



**Hashemite University**  
**College of Engineering**  
**Department of Mechatronics**  
**Microprocessor and Microcontroller 110405424**  
**(3 Credit Hours)<sub>1</sub>**

**Instructor**

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Office:	D3134
Office hours:	10:00 am – 11:00 am. Sun, Tues and Thurs

**Grading info**

First	25	Wed 2/20
Second	25	
Quizzes	10	Mon 4/8
Final	40	

**Class Info**

Days	Mon Wed
Time	9:30– 11:00
Location	E2022

**Course**

Course Number:	110405322
Prerequisite:	Digital Logic and Digital Electronics 110405322
Textbook:	Textbook: M Mazidi, R McMinlay, D Causey “PIC microcontroller and Embedded Systems using Assembly and C for PIC18”, 4th Edition, Prentice Hall.
Course Description (as in the catalog):	This course aims to provide the students with the ability to successfully write assembly language programs for the microcontroller through learning the Software architecture, Software development tools, the instruction set and programming techniques
Specific Outcomes of Instruction (Course Outcomes):	The student shall be able to: 1. Understand Microcontrollers History, Features, Architecture (a, j) 2. Learn how to write Assembly Language Programs (c, e) 3. Use Branch, Call, and I/O Port instructions (e ) 4. Learn Arithmetic and Logic Instructions, and Programs (a, e) 5. Learn PIC Programming in C (a,)
Important material	-

**References:**

1. Microchip Pic18EXX2
2. Brey B.B, “The Intel Microprocessors 8086/8088, 80186/80188, 80286, 80486, Pentium and Pentium Pro, Processor Architecture, Programming and Interface”, 5th Edition, Prentice-Hall, Inc.
3. Miller G.H, “Microcomputer Engineering”, 2nd Edition, Prentice-Hall, Inc

**Major Topics Covered and Schedule in Weeks:**

Topic	# Weeks	# Contact hours
1. The PIC Microcontrollers: History and Features	1	3
2. PIC Architecture & Assembly Language Programming	2,3	6
3. Branch, Call, and Time Delay Loop	4,5,6	9
4. PIC I/O Port Programming	7,8	6
5. Arithmetic, Logic Instructions, and Programs	9,10,11	9
6. Bank Switching, Table Processing, Macros, and Modules	12,13	6
7. PIC Programming in C	14,15	6
<b>Total</b>	<b>15</b>	<b>45</b>

**Course Policy**

- <b>Attendance:</b> Anyone who has more than five class-long, unexcused absences will receive an "F" grade for the COURSE.
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**Student Outcomes (SO) Addressed by the Course:**

<b>#</b>	<b><i>Outcome Description</i></b>	<b><i>Contribution</i></b>
(a)	an ability to apply knowledge of mathematics, science, and engineering	M
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	L
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	M
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	L
(j)	a knowledge of contemporary issues	L
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	

**H=High, M= Medium, L=Low**