

## DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGIES **COURSE SYLLABUS**

Course Details								
Code				Acade	Academic Year		Semester	
EBT204				2	2 4			
Title	T A L ECTS							
Thermodynamics	3 2 0 6							
Language								
Level	Undergraduate	X Graduate Postgraduate						
Department / Program	Department of Ene	rgy Science an	d Technology	(German)	erman)			
Forms of Teaching and Learning	Face to Face							
Course Type	Compulsory		х	Ele	ctive			
Objectives	The main aim o and second law engineering sys in this field.	s of thermody	namics. demo	nstrate the	e fundai	mentals	of ther	mal design of
Content	Thermodynamic systems and their properties. Thermodynamic processes; work and heat interactions. Pure substances and thermodynamic properties. First Law; closed and open systems, flow processes. The Second Law; Heat machines, heat pumps and coolers. Entropy.							
Prerequisites	.,							
Coordinator	Coordinator							
Lecturer(s)								
Assistant(s)								
Work Placement								
Recommended or Required Reading								
Books / Lecture Notes	Y. A. Çengel: Thermodynamics: An Engineering Approach							
Other Sources	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								
Mathematics und Basic Sciences							% 10	)
Engineering							% 80	)



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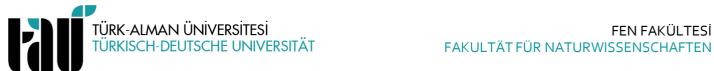
Engineering Design	% 10
Social Sciences	% 0
Educational Sciences	% 0
Natural Sciences	% 0
Health Sciences	% 0
Expert Knowledge	% 0

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	% 40
Quiz	0	% 0
Assignments	0	% 0
Attendance	0	% 0
Recitations	0	% 0
Projects	0	% 0
Final Exam	1	% 60
	Total	100

ECTS Points and Work Load							
Activity	Count	Duration	Work Load (Hours)				
Lectures	14	3	42				
Self-Study	14	5	70				
Assignments	3	10	30				
Presentation / Seminar Preparation							
Midterm Exam	1	2	2				
Recitations	14	2	28				
Laboratory							
Projects							
Final Exam	1	2	2				
	174						
	6						

Learning Outco	omes
1	To acquire sufficient knowledge about mathematics, science and mechanical engineering and to apply the theoretical and practical knowledge in these fields to model and solve engineering problems.
2	Ability to identify, define, formulate and solve complex engineering problems, and to select and apply appropriate analysis and modeling methods in mechanical engineering for this purpose.
3	Experiment design, experimentation, data collection, analysis and interpretation of results for engineering problems.
4	
5	



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6	
7	
8	
9	
10	
11	
12	

Weekly Conte	nt						
1	Systems	Systems					
2	Change of sta	Change of state					
3	Thermodynar	mic equilibriun	٦,				
4	0, 1 and 2 law	v of thermodyr	namics				
5	Thermal and	caloric equatic	ons of state of id	deal gases			
6	Thermodynar	mic properties					
7	Calculation of	Calculation of cycles and their diagrams					
8	Determinatio	on of the efficie	ncy				
9							
10							
11							
12							
13							
14							
15							
Contribution o	Contribution of Learning Outcomes to Program Objectives (1-5)						
	P1	P2	P3	P4	Р5	P6	P7
1	5	5	5	5	5	5	5
2							
3							
4							
5							



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11							
12							
Contribution Lev	Contribution Level 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High						
Compiled by:	Compiled by:						
Date of Compilat	ion:	08.03.2021					