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Fall 2013

CEG 7350-01: Computer Architecture

Soon M. Chung

Wright State University - Main Campus, soon.chung@wright.edu

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CEG 7350 Computer Architecture

Fall semester, 2013

Description: Review of sequential computer architecture and study of parallel computers. Topics include memory hierarchy, reduced instruction set computer, pipeline processing, multiprocessing, various parallel computers, and interconnection networks.

Prerequisite: CEG 6350 Operating Systems Internals and Design, or equivalent

Prerequisite Topics: Process management, CPU scheduling, and Memory management.

Instructor: Dr. Soon M. Chung, 403 Russ Engineering Center (937-775-5119)
soon.chung@wright.edu, <http://www.cs.wright.edu/~schung>

Class: Tu. Th. 6:30-7:50 pm at 150 Russ Center

Office hour: Tu. Th. 5:15-6:15 pm at 403 Russ, or by appointment.
*use e-mail for short questions.

Reference Books:

- J. L. Hennessy and D. A. Patterson, Computer Architecture, 5th edition, Morgan Kaufmann, 2011.
- K. Hwang, Advanced Computer Architecture: Parallelism, Scalability, and Programmability, McGraw-Hill, 1993.
- A. Silberschatz, P. Galvin, and G. Gagne, Operating System Concepts.

Topics: Review of OS Concepts
Overview of Computer architecture and Parallel Processing
Processors
Memory Hierarchy Design
Main Memory Management
Memory Interleaving and Access
Cache Memory Management and Multicache Coherence
Interconnection Systems
Redundant Array of Inexpensive Disks (RAID)
Message-passing Architecture and Routing Mechanism
Realtime Systems
Fundamentals of Quantitative Design and Analysis
Instruction Level Parallelism and Its Exploitation
Data Level Parallelism in Different Architectures

Grading: A:[85,100], B:[75,85), C:[65,75), D:[55,65), F:[0,55)

- Midterm 30% (10/17, Th.), Project 30%, Final 40% (12/12, Th., 5:45-7:45 pm)
- Project is paper-review or design/implementation. Select one by 10/17.
- The final report is due at the final exam time on 12/12.