



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

**COURSE INFORMATION FORM**

<b>SEMESTER</b>	Spring
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<b>COURSE CODE</b>	151818631	<b>COURSE NAME</b>	HEAT EXCHANGER DESIGN – II
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAG E
8	3	-	-	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>
		(√)	

**ASSESSMENT CRITERIA**

	Evaluation Type	Quantity	%
<b>MID-TERM</b>	Mid-Term		
	Quiz		
	Homework		
	Project	2	60
	Report		
	Others (.....)		
<b>FINAL EXAM</b>		1	40

<b>PREREQUIEITE(S)</b>	
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<b>COURSE DESCRIPTION</b>	Introducing and classification of heat exchangers, designing method. Evaporators and condensers, detect the size of the condensers and evaporators, application area and designing correlations. Compact heat exchangers, detection of application area and size.. Prices, costs and market sharing of condensers and evaporators. Examination of heat exchangers in terms of environmental security and sustainability and engineering ethic.
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<b>COURSE OBJECTIVES</b>	Dejection of suitable condenser/evaporator for a process, become skillful at basic design, knowledge and ability to perform specially designed condenser/evaporator and compact heat exchanger.
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<b>ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION</b>	Skills to detect the area of condensers/evaporators that can be used in terms of energy saving. Selection and designing of heat exchangers for a special process.
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<b>COURSE OUTCOMES</b>	Students taking this course; 1. Classify and distinguish condensers/evaporators 2. Calculate surface heat transfer surface area condensers/evaporators 3. Detect what kind of condensers/evaporators should be used. 4. Predict the durability, cost and the environmental impact of the condensers/evaporators
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<b>TEXTBOOK</b>	Robert W. Serth, Process Heat Transfer Principles and Applications, ISBN: 0123735882, Elsevier Science & Technology Books (e-book). Osman F. Genceli, Isı Değişiricileri, Birsen Yayınevi, İstanbul, 1999.
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<b>OTHER REFERENCES</b>	-HEDH Heat Exchanger Design Hand Book, Cilt 1-5, Hemisphere Pub.Corp., ISBN 3-18-41-9080-3 (VDI: Set),1983. Yogesh Jaluria, Design And Optimization of Thermal Systems, ISBN: 9780849337536, 752 pages ,(12/2007) -Türk Standartları, Eşanjörler Isı Tesisleri için, TS 1996/Nisan 1975, UDC 66.015.1:621.613.2 , Ankara
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<b>TOOLS AND EQUIPMENTS REQUIRED</b>	
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## COURSE SYLLABUS

WEEK	TOPICS
1	Introducing and classification of heat exchangers
2	Modeling of heat exchangers
3	Modeling of heat exchangers
4	Condensers and evaporators
5	Condensers and evaporators
6	Design correlations for condensers and evaporators
7	Air cooled condensers
8	Mid-Term Examination
9	Mid-Term Examination
10	Water cooling evaporators
11	Air cooling evaporators
12	Compact heat exchangers
13	Compact heat exchangers
14	Compact heat exchangers
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. Bahadır Doğan

**Date:** 13.11.2017

**Signature(s):**