EE 7700-4—Computer Architecture and Implementation

Call Number 7351 (Fall 1998)
URL: http://www.ee.lsu.edu/tca

Offered by:
David M. Koppelman
349 EE Building
388-5482, koppel@ee.lsu.edu, http://www.ee.lsu.edu/koppel
Tentative office hours: Monday, Thursday 13:30–16:00

Should already know:
- How to design a computer.
- How to design a good computer.

Will learn:
- How to design a better computer.

Prerequisites By Course:
- EE 4720, Computer Architecture

Prerequisites By Topic:
- Logic design.
- Computer organization.
- Assembly-language programming.
- Computer architecture.
- C programming.

Text
“Computer architecture, a quantitative approach,” John L. Hennessy & David A. Patterson, Second Edition. (One or two chapters used.)
Technical papers. (Many will be linked to web site.)

Course Content
- Simulation and instrumentation techniques
- Branch and data prediction.
- Advanced implementation techniques.
- Prefetch and advanced caching techniques.
- Symmetric multiprocessing (shared memory computers).
- Multithreading.
- Non-standard control-flow machines.
- And more! (Time permitting.)

Graded Material
Midterm Exam, 35%
Fifty minutes, open book.

Final Exam, 35%
Two hours, open book.

Homework and Mini-Projects, 30%
Lowest grade or unsubmitted assignment dropped.
Mini-Projects

Analyze or simulate some architectural feature.

Use real research tools.

Examples:

- Test new branch prediction technique.
- See how useful a new instruction would be.

But won’t that be hard?

- Not that hard.
- Programs for similar problems will be provided.