University : Benha university

Faculty : Faculty of Engineering at Shoubra

Department : Electrical Engineering Department

1- Course Data

Course Code : ECE 413   Course Title : Microprocessor Systems   Study Year : Fourth Year
Specialization :
Teaching Hours:
   Lecture : 3   Tutorial :   Practical : 2

2- Course Aim

For students undertaking this course, the aims are to:

2.1- Study the microcomputer-based Applications
2.2- Describe the interfacing architecture and peripheral interfaces
2.3- Introduce the Pentium processors and their functional unit
2.4- Describe the Cache overview and code/data cache
2.5- Use computer simulation packages to investigate assembly language programming
2.6- Demonstrate the Microprocessor Input and Output
2.7- Demonstrate the Symmetric and Asymmetric Cryptology in designing secure Microprocessor application

3- Intended Learning Outcomes of Course (ILOS)

  a- Knowledge and Understanding

    On completing this course, students will be able to:

      a-1- Demonstrate microprocessors and microcomputer-based Applications. (a6)

      a-2 Define the Using of computer simulation packages to investigate assembly.(a2)

      a-3 Define Symmetric and Asymmetric Cryptology in designing secure Microprocessor application(a6)

      a-4 Illustrate theoretical principles underlying electronic engineering systems.(a15)

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  b- Intellectual Skills

    At the end of this course, the students will be able to:
    b- 1 -Assess and evaluate the characteristics and performance of microprocessors and computer systems (b16).

  c- Professional Skills

    On completing this course, the students are expected to be able to:

c- 1 - Troubleshoot, maintain and repair almost all types of microprocessor and computer systems (c17).

d- General Skills

At the end of this course, the students will be able to:
d- 1 - Collaborate effectively within multidisciplinary team.(d1)
d- 2 - Communicate effectively (d3)
d- 3 - Effectively manage tasks, time, and resources(d6).

4- Course Contents

No.	Topics	No of hours
1	Introduction to microprocessors and microcomputer-based Applications	3
2	Interfacing architecture and peripheral interfaces	3
3	Introduction to Pentium processors and their functional unit	3
4	Cache overview and code/data cache	3
5	Using computer simulation packages to investigate assembly	3
6	Microprocessor Input and Output	6
7	Symmetric and Asymmetric Cryptology in designing secure Microprocessor application	3

5- Teaching and Learning Methods

5.1- Modified Lectures
5.2- Practical training / laboratory
5.3- Project Assignment

6- Teaching and Learning Methods of Disables

6.1- nothing

7- Student Assessment

a- Student Assessment Methods

1	Project Assignment to assess knowledge and and intellectual skills.
2	laboratory assignments to assess knowledge and and intellectual skills.
3	Mid-term exam to assess knowledge, intellectual skillsl,
4	Oral exam to assess knowledge and intellectual skills, professional and general skills
5	Final exam to assess knowledge and intellectual skills.

b- Assessment Schedule

No.	Assessment	Week
1	Lab on	2, 5, 9, 11
2	Project on	10, 11, 12 ,13
3	Mid-term exam on	8
4	Oral Exam on	14
5	Final exam on	15

c- Weighting of Assessments

Assessment	Weight
Mid_Term Examination	20 %
Final_Term Examination	60 %
Oral Examination	20 %
Practical Examination	0 %
Semester work	0 %
Other types of assessment	0 %
Total	100 %

8- List of References

a- Books

1- David A. Patterson and John L. Hennessy, Computer Organization & Design â€" TheHardware/Software Interface, 4th
Kaufmann Publishers, 2008

- Course Coordinator :   Dr.Adly Tag Eldeen

- Head of Department :   Prof. Dr. Sayed Aboo-Elsood Ward

Model No.11A
Course Specifications : Microprocessor Systems

University : Benha university

Faculty : Faculty of Engineering at Shoubra

Department : Electrical Engineering Department

Matrix of Knowledge and Skills of the course

No.	Topics	week	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Introduction to microprocessors	1	a1, a4	b1	c1	
2	Different microcomputer-based Applications	2	a1	b1	c1	
3	Interfacing architecture	3	a1	b1	c1	
4	peripheral interfaces	4	a1, a4	b1	c1	
5	Introduction to Pentium processors	5	a1	b1	c1	
6	functional unit of Pentium processors	6	a1, a4	b1	c1	
7	Mid term exam	7	a1,a2	b1		
8	Cache overview and code/data cache	8	a2, a4	b1	c1	
9	investigate assembly language programming	9	a4	b1	c1	
10	Using computer simulation	10	a2	b1	c1	
11	Microprocessor Input and Output	11	a2, a4	b1	c1	
12	Symmetric Cryptology in designing secure Microprocessor application	12	a3, a4	b1	c1	
13	Asymmetric Cryptology in designing	13	a2,a4	b1	c1	

		secure Microprocessor application					
14	Oral Exam	14	a1,a2,a3	b1	c1	d1, d2, d3
15	Final Exam	15	a1,a2,a3 ,a4	b1		

- Course Coordinator :   Dr.Adly Tag Eldeen

- Head of Department :   Prof. Dr. Sayed Aboo-Elsood Ward

Matrix of course content and ILO's

Course Title: Microprocessor Systems **Code**: ECE413 **Lecture**: 3 **Tutorial** : - **Practical**: 2 **Total:** 5
Program on which the course is given: B.Sc. Electrical Engineering (Communications)
Major or minor element of program: Major
Department offering the program: Electrical Engineering Department
Department offering the course: Electrical Engineering Department
Academic year / level: Fourth year / First semester 2014-2015
Date of specifications approval: 20/6/2010

Course content	a1	a2	a3	a4	b1	
Introduction to microprocessors	✓			✓	✓	
Different microcomputer-based Applications	✓				✓	
Interfacing architecture	✓				✓	
peripheral interfaces	✓			✓	✓	
Introduction to Pentium processors	✓				✓	
functional unit of Pentium processors	✓			✓	✓	
Cache overview and code/data cache	✓	✓			✓	
investigate assembly language programming		✓		✓	✓	
Using computer simulation		✓		✓	✓	
Microprocessor Input and Output			✓		✓	
Symmetric Cryptology in designing secure Microprocessor application			✓	✓	✓	
Asymmetric Cryptology in designing secure Microprocessor application		✓		✓	✓	

Matrix of course aims and ILO's

Course Title: Microprocessor Systems **Code**: ECE413

Lecture: 3   **Tutorial**: -   **Practical**: 2

Total: 5

Program on which the course is given: B.Sc. Electrical Engineering (Communications)

Major or minor element of program: Major

Department offering the program: Electrical Engineering Department

Department offering the course: Electrical Engineering Department

Academic year / level: **Fourth** Year / **First** Semester 2014-2015

Date of specifications approval: 20/6/2010

Course aims	a1	a2	a3	a4	b1
Study the microcomputer-based Applications.	✓	✓	✓		✓
Describe the interfacing architecture and peripheral interfaces.	✓	✓		✓	✓
Introduce the Pentium processors and their functional unit.	✓				✓
Describe the Cache overview and code/data cache.	✓	✓	✓	✓	✓
Use computer simulation packages to investigate assembly language programming		✓	✓	✓	✓
Demonstrate the Microprocessor Input and Output.		✓	✓		✓
Demonstrate the Symmetric and Asymmetric Cryptology in designing secure Microprocessor application.	✓	✓	✓	✓	✓

Course coordinator: Dr. Adly Tag Eldeen

Course instructor Dr. Adly Tag Eldeen

Head of department: Prof. Dr. Sayed Aboo-Elsood Ward