



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

**COURSE INFORMATION FORM**

<b>SEMESTER</b>	Fall
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<b>COURSE CODE</b>	151817629 151837629	<b>COURSE NAME</b>	Computer Aided Thermal System Design I
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY ( ) ELECTIVE (X)	Turkish

**COURSE CATAGORY**

<b>Basic Science</b>	<b>Basic Engineering</b>	<b>Engineering Subjects</b> [if it contains considerable design, mark with (√)]	<b>Social Science</b>
		(X)	

**ASSESSMENT CRITERIA**

	Evaluation Type	Quantity	%
<b>MID-TERM</b>	Mid-Term		
	Quiz		
	Homework	3	%25 (%5+%10+%10)
	Project	2	%40 (%20+%20)
	Report		
	Others (.....)		
<b>FINAL EXAM</b>	Project	1	35

<b>PREREQUIEITE(S)</b>	Fluid Mechanics, Heat Transfer, Thermodynamics I and II
<b>COURSE DESCRIPTION</b>	Elements of computer-aided design, business and scientific software, systems and / or mathematical and numerical modeling and simulation of heat transfer equipment, systems and / or equipment-system optimization, optimization methods. Commercial use of ANSYS software, and the software used in the numerical modeling to design projects
<b>COURSE OBJECTIVES</b>	Systems modeling, simulation and optimization of methods encountered in industrial and thermal processes using computers in connection with the use and simulation of ANSYS software.
<b>ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION</b>	Thermal Design with the help of computer support required to gain knowledge and skills to make system design
<b>COURSE OUTCOMES</b>	1- Thermal system design planning, formulation and organization, 2-To question, to optimize the existing systems and to simulate, develop and re-design, 3-Design, interpret, and present the designs and to report in writing
<b>TEXTBOOK</b>	Bilgisayar Destekli Isıl Sistemler Tasarımı, Ders Notları, Prof. Dr. Zekeriya ALTAÇ (2003). Örneklerle ANSYS MODELLEME, Ders Notları, Prof. Dr. Zekeriya ALTAÇ (2004).
<b>OTHER REFERENCES</b>	Various Heat Transfer, Thermodynamics, Fluid Mechanics and Thermal Design textbooks
<b>TOOLS AND EQUIPMENTS REQUIRED</b>	Computer lab and datashow

## COURSE SYLLABUS

WEEK	TOPICS
1	Engineering Communication Tools: Meeting Techniques, Presentations, Technical Report Writing
2	Basic Elements of Design
3	Computer Aided Design concept and elements
4	Modeling of Thermal Systems theory (thermodynamics, fluid mechanics and heat transfer, basic concepts reminder)
5	Numerical Modeling and Simulation (theory and applications)
6	How to model systems with ANSYS
7	ANSYS modeling applications: Lab projects
8	Mid-Term Examination
9	Mid-Term Examination
10	ANSYS modeling applications: Lab projects
11	ANSYS modeling applications: Lab projects
12	Two dimensional flow and heat transport examples with ANSYS
13	Two dimensional flow and heat transport examples with ANSYS
14	Three dimensional flow and heat transport examples with ANSYS
15,16	Final Exam

NO	PROGRAM 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: Yrd. Doç. Dr. Zerrin SERT

Date: 13.11.2017

Yrd. Doç. Dr. Çisil TİMURALP

Signature(s):