# A- Basic Information

**Course Title**: Computer Architecture **Code**: CSE322
**Lecture**: 4 **Tutorial**: 2 **Practical**: - **Total:** 6
**Program on which the course is given:** B.Sc. Electrical Engineering (Computers)
**Major or minor element of program:** Major
**Department offering the program:** Electrical Engineering Department
**Department offering the course:** Electrical Engineering Department
**Academic year / level:** **Third** Year / **Second** Semester
**Date of specifications approval:** 10/5/2006

# B- Professional Information

**1- Overall aims of course**:

- how computers work;
- how to evaluate their performance;
- the instruction set architecture of a typical modern RISC processor;
- relationship between hardware and software;
- memory interface and hierarchy;
- computer interfacing.
- models of mul

**2- Intended learning outcomes of course (ILOs)**

By completion of the course, the student should be able to:

**a- Knowledge and Understanding**

a.2) Basics of information and communication technology (ICT).
a.8) Current engineering technologies as related to disciplines.
a.15) 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
a.17) Principles of design specific to computer engineering;

**b- Intellectual Skills**

b.5) Assess and evaluate the characteristics and performance of components, systems and processes.
b.6) Investigate the failure of components, systems, and processes.
b.16) Maintain a sound theoretical approach in dealing with new and advancing technology;

**c- Professional and Practical Skills**

c.2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services.
c.11) Exchange knowledge and skills with engineering community and industry.

**d- General and Transferable Skills**

d.9) Refer to relevant literatures.

**3- Contents**

| No | Topic | No. of hours | ILO's | Teaching / learning methods and strategies | Assessment method |
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|---|---|---|---|---|---|
| 1 | Introduction | 3 | a.2, a.8, a.15, d.9 | iPad, projector, wifi, Board | Self reading |
| 2 | Computer function and interconnection | 3 | a.15, a.17, b.5 | iPad, projector, wifi, Board | Self reading |
| 3 | Cache Memory | 3 | a.15, a.17, b.5 | iPad, projector, wifi, Board | Exercises |
| 4 | Cache Memory | 3 | a.15, a.17, b.5 | iPad, projector, wifi, Board | Exercises, quiz |
| 5 | Internal memory | 3 | a.8, a.15, a.17, b.5 | iPad, projector, wifi, Board | Exercises |
| 6 | External memory | 3 | a.8, a.15, a.17, b.5, b.6 | iPad, projector, wifi, Board | Exercises, quiz |
| 7 | Input/Output | 3 | a.8, a.17, b.5, b.6 | iPad, projector, wifi, Board | Exercises |
| 8 | Mid Term Exam | | | | |
| 9 | Processor structure and function | 3 | a.8, a.17, b.5, b.6, b.16, c.2 | iPad, projector, wifi, Board | Exercises |
| 10 | RISC computers | 3 | a.8, a.17, b.5, b.6, b.16, c.2 | iPad, projector, wifi, Board | Exercises, quiz |
| 11 | Instruction-level parallelism and Superscalar Processors | 3 | a.8, a.17, b.5, b.6, b.16, c.2 | iPad, projector, wifi, Board | Exercises |
| 12 | Parallel processing | 3 | a.8, a.17, b.5, b.6, b.16, c.2, c11 | iPad, projector, wifi, Board | Exercises, quiz |
| 13 | Parallel processing | 3 | a.8, a.17, b.5, b.6, b.16, c.2, c11 | iPad, projector, wifi, Board | Research presentation |
| 14 | Multicore Computer | 3 | a.8, a.17, b.5, b.6, b.16, c.2, c11 | iPad, projector, wifi, Board | Exercises |
| 15 | Final Exam | | | | |
| 16 | | | | | |

**4- Teaching and Learning Methods**

Lectures
Class activity(researches & presentation)
Assignments / homework

**5- Student Assessment Methods**

Assignments to assess knowledge and intellectual skills.
Quiz to assess knowledge, intellectual and professional skills.
Mid-term exam to assess knowledge, intellectual, professional and general skills.
Final exam to assess knowledge, intellectual, professional and general skills.

**Assessment Schedule**

Assessment 1 on weeks 2, 5, 9, 11
Assessment 2 Quizzes on weeks 4, 6, 10, 12
Assessment 3 Mid-term exam on week 8
Assessment 4 Research presentation
Assessment 5 Final exam on week 15

**Weighting of Assessments**

05% Home assignments
05% Quizzes

10% Mid-term examination
20% Research Presentation
60% Final-term examination
100% Total

**6- List of References**

Course notes

Course notes prepared by instructor.

Essential books

Computer Organization & Architecture by W. Stallings

Recommended books

**7- Facilities required for teaching and learning**

Lecture room equipped with overhead projector
Presentation board, computer and data show

**Course coordinator:** Dr. May Salama
**Course instructor:** Dr. May Salama, Essam ElEllaimy

**Head of Department:** Prof. Mousa-Abdallah **Date:** March 19, 2012

**Date:**