LOGIC CIRCUITS

1	Course Title:	LOGIC CIRCUITS	
2	Course Code:	BMB2005	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	2	
6	Semester:	3	
7	ECTS Credits Allocated:	7.00	
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. KEMAL FİDANBOYLU	
15	Course Lecturers:	-	
16	Contact information of the Course Coordinator:	e-posta: kfidan@uludag.edu.tr Uludağ Üniversitesi, Bilgisayar Mühendisliği Bölümü Görükle Kampüsü, 16059 Nilüfer, Bursa	
17	Website:		
18	Objective of the Course:	Comprehend the principles of digital logic circuits, gain the ability to analyze and design both combinational and sequential digital logic circuits and use them in applications.	
19	Contribution of the Course to Professional Development:	Engineering Science: 80%; Engineering Design: 20%	
20	Learning Outcomes:		
		1	Transform different base number systems to desired number system
		2	Perform arithmetic operations with binary, octal, hexadecimal and decimal number systems
		3	Describe different coding schemes used in digital systems
		4	Use Boolean algebra to analyze digital logic gates
		5	Practice simplification of Boolean functions using K-maps and Boolean theorems
		6	Implement Boolean functions using different types of logic gates
		7	Examine the analysis and design of binary adders, subtractors, multipliers and magnitude comparators
		8	Illustrate the analysis and design of decoders, encoders, multiplexers and demultiplexers
		9	Outline the analysis and design of latches, flip-flops and registers
		10	Examine the analysis and design of synchronous and asynchronous counters; Describe memory units and programmable logic devices
21	Course Content:		
	Course Content:		
Week	Theoretical		Practice

1	Digital Systems and Binary Numbers	
2	Boolean Algebra and Logic Gates	
3	Gate-Level Minimization-1	
4	Gate-Level Minimization-2	
5	Combinational Logic-1	
6	Combinational Logic-2	
7	Combinational Logic-3	
8	Synchronous Sequential Logic-1	
9	Synchronous Sequential Logic-2	
10	Synchronous Sequential Logic-3	
11	Registers and Counters-1	
12	Registers and Counters-2	
13	Memory and Programmable Logic-1	
14	Memory and Programmable Logic-2	

22	Textbooks, References and/or Other Materials:	M. Morris Mano and Michael D. Ciletti, Digital Design, 6th Global Ed., Pearson Education 2019.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Total	2	100.00

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	6.00	84.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	35.00	35.00
Others	0	0.00	0.00
Final Exams	1	49.00	49.00
Total Work Load			210.00
Total work load/ 30 hr			7.00
ECTS Credit of the Course			7.00

Success Grade

midterm and final exams

Course

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	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK2	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK3	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK4	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0

ÖK5	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK6	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK7	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK8	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK9	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0
ÖK10	5	5	5	4	1	1	1	1	1	1	1	1	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**