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.).

Math and Basic Science	Electrical Engineering [mark (√) if there is high design content]		General Education	Humanities
0	4	(√)	0	0

Assessment		THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES		
		Type	Number	%	Activity Type	Number	%
Midterm		Midterm	1	40	Quiz		
		Quiz	3	20	Lab performance		
		Homework			Report		
		Project	1	10	Oral exam		
		Other (………)			Other (………)		
Final			1	30			
Makeup exam (Oral/Written)							

Prerequisites	Oral and Written
Brief content of the course	Digital Systems I
Objectives of the course	Registers and register transfers, sequencing and control, memory basics, simple computer architecture, instruction set and assembly programming, input-output and communication.
Contribution of the course towards professional education	The aim of the course is to teach simple computer architecture and computer design basics.
Outcomes of the course	Student recognizes simple computer architecture, explains basic elements of the computer, and knows assembly programming basics and input-output communication techniques.
Textbook of the course	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. .
Other reference books	Logic and Computer Design Fundamentals, M.Mano and R.Kime, Prentice Hall, 2004, 4th edition.
Required material for the course	

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: