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. İSMET GÜCÜYENER
15	Course Lecturers:	Meslek Yüksekokulları Yönetim Kurullarının görevlendirdiği öğretim elemanları.
16	Contact information of the Course Coordinator:	İsmet GÜCÜYENER 2942349 ismetguc@uludag.edu.tr TBMYO Mekatronik Prg. Bşk. Görükle Bursa
17	Website:	
18	Objective of the Course:	In this course, aimed to gain following competencies: Choosing a microcontroller to solve a problem, solution algorithm establishing, flowchart drawing, program writing, compiling, debugging, and downloading.
19	Contribution of the Course to Professional Development:	Microprocessors are the most important part of developing technologies. Therefore, it will be useful for students to learn microprocessors so that they can easily apply new technologies and produce different solutions.
20	Learning Outcomes:	

	1	Being able to use microprocessor in the solution circuits
	2	Being able to program microprocessor
	3	Being able to use assembly commands
	4	Being able to do digital input, digital output
	5	Being able to use 7 segment display via port pins
	6	Being able to record and read data EEPROM
	7	Being able to use ADC module
	8	Being able to use graphic display with microprocessor
	9	
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Microprecessor architecture	Introduction of laboratory

2	Introduction of Editor for the Assembly language command writing and the starting point of program writing	Introduction of the ARM Cortex-M4 pins, power voltages and crystal connection
3	Ports direction determination	Application of I/O with button and LED
4	Using of addition and subtraction in program	Writing and testing the program for addition and subtraction
5	The Using of test commands	Follow-table program and 7 segment application
6	Preparing a follow table for 7 segment display	The delay subprogram application
7	Writing of delay subprograms	Timer module usage, programming and its application
8	Repeating courses, first midterm	Timer module usage, programming and its application
9	The application of timer and counter module	Counter programming and to run with button of counter program
10	Writing and reading to EEPROM	Application of the writing and reading program in EEPROM
11	ADC structure	To run of the ADC module with potentiometer
12	Reading analog data and to use in programming phase	To run of the ADC module with signal input
13	Repeating courses, Second midterm	To run of the ADC module with signal input
14	Application of microprocessor and LCD connection	Displaying requested character with LCD

22	Textbooks, References and/or Other Materials:	Course notes, ARM Cortex-M4 web site
23	Assesment	

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	2	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	3	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		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	14	2.00	28.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	16.00	16.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			120.00
Total work load/ 30 hr			4.00
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	0	1	1	3	5	4	4	2	2	5	5	0	0	0	0	0
ÖK2	2	2	2	3	5	5	3	2	4	5	5	0	0	0	0	0
ÖK3	0	1	1	3	5	5	4	4	4	5	5	0	0	0	0	0
ÖK4	0	0	2	2	5	5	3	5	5	5	5	0	0	0	0	0
ÖK5	0	0	0	1	5	5	5	4	2	3	2	0	0	0	0	0
ÖK6	0	0	5	1	5	5	5	4	2	3	2	0	0	0	0	0
ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	1	4	1	5	5	5	4	2	3	2	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