



ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE:151224298 – 151244298

COURSE TITLE: Digital Systems Lab.

Semester	Weekly Hours		COURSE			
	Theoretical	Practical	Credits	ECTS	Type	Language
4	0	2	1	2	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		2 (√)				
Assessment		THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES	
		Type	Number	%	Activity Type	Number %
Midterm		Midterm			Quiz	
		Quiz			Lab performance	8 70
		Homework			Report	8 30
		Project			Oral exam	
		Other (.....)			Other (.....)	
Final						
Makeup exam (Oral/Written)						
Prerequisites						
Brief content of the course		Introduction to laboratory equipments, IC gates, digital system analysis using LogicWorks/Proteus ISIS , binary and decimal system, combinational circuits, counters, sequential circuits, digital system design using HDL and Xilinx, assembly programming.				
Objectives of the course		Introduce tools and techniques used in digital circuit analysis and design. Use of combinational and sequential circuits in some applications. Teach HDL description of digital systems and assembly programming.				
Contribution of the course towards professional education		Students can employ combinational and sequential circuits in digital system design. They can use HDL in simulation and design. They know assembly programming basics.				
Outcomes of the course		Students; 1. recognize and employ the tools and techniques used in digital system design. 2. know IC gate implementation technologies. 3. describe digital system in HDL and can do simulations in Xilinx ISE. 4. know assembly programming basics.				
Textbook of the course		Logic and Computer Design Fundamentals, M.Mano and R.Kime, Prentice Hall, 2004, 4th edition.				
Other reference books		Digital Design Principles and Practice, J.F. Wakerly, Prentice Hall 2001.				
Required material for the course						

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Digital Systems Laboratory Equipments
2	IC Logic Gates
3	Digital Circuit Analysis with LogicWorks
4	Binary and Decimal Numbers
5	Combinational Circuit Design for Conversion
6	Arithmetic Circuits: Adders and Subtractors
7	Combinational Circuit Design with Multiplexers
8	Midterm
9	Midterm
10	Flip-Flops, Counters
11	Sequential Circuits
12	Combinational Circuits and HDL
13	Sequential Circuits and HDL
14	Microprocessors and Assembly Programming
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.				
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.				
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.	X			
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: