



## Course Specification

**Course Name:** Microprocessors

**Course Code:** [ IT312 ]

### I. Basic Course Information

Major or minor element of program: Major  
Department offering the course: [Information Technology Department ]

Academic level: 300 Level

Semester in which course is offered: [Second (Spring) Semester ]

Course pre-requisite(s): [Computer Architecture IT311 ]

Credit Hours: 3

Contact Hours Through:

Lecture	Tutorial*	Practical*	Total
2.5	[0.0]	[1.5]	4.0

\* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: January 2015

### II. Overall Aims of Course

[Familiarize the student with the basics as well as the recent advances of microprocessors. ]

### III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K1,K6,K17 ]	[I3,I4,I15 ]	[P13,P20 ]	[G1,G2 ]



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#### IV. Intended Learning Outcomes of Course (ILOs)

##### a. Knowledge and Understanding

On completing the course, students should be able to:

- K.1 Learn the main components of a microprocessor.
- K.2 Explain memory operations.
- K.3 Illustrate input/output operations.
- K.4 Explain data movement between components.
- K.5 Show program control.

##### b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

- I.1 Learn to choose the suitable microprocessor architecture for a given application.
- I.2 Develop and analyze efficient microprocessor system.
- I.3 Evaluate developed and existing microprocessor system.

##### c. Practical/Professional Skills

On completing the course, students should be able to:

- P.1 Make a design choice of a microprocessor architecture for a given application.
- P.2 Make a presentation of the developed microprocessor architecture for a given application.

##### d. General and Transferable Skills

On completing the course, students should be able to:

- G.1 Improve team work skills.
- G.2 Develop better work ethics through valuing individual efforts and strictly prohibiting plagiarism.
- G.3 Improve organization skills.

#### V. Course Matrix Contents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	[Introduction to microprocessor ]	[ 1 ]	[K1 ]	[I1 ]	[ ]	[ ]
2-	[Basic microprocessor architecture ]	[ 1 ]	[K1 ]	[I1 ]	[ ]	[ ]
3-	[Memory addressing modes ]	[ 2 ]	[K2,K3 ]	[I1 ]	[P1 ]	[G2 ]
4-	[Data movement instructions ]	[ 2 ]	[K4 ]	[I1 ]	[P1 ]	[G2 ]
5-	[Arithmetic and logic instructions ]	[ 2 ]	[K2 ]	[I1 ]	[P1 ]	[G2 ]
6-	[Bus: memory, input/output, system bus signals ]	[ 1 ]	[K3 ]	[I1 ]	[P1 ]	[G2 ]
7-	[Program control instructions ]	[ 1 ]	[K5 ]	[I1 ]	[P1 ]	[G2 ]
8-	[Interrupts ]	[ 2 ]	[K5 ]	[I1 ]	[P1 ]	[G2 ]
9-	[DMA System]	[1]	[K1:K5]	[I2,I3]	[P2]	[G1:G3]
	<b>Net Teaching Weeks</b>	<b>13</b>				



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VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours*
1	(Lecture)Introduction to microprocessor	2.5	2.5	
2	(Lecture)Basic microprocessor architecture	4	2.5	1.5
3	(Lecture)Memory addressing modes	4	2.5	1.5
4	(Lecture)Memory addressing modes	4	2.5	1.5
5	(Lecture)Data movement instructions	4	2.5	1.5
6	(Lecture)Data movement instructions	4	2.5	1.5
7	<b>Midterm Exam</b>			
8	(Lecture)Arithmetic and logic instructions	4	2.5	1.5
9	(Lecture)Arithmetic and logic instructions	4	2.5	1.5
10	(Lecture)Bus: memory, input/output, system bus signals	4	2.5	1.5
	(Lecture)Program control instructions	4	2.5	1.5
	(Lecture) Interrupts	4	2.5	1.5
	(Lecture) Interrupts	4	2.5	1.5
	(Lecture) DMA system	4	2.5	1.5
15	<b>Final Exam</b>			
<b>Total Teaching Hours</b>		<b>51</b>	<b>33</b>	<b>18</b>

\* No Practical/Tutorial during the first week of the semester

VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	[x]	[K1:K5]	[I1:I3]	[ ]	[ ]
Tutorials	[ ]	[ ]	[ ]	[ ]	[ ]
Computer lab Sessions	[x]	[K1:K5]	[I2,I3]	[P1]	[G1:G3]
Practical lab Work	[x]	[K1:K5]	[ ]	[P1,P2]	[G1:G3]
Reading Materials	[ ]	[ ]	[ ]	[ ]	[ ]
Web-site Searches	[ ]	[ ]	[ ]	[ ]	[ ]
Research & Reporting	[ ]	[ ]	[ ]	[ ]	[ ]
Problem Solving / Problem-based Learning	[ ]	[ ]	[ ]	[ ]	[ ]
Projects	[ ]	[ ]	[ ]	[ ]	[ ]
Independent Work	[ ]	[ ]	[ ]	[ ]	[ ]
Group Work	[X]	[K5]	[I2,I3]	[P2]	[G1:G3]
Case Studies	[ ]	[ ]	[ ]	[ ]	[ ]
Presentations	[X]	[ ]	[ ]	[P2]	[G1,G3]
Simulation Analysis	[ ]	[ ]	[ ]	[ ]	[ ]
Others (Specify):	[ ]	[ ]	[ ]	[ ]	[ ]



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VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	[x]	[K1:K4]	[I1,I2]	[ ]	[ ]	[20%]	7
Final Exam	[x]	[K1:K5]	[I2,I3]	[ ]	[ ]	60%	15
Quizzes	[x]	[K1:K3]	[ ]	[ ]	[ ]	[5%]	[5]
Course Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Report Writing	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Case Study Analysis	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Oral Presentations	[x]	[ ]	[I2,I3]	[P2]	[G1,G3]	[5%]	[5]
Practical	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Group Project	[x]	[ ]	[I2,I3]	[P1,P2]	[G1,G2,G3]	[10%]	[12]
Individual Project	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Others (Specify):	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

IX. List of References

<b>Essential Text Books</b>	<ul style="list-style-type: none"> <li>[The Intel Microprocessors,Architecture Programming, and Interfaing (Barry B. Brey, Devry University), 1994. ]</li> </ul>
<b>Course notes</b>	<ul style="list-style-type: none"> <li>[Lecture slides and notes ]</li> </ul>
<b>Recommended books</b>	<ul style="list-style-type: none"> <li>[Microcomputers and Microprocessors (John Uffenbeck),2000. ]</li> </ul>
<b>Periodicals, Web sites, etc....</b>	<ul style="list-style-type: none"> <li>[Various ]</li> </ul>

X. Facilities required for teaching and learning

[List the facilities required <ul style="list-style-type: none"> <li>• None ]</li> </ul>
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**Course coordinator:**Dr. Khaled Mostafa

**Head of Department:**Prof. Hesham El Mahdy

**Date:** [January 2015]