CPE 631
Advanced Computer Systems Architecture
Spring 2010

Instructor:	Dr. Aleksandar Milenković Office: 217-L	Email: milenka@ece.uah.edu Phone: (256) 824 6830

Time and Place: Lecture: MW 5:30–6:50 PM, EB 239

Course Web Page: http://www.ece.uah.edu/~milenka/cpe631-10S

Office Hours: M/W: 1:00-2:00 PM or by appointment

Textbook: J. L. Hennessy and D. A. Patterson, Computer Architecture: A Quantitative Approach, 4th Edition, Morgan Kaufmann Publishing Co., Menlo Park, CA, September 2006. ISBN: 978-0-12-370490-0; ISBN10: 0-12-370490-1

Prerequisites: CPE 512 (Parallel Programming),
CPE 431/CPE 531 (Introduction to Computer Architecture), or equivalent courses

Course Description: This course surveys architecture and organization of modern computing systems including: CPU design, instruction sets, memory hierarchy, pipelined machines, and multiprocessors. The emphasis is on the major component subsystems of high performance computers: pipelining, instruction level parallelism, thread-level parallelism, memory hierarchies, input/output, and network-oriented interconnections. The course introduces techniques and tools for quantitative analysis and evaluation of modern computing systems and their components.

Tentative Schedule:
1. Fundamentals of Computer Design (Chapter 1)
2. Review: Pipelining Basic and Intermediate Concepts (Appendix A)
3. Memory Hierarchy (Appendix C, Chapter 5)
4. Inside Processors
    Instruction Set Principles (Appendix B)
    Instruction Level Parallelism and Its Exploitation (Chapter 2)
    Limits on Instruction-Level Parallelism (Chapter 3)
5. Multiprocessors and Thread-Level Parallelism (Chapter 4)
6. Storage (Chapter 6)
7. Networks (Appendix E)

Grading Policy:

1. Homeworks	20%
2. Midterm	20%
3. Project	35%
4. Final Exam	25%

Preliminary Project Info: Students will undertake a major computing system analysis and design project of their own choosing with the approval of the instructor. The projects will be done in groups of 2 students.

Tentative Schedule of Important Class Dates
Project Proposals – February 24, 2010
Midterm Exam – March 1, 2010 (Monday) @ 5:30 – 6:50
Final Project Due – May 03, 2010 (Monday) @ 6:00 PM
Final Exam – May 03, 2010 (Monday) @ (6:30 PM – 9:00 PM)

Late Submissions Highly discouraged. Late homework submissions will be penalized by 10% off per day including weekends.

Academic Policy: **Academic Honesty.** Your written assignments and examinations must be your own work. Academic Misconduct will not be tolerated. To insure that you are aware of what is considered academic misconduct, you should review carefully the definition and examples provided in Article III. Code of Student Conduct, Student Handbook, p. 93. If you have questions in this regard, please contact me without delay.

Use of Prior Work. You may not submit in fulfilment of requirements in this course any work submitted, presented, or used by you in any other course.

Consent to Use of Turnitin.com. UAH is committed to the fundamental values of preserving academic honesty as defined in the Student Handbook (7.III.A, Code of Student Conduct). The instructor reserves the right to utilize electronic means to help prevent plagiarism. Students agree that by taking this course all assignments are subject to submission for textual similarity review to Turnitin.com. Assignments submitted to Turnitin.com will be included as source documents in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. The terms that apply to the University's use of the Turnitin.com service, as well as additional information about the company, are described at www. uah.edu/library/turnitin.

Classroom Conduct. All students in the class must treat others with civility and respect and conduct themselves during class sessions in a way that does not unreasonably interfere with the opportunity of other students to learn. Failure to comply with this requirement may result in points being deducted from a student's final numerical average, up to a maximum of 15 points.

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