



ESOGU ELECTRICAL-ELECTRONICS ENGINEERING DEPARTMENT COURSE INFORMATION FORM

Course Title	Course Code
ELECTROMAGNETIC SYSTEM DESIGN	15128xxx

Semester in Program	Number of Course Hours per Week		ECTS Credit
	Theory	Practice	
8	2	4	9

Course ECTS Credit Distribution				
Basic Sciences	Engineering Sciences	Design	General Education	Social
		9		

Language of Instruction	Course Level	Course Type
English	Undergraduate	Elective

Prerequisite	-
Objectives of the Course	To develop innovative solutions to real-world problems in the field of electromagnetics by applying design principles and engineering methodologies.
Brief Course Content	Teaching the steps of engineering design process.

Learning Outcomes of the Course	Contributed POs	Teaching Methods *	Assessment Methods **
1 Gain hands-on design experience through teamwork.	3, 4a, 4b	12	J
2 Learn and apply project management techniques.	3, 4a, 4b	14	J
3 Develop the ability to understand and redefine engineering problems.	3, 4a, 4b	10	J
4 To prepare a final project report, present a demo, and make an oral presentation.	7c, 7d	15	E,G
5			
6			
7			
8			
9			
10			
11			

***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	David K. Cheng, Field and Wave Electromagnetics, 2nd ed., Pearson, 2014.
Supplementary Resources	-
Necessary Course Material	-

Course Weekly Schedule	
1	Introduction to the course and team assignments
2	Fundamentals of electromagnetic systems.
3	Project planning and management tools
4	Project design and development
5	Project design and development
6	Project design and development
7	Project design and development
8	Mid-Term Exams
9	Project design and development
10	Project design and development
11	Project design and development
12	Project design and development
13	Project design and development
14	Project design and development
15	Final presentations and project report
16,17	Final Exams

Calculation of Course Workload			
Activities	Count	Time (Hour)	Total Workload (Hour)
Weekly classroom time	14	2	28
Weekly study time (review, reinforcing, preparation)	14	15	210
Homework			
Taking a quiz			
Studying for a quiz			
Oral exam			
Studying for an oral exam			
Report writing (Preparation and presentation time included)	1	15	15
Project (Preparation and presentation time included)	1	16	16
Presentation (Preparation time included)	1	1	1
Mid-Term Exam			
Studying for Mid-Term Exam			
Final Exam			
Studying for Final Exam			
Total workload			270
Total workload / 30			9
Course ECTS Credit			9

Assessment	
Activity Type	%
Presentation	30
Jury Exam	70
Final Exam	Jury
Total	100

COURSE CONTRIBUTION TO THE PROGRAM OUTCOMES (5: Very high, 4: High, 3: Medium, 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	Skill of identifying, defining, formulating, and solving complex problems in Electrical-Electronics engineering and related areas by selecting and applying appropriate analysis and modeling methods, while considering the relevant UN Sustainable Development Goals.	
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	5
	b. skill of using information technologies effectively	3
5	To study the complicated on the complicated Electrical-Electronics engineering problems and research subjects: a. skill of experimental design	
	b. skill of performing the experiments, collecting the data and analyzing and interpreting the results	
6	a. Skill of performing individual studies	
	b. Skill of performing intra and interdisciplinary and multidisciplinary teamwork and studies	
7	a. Skill of effective oral and written communication in Turkish and English	
	b. Skill of improving and using foreign language knowledge	
	c. Skill of effective reporting, understanding the reports and preparing the design and production reports	5
	d. Skill of effective presentation and giving and getting clear and understandable instructions.	5
8	Awareness of the necessity of life-long learning and skill of accessing to information and following the improvements in contemporary science and technology	
9	a. Awareness of necessity of behaving in accordance with the ethical principles and awareness of the importance of having professional ethical responsibilities	
	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 of the effects of engineering applications on health, environment, economy, sustainability, and safety on global and societal dimensions within the scope of the UN Sustainable Development Goals; awareness of national and international legal regulations and standards, as well as the legal consequences of engineering solutions.	
12	Knowledge about modern problems in local and universal scale	

INSTRUCTORS				
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