



Hashemite University
College of Engineering
Department of Computer Engineering
Digital Logic And Microprocessor Laboratory
(1 Credit Hours/Dept. Compulsory)

Instructor

Instructor (s)	Dr. Khalil Yousef Dr. Ahmad Quttoum
Lab Supervisor	Eng. Ezya Khader
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Office:	3039
Office hours:	Announced on the Moodle

Grading info

Lab work	20%
Performance	5%
Quizzes	15%
Mid Exam	20%
Final Exam	40%

Class Info

Days	Sunday Tuesday
Time	2:00 – 5:00
Location	Eng. 1020

Course

Course Number:	110408434
Prerequisite:	Assembly Language and embedded system (110408433)
Textbook:	▪ “Digital Design,” M. Morris Mano and Michael D. Ciletti, Prentice Hall Inc., 5th Edition, 2012. ▪ "The 8088 and 8086 Microprocessors Programming, Interfacing, Software, Hardware, and Applications", W.A. Teriebel, A. Singh, 4th edition, 2003. ▪ Lab Manual given by the lab supervisor.
Course Description:	This course aims to provide students with a lab experience of digital logic and assembly language. This lab covers the following topics: logic gates, Boolean algebra, multiplexers, decoders, adders and comparators, also it's provide experiments to explore the architecture of the 8086/8088 microprocessor and how to develop assembly programs.
Specific Outcomes of Instruction (Course Learning Outcomes)	1. Identify different types of ICs (gates, decoders, multiplexers,.etc.), components , instruments and assembly debug tools. (k) 2. Design and troubleshoot logic circuits.(c, k) 3. Design and debug assembly programs.(c, k) 4. Design and conduct an experiment.(b)
Important material	- Lecture notes - Lab manual - References - Internet resources

Major Topics Covered and Schedule in Weeks:

Topic	# Weeks	# Contact hours
Exp1: Lab Introductory and Basic Logic Gates	1	3
Exp2: Boolean Algebra, DeMorgan's Theorem & K-maps	1	3
Exp3: Multiplexers And Decoders	1	3
Exp4: Adders And Comparators	1	3
Midterm Exam	1	1
Exp5: Exploring Software Architecture of the 8088 Microprocessor (1)	1	3
Exp6: Exploring Software Architecture of the 8088 Microprocessor (2)	1	3
Exp7: Addressing modes, And Arithmetic instructions	1	3
Exp8: Developing Assembly Language Programs and Executing using Emu8086	1	3

Exp9: Design an experiment	1	3
Final Practical Exam	1	5
Total	11	33

Lab Policy

- Attendance: Mandatory. No more than 15% absence is permitted.
- Entering the Class Room: You have 5 minutes to enter the class after the starting time. The door will be closed after that. Note that if you enter after the first 5 minutes you will lose the quiz if any.
- Make-ups: Make up exams will be only conducted for students who have a valid excuse for missing the exams. Bear in mind that make up will be much harder than the normal exam.
- Cell Phones: must be closed before entering the class.
- Cheating: Don't risk your semester. Be smart enough to pass.

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	An ability to apply knowledge of mathematics, science, and engineering	
(b)	An ability to design and conduct experiments, as well as to analyze and interpret data	L
(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	H
(d)	An ability to function on multidisciplinary teams	
(e)	An ability to identify, formulate, and solve engineering problems	
(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	
(j)	A knowledge of contemporary issues	
(k)	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	H

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