MICROPROCESSORS

1	Course Title:	MICROPROCESSORS	
2	Course Code:	BMB3005	
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):	2.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	2	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. Ahmet Emir DİRİK	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:		
17	Website:		
18	Objective of the Course:	The main objectives of the course are as follows: To provide essential knowledge of microprocessor fundamentals. To develop advanced practical skills and competency in microprocessors. To apply these skills to the full spectrum of microprocessor applications, through independent research and investigation.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Gain sufficient knowledge on microprocessors; the ability to model and solve computer vision application problems using theoretical and practical knowledge.
		2	Gain the ability to identify, model, and solve complex problems; the ability to select and apply appropriate analysis and modeling methods for these problems.
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21	Course Content:		
	Course Content:		
Week	Theoretical		Practice

1	Introduction to Embedded Systems	
2	Software Design Basics: Concurrency and Scheduling Approaches	
3	Software Engineering & HAL	
4	Cortex-M0+ Processor Core and Assembly Language	Assembly Language Text Processing
5	C Code as Implemented in Assembly Language	Toolchain Output Analysis
6	Interrupts	Measuring Interrupt Timing
7	General Purpose Digital Interfacing	Switch & Led Interfacing
8	Review	
9	Analog Interfacing – Digital to Analog Conversion, Comparator	Voltage Comparator and DAC Signal Generator
10	Analog Interfacing – Analog to Digital Conversion	Potantiometer Reading
11	Timers and PWM	Signal Generator with Precision Timing and Buffering
12	Serial Communications: Concepts and Software Structures	
13	Asychronous Serial Communications	UART Performance Analysis
14	SPI and I2C Communications	

22	Textbooks, References and/or Other	1- ARM ASSEMBLY LANGUAGE PROGRAMMING 2- ARM7TDMI Data Sheet ARM DDI 0029E (Arm döküman) 3- STM32L0x3 advanced Arm®-based (Discovery Geliştirme Kiti İşlemcisi Datasheeti) 5- UM1775 User manual Discovery kit for STM32L0 series with STM32L053C8 MCU

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	0	0.00	0.00
Projects	1	30.00	30.00
Field Studies	0	0.00	0.00
Midterm exams	1	32.00	32.00
Others	0	0.00	0.00
Final Exams	1	32.00	32.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

TERM LEARNING ACTIVITIES	NUMBE	WEIGHT
Midterm Exam	1	25.00
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		

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
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low			3 Medium			4 High			5 Very High				