skills in the area of Energy Science and Technology.



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COURSE SYLLABUS

P4 Having foreign language skills to follow the worldwide advancements in the field of Energy Science and Technology and to be able to discuss them with foreign colleagues.

P5 Having computational skills for research data analysis purposes.

P6 Having appropriate skills for academic and industrial jobs, being ready to take responsibility in working life. P7 Having knowledge about work occupational work and safety.

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Compiled by:	Asst. Prof. Osman Sinan SÜSLÜ
Date of Compilation:	