

University / Academy: Menoufia University

College / Institute: Faculty of Electronic Engineering

Department: Computer Science and Engineering

## Course Specification

1- Course basic information :		
Course Code: CSE 361	Course Title: Computer Architecture	Academic year: 2011/2012 Level (3) – Semester : 1
University requirement	Teaching hours: Lecture <input type="text" value="3"/> Tutorial <input type="text" value="2"/> Lab <input type="text" value="1"/>	

<b>2- Aim of the course</b>	<ul style="list-style-type: none"><li>• To understand the hardware design and operation of digital computer.</li><li>• To teach the students the principles of computer architecture.</li><li>• To give an understanding of the principles of operation of computers and peripheral devices.</li><li>• To give an overview of the main families of microprocessors and their differences.</li><li>• To develop an appreciation of why computers are constructed as they are.</li><li>• To study the trade-offs between cost and performance in computer design.</li><li>• To provide an introduction to computer processor and memory architectures, and to the design of personal computer systems.</li><li>• To provide an understanding of the architectural features of modern high performance computers.</li></ul>
<b>3- Intended Learning Outcomes:</b>	

<b>A- Knowledge and Understanding:</b>	<p>a2. Basics of information and communication technology (ICT).</p> <p>a3. Characteristics of engineering materials related to the computer science and engineering.</p> <p>a4. Principles of design including elements design, process and/or a system related to specific computer science and engineering.</p> <p>a8. Current engineering technologies as related to computer science and engineering.</p> <p>a12. Contemporary engineering topics.</p> <p>a13. Engineering principles in the fields of logic design, circuit analysis, machine and assembly languages, computer organization and architectures, memory hierarchy, advanced computer architectures, embedded systems, signal processing, operating systems, real-time systems and reliability analysis.</p> <p>a16. Related research and current advances in the field of computer software and hardware.</p>
<b>B- Intellectual Skills</b>	<p>b5. Assess and evaluate the characteristics and performance of components, systems and processes.</p> <p>b8. Select and appraise appropriate ICT tools to a variety of engineering problems.</p> <p>b13. Develop innovative solutions for the practical industrial problems.</p>
<b>C- Professional Skills</b>	<p>c1. Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.</p> <p>c2. Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services.</p> <p>c3. Create and/or re-design a process, component or system, and carry out specialized engineering designs.</p> <p>c13. Design and operate computer-based systems specifically designed for business applications.</p>
<b>D- General Skills</b>	<p>d1. Collaborate effectively within multidisciplinary team.</p> <p>d4. Demonstrate efficient IT capabilities.</p> <p>d9. Refer to relevant literatures.</p>

<b>4- Course Contents</b>	Fundamentals of Computer Design - Memory Systems – Processor - Input- Output-Instruction Set Principles – Pipelining - Memory Hierarchy - Storage Systems: types of storage devices; bus systems - connections, protocols and standards
<b>5- Teaching and Learning Methods</b>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Tutorials</li> <li>- Laboratory</li> <li>- Research assignments</li> </ul>
<b>6- Teaching and Learning Methods for disable students</b>	<ul style="list-style-type: none"> <li>- NA</li> </ul>
<b>7- Student Assessment</b>	
<b>a- Assessment Methods</b>	<ul style="list-style-type: none"> <li>- Weekly sheet exercises at class room</li> <li>- Quizzes</li> <li>- Mid term, and final exams</li> </ul>
<b>b- Assessment Schedule</b>	<ul style="list-style-type: none"> <li>- Exercise sheet/ Lab assignment :      <b>Weekly</b></li> <li>- Quizz-1:    <b>Week no 3</b></li> <li>- Mid-Term exam:                                      <b>Week no 8</b></li> <li>- Quizz-2:    <b>Week no 11</b></li> <li>- Lab exam:    <b>Week no 14</b></li> <li>- Final – term examination:                      <b>Week no 15</b></li> </ul>
<b>c- Weighting of Assessment</b>	<ul style="list-style-type: none"> <li>- Class tutorial and quizzes:                      <b>5 %</b></li> <li>- Mid-term examination:                              <b>10 %</b></li> <li>- Case study and/or practical exam:              <b>20 %</b></li> <li>- Final – term examination:                              <b>60 %</b></li> <li>- Other types of assessment:                      <b>5 %</b></li> </ul> <p style="text-align: right; margin-right: 20px;"> <b>Total    100 %</b> </p>
<b>8- List of text books and references:</b>	
<b>a- Course notes</b>	Lectures notes prepared in the form of a book authorized by the department.
<b>b- Text books</b>	William Stallings, “Computer Organization & Architecture: Designing for Performance”, Sixth Edition, Pearson Education, Inc., 2003.
<b>c- Recommended books</b>	David A. Patterson and John L. Hennessy, “Computer Organization & Design: The Hardware/Software Interface”, Second Edition, Morgan Kaufmann Publishers, Inc., San Francisco, California,

	<p>1998.</p> <p>M. Morris Mano, "Computer System Architecture", Third Edition, Prentice-Hall, Inc., 1993.</p> <p>Barry B. Brey, "The Intel Microprocessors: Architecture, Programming, and Interfacing", Sixth Edition, Pearson Education, Inc., 2003.</p>
<b>d- Periodicals, Web sites .....etc</b>	None

### Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
<b>Fundamentals of Computer Design -</b>	1	a2, a3		c3	d1
<b>Processor - Input-Output-Instruction Set Principles –</b>	2, 3, 4	a3, , a12, a13	b5, b8	c1, c3	d1, d4
<b>Memory Systems –</b>	5, 6, 7	a3, a4, a16	b8 , b13	c1, c2	d4, d9
<b>Pipelining - Memory Hierarchy -</b>	9, 10, 11	a16	b5, b13	c2, c13	d1, d4
<b>Storage Systems: types of storage devices;</b>	12	a13, a16	b8	c13	d9
<b>bus systems - connections, protocols and standards</b>	13, 14	a2, a3, a4, a8, a12, a13	b5, b8 , b13	c1, c2, c13	d4, d9

**Course coordinator:**

**Dr. Gamal M. Attiya**

**Head of Department:**

**Prof. Dr. Nawal El-Feshawy**

Date:    /    /