## Al-Al Bayt University
## Prince Hussein bin Abdullah Faculty of Information Technology
## Computer Science

# Course Syllabus

| Course Title | **Computer Architecture** | Course Code | **901320** |
|---|---|---|---|
| Coordinator | Mohamed Almaany | **Prerequisite(s)** | 901220 |
| E-mail | malmaany@aabu.edu.jo | **Credit Hours** | 3 |
| Course Is | √ Required | □ Elective | |

## Course Description:

This course introduces computer science students to the basics of computer architecture concepts; instruction and data representations; instruction set decoding and addressing modes; fundamentals of assembly language; the organization and the operation of the central processing unit, memory system, and I/O interfaces; I/O structures; direct memory access; interrupts; bus protocols, pipelining, different computer architecture and Performance enhancements

## Course Learning Outcomes (CLO):

1. The students will understand the concepts and issues involved in the computer architecture

2. The students will able to conducted critical evaluation of existing and future computer architecture

3. The students will Demonstrate proficiency of the instruction set architecture level.

4. The students will understand the system organization (processors, memories, and I/O devices).

5. The students will have a moderate knowledge of the assembly language level.

6. The students will understand of the core of the digital logic level, the micro architecture level.

## Tentative Topics Covered

| Week No | Topic | Chapter |
|---|---|---|
| 1+2 | Introduction | 1 |
| 3 | Data Representation in Computer Systems | 2 |
| 4 | Floating Point Representation | 2 |

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|---|---|---|
| 5 | An Introduction to a Simple Computer | 4 |
| 6 | Marie and the Assembler | 4 |
| 7 | Homework's review/ **First Exam** | |
| 8 | Instruction Set Architectures | 5 |
| 9 | Memory System  (RAM and ROM design) | 6 |
| 10+11 | Memory System Cache Memory and Virtual Memory | 6 |
| 12 | Homework's review/ **Second exam** | |
| 13+14 | Input/Output, Storage Systems | 7 |
| 15 | Alternative Architectures | 9 |

| Textbook(s) | | | |
|---|---|---|---|
| **Title** | *Essentials of Computer Organization and Architecture* | | |
| **Author(s)** | Linda Null and Julia Lobur | **Publisher** | Jones and Bartlett Publishers |
| **Edition** | 2$^{nd}$ | **Year** | 2006 |

| References | |
|---|---|
| **Book Titles (Author(s), Title, Edition, Publisher, Year)** | **Website URL ( if available )** |
| *Computer Organization and Design*<br>David A. Patterson & John L. Hennessy, 4$^{th}$ edition<br>Morgan Kaufmann 2009. | http://booksite.mkp.com/patterson |

| Evaluation | |
|---|---|
| **Assessment Tool** | **Marks** |
| **- First Exam** | **20** |
| **- Second Exam** | **20** |
| -**Home works  and Quizzes** | **10** |
| **- Final Examination** | **50** |