Hashemite University
College of Engineering
Department of Computer Engineering
Assembly Language & Microprocessor Systems
(3 Credit Hours/Dept. Compulsory)

Instructor

Dr. Khalil Yousef	
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Office hours:	Sunday and Tuesday: 11-12pm Mon/Wed: 8:30 -9:30 am (only by appointment)

Grading info

Mid Exam	25%
Assignments	35%
Final	40%

Class Info

Days	Sec1:Sun/Tue/Thurs Sec2:
Time	Sec1: 09:00-10:00 Sec2:
Location	Sec1: Eng. 2008 Sec2:

Course

Course Number:	110408332
Prerequisite:	Digital Logic (0408220) & Electronics (1) (0409240)
Textbook:	**"The 8088 and 8086 Microprocessors Programming, Interfacing, Software, Hardware, and Applications",** W.A. Teriebel, A. Singh, 4th edition, 2003.
Course Description:	This course offers coverage of both software and hardware aspects of Intel 8086/8088 microprocessor. Examine internal architecture, its operation and control, the organization and interface requirements for a microcomputer system. A study of its addressing modes, instruction sets, assembly language programming and programming problems including peripheral device service routines and arithmetic operations. There will be emphasis on coding assignment and demo the results.
Specific Outcomes of Instruction (Course Learning Outcomes)	1. **Explore** architecture of an 80x86 microprocessor and the Pentium processor families SO's (1, 4) 2. **Understand** the 8088/86 microprocessor instructions and addressing modes SO (1) 3. **Analyze** and develop an assembly language programs for applications SO's (2, 3) 4. **Understand** the 8088/86 microprocessor hardware, signals, registers and bus cycles. SO's (1, 2) 5. **Explain** 8086 Instruction set and programming structures. SO (1) 6. **Develop and Design** assembly programs to manipulate graphic screen pixels. SO's (1, 2, 4, 5)
Important material	- Lecture notes, References, and Internet resources

References:

- **Barry B. Brey, 2009, The Intel Microprocessors, ..., Architecture, Programming, and Interfacing, Prentice Hall, 8th edition.**
- **Uffenbeck, J., 2002, 80x86 Family: Design, Programming and Interfacing, Prentice Hall.**

Major Topics Covered and Schedule in Weeks:

Topic	# Weeks	# Contact hours*
Introduction and history of 80x86 microprocessor group development.	1	3
Software Architecture of the 8088 & 8086 Microprocessors	2	6
Assembly Language Programming.	2	6
Machine Language Coding and the Debug Software Development Program of the IBM PC.	2	6
8088/8086 Programming – Integer Instructions and Computations.	2	6
8088/8086 Programming – Control Flow Instructions and Programming Structures.	2	6
Interrupt Programming	1	3

MASM assembler	1	3
Project assignment	1	3
Total	**14**	**42**

Course Policy

- The course will follow selected subjects as listed on the course schedule. Additional lecture notes and examples will be given and discussed in class as much as time permits.
- Students are responsible for the reading assignments from the text and handouts
- Students are responsible for following up the lecture materials
- Students are responsible for reading additional information and examples in order to understand the materials discussed in the lectures.
- If you miss class, there won't be a makeup test, quiz, etc. and you WILL get a zero unless you have a valid excuse.
- Cheating and plagiarism are completely prohibited.
- If you miss more than 15% of classes you will automatically fail the class.
- Assignments
    - There will 2 assignments: 5% and 30%.
    - You can discuss assignment with other students, but you have to code the assignment yourself.
    - For assignment 2: you will be requested to conduct a demo, and requested to modify the code in the lab. You grade will be based on your ability to perform demo and code modifications.
- Final exam is comprehensive.

ABET Student Outcomes (SO) Addressed by the Course:

#	*Outcome Description*	*Contribution*
General Engineering Student Outcomes		
(1)	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. *(Previously SO's (a, e, k))*	***H***
(2)	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. *(Previously SO's (c, k))*	***H***
(3)	An ability to communicate effectively with a range of audiences. *(Previously SO (g))*	
(4)	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. *(Previously SO's (f, h, j))*	***L***
(5)	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. *(Previously SO (d))*	***L***
(6)	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. *(Previously SO's (b, k))*	
(7)	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. *(Previously SO (i))*	

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

Prepared By: Dr. Khalil Yousef **Date: 02/09/2018**