MICROCONTROLLERS

1	Course Title:	MICROCONTROLLERS
2	Course Code:	EMEZ201
3	Type of Course:	Compulsory
4	Level of Course:	Short Cycle
5	Year of Study:	2
6	Semester:	3
7	ECTS Credits Allocated:	4.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	2
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Öğr. Gör. Dr. Yusuf Alptekin TÜRKKAN
15	Course Lecturers:	Meslek Yüksekokulları Yönetim Kurullarının görevlendirdiği öğretim elemanları.
16	Contact information of the Course Coordinator:	basrikul@uludag.edu.tr (224)2942380
17	Website:	
18	Objective of the Course:	The purpose of this course is to provide the on microcontroller architectures and assembler language programming to understand this. We are working on Atmel AVR series of 8bit processors.
19	Contribution of the Course to Professional Development:	Nowadays, the word processor has literally entered our lives. With this course, students and professionals will truly understand the digital world. How microprocessors work, how to program. By programming with Assembler, c, c ++ languages, they will have a deep understanding of programming languages as well as microprocessors professionally.
20	Learning Outcomes:	

	1	What is mictrocontroller
	2	Embedded Coding
	3	Choosing microcontrollers or microprocessors
	4	development of hardware and embedded software
	5	Bit-level operations and calculations
	6	serial communication architecture and block structures
	7	software hardware layers between sensors and processors
	8	Architecure, RISC, CISC,RAM, ROM, EEPROM, FLASH, ALU, Registers
	9	
	10	

21	Course Content:	

Course Content:	

Week	Theoretical	Practice
1	What is Microcontroller? 8Bit Atmel AVR series RISCControllers	Led Blink coding
2	Architecure, RISC, CISC,RAM, ROM, EEPROM, FLASH, ALU, Registers	Dual led flip flop coding

3	Bit, byte, word, nibble, cycle, command cycle, and timing	Buttons and leds
4	Pheripherals & Timing,	Connecting transistor to a controller
5	routine, subroutine and Calling	simple AVR assembler coding and simulation
6	Assembler coding, Machine Coding	simple AVR assembler coding and simulation
7	Assembler coding, Machine Coding	simple subrotuine assembler coding and simulation
8	Stack	Stack test coding
9	Stack-2	push, pop coding
10	IRQ, timers	IRQ with timer
11	Uart,	Uart Communicaiton test and timing in scope
12	Simple Algorithms in an embedded systems	Simple Algorithms app.
13	Algorithms and applications	examples 1-10
14	Algorithms and applications	examples 1-10
22	Textbooks, References and/or Other Materials:	Mikroprocessors and MicroControllers-I Ögr.Gör.Basri KUL
23	Assesment	

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	30.00
Quiz	0	0.00
Home work-project	1	20.00
Final Exam	1	50.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade	50.00	
Contribution of Final Exam to Success Grade	50.00	
Total	100.00	
Measurement and Evaluation Techniques Used in the Course	Measurement and evaluation is carried out according to the priciples of Bursa uludag University Associate and Undergraduate Education Regulation.	

24	ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	0	0.00	0.00
Homeworks	11	2.00	22.00
Projects	5	4.00	20.00
Field Studies	0	0.00	0.00
Midterm exams	1	5.00	5.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			123.00
Total work load/ 30 hr			4.10
ECTS Credit of the Course			4.00

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	4	4	4	5	5	4	4	3	5	3	5	3	0	0	0	0
ÖK2	4	3	4	5	4	4	4	4	5	3	4	5	0	0	0	0
ÖK3	3	3	3	5	3	5	4	4	3	3	3	2	0	0	0	0
ÖK4	3	3	5	4	4	5	4	4	3	5	3	3	0	0	0	0
ÖK5	4	5	4	5	4	5	4	5	4	4	4	4	0	0	0	0
ÖK6	4	4	4	5	5	4	4	3	3	3	4	3	0	0	0	0
ÖK7	3	4	4	5	4	3	5	4	3	4	4	3	0	0	0	0
ÖK8	4	2	5	4	4	4	3	5	4	4	4	3	0	0	0	0
	LO: Learning Objectives PQ: Program Qualifications															
Contribution Level:	1 very low		2 low			3 Medium			4 High				5 Very High			