



# ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE: 151225406 – 151245406

COURSE TITLE: Microcomputer Laboratory

Semester	Weekly Hours		COURSE				
	Theoretical	Practical	Credits	ECTS	Type	Language	
5	0	2	1	2	Compulsory ( x ) Elective ( )	Turkish ( ) English ( x )	
Write the credit (for non-credit courses weekly hours) below (If necessary distribute the credits.).							
<b>Math and Basic Science</b>		<b>Electrical Engineering</b> [mark (√) if there is high design content]		<b>General Education</b>		<b>Humanities</b>	
		( )					
<b>Assessment</b>		<b>THEORETICAL-PRACTICAL COURSES</b>			<b>LABORATORY COURSES</b>		
		<b>Type</b>	<b>Number</b>	<b>%</b>	<b>Activity Type</b>	<b>Number</b>	<b>%</b>
<b>Midterm</b>		Midterm			Quiz		
		Quiz			Lab performance	8	50
		Homework			Report	8	50
		Project			Oral exam		
		Other (.....)			Other (.....)		
<b>Final</b>							
<b>Makeup exam (Oral/Written)</b>							
<b>Prerequisites</b>							
<b>Brief content of the course</b>		Assembly and C language programming, simulation and debugging, digital input and output, counter and timers, interrupts, text and graphic LCD, serial communication, ADC and DAC.					
<b>Objectives of the course</b>		The aim of the course is to teach hardware and software development tools, assembly and C language programming, simulation and debugging methods, and parallel and serial interfaces.					
<b>Contribution of the course towards professional education</b>		Students can use software and hardware development tools efficiently. They can design microcomputer-based system.					
<b>Outcomes of the course</b>		Student; 1. can write assembly and C language programs. 2. can do software/hardware simulations. 3. learns debugging techniques. 4. learns different interface methods (digital, analog, parallel and serial) and can use in microcomputer-based system design.					
<b>Textbook of the course</b>		M.A. Mazidi and J.G. Mazidi, The 8051 Microcontroller and Embedded Systems, Prentice Hall 2005.					
<b>Other reference books</b>		M.J.Pont, Embedded C, Pearson Education, 2002					
<b>Required material for the course</b>		Micro C Compiler veya Keil C51 IDE					

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Laboratory Rules and Introduction to the Course
2	Introduction to Micro C/ Keil C51 IDE
3	Assembly Programming
4	C Programming
5	Digital IO -Switch and LED interface
6	Timer and Counter
7	Interrupts
8	Midterm
9	Midterm
10	Multiplexed Display
11	Text and Graphic LCD
12	Serial Communication
13	ADC and Temperature measurement
14	DAC and Signal Generation
15,16	Final

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and Electrical and Electronic Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving complex problems of Electrical and Electronic Engineering				X
2	Ability to identify complex engineering problems in Electrical and Electronic Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.		X		
3	Having skills to apply modern design methods to design a complex system, process, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Electrical and Electronic Engineering.				X
4	Having skills to develop, select and apply modern techniques and tools needed to analyze and solve complex applications in Electrical and Electronic Engineering, skills to use information technology effectively.		X		
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of complex problems in Electrical and Electronic Engineering		X		
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.		X		
7	Communicating effectively in oral and written form both in Turkish and English. Effective report writing and understanding written reports, preparing design and manufacturing reports, making effective presentations, skills to give and receive clear and concise instructions.				X
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				X
9	Understanding of professional and ethical responsibility				X
10	Information on project management, change management and risk management practices, awareness on entrepreneurship and innovation, knowledge on sustainable development.				X
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.				X

**Scale for assessing the contribution of the course to the program outcomes:**

**4: High 3: Medium 2: Low 1:None**

**Name of Instructor(s):**

**Signature(s):**

**Date:**