

University of Jordan
Computer Engineering Department
Course Outline
Parallel and Distributed Systems (0907521)

I. Course Description

Introduction to parallel processing and distributed systems. Multicomputers, multiprocessors, network of workstations, and scalable systems. Interconnection networks: topologies, routing, and protocols. Distributed systems design for scalability, reliability, availability, and security. Communication paradigms including shared memory, message passing, RPC, and distributed objects. Distributed system services including replication, caching, file system management, naming, clock synchronization, and multicast communication. Sample applications. Development of programs and applications for parallel and distributed systems.

II. Textbook and References

1. P. Pacheco, **An Introduction to Parallel Programming**, Morgan Kaufmann, 2011.
2. D. Culler and J.P. Singh with A. Gupta. **Parallel Computer Architecture: A Hardware/Software Approach**, Morgan Kaufmann, 1998.
3. K. Hwang. **Advanced Computer Architecture: Parallelism, Scalability, Programmability**, McGraw-Hill, 1993.
4. H. Stone, **High- Performance Computer Architecture**, 3rd ed., Addison-Wesley, 1993.
5. Patterson and Hennessy. **Computer Organization & Design: The Hardware/Software Interface**, 4th ed., Morgan Kaufmann, 2009.
6. Hennessy and Patterson. **Computer Architecture: A Quantitative Approach**, 5th ed., Morgan Kaufmann, 2011.

III. Student Materials

Textbook

Class Handouts

Web Page: http://www.abandah.com/gheith/?page_id=617

PC

Internet

IV. College Facilities

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

V. Instructional Methods

1. Lectures
2. Office Discussions
3. Facebook page posts and discussions on <http://www.facebook.com/pages/Cpe521-Parallel-and-Distributed-Systems-Fall-2012/224272627700175>

VI. Evaluation of Outcomes

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|-----------------|-----|
| 1. Term Project | 20% |
| 2. Midterm Exam | 30% |
| 3. Final Exam | 50% |

VII. Class Policies

- Attendance is required
- All submitted work must be yours
- Cheating will not be tolerated

VIII. Special Dates

- Sun 16 Sep 2012 First Lecture
- Sun 28 Oct 2012 Project Proposal Due
- Sun 9 Dec 2012 Project Report Due
- Thu 3 Jan 2013 Last Lecture

IX. Course Outline

The following table contains the list of topics to be covered in the course.

Topic	Textbook Chapters
Introduction	1
Parallel Hardware	2
Distributed Memory Programming	3
<i>Midterm Exam</i>	
Shared-Memory Programming	4 & 5

X. Sections and Instructors

Sec	Meeting Time	Room	Instructor	Office Hours	e-mail, Homepage
1	Sun, Tue, Thu 2:00-3:00	CPE 001	Dr. Gheith Abandah	Mon 10-11 Tue 11-12 Wed 12-1	abandah@ju.edu.jo , http://www.abandah.com/gheith