EE 6313 Advanced Microprocessor Systems
Fall 2006

Instructor:
Jason Losh, Ph.D.
jlosh@uta.edu
Office Hours will begin at 6:50pm MW outside the classroom.
E-mail is the quickest method of contacting me on non-class days.

Textbook:
Computer Organization and Architecture: Designing for Performance, 7th ed., William Stallings, Prentice Hall 2006, ISBN 0-13-185644-8.

Extensive references, datasheets, application notes, and class notes will be provided on the course web site at http://omega.uta.edu/~jlosh/.

Listserv:
Please sign up for the EE6313-L listserv to receive the latest updates (go to http://listserv.uta.edu for details)

Catalog Course Description:
6313. ADVANCED MICROPROCESSOR SYSTEMS (3-0). Study of the advanced microprocessor architectures including 32/64-bit RISC processors from leading manufacturers. The design concepts, performance and architectural limitations of RISC and CISC families of microprocessors will be compared based on detailed architectural analysis of the selected devices. Topics include: address/instruction pipelines, burst cycles, memory caching and cache coherency issues, register renaming, speculative instruction execution and other performance-oriented techniques. Prerequisite: EE 5313 or consent of instructor.

Course Topics:
- CPU Design: ALU, Registers, Control Unit
- Instruction Sets: Minimalism, Orthogonality, RISC/CISC
- Predication, Speculative Execution, and Out of Order Execution
- Protected Mode Operation
- Multitasking Operating Systems
- Pipelining: Design, Hazards, Stall/Forwarding Resolution
- Parallelism and Superscalar Architectures
- Cache Memory Design: Mapping, Miss/Hit, Replacement, Write-back Strategies
- Virtual Memory: Paging, Segmentation, Translation and Look-around
- High-speed I/O Design

Important Dates:
First Class (Monday, 8/28), Labor Day Holiday (Monday, 9/4), Census Date (Wednesday, 9/13), Lab No Lecture (Monday, 10/30), and Last Drop Date (Friday, 11/3)

Performance Assessment:
- Grade scale: A (90-100), B (75-89), C (60-74), D (50-59), and F (0-49)
- Standard grade calculation: (Project 1 + Project 2 + Project 3) / 3
- The instructor reserves the right to make reasonable changes in performance evaluation as needed.

Graduate Teaching Assistant:
Asma Al-Tamimi, Office Hours 7-8:30pm MW and 5-8pm F, 148NH, altamimi@arri.uta.edu

Projects:

- Project teams will consist of one or two team members
- 3 projects will be assigned.

Academic Honesty:
It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. “Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22). ANY CHEATING WILL RESULT IN SEVERE PENALTIES. All work submitted must be original. If derived from another source, a full bibliographical citation must be given.

EE Department Policy requires that you sign and return a letter acknowledging the College of Engineering Ethics policy.

Americans with Disabilities Act:
If you require an accommodation based on disability, please feel free to meet with me during the first week of the semester to make sure that you are properly accommodated. Contact Dr. Cheryl Cardell (272-3670) or Mr. Jim Hayes (272-3364) for more information.