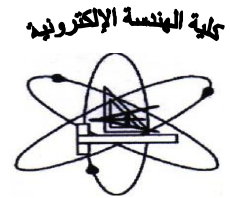


This file has been cleaned of potential threats.

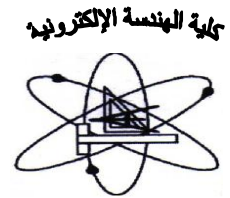
To view the reconstructed contents, please SCROLL DOWN to next page.



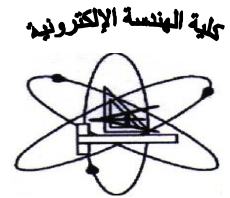
Department offering the program: Electronics and Electrical Communications Engineering
Department offering the course: Computer Sciences and Engineering

Course Specification

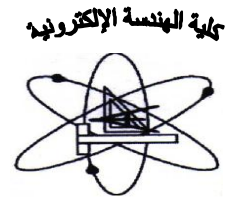
1- Course basic information :	
Course Code: CSE 217 Department requirement	Course Title: Microprocessors and Applications
Academic year: 2015-2016 Level (2) – Semester (1 st)	
Field: Computer Applications and ICT	Teaching hours: Lecture [2] Tutorial [0] Lab[2]
2- Objectives of the course	<ol style="list-style-type: none"> 1. To introduce students to Microprocessor architecture 2. To teach students addressing modes, memory interfacing, and address space. 3. To develop student skills to demonstrate Intel Microprocessors architecture. 4. To provide students with Microprocessor Instruction set. 5. To understand Interfacing Input and output devices. 6. To be familiar with Execution of In and OUT instructions. 7. To be able to explain Keyboard interfacing and scanning. 8. To develop student ability to demonstrate digital to analog converters and analog to digital converters interfacing and operation. 9. To enhance student ability to demonstrate concepts of interrupts.
3- Intended Learning Outcomes: ARS	Course ILOs
A.2 Outline basics of information and communication technology (ICT)	<p>A2.1 Outline basics of Processor architectures from Intel 8086 to Pentium.</p> <p>A2.2 Outline basics of Addressing modes, memory interfacing, and address space.</p> <p>A2.3 Outline detailed architecture of Intel Microprocessors.</p> <p>A2.4 Outline different types of instructions, instruction cycle, timing diagram, generating control signals.</p> <p>A2.5 Outline Interfacing Input and output devices, detailed pin diagrams.</p> <p>A2.6 Outline In and OUT instructions and their timing diagram, memory mapped I/O Vs I/O mapped I/O.</p> <p>A2.7 Outline basics of Keyboard interfacing and scanning.</p> <p>A2.8 Outline basics of digital to analog converters and analog to digital converters interfacing and operation.</p> <p>A2.9 Outline basic concepts of interrupts, different interrupts signals used in Intel microprocessors.</p>
A.8 Describe current engineering technologies as related to Microprocessors and Applications.	A8.1 Describe current engineering technologies as related to Processor architectures; Intel 8086 to Pentium.



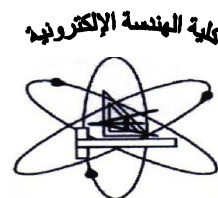
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">A- Knowledge and Understanding:</p>	<p>A.12 Outline contemporary engineering topics.</p>	<p>A8.2 Describe current engineering technologies as related to Intel Microprocessors.</p> <p>A8.3 Describe current engineering technologies as related to Digital to analog converters and analog to digital converters.</p> <p>A12.1 Outline contemporary engineering topics relevant to Processor architectures; Intel 8086 to Pentium.</p> <p>A12.2 Outline contemporary engineering topics relevant to addressing modes, memory interfacing, and address space.</p> <p>A12.3 Outline contemporary engineering topics relevant to architecture of Intel Microprocessors.</p> <p>A12.4 Outline contemporary engineering topics relevant to Instruction sets.</p> <p>A12.5 Outline contemporary engineering topics relevant to Interfacing Input and output devices.</p> <p>A12.6 Outline contemporary engineering topics relevant to digital to analog converters and analog to digital converters.</p> <p>A12.7 Outline contemporary engineering topics relevant to different interrupts signals used in Intel microprocessors.</p>
	<p>B.5 Assess and evaluate characteristics and performance components, systems and processes.</p> <p>B.8 Select and appraise appropriate ICT tools to a variety of engineering problems.</p>	<p>B5.1 Assess and evaluate the characteristics performance of Intel Microprocessors.</p> <p>B5.2 Assess and evaluate the characteristics performance of Addressing modes, memory interfacing and address space.</p> <p>B5.3 Assess and evaluate the characteristics performance of Different types of instructions.</p> <p>B5.4 Assess and evaluate the characteristics performance of Interfacing Input and output devices.</p> <p>B5.5 Assess and evaluate the characteristics performance of In and OUT instructions.</p> <p>B5.6 Assess and evaluate the characteristics performance of digital to analog converters and analog digital converters interfacing.</p> <p>B5.7 Assess and evaluate the characteristics performance of different interrupts signals.</p> <p>B8.1 Select and appraise appropriate Addressing modes, memory interfacing, and address space to a variety of Microprocessor problems.</p> <p>B8.2 Select and appraise appropriate Different types of instructions to a variety of Microprocessor problems.</p>



B- Intellectual Skills		<p>B8.3 Select and appraise appropriate Interfacing Input and output devices to a variety of Microprocessor problems.</p> <p>B8.4 Select and appraise appropriate In and OUT instructions to a variety of Microprocessor problems.</p> <p>B8.5 Select and appraise appropriate digital to analog converters and analog to digital converters interfacing to a variety of Microprocessor problems.</p> <p>B8.6 Select and appraise appropriate different interrupts signals to a variety of Intel microprocessors problems.</p>
C- Professional Skills	<p>C.5 Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.</p> <p>C.8 Apply safe systems at work and observe the appropriate steps to manage risks.</p> <p>C.12 Prepare and present technical reports.</p>	<p>C5.1 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with 8255A using LED</p> <p>C5.2 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with 2855A using 7-segment</p> <p>C5.3 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with Dot-Matrix LED</p> <p>C5.4 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with speakers</p> <p>C5.5 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with 8251A as an application of Serial Communication</p> <p>C5.6 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with LCD</p> <p>C5.7 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor keyboard</p> <p>C5.8 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with D/A converter</p> <p>C5.9 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with A/D converter</p> <p>C5.10 Use laboratory equipment to design experiment on Interfacing 8086 microprocessor with stepper motors</p> <p>C8.1 Apply safe systems at work and observe the appropriate steps to manage risks while doing experiments on interfacing 8086 microprocessor with different laboratory kits or apparatus mentioned in C5.</p> <p>C.12 Prepare and present technical reports on interfacing experiments.</p>



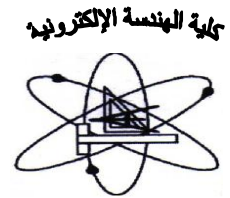
D- General Skills	D.1 Collaborate effectively within multidisciplinary team.	D1.1 Collaborate effectively within multidisciplinary team during Lab times.
	D.3 Communicate effectively.	D3.1 Communicate effectively with demonstrators and colleagues in laboratory times.
	D.4 Demonstrate efficient IT capabilities.	D4.1 Demonstrate efficient IT capabilities relevant to Microprocessors and Applications.
	D.6 Effectively manages tasks, time, and resources.	D6.1 Effectively manages tasks, time, and resources in laboratory time, writing reports and exams.
	D.7 Search for information and engage in life-long self learning Microprocessors and Applications.	D7.1 Search for information and engage in life-long self learning on topics related to Microprocessors and Applications.
4-a Course Contents	Microprocessor architecture: Processor architectures [Intel 8086 to Pentium], addressing modes, memory interfacing, and address space, detailed architecture of Intel Microprocessors. Instruction set: Different types of instructions, instruction cycle, timing diagram, generating control signals. Interfacing Input and output devices: Detailed pin diagrams. Execution of In and OUT instructions and their timing diagram, memory mapped I/O Vs I/O mapped I/O. Keyboard interfacing and scanning, digital to analog converters and analog to digital converters interfacing and operation. Interrupts: Basic concept of interrupts, different interrupts signals used in Intel microprocessors. Detailed discussion about different types of interrupts and interrupt controller.	
4-b Laboratory Experiments	<ol style="list-style-type: none"> 1. Interface 8086 microprocessor with 8255A using LED 2. Interface 8086 microprocessor with 2855A using 7-segment 3. Interface 8086 microprocessor with Dot-Matrix LED 4. Interface 8086 microprocessor with speakers 5. Interface 8086 microprocessor with 8251A as an application of Serial Communication 6. Interface 8086 microprocessor with LCD 7. Interface 8086 microprocessor keyboard 8. Interface 8086 microprocessor with D/A converter 9. Interface 8086 microprocessor with A/D converter 10. Interface 8086 microprocessor with stepper motors 	
5- Teaching and Learning Methods	<ul style="list-style-type: none"> - Lectures - Laboratory - Research assignments 	
6- Teaching and Learning Methods for disable students	<ol style="list-style-type: none"> 1-Assign a portion of the office hours for those students. 2- Give them specific tasks. 3- Repeat the explanation of some of the material at laboratory sessions. 4- Special Low cost training courses offered by Scientific Computing Center. 	
7- Student Assessment		
a- Assessment Methods	<ul style="list-style-type: none"> - Labs - Quizzes 	



	- Projects - Midterm, and final exams
b- Assessment Schedule	- Exercise sheet/ Lab assignment : Weekly - Quizz-1: Week no 4 - Mid-Term exam: Week no 8 - Quizz.2: Week no 11 - Lab exam: Week no 15 - Final – term examination: Week no 16
c- Weighting of Assessment	- Class tutorial and quizzes : 10 % - Mid-term examination: 10 % - Oral and practical exam: 20 % - Final – term examination: 60 % Total 100%
8- List of text books and references:	
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department.
b- Text books	[1] M. Rafiqzaman, “Microprocessor Theory and Applications”, John Wiley & Sons, Inc., 2008.
c- Recommended books	[1] Barry B. Brey, “The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486 Pentium, Pentium Pro Processor, Pentium II, Pentium 4, and Core2 with 64-bit Extensions, Architecture, Programming, and Interfacing”, Eighth Edition, Pearson Education International, Upper Saddle River, New Jersey, 2009 [2] John Uffenbeck, “The 80x86 Family: Design, Programming, and Interfacing”, Third Edition, Prentice-Hall International, Inc., Upper Saddle River, New Jersey, 2002
d- Periodicals, Web sites ...etc	[1] The Imperial College of London Microprocessor course http://www3.imperial.ac.uk/physicsuglabs/thirdyearlab/microprocessor

Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Microprocessor architecture: Processor architectures [Intel 8086 to Pentium]	1-2	A2.1, A8.1, A12.1	B5.1	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Addressing modes, memory interfacing, and address space,	3	A2.2, A12.2	B5.2, B8.1	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Detailed architecture of Intel Microprocessors.	4	A2.3, A8.2, A12.3	B5.1	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Instruction set: Different types of instructions, instruction cycle, timing diagram, generating control signals.	5	A2.4, A12.4	B5.3, B8.2	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Interfacing Input and output devices: Detailed	6	A2.5, A12.5	B5.4, B8.3	C5.1 to 10, C8.1, C12.1	D1.1, D3.1, D4.1, D6.1,



pin diagrams.					D7.1
Execution of In and OUT instructions and their timing diagram, memory mapped I/O Vs I/O mapped I/O.	7-8	A2.6	B5.5, B8.4	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Keyboard interfacing and scanning,	10	A2.7		C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Digital to analog converters and analog to digital converters interfacing and operation.	11-12	A2.8, A8.3, A12.6	B5.6, B8.5	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1
Interrupts: Basic concept of interrupts, different interrupts signals used in Intel microprocessors. Detailed discussion about different types of interrupts and interrupt controller.	13-14	A2.9, A12.7	B5.7, B8.6	C12.1	D1.1, D3.1, D4.1, D6.1, D7.1

Teaching and Learning Methods - ILOs Matrix

Teaching and Learning Methods	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Lectures	A2, A8, A12	B5, B8		D3
Labs and/or case studies	A2, A8, A12	B5, B8	C5, C8, C12	D1, D3, D4, D6
Reports and assignments	A2, A8, A12	B5, B8	C5, C8, C12	D4, D6, D7

Assessment Methods - ILOs Matrix

Assessment Methods	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Reports	A2, A8, A12	B5, B8	C5, C8, C12	D4, D6, D7
Quizzes	A2, A8, A12	B5, B8		D6
Laboratory exam	A2, A8, A12	B5, B8	C5, C8	D4, D6
Midterm, and Final Written exams	A2, A8, A12	B5, B8		D6

Authorized from department board at 15/05/2016

Authorized from college board at 05/06/2016

Course coordinator:
Dr. Marwa Radad

Head of Department:
Prof. Fathi El-Sayed Abd El-Samie

Date: / /



جامعة المنوفية
كلية الهندسة الإلكترونية
قسم هندسة الاتصالات والكهربية

