Philadelphia University

Faculty of Engineering - Department of Computer Engineering
Second Semester 2018/2019

Course Details:

Title:	**Microprocessors** (**630313**)
Prerequisite:	Logic Circuits (630211)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	"Assembly Language for x86 Processors," Sixth Edition, Kip R. Irvine, Prentice Hall, 2011.
References:	**Books:** **1)** The Intel microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro processor, Pentium II, Pentium III, and Pentium 4 , and Core2 with 64-bit extensions: architecture, programming, and interfacing, Barry B. Brey, 8th ed., Pearson / Prentice Hall, 2009. **2)** Assembly language for intel-based computers, Kip R. Irvine, 5th ed., Pearson Prentice Hall, 2007. **3)** Micrioprocessors and micropcomputer--based system design, Mohamed Rafiquzzaman, Universal book stall, 1996, 1997. **4)** Introduction to Assembly language programming : Pentium and RISC processors / Sivarama P. Dandamudi.— 2nd ed., Springer Science+Business Media, Inc, 2005. **Web sites:** http://datasheets.chipdb.org/Intel/x86/808x/datashts/8086/ http://www.emu8086.com/assembler_tutorial/ http://www.emu8086.com/ http://www.dailyfreecode.com/Tutorial_Page10/Assembly_Language-49.aspx
Course Description:	This course covers the basic concepts of microprocessor based systems, and introduces the assembly language for Intel microprocessor.
Website:	http://www.philadelphia.edu.jo/academics/qhamarsheh
Instructor:	Dr. Qadri Hamarsheh **Email**: qhamarsheh@philadelphia.edu.jo **Office**: Engineering building, room 6725, ext: 2235 **Office hours**: Mon, Wed: 11:00 -12:00

Course Outlines:

Week	Topic
1	Introduction to the microprocessor
2, 3	x86 Microprocessor architecture
4	x86 Hardware specifications
5, 6	Assembly Language Fundamentals: Defining Data, Symbolic Constants
7	x86 Memory Management: Addressing Modes
8	x86 Instruction set: Microprocessor Programming
9	Data-Related Operators and Directives

10, 11	Data Transfers, Addressing, and Arithmetic, Memory and I/O interfacing
12	Conditional Processing: Boolean and Comparison Instructions
13	Stack Operations
14	Procedures: Defining and Using Procedures
15	BIOS and MS-DOS Interrupts
16	Review, and final exam

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1)	Have a clear understanding of the microprocessor terminology.	[a]
2)	Be able to use the assembly language to design and write programs that use different data types, x86 Instruction set and Data-Related Operators and Directives.	[a, b, e, k]
3)	Have knowledge of x86 Microprocessor architecture and 8086 Hardware specifications.	[a]
4)	Have knowledge and programming skills of different microprocessor mechanisms and techniques such as: x86 Memory Management: Addressing Modes, I/O interfacing, Stack Operations, BIOS and MS-DOS Interrupts and Defining and Using Procedures	[a, b, c, e, k]
5)	Be able to work effectively alone or as a member of a small group working on some programming tasks.	[d, g]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams: The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.

Quizzes: (3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework and projects: Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).

Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.

Collective Participation: Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	10%
Quizzes and participation	10%
Final Exam	40%
Total:	**100%**

Attendance Regulation:

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

February, 2019