

**University of Jordan**  
**Computer Engineering Department**  
**Course Outline**  
**Computer Design (0907432)**

**I. Course Description**

Exploiting instruction level parallelism, hardware and software approaches. Pipelined, Vector, Super scalar, and VLIW processors. Predication, Branch Prediction, and Control and Data Speculation. Case Studies of Modern Processors. Hierarchical Memory Design. Virtual memory. Input/Output Interfacing and System Integration. Introduction to Parallel Processing. Flynn's classification. Symmetric Multiprocessors. Cache coherence. Tutorial one hour weekly.

**Prerequisite:** Computer Organization (0907335)

**II. Textbooks and References**

1. Patterson and Hennessy. Computer Organization & Design: The Hardware/Software Interface, 5th ed., Morgan Kaufmann, 2014. **Main Textbook.**
2. Hennessy and Patterson, Computer Architecture: A Quantitative Approach, 5th ed., Morgan Kaufmann, 2011.
3. D. Culler and J.P. Singh with A. Gupta. Parallel Computer Architecture: A Hardware/Software Approach, Morgan Kaufmann, 1998.
4. J. Hayes. Computer Architecture and Organization, 3rd ed., McGraw-Hill, 1998.

**III. Student Materials**

Textbook, Class Handouts, Web Page, PC, and the Internet.

**IV. College Facilities**

A classroom with whiteboard and projection facilities, library, and computer laboratory.

**V. Instructional Methods**

1. Lectures
2. Office discussions
3. Course homepage at [http://www.abandah.com/gheith/?page\\_id=992](http://www.abandah.com/gheith/?page_id=992)
4. Facebook group posts and discussions on <https://www.facebook.com/groups/549894571732525/>

**VI. Evaluation of Outcomes**

1. Mid-Term Exam — 30%
2. Two Quizzes — 20%
3. Final Exam — 50%

## VII. Class Policies

- Attendance is required
- All submitted work must be yours
- Cheating will not be tolerated
- Open-book exams
- Join the facebook group
- Check department announcements at: <http://www.facebook.com/pages/Computer-Engineering-Department/369639656466107>

## VIII. Course Outline

- Introduction
- Computer Technology and Performance (1.5-1.11)
- Processor: Instruction-Level Parallelism (4.5-4.15)  
*Midterm Exam*
- Memory Hierarchy (5.1-5.16)
- Parallel Processors (6.1-6.14)  
*Final Exam*

## IX. Schedule

The following table contains the important dates of this course.

Date	Event
Sun 22 Jun, 2014	Classes Begin
Thu 3 Jul, 2014	Quiz 1
Thu 17 Jul, 2014	Midterm Exam
Jul 27-30, 2014	Eid Holiday
Sun 3 Aug, 2014	Quiz 2
Sun 17 Aug, 2014	Last Lecture
Aug 18-20, 2014	Final Exam Period

## X. Sections and Instructors

Sec	Meeting Time	Room	Instructor	Office Hours	e-mail, Homepage
1	Sun - Thu 9:10-10:10	CPE 001	Dr. Gheith Abandah	Sun & Tue 10-11 Mon & Wed 12:30-1:30	<a href="mailto:abandah@ju.edu.jo">abandah@ju.edu.jo</a> , <a href="http://www.abandah.com/gheith">http://www.abandah.com/gheith</a>