



**ESOGU ELECTRICAL - ELECTRONICS ENGINEERING DEPARTMENT
COURSE INFORMATION FORM**

Course Title	Course Code
Design Processes	151227649

Semester in Program	Number of Course Hours per Week		ECTS
	Theory	Practice	
7	1	2	3

Course ECTS Credit Distribution				
Basic Sciences	Engineering Sciences	Design	General Education	Social
	3			

Language of Instruction	Course Level	Course Type
English	Undergraduate	Required

Prerequisite	-
Objectives of the Course	Teaching the steps of engineering design process.
Brief Course Content	Design and implementation of a device or system which is subject to real constraints and conditions.

Learning Outcomes of the Course	Contributed POs	Teaching Methods *	Assessment Methods **
1 Will be able to apply design process steps on a project	1d, 2, 3, 5, 6b, 8, 9a, 11	1, 5, 11, 12, 13, 14, 15	D, E, G
2 Can design a real-constrained project	1d, 2, 3, 5, 6b, 8, 9a, 11	1, 5, 11, 12, 13, 14, 15	D, E, G
3 Can implement the project.	1d, 2, 3, 5, 6b, 8, 9a, 11	1, 5, 11, 12, 13, 14, 15	D, E, G
4			
5			
6			
7			
8			
9			
10			

*Teaching Methods 1:Lecture, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

**Assessment Methods A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	Y. Haik, T. M. Shahin, and S. Sivaloganathan, Engineering Design Process, 2nd ed. Florence, AL: Cengage Learning, ISBN: 978-0-495-66814-5, 2010.
Supplementary Resources	G. Dieter and L. C. Schmidt, Engineering Design, 5th ed. Maidenhead, England: McGraw Hill Higher Education, ISBN: 9780071326254, 2012. G. G. S. Voland, Engineering by Design, 2nd ed. Upper Saddle River, NJ: Pearson, ISBN: 9780131409194, 2003.
Necessary Course Material	-

Course Weekly Schedule	
1	Engineering design, problem definition
2	Need identification, gathering information
3	Concept generation
4	Decision making and concept selection
5	Detail design
6	Modeling and simulation
7	Risk, reliability, and safety
8	Mid-Term Exams
9	Cost evaluation
10	Design with materials
11	Design with materials
12	Design for manufacturing
13	Design for manufacturing
14	Quality and robust design
15	Legal and ethical issues
16,17	Final Exams

Calculation of Course Workload			
Activities	Count	Time (Hour)	Total Workload (Hour)
Weekly classroom time	14	3	42
Weekly study time (review, reinforcing, preparation)	14	2	28
Homework	1	10	10
Taking a quiz			
Studying for a quiz			
Oral exam			
Studying for an oral exam			
Report writing (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)	1	10	10
Mid-Term Exam			
Studying for Mid-Term Exam			
Final Exam			
Studying for Final Exam			
Total workload			90
Total workload / 30			3
Course ECTS Credit			3

Assessment	
Activity Type	%
Homework	50
Presentation	50
Final Exam	
Total	100

COURSE CONTRIBUTION TO THE PROGRAM OUTCOMES

(5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)

NO	PROGRAM OUTCOMES	Contribution
1	a. Sufficient knowledge of mathematics	
	b. Sufficient knowledge of basic sciences	
	c. Sufficient basic engineering and Electrical-Electronics engineering knowledge	
	d. Skill of applying all these knowledge and experience to complicated Electrical-Electronics engineering problems	2
2	Skill of defining, identifying, formulating and solving the complicated problems in Electrical-Electronics engineering and related areas by applying appropriate analysis and modelling methods.	2
3	Skill of designing a complicated process, system, equipment or product by applying modern design methods under realistic constraints and conditions.	5
4	To analyze and solve the complicated engineering problems:	
	a. skill of developing, selecting and applying the required techniques and devices	
	b. skill of using information technologies effectively	
5	To study the complicated on the complicated Electrical-Electronics engineering problems and research subjects:	2
	a. skill of experimental design	
	b. skill of performing the experiments, collecting the data and analyzing and interpreting the results	2
6	a. Skill of performing individual studies	
	b. Skill of performing intra and interdisciplinary and multidisciplinary teamwork and studies	5
7	a. Skill of effective oral and writing communication in Turkish	2
	b. Skill of improving and using foreign language knowledge	
	c. Skill of effective reporting, understanding the reports and preparing the design and production reports	
	d. Skill of effective presentation and giving and getting clear and understandable instructions.	
8	Awareness of the necessity of life-long learning and skill of accessing to information and following the improvements in contemporary science and technology	2
9	a. Awareness of necessity of behaving in accordance with the ethical principles and awareness of the importance of having professional ethical responsibilities	3
	b. Knowledge about legal regulations and standards of engineering	
10	a. Knowledge about project management, risk management and change management	
	b. Awareness of the significance of entrepreneurship and innovation	
	c. Knowledge about sustainable development	
11	Knowledge about the effects of engineering applications and practices on the global and social health, ecology and safety, knowledge about the current problems in relation to the working areas of Electrical-Electronics engineering; and awareness of the legal issues resulting from engineering solutions	2
12	Knowledge about modern problems in local and universal scale	

LECTURER(S)

Prepared by	Dr. İpek ÇETİNBAS			
-------------	-------------------	--	--	--

Date: 18.07.2024