



# ESOGÜ Electrical-Electronics Engineering Department

**COURSE CODE:** 151224555 - 151244555

**COURSE TITLE:** Digital Systems II

Semester	Weekly Hours		COURSE				
	Theoretical	Practical	Credits	ECTS	Type	Language	
4	4	0	4	7	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>		
0		4 (√)		0	0		
<b>Assessment</b>		<b>THEORETICAL-PRACTICAL COURSES</b>			<b>LABORATORY COURSES</b>		
<b>Midterm</b>		<b>Type</b>	<b>Number</b>	<b>%</b>	<b>Activity Type</b>	<b>Number</b>	<b>%</b>
		Midterm	1	40	Quiz		
		Quiz	3	20	Lab performance		
		Homework			Report		
		Project	1	10	Oral exam		
<b>Final</b>			1	30			
<b>Makeup exam (Oral/Written)</b>							
<b>Prerequisites</b>		Oral and Written					
<b>Brief content of the course</b>		Digital Systems I					
<b>Objectives of the course</b>		Registers and register transfers, sequencing and control, memory basics, simple computer architecture, instruction set and assembly programming, input-output and communication.					
<b>Contribution of the course towards professional education</b>		The aim of the course is to teach simple computer architecture and computer design basics.					
<b>Outcomes of the course</b>		Student recognizes simple computer architecture, explains basic elements of the computer, and knows assembly programming basics and input-output communication techniques.					
<b>Textbook of the course</b>		Students; 1. recognize simple computer architecture. 2. knows simple computer design basics. 3. defines memory operations and knows memory interface. 4. recognize computer architecture and explain the operation of computer. 5. defines instruction set and knows assembly programming basics. 6. recognize input-output communication techniques.					
<b>Other reference books</b>		Logic and Computer Design Fundamentals, M.Mano and R.Kime, Prentice Hall, 2004, 4th edition.					
<b>Required material for the course</b>							

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Registers and Register Design
2	RTL, Hardware Implementations of Microoperations
3	Register Transfer Structures and Register Design
4	Microprogrammed Control
5	Microprogrammed Control Design Examples
6	Memory Basics
7	Computer Design Basics: Datapath and ALU
8	Midterm
9	Midterm
10	Single-Cycle Computer Architecture (SCCA
11	Instruction Set and Assembly Programming
12	Multiple-Cycle Computer Architecture
13	Instruction Set Architecture
14	Input-Output and Communication
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 complex 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, process, 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 to analyze and solve complex applications in Electrical and Electronic Engineering, skills to use information technology effectively.				
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of complex problems in Electrical and Electronic Engineering				
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.				
7	Communicating effectively in oral and written form both in Turkish and English. Effective report writing and understanding written reports, preparing design and manufacturing reports, making effective presentations, skills to give and receive clear and concise instructions.		X		
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				
9	Understanding of professional and ethical responsibility				
10	Information on project management, change management and risk management practices, awareness on entrepreneurship and innovation, knowledge on sustainable development.				
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.				

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

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

**Name of Instructor(s):**

**Signature(s):**

**Date:**