EE 5313 Microprocessor Systems
Summer 2011, MW 3:30-5:20pm, 112 NH

Instructor:
Jason Losh, Ph.D.
jlosh@uta.edu
Office Hours are after 5:20pm MW outside 112NH
E-mail is the quickest method of contacting me on non-class days.
No phone or office has been assigned by the University.

Textbook:
No textbook will be required for this course. 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 EE5313-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 EE5313-L as the message body).

Catalog Description:
5313. MICROPROCESSOR SYSTEMS (3-0). Hardware/software development techniques for microprocessors and their programmable peripherals, with emphasis on multi-byte width memory design, throughput issues including DMA controller design, coprocessor operation, interrupt-driven i/o, oscillator issues and timer peripherals, analog signal interfacing, and digital buses and interfaces. Topics include: code efficiency issues, hardware-software interactions, and design of memory systems, DMA controllers, and real-world interfacing.

Prerequisites:
Familiarity with at least one microprocessor microcontroller is required. Essential background includes assembly language programming, memory organization and timing, basic i/o interfacing, and interrupt operation. Also, knowledge of C or C++ is important.

Measurable Student Learning Outcomes
- Knowledge of microprocessor and microcontroller architectures
- Proficiency in memory organization and interfacing (up to 64-bit widths), refresh, error correction (ECC)
- Application of EEPROM, flash, and RAM (SRAM, DRAM, FPM, EDO, SDRAM, DDRx)
- Analysis of data throughput with programmed i/o and DMA
- Design of SDRAM/DDRx memory controllers
- Use of software and hardware interrupts and interrupt service routines
- Understanding of tradeoffs between interrupts and polling (latency, effective rates, and efficiency)
- Introductory knowledge of coprocessor interfacing and multi-processor
- Knowledge of multiple clock generation, phase locking, and handling asynchronous data
- Interfacing with real-world signals: analog signal interfacing, isolation, ground loops, noise, and EMI
- Working knowledge of I/O buses and interfaces: ISA/PCI/PCIe, serial (RS-232/422/423/485),
  IEEE-1394, and USB

Additional References:
Many resources will be provided in addition to the textbook. These documents will be posted at http://omega.uta.edu/~jlosh/.

Important Dates:
First Day of Class (Monday, 6/6), Census Date (Thursday, 6/9), Tentatively Pre-taped Class (Monday, 6/27), Test 1 (Wednesday, 6/29), No Class (Monday, 7/4), Last Drop Date (Thursday, 7/21), Project Defense Date (Wednesday, 8/10), Test 2 (Monday, 8/15 at 3:30pm)

Performance Assessment:
- Grade scale: A (90-100), B (80-89), C (70-79), D (60-69), and F (0-59)
- Grade calculation: (Test1 + Test2 + Project) / 3
- The instructor reserves the right to make reasonable changes in performance evaluation as needed.

Graduate Testing Assistants:
Jonathon Armstrong, jonathan.armstrong@mavs.uta.edu
Emanuel Stingu, pestingu@arri.uta.edu
Office hours and locations will be announced in class.

Tests (67% of Grade):
- Calculators, rulers, pencils, pens, books, and notes will be allowed during tests.
- Computers are not allowed during tests.
- No makeup will be provided for any test.
- Any request for re-grading must be submitted to the grader within one week of the return date.
- For all tests, Web students shall take exams at the same day as on-campus students.

Project (33% of Grade):
- Project teams will consist of one to three team members.
- Off campus students shall also meet this deadline for the project.

Cost:
No textbook will be required but you may wish to purchase a textbook for reference.

Attendance Policy:
Attendance is not required, but a grade of zero will be provided for any quiz, test, or project deadline that is missed. The student is responsible for obtaining notes on any material missed.

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.

Drop Policy:
Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information.

Americans with Disabilities Act:
The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Student Support Services:
The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

Electronic Communication Policy:
The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. Students are responsible for checking their MavMail regularly. Information about activating and using MavMail is available at http://www.uta.edu/oit/email/. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

To obtain your NetID or for logon assistance, visit https://webapps.uta.edu/oit/selfservice/. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at helpdesk@uta.edu.