

ECE 4100/6100
Advanced Computer Architecture
Spring 2008
COURSE SYLLABUS

Instructor: Prof. Hsien-Hsin "Sean" Lee

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Course Prerequisite: ECE 3055 Computer Organization and Operating System or the equivalent.

Teaching Assistants: To be announced.

Course Description: This course is designed to provide information of state-of-the-art high performance computer architectures. Topics include performance, ISA, instruction-level parallelism (ILP), thread-level parallelism (TLP), dynamic scheduling, out-of-order execution, register renaming, exception handling, static scheduling (VLIW/EPIC), cache/memory/DRAM/storage hierarchy design, speculation techniques, advanced branch predictor design, multiprocessor, coherency issues, storage systems, multicore processors, interconnection network, case studies including P6, Netburst, Core, Itanium, EM64T, STI Cell, UltraSparc T2, New trends in architecture/microarchitecture development in face of physical design limit.

Course Webs:

- <http://www.ece.gatech.edu/~leehs/ECE6100>
- <http://www.tsquare.gatech.edu> (For discussion and accessing your grades)

Class Meetings: TTh 3:05-4:25pm Van Leer W200

Office Hours: TTh 4:45pm - 6:00pm Klaus 3128

Textbooks (Required):

- *Computer Architecture: A Quantitative Approach* by John L. Hennessy and David A. Patterson. 4th Edition. Morgan-Kaufmann. 2006. ISBN: 0123704901

Course Slides and Schedule: Check out the course website constantly.

Grading:

- 4 programming assignments. Individual work. No late turn-in accepted. (40% total)
- 2 in-class exams (15% each).
- Final exam (30%)

Attendance: Since class lectures will include lots of material not covered in the text book, class attendance is highly recommended.

Honor Code: Students are expected to abide by the Georgia Tech Honor Code and to avoid any instances of academic misconduct in homework assignments and exams. Any violation will be immediately and directly reported to the Dean of Students' Affairs for further action.