

Course Name	Course Code	semester	T + P	Credit	ECTS
Microcontroller			3+0	3	6

Prerequisite Courses	None
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Language of Course	Turkish
Course class	Technical Elective
Coordinator of Course	Yrd.Doç.Dr. Nurettin BEŞLİ
Instructor	Yrd.Doç.Dr. Nurettin BEŞLİ
Course Assistant	
Objective of Course	This course will introduce some encryption (crypto) systems. The primary objective of this course is to provide cryptology to students who are interested in cryptography.
Course Learning Output	Students who have successfully completed this course: <ul style="list-style-type: none"> <li>• Can list and describe short history submissions.</li> <li>• Describe and list the connections and practices of machine learning with other areas.</li> <li>• Learn basic algorithms and theory that constitute the structure of computational intelligence and machine learning.</li> <li>• Describe and apply appropriate machine learning techniques for classification, clustering, decision problems.</li> <li>• They can govern the principles, advantages, limitations and possible applications of machine learning.</li> </ul>
Course Contents	Basic concepts about microprocessors. Memory, working principles and types Examination. Address space and memory design. Microprocessors and basic concepts of I / O. Stop structures and cutting priority. Direct memory access. I / O interface design. Inspection of PIC 16F877 or a processor to be identified: Hardware and Software. Examination of command timelines; Circuit design and implementation of Assembly Programming as a simulation or application

Weeks	Topics
1	Basic concepts about microprocessors
2	Examination of memory, working principles and types
3	Address space and memory design
4	Basic concepts of microprocessors and I / O; I / O interface design
5	Cutting and cutting priority; Direct memory access
6	PIC 16F877 or identification of a processor to be identified: Hardware (buses, address paths, registers, memory structure etc.)
7	PIC 16F877 or identification of a processor to be identified: Hardware (buses, address paths, registers, memory structure etc.)
8	MIDTERM

9	PIC 16F877 or identification of a processor to be identified: Software (Address Modes, commands, etc.)
10	PIC 16F877 or identification of a processor to be identified: Software (Address Modes, commands, etc.)
11	Examination of command timelines
12	Introduction of Timer and use of related registers
13	Introduction and use of ADC (Analog to Digital Converter)
14	Introduction and use of Digital to Analog Converter (DAC)
15	FINAL EXAM

#### **General Sufficiency**

It is important for students to understand microprocessor and microcontroller concepts and to evaluate application developments using microprocessor circuits.

#### **References**

- Brey, B. , B. , Microprocessor/Hardware Interfacing and Applications, 1984,Merrill, 414 p.
- HAKAN KARAKAŞ, İleri PIC 16F84 Uygulamaları I
- Hikmet Şahin, PIC Programlama Teknikleri ve PIC16F877A
- Deney Föyleri
- PIC 16f877 Microchip.pdf PIC 16F877 data sheet <http://www.microchip.com>

#### **Assessment**

Midterm exam: 40%, Final exam: 60%; Project or homework evaluations may be made at the beginning of the semester.