EE 4720: Computer Architecture

Syllabus

Where/When/How/URL

Room 125 Electrical Engineering Building
Monday Wednesday Friday 12:40–13:30
Call Number 6081
http://www.ee.lsu.edu/koppel/ee4720

Who

David M. Koppelman
Room 349 Electrical Engineering Building
388-5482, koppel@ee.lsu.edu, http://www.ee.lsu.edu/koppel
Tentative Office Hours: Monday, Thursday 14:00–16:30.

Topics

- Instruction-Set Architecture and Microarchitecture
  - The all-important ISA.
  - Design principles.
  - Cost and performance factors.
  - Instruction set design and examples.
- CPU Implementation
  - Datapath components.
  - Pipelining techniques and examples.
  - Branch prediction.
  - Multiple instruction issue.
- Memory System Implementation
  - Locality, the computer engineer's best friend.
  - Caches.
  - Virtual memory.
  - Buses.
- Parallel Computation
  - Motivation, challenges.
  - Communication paradigms: message passing and shared memory.
  - Interconnection techniques.

Text

"Computer architecture, a quantitative approach," John L. Hennessy & David A. Patterson, Second Edition.

Grading

35% Midterm Exam • 35% Final Exam • 30% Homework

Late-homework penalty: 10% per day late deducted. Missed-midterm-exam policy: at instructor's discretion either a makeup exam, use final exam grade for midterm grade (*i.e.*, 70% final exam weight), or use of zero for midterm grade. Attendance: optional, however students are responsible for all material, instructions, and notices presented in class.