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

COURSE INFORMATION FORM

SEMESTET	FALL

COURSE CODE	151815359	DERSİN ADI	Engineering Thermodynamics - II

SEMESTER	WEEKLY COURSE PERIOD			DERSİN			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	Language
5	3	0	0	3	6	Compulsory (X) Elective ( )	Turkish

COURSE CATAGORY			
Basic Science	Basic Engineering	Mechanical Engineering [if it contains considerable design, mark with (□)]	Social Science
	X		

DEĞERLENDİRME ÖLÇÜTLERİ			
	Evaluation type	Quantity	%
MID-TERM	Mid-Term	1	40
	Quiz		
	Homework		
	Project		
	Report		
	Others		
FINAL EXAM		1	60

PREREQUIEITE(S)	
COURSE DESCRIPTION	II. Law analysis of engineering systems, gas power plants, steam power plants, refrigeration cycles and air conditioning
COURSE OBJECTIVES	The aim of this course is to teach the basic application areas of thermodynamics and to apply the principles of thermodynamics to related engineering systems.
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	To gain the skills to analyze energy conversion systems, thermal power plants, to understand losses, to calculate their efficiency and to understand, comprehend, monitor and apply technologies in these fields.
COURSE OUTCOMES	1. Makes availability analysis, 2. Analyzes steam power cycles 3. Comprehends heat and power production. 4. Analyzes gas-steam power cycles. 5. Knows and calculates refrigeration cycles, refrigeration systems. 6. Analyzes the air conditioning systems
TEXTBOOK	ÇENGEL, Yunus A, ve BOLES, Micheal A., Türkçesi: DERBENTLİ, Taner, "Mühendislik Yaklaşımıyla Termodinamik", 1. Basım McGraw – Hill Literatür Yayıncılık, 1996
OTHER REFERENCES	VAN WYLEN, Gordon J. And SONNTAG, Richard E., "Fundamentals of Classical Termodynamics", 2nd Ed., John Wiley & Sons, Publ. Corp., 1978 BORGNAKKE, Claus. SONNTAG, Richard E., "Thermodynamics and Transport Properties"., John Wiley & Sons, Inc.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	**TOPİCS**
1	Introduction to the Thermodynamics, Reversible Work, Irreversibility
2	Exergy-Available Energy, Problems About Irreversibility and Availability
3	II. Law Analysis of Closed and Steady State Steady Flow Systems
4	Gas Power Plants
5	Gas Power Plants
6	II. Law Analysis of Gas Power Plants
7	Steam Power Plants
8	Mid-term
9	Steam Power Plants
10	II. Law Analysis of Steam Power Plants
11	Refrigeration Cycles
12	Refrigeration Cycles
13	Air Conditioning
14	Air Conditioning
15,16	Final Exam

S/N	OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	X		
2	Ability to determine, define, formulate and solve complex 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 constrains 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 engineering applications; ability to effective use of information technologies.			X
5	In order to investigate 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:** 16.06.2021

Signature (s):