EE 3310 Microprocessors
Summer 2008, MW 3:30-5:20am, 108 NH

Instructor:
Jason Losh, Ph.D.
jlosh@omega.uta.edu
Office Hours are after class in 108NH or after 7:50pm outside 109NH.

Textbook:
The 80x86 IBM PC and Compatible Computers, 4th ed., Mazidi and Mazidi, Prentice Hall, 2003, ISBN 9-780130-617750

Listserv:
Please sign up for the EE3310-L listserv to receive the latest updates (goto http://listserv.uta.edu to manage your subscriptions or send a message to listserv@listserv.uta.edu with no subject line and the command SUBSCRIBE EE3310-L as the message body).

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
- Development of a simplified single-bus microprocessor
- Comparison of simplified single-bus microprocessor with other 8- and 16-bit processors
  such as the 80x86/808x/Z80, 680x0/6800/HC11, M80, PIC, and others
- Architecture issues: pipelining, parallel processing, superscalar, CISC v. RISC,
  microcontrollers v. microprocessors
- 80x86 assembly language programming and high-level language function calls
- 80x86 architecture, interfacing, timing, and memory
- 80x86 i/o devices: parallel and serial/UART (as time permits)

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:

First Day of Class (Wednesday, 5/28), Census Date (Monday, 6/2), Test 1 (Wednesday, 7/2), Project Hardware Due Date (Monday, 7/7), Last Drop Date (Friday, 7/11), Project Defense Date (Monday, 8/4), Test 2 (changed to Wednesday, 8/6 at 3:30pm per http://www3.uta.edu/registrar/FinalSummer2008.asp).

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

Shared Graduate Testing Assistants:
Vishal Sanghai, vsanghai@uta.edu, assigned to EE3310
Brijesh Chauhan, brijesh.chauhan@uta.edu, assigned to EE5313

Tests (67% of Grade):
- Test topics:
  Test 1 will cover the simplified single-bus microprocessor and some software programming specific to the 80x86 processor.
  Test 2 will cover software programming and hardware design specific to the 8086 maximum-mode processor
- 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 in-class portions of the tests.
- No makeup will be provided for any test.
- Any request for regarding must be submitted to the grader within one week of the return date.

Project (33% of Grade):
- Each team must complete construction of the hardware for this project no later than 7/7.
  Penalties of 25% of the total hardware portion of the project grade will be accessed per class day.
- The entire project (hardware and software) will be defended on 8/4. No late projects will be accepted.

Academic Integrity:
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, Series 50101, Section 2.2)

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

Americans with Disabilities Act:
The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability.   Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Student Support Services:
The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.