



T.C. ESKİŞEHİR OSMANGAZİ UNIVERSITY
ARCHITECTURE AND ENGINEERING FACULTY
MECHANICAL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

SEMESTER | Fall

COURSE CODE	151815337	COURSE NAME	Engineering Thermodynamics II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAG E
5	3	0	0	3	5	COMPULSORY (X) ELECTIVE ()	Turkish
COURSE CATAGORY							
Basic Science	Basic Engineering	Mechanical Engineering Subjects [if it contains considerable design, mark with (√)]				Social Science	
		()					
ASSESSMENT CRITERIA							
MID-TERM	Evaluation Type		Quantity		%		
	Mid-Term		1		40		
	Quiz						
	Homework						
	Project						
	Report						
	Others (.....)						
FINAL EXAM				1		60	
PREREQUIEITE(S)							
COURSE DESCRIPTION		Exergy analysis in engineering systems, gas power cycles, vapour power cycles and refrigeration cycles..					
COURSE OBJECTIVES		To give students detailed knowledge about basic concepts of thermodynamics, put their skills about thermodynamics principles into engineering systems					
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION		The students will be capable to analyze energy cycled systems and power plant, understand losses, calculate efficiencies and also follow and understand the new developments in the power plant technology area, and put their skills in practice in the field of power plant technology.					
COURSE OUTCOMES		1. Analyses the exergy. 2. Calculate vapor power cycles. 3. Comprehends heat and power generation. 4. Analyses gas-vapour power cycles. 6. Distinguishes and calculates refrigeration cycles and systems. 7. Have knowledge about gas cycles					
TEXTBOOK		Yunus Ali Çengel ve Michael A. Boles, Çeviri Editörü: Ali PINARBAŞI, "TERMODİNAMİK, Mühendislik Yaklaşımıyla", 5. Baskı, İzmir Güven Kitabevi, 2008.					
OTHER REFERENCES		Aksel Öztürk ve Abdurrahman Kılıç, " Termodinamik Problemler ", Seç Kitap Dağıtım, 1987. Claus Borgnakke and Richard E. Sonntag, " Thermodynamic and Transport Properties ", John Wiley & Sons, Inc., 1997.					
TOOLS AND EQUIPMENTS REQUIRED							

COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction to Engineering Thermodynamics-II. Vapor power cycles, Carnot and Rankine cycles.
2	Exergy
3	Exergy analysis of closed systems and control volumes
4	Gas power cycles.
5	Analysis of second law for gas-vapour cycles
6	Vapour power cycles
7	Vapour power cycles
8	Mid-Term Examination
9	Mid-Term Examination
10	Refrigeration systems
11	Refrigeration systems
12	Thermodynamic property relations.
13	Thermodynamic property relations.
14	Thermodynamic property relations.
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and Mechanical engineering; an ability to apply theoretical and practical knowledge on solving and modeling of Mechanical engineering problems.	X		
2	Ability to determine, define, formulate and solve complex Mechanical engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			X
4	Ability to develop, select and use modern methods and tools required for Mechanical engineering applications; ability to effective use of information technologies.			X
5	In order to investigate Mechanical engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.		X	
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		X	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		X	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility	X		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			X
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			X
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by: Prof. Dr. Haydar ARAS

Date: 13/11/2017

Signature(s):