

School of Engineering and Natural Sciences / Computer Engineering (English)

2023 - 2024 Academic Year

MICROPROCESSORS

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
MICROPROCESSORS	COE3220530	Spring Semester	3+2	4	8
Prerequisites Courses	ELEKTRİK DEVRELERİ; MÜHENDİSLER İÇİN PROGRAMLAMA				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assist.Prof. Mustafa TÜRKBOYLARI				
Name of Lecturer(s)	Assist.Prof. Mustafa TÜRKBOYLARI				
Assistant(s)					
Aim	The aim of this course is to evaluate microprocessor architecture and design principals of microprocessor-based system design.				
Course Content	This course contains; Introduction, number systems,Computer overview - memory,Memory Design,CPU overview,iInstruction format,Addressing methods,Instruction types-I,Instruction types - II,Parallel communication interface,Serial communication interface,Subroutines,Interrupts,Stack,Coding examples and applications,Development of microprocessor based systems.				
Course Learning Outcomes		Teaching Methods	Assessment Methods		
1. Evaluates the working principle of microprocessors.		10, 12, 13, 14, 16, 17, 19, 2, 21, 5, 6, 8, 9	A		
2. Designs digital systems using microprocessors.		14, 17, 19, 21, 5, 6, 9	A		
3. Designs real-time systems.		10, 12, 14, 16, 17, 19, 6, 8, 9	A		
4. designs systems using input-output interfaces.		10, 13, 14, 16, 17, 19, 21, 5, 9	A, E		
5. designs systems using interrupts in microprocessors.		10, 12, 13, 14, 16, 17, 19, 21, 5, 6, 9	A, E		
Teaching Methods	10: Discussion Method, 12: Problem Solving Method, 13: Case Study Method, 14: Self Study Method, 16: Question - Answer Technique, 17: Experimental Technique, 19: Brainstorming Technique, 2: Project Based Learning Model, 21: Simulation Technique, 5: Cooperative Learning, 6: Experiential Learning, 8: Flipped Classroom Learning, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, E: Homework				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Introduction, number systems				
2	Computer overview - memory				
3	Memory Design				
4	CPU overview,iInstruction format				
5	Addressing methods				
6	Instruction types-I				
7	Instruction types - II				
8	Parallel communication interface				
9	Serial communication interface				
10	Subroutines				
11	Interrupts				
12	Stack				
13	Coding examples and applications				
14	Development of microprocessor based systems				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources	
1. PIC16F87XA Data Sheet	
2. MPLAB X IDE User's Guide	
3. MPLAB XC8 C Compiler User's Guide	
4. Timothy D. Green, Embedded Systems Programming with the PIC16f877.	
5. Nursel Ak, Herkes için PIC Programlama, Alfa, 2009.	