EE 3310 Microprocessors (Updated) Spring 2002, TTh 7:00-8:20pm, 229 NH

Instructor:

Jason Losh, Ph.D. <u>jlosh@ftw.mot.com</u> or (817) 245-6495 Office Hours are before and after class in 525 NH and at other times by appointment

Textbook:

The 8088 and 8086 Microprocessors – Programming, Interfacing, Software, Hardware, and Applications, 3^{rd} ed. by Triebel and Singh, ISBN 0-13-010560-0

Catalog Description:

Principles of operation for 80x86 family of microprocessors, including assembly language programming, internal architecture of 80x86 processors, timing analysis, and interfacing techniques. Special emphasis will be placed on hardware-software interactions, design of memory systems for microprocessors and utilization of programmable peripheral devices. Prerequisites: EE 3341, CSE 1320.

Course Topics:

- Review of combinational logic: decoders, multiplexers, and adders
- Review of sequential logic: flip-flops, latches, counters, shift registers, multipliers
- Introduction of basic computer concepts: buses, control and data planes, and memory and i/o spaces
- Stored-program computer concepts: ALU, accumulator, instruction register, program counters, memory
- Architecture issues: pipelining, parallel processing, CISC v. RISC, microcontrollers v. microprocessors
- Short survey of processor families: 80x86/808x/Z80, 680x0/6800/HC11, M80, PIC, and others
- 80x86 architecture, interfacing, timing, and memory
- 80x86 peripheral devices (serial/UART, parallel, and others)
- 80x86 assembly language programming and high-level language function calls

Additional References:

- Digital Logic Design Principles by Balabanian and Carlson, 2001, ISBN 0-471-29351-2
- An Engineering Approach to Digital Design by Fletcher, 1980, ISBN 0-13-277699-5
- Embedded Microcontrollers and Processors, vols. 1 and 2, Intel, 1992, ISBN 1-55512-140-3
- Microprocessor, Microcontroller and Peripheral Data, vols. 1 and 2, Motorola, 1998
- Microprocessors vols. 1 and 2, Intel, 1992, ISBN 1-55512-150-0
- *Microprocessors and Interfacing Programming and Hardware*, 2nd ed. by Hall, 1992, ISBN 0-07-025742-6
- PIC Microcontrollers, Microchip, 1995
- Z8 Family Design Handbook, Zilog, 1988
- Microprocessor Systems: The 8086/8088 Family, 2nd ed. by Liu and Gibson, 1986, ISBN 0-13-580499-X
- Microcomputers and Microprocessors: The 8080, 8085, and Z-80 Programming, Interfacing, and Troubleshooting by Uffenbeck, 1985, ISBN 0-13-580309-8
- Programming the 8086/8088 by Coffron, 1983, ISBN 0-89588-120-9
- The Programmer's PC Sourcebook by Hogan, 1988, ISBN 1-55615-118-7

Important Dates:

Census Date (Wednesday, 1/30), *Test 1* (<u>Tuesday, 2/19</u>), First UG Drop Date (Friday, 2/22), Spring Break (3/18-22), Test 2 (Thursday, 3/28), Last UG Drop Date (Friday, 4/12), Last EE3310 Class (Tuesday, 4/30), Project Defense Date (Thursday, 5/2), Last Day of Classes (Friday, 5/3), and Comprehensive Final Exam (Thursday, 5/9 from 8:15-10:45pm)

Performance Assessment:

- Grade scale: A (90-100), B (75-89), C (60-74), D (50-59), and F (0-49)
- Grade calculation: (Test1 + Test2 + Final + Project) / 4
- The instructor reserves the right to make reasonable changes in performance evaluation as needed.

Tests and Final:

- Calculators, rulers, pencils, pens, books, and notes will be allowed during tests.
- Any device capable of compiling or emulating any 80x86 code is not allowed during tests.
- No makeup will be provided for Test 1, Test 2, or the Comprehensive Final Exam.

Project:

- 2-d digitizer, USB device, or internet appliance at preference of student
- Will be called from a high-level language such as C, C++, or Fortran

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.

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.