

LOGIC CIRCUITS

1	Course Title:	LOGIC CIRCUITS
2	Course Code:	EEM3103
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. FAHRİ VATANSEVER
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	Adres: Elektrik-Elektronik Mühendisliği bölümü, No:311 Tel: (224) 294 09 05 Web: http://home.uludag.edu.tr/~fahriv E-posta: fahriv@uludag.edu.tr
17	Website:	http://home.uludag.edu.tr/~fahriv
18	Objective of the Course:	Understanding principle of digital circuits and to gain ability to realize the analysis and design combinational and sequential digital circuits and use them in applications
19	Contribution of the Course to Professional Development:	Ability to perform analysis and designs of logic circuits
20	Learning Outcomes:	
	1	To gain ability to apply theoretical and practical information about digital electronics (logic circuits) for modeling and solving engineering problems
	2	To gain ability to determine, define, formulize and solve complex engineering problems which encountering in digital electronic with selecting proper analysis and modeling method
	3	To gain ability to design complex system or process which encountering in digital electronic with applying modern modeling methods under realistic circumstance
	4	To gain ability to develop select and use modern technology and equipment for digital electronic applications with using information technology in efficient way
	5	To gain ability to interpret results with collecting data and analyzing results for investigating engineering problems about digital electronics
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21	Course Content:	

	Course Content:				
Week	Theoretical		Practice		
1	Analog and digital concepts, number systems, binary codes				
2	Boolean algebra, digital logic gates, integrated circuits				
3	Simplifications of Boolean functions: Karnaugh maps, Quine McCluskey method				
4	Analysis and design of combinational logic circuits: Arithmetic circuits				
5	Analysis and design of combinational logic circuits: Comparators circuits, decoders, coders				
6	Analysis and design of combinational logic circuits: Multiplexer, demultiplexer, programmable logic devices				
7	Analysis and design of sequential logic circuits: Mealy, Moore models, flip-flops and applications circuits				
8	General review				
9	Analysis and design of sequential logic circuits: Asynchronous counters				
10	Analysis and design of sequential logic circuits: Synchronous counters				
11	Analysis and design of sequential logic circuits: Shift registers, counters, buses				
Activities			Number	Duration (hour)	Total Work Load (hour)
13	Asynchronous sequential logic circuits		14	3.00	42.00
14	Algorithmic state machines				
Practicals/Labs			0	0.00	0.00
22	Self-study, Textbooks, References and/or Other		1	Mano, M. Morris, Digital Design, 3rd Ed. Prentice-Hall, 2002	58.00
Homeworks			0	0.00	0.00
Projects			1	Literatür Yayıncılık, 2002	0.00
Field Studies			0	0.00	0.00
Midterm exams			1	22.00	22.00
Others			0	0.00	0.00
TERM LEARNING ACTIVITIES			NUMBER	WEIGHT	
Final Exams				30.00	30.00
Total Work Load					150.00
Total work load/ 30 hr			0	0.00	5.00
Quiz					
ECTS Credit of the Course					5.00
Final Exam			1	60.00	
Total			2	100.00	
Contribution of Term (Year) Learning Activities to Success Grade			40.00		
Contribution of Final Exam to Success Grade			60.00		
Total			100.00		
Measurement and Evaluation Techniques Used in the Course			Midterm and final exams		
24	ECTS / WORK LOAD TABLE				

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			