



# ESOGÜ Electrical-Electronics Engineering Department

**COURSE CODE:** 151227644 – 151247644

**COURSE TITLE:** Design Processes

Semester	Weekly Hours		COURSE				
	Theoretical	Practical	Credits	ECTS	Type	Language	
7	1	2	2	4	Compulsory ( x) Elective ( )	Turkish ( ) English (x)	
Write the credit (for non-credit courses weekly hours) below (If necessary distribute the credits.).							
<b>Math and Basic Science</b>		<b>Electrical Engineering</b> [mark (√) if there is high design content]		<b>General Education</b>		<b>Humanities</b>	
		2 (√)					
<b>Assessment</b>		<b>THEORETICAL-PRACTICAL COURSES</b>			<b>LABORATORY COURSES</b>		
		<b>Type</b>	<b>Number</b>	<b>%</b>	<b>Activity Type</b>	<b>Number</b>	<b>%</b>
<b>Midterm</b>		Midterm			Quiz		
		Quiz			Lab performance		
		Homework			Report		
		Project	1	50	Oral exam		
		Other (Reports )	3	50	Other (.....)		
<b>Final</b>							
<b>Makeup exam (Oral/Written)</b>		Oral					
<b>Prerequisites</b>							
<b>Brief content of the course</b>		Design and implementation of a device or system which is subject to real constraints and conditions.					
<b>Objectives of the course</b>		Teaching the steps of engineering design process.					
<b>Contribution of the course towards professional education</b>		In this course students will learn the steps of engineering design process and apply the steps on a real-constrained project					
<b>Outcomes of the course</b>		At the end of this course, Students 14) Will be able to apply design process steps on a project 15) Can design a real-constrained project 16) Can implement the project					
<b>Textbook of the course</b>		George E. Dieter Linda C. E. Schmidt “Engineering Design” McGraw Hill, 4th Ed. 2009					
<b>Other reference books</b>		Gerard Voland “Engineering by Design” Pearson, Prentice Hall, 2 <sup>nd</sup> Ed. 2004.					
<b>Required material for the course</b>		Components that will be used in the design					

WEEKLY PLAN OF THE COURSE	
Week	Topics
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	Midterm
9	Midterm
10	Cost Evaluation
11	Design with Materials
12	Design for manufacturing
13	Quality and Robust design
14	Legal and Ethical Issues
15,16	Final

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and Electrical and Electronic Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving problems of Electrical and Electronic Engineering				X
2	Ability to identify complex engineering problems in Electrical and Electronic Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.				X
3	Having skills to apply modern design methods to design a complex system, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Electrical and Electronic Engineering.	X			
4	Having skills to develop, select and apply modern techniques and tools needed for Electrical and Electronic Engineering applications, skills to use information technology effectively.				X
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of Electrical and Electronic Engineering problems				X
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.	X			
7	Communicating effectively in oral and written form both in Turkish and English.				X
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				X
9	Understanding of professional and ethical responsibility			X	
10	Information on project management, change management and risk management practices, awareness on entrepreneurship, innovation and sustainable development.		X		
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.				X

**Scale for assessing the contribution of the course to the program outcomes:**

**4: High                      3: Medium                      2: Low                      1:None**

**Name of Instructor(s):** Prof. Dr. Osman Parlaktuna

**Signature(s):**

**Date:** 23.07.2015