COURSE DESCRIPTION FORM								
Course Code and Name	CENG477 MICROCONTROLLERS (TECH.ELECT.)							
Course Semester	7							
Catalogue Data of the Course (Course Content)	Microcontrollers, microcontroller architecture, microcontroller peripherals, high-level embedded programming and real-time operating systems							
Course Textbooks	Microprocessor 3: Core Concepts - Hardware Aspects, Wiley, 2020.							
Supplementary Textbooks	Microprocessors and Microo House Pvt. Limited, 2013.	Microprocessors and Microcontrollers (Second Edition), I.K. International Publishing House Pvt. Limited, 2013.						
Credit (ECTS)	6							
Prerequisites for the Course (Attendance Requirements)	There is no prerequisite or co-requisite for this course.							
Course Type	Technical Elective							
Language of Instruction	English	English						
Course Objectives	 Choosing the most suitable processor for the job to be done by knowing the microcontroller basic structure architecture, Being able to create an algorithm and switch to the programming language from there, Uploading the compiled program to the microcontroller Choosing a microcontroller to solve a problem and to understand how to create an embedded system with a microcontroller by creating the necessary algorithm. 							
Course Learning Outcomes	 Have knowledge about microcontrollers and microprocessors. Learns and designs processor systems such as ALU, integrated and control circuits. Writes basic programs in assembly language. Makes PIC programming applications. 							
Instruction Method (Face-to-face, Distance education etc.)	This course will only face-to-face training.							
Weekly Schedule of the Course	Week 1: Introduction to micro controllers Week 2: Microcomputer systems basics Week 3: Microprocessors and structures Week 4: ALU, recorders and control units Week 5: Computer data transmission, Week 6: Machine language Week 7: Assembly language and types Week 8: Addressing methods Week 9: Command types and assembly programming Week 10: Input-output control and applications Week 11: Integrated circuits Week 12: Control circuits Week 13: Control circuits Week 14: PIC programming							
Teaching Activities (The time spent for the activities listed here will determine the amount of credit required)	Weekly theoretical course hours: 3 Reading activities Internet search and library work Midterm and revision for midterm Final exam and revision for final exam							
		Number(s)	Weight (%)					
	Midterm exam	1	40					
Assessment Criteria	Assignment	4	20					
	Application	0	0					
	Project	0	0					
	Practice	0	0					

	Ouiz		0							
	Quiz0Final exam1		1	40						
	Total 6		100							
	Activity		Number of Weeks	Duration (Weekly Hour)		n I	End of Semester Total Workload			
Workload of the Course	Weekly theoretical course hours		14		3		42			
	Weekly prac	Weekly practical course hours		0		0		0		
	Reading activities		14		3		42			
	Internet search and library work		14		3		42			
	Designing and implementing materials		0		0		0			
	Making a report		0		0		0			
	Preparing and making presentations		0		0		0			
	Midterm and revision for midterm		1		12		12			
	Final exam and revision for final exam		1		12		12			
		Total workload						150		
	Total workload/ 25				6					
	Course Cred	Course Credit (ECTS)				+		6		
Contribution Level	No		Program Ou	itcomes		1	2	3	4	5
between Course Outcomes and Program Outcomes	1	Knowledge o engineering, o engineering;	f mathemate computing, ability to us	nematics, science, basic uting, and computer to use this knowledge in ngineering problems.				X		
	2	Ability to define, formulate and analyze complex engineering problems using basic science, mathematics and engineering knowledge and considering the UN Sustainable Development Goals relevant to the problems addressed.					x			
	3	Ability to design creative solutions to complex engineering problems; ability to design complex systems, processes, devices,					x			
	4	Ability to select, use and develop appropriate techniques, resources and modern engineering and informatics tools, including estimation and modeling, for the analysis and solution of complex engineering problems while being aware of their limitations.						х		
	5	Ability to use research methods to examine complex engineering problems or research topics in computer engineering, including reviewing the literature, designing experiments, conducting experiments, collecting data, analyzing and interpreting results.					x			
	6	Knowledge of the effects of engineering practices and the standards used in these practices on society, health and safety, economy, sustainability and environment within the scope of the UN Sustainable Development Goals; awareness of the consequences of engineering solutions in the fields of information security and law.			he					
	7	Acting in accordance with engineering professional principles and knowledge on ethical responsibility; awareness of acting								

		immentially, without discrimination				
		impartially, without discrimination on any				
		issue, and being inclusive of diversity.				
		Ability to work effectively individually and				
	8	as a team member or leader in				
		intradisciplinary and multidisciplinary teams				
		(face-to-face, remote, or hybrid).				
		Ability to conduct effective verbal and				
	9	written communication on technical issues in				
		Turkish or English, prepare reports, make				
		effective presentations and prepare software				
		documentation, considering the various				
		differences of the target audience (such as				
		education, language, profession).				
		Knowledge of business practices such as				
		project, risk and change management and				
	10	economic feasibility analysis; awareness of				
		entrepreneurship and innovation.				
		Lifelong learning skill that includes the				
		ability to learn independently and				
	11	continuously, to adapt to new and developing	X	x		
		scientific practices and technologies, and to				
		think inquisitively about technological				
		changes.				
Lecturer(s) and Contact Information	Lecturer Dr. Bilgehan Arslan					
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