

TECH 3233

Microprocessor Technology

Spring 2012

CLASS MEETINGS: Tuesday / Thursday 9:40am – 11:05am ET 238

LAB MEETING: Thursday 1:00pm – 3:45pm ET 227

INSTRUCTOR: Daniel Kohn

PHONE: 213-7811 (days)

EMAIL: dekohn@memphis.edu

Class Website: <http://www.tech-uofm.info> (Click on TECH 3233 link)

OFFICE: ET 218

OFFICE HOURS: I will be available during posted hours or by mutual agreement for consultation and/or advisement.

CATALOG DESCRIPTION: Computer history and architecture; microprocessor and microcomputer operation; fetching and executing instructions; microprocessor registers; memory addressing modes; assembly-language instructions; assembler operation. Three lecture hours, three laboratory hours per week. PREREQUISITE: TECH 1211 and 3232, TECH 2821.

COURSE OUTCOMES:

1. Demonstrate knowledge of the vocabulary of microprocessor architecture.
2. Demonstrate knowledge of the programmer's model, flags, registers, and program debugging.
3. Demonstrate knowledge of a specific microcontroller architecture, including instruction set, hardware features, applications design, and assembly language programming.
4. Demonstrate knowledge of addressing modes, bit addressing, conditional branching, loop control, subroutines, and lookup tables.
5. Given an assembly language program, explain the purpose of the instructions in the context of the problem being addressed.
6. Given a problem statement, design an appropriate software solution and implement it.
7. From a problem statement, design a hardware and software solution, and implement it.

TEXT: Various on line material supplied by instructor

TOPICS:

1. Computer architectures, MC68HC11 microcontroller architecture, and Fox11 MC68HC11 board
2. Random access memories, read-only memories, and flash memories
3. Register sets and addressing modes
4. Machine code and assembly language
5. Fetching and executing instructions

ATTENDANCE: Class attendance is *mandatory*. Students are responsible for all materials presented in class whether they have attended or not. If a student misses a class, lecture notes should be obtained from a fellow classmate, not from the instructor.

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LABS: All lab reports are due at the beginning of the next lab period (unless otherwise stated by the instructor). The lab grade is determined by the quality of the lab sheets, reports, and actual performance on the lab. Reports will be graded on the basis of content, neatness, professionalism, logical presentation, completeness, and clarity of presentation.

All labs must be demonstrated, or a grade of ZERO will result for the lab.

If a group assignment is given, participation in the group will be a major part of the grade. Just because your group gets a good grade does NOT mean you will get the same grade if you did not actively participate in the effort.

Read lab handouts before asking questions. A lot of time is taken preparing lab handouts and I try to answer most of your questions in their contents. If it is obvious that you have not read them I will simply answer your question with “go read the handout”.

You are expected to clean up after yourself in lab, failure to do so will result in a reduction in grade.

TESTS: There will be two or more tests during the semester and the Final will be comprehensive. There will be no makeup tests, unless prior notification and approval is given by the instructor.

Extra Credit: There will be opportunities for extra credit during the semester. Extra credit only applies once a student has proven proficiency in the class material by receiving a passing grade in the class.

UNIT GRADING: The unit grade will be computed in accordance with the following weighting of each element:

Labs	35%
Formal Lab(s)	15%
Test and Final (at least 3)	50%

GRADING SCALE: Beginning with the Fall, 2000 semester, a plus/minus grading system has been adopted by the University for optional use. This plus/minus grading system will be used in this course. The student’s letter grade for the semester is determined by the percentage point total as computed above (see **UNIT EVALUATION** above) in accordance with the scale presented below. For reference, associated quality point values for each of the grades is also listed:

Grade	Percentage	Quality Points
A+	100% - 98%	4.00
A	97% - 93%	4.00
A-	92% - 90%	3.84
B+	89% - 88%	3.33
B	87% - 83%	3.00
B-	82% - 80%	2.67
C+	79% - 78%	2.33
C	77% - 73%	2.00
C-	72% - 70%	1.67
D+	69% - 68%	1.33
D	67% - 60%	1.00
F	59% - 0%	0.00

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ELECTRONIC DISTRIBUTION OF ASSIGNMENTS, HANDOUTS, NOTICES, ETC. : Course information used to supplement the textbook and all handouts will be posted to the class website at:

<http://www.tech-uofm.info> (click on TECH 3233 link)

Additionally, e-mails will be sent to your University of Memphis e-mail account on occasion. [if you wish to use an email account other than that provided to you by the University, you need to set up forwarding of your University e-mail to another preferred address]

COMPUTER LABS: Because we are limited to the amount of application programs, LAN and computers available, you are advised to use the lab facility as soon as possible after the assignment is given. There may be times when a computer system is not available, all machines are occupied, or the printer is out of paper or toner. Avoid a bottleneck the day before the due date.

DON'T PROCRASTINATE!!

LAB PROBLEMS: If you are having problems that the lab assistant cannot remedy, save the work you have completed thus far and return during office hours or schedule an appointment. You may ask about lab problems in class but it is usually more productive for both of us to be at the computer.

CELL PHONES & PAGERS: Disruptions to class meetings are to be avoided. For this reason all cellular telephones and pagers are to be turned off before entering the classroom unless your equipment has an inaudible alert feature (vibratory alert). First infractions of this policy will result in a verbal warning; each subsequent infraction will result in a two-(2) percentage point penalty against your final course grade. If required, further action will be taken as outlined in the Student Handbook under the heading "Classroom Misconduct."

DISABILITIES: Any student who may need class or test accommodations based on the impact of a disability is encouraged to speak with me privately to discuss your specific needs. Students with disabilities should also contact Student Disability Services (SDS) at 110 Wilder Tower, 678-2880. SDS coordinates reasonable accommodations for students with disabilities.

ACADEMIC INTEGRITY: The Student Handbook of The University of Memphis states that students are expected to conduct themselves with personal and academic integrity. Regardless of these expectations, some students will still "cheat".

ACADEMIC MISCONDUCT: The University of Memphis, Code Of Student Rights And Responsibilities, defines academic misconduct as all acts of cheating and plagiarism. The full Code Of Student Rights And Responsibilities may be found on the University web site by selecting Student Handbook. Academic misconduct will not be tolerated and such acts will result in the pursuit of the strictest possible sanctions against the student

The term "cheating" includes, but is not limited to:

- a. Using any unauthorized assistance in taking quizzes or tests
- b. Using sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments
- c. Acquiring tests or other academic material before such material is distributed by the instructor
- d. Misrepresenting papers, reports, assignments or other materials as the product of the student's sole independent effort
- e. Failing to abide by the instructions of the proctor concerning test-taking procedures (examples include talking, laughing, failure to take a seat assignment, failing to adhere to starting and stopping times, or other disruptive activity)
- f. Influencing or attempting to influence any University employee in order to affect a student's grade or evaluation
- g. Any forgery, alteration, unauthorized possession, or misuse of University documents pertaining to academic scores, including late or retroactive "drop slips" and withdrawal application forms

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The term “plagiarism” includes, but is not limited to, the use by paraphrase or direct quotation of the published or unpublished work of another person without full or clear acknowledgement. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.

It is important for the student to understand that not only is the person who receives unauthorized help guilty of cheating and/or plagiarism so is the party who provides this help. For this reason it is important that you protect your own work so that you do not become an unintentional victim of cheating. DO NOT give others access to your computer files, printouts, lab reports or any other information. Computer printouts that you do not plan to use should be destroyed so that they can not be retrieved from trashcans. In addition, DO NOT save files on the hard drives of lab computers.

SANCTIONS FOR ACADEMIC MISCONDUCT: A number of sanctions are available for cases of Academic Misconduct. These range from exercise of summary discipline in which the student may receive a grade of “F” for either the assignment or the entire course, up to and including expulsion from the University.

NOTE: The instructor reserves the right to make changes in the above stated topics as needed. The instructor also reserves the right to refuse any sloppy, unorganized papers -- homework, labs, programs, exams, etc. Take pride in your work and show me that you care. Strive for professionalism at all times.

RECORDS: Keep all material returned to you so you can: Study for tests, refer to notes on graded material and verify the accuracy of the grade book entries. Also keep electronic copies of ALL programs, some code will be reused in various labs, if you do not keep an electronic copy you will have to retype the code or start from scratch.