CSE 320: Computer Architecture and Organization

Spring Term 2017

Course Information

Boolean algebra and digital logic. Combinational and sequential circuits. Representations of data and instructions. Architecture and major components of computer systems. Assembly language programming and interfacing to high level languages. Assembler and linker processing.

Course Objectives

This course will introduce students to the interface between the hardware and software of modern computing systems by studying the ISA (instruction set architecture) of a typical microprocessor. Students will learn about:

a) the design of combinational and sequential circuits,
b) the representation of and operations on basic data types,
c) the architecture and organization of digital computing systems,
d) the process of translating and executing a computer program.

The primary vehicles to achieve these objectives are the study of general concepts and the study of a specific computing system which illustrates these concepts. Students will write C and assembly language programs in a UNIX environment.

Instructor: Charles B. Owen
Office: 1138 Engineering Building
Phone: 353-6488
Office Hours: 1pm-2pm Mon, Wed, and Thu and by appointment.
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TAs: Timothy Taviano, tavianot@msu.edu
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Schedule: Course is online, there are no schedule class meetings.


Prerequisites: CSE 232 and CSE 260.

WWW: Information about the class will be posted at:
https://facweb.cse.msu.edu/cbowen/cse320/.

Privacy: Electronic conversation via email, bulletin boards, or any of the angel features, is different from verbal communication because it retains the identity of the participant. In this course, all participants will have access to a list of names and e-mail addresses of other course participants. Participants in the course will be able to send bulk e-mail to all other participants.

Exams: This course will two written examinations. Examination dates and information are provided on the course web site.
System Assignments: Many weeks there will be a smaller tutorial/programming assignment that must be completed during that week. All system assignments are due when indicated on the class home page.

Circuit Assignments: Most weeks will include a circuit assignment that must be completed during that week.

Step and Design Assignments Completion Rule:
If you fail to turn in any circuit or system assignment, that assignment will be assigned a grade of negative 100%.

Grading: Grade components are indicated on the grading page on the course web site. See https://facweb.cse.msu.edu/cbowen/cse320/lib/grading/grades.php for details.

Final grades will be based on the scale:

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<tr>
<td>4.0</td>
<td>90%+</td>
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<tr>
<td>3.5</td>
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Grades are rounded to the nearest integer, so an 89.5 is a 4.0.

Extra credit: There may be limited opportunities for extra credit. I do also make alternative incentives available for exceptional performance and competitive success. I also have on occasion assigned optional loss abatement questions.

Academic Honesty: Article 2.3.3 of the Academic Freedom Report states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the College of Engineering adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; the all-University Policy on Integrity of Scholarship and Grades; and Ordinance 17.00, Examinations. (See Spartan Life: Student Handbook and Resource Guide and/or the MSU Web site: www.msu.edu) Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the http://www.allmsu.com web site to complete any course work. Students who violate MSU rules may receive a penalty grade, including--but not limited to--a failing grade on the assignment or in the course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also http://www.msu.edu/unit/ombud/honestylinks.html)

That's the university policy. My specific policies are as follows: You may discuss individual assignments with other students, but the assignment must be entirely your own work. Plagiarism just makes me mad! All work turned in must be your own. If you borrow or adapt software from a textbook or from source code that is obviously public, you must treat this as a quotation or paraphrase, acknowledging the source in the heading or the program module.

This class is extraordinarily easy to cheat in. Since all assignments must be accessible to the web server, they will necessarily be accessible to other students. Please avoid this temptation. We will deal with instances of academic dishonestly very severely. Any
attempt to hack the course web site (bypassing security, spoofing the quizzes, etc.) will be grounds for immediate expulsion from the course and possible criminal charges.

You may discuss assignments in general terms with your classmates, the course staff, or the instructor, but you are not permitted to receive solutions from others or to read or copy part or all of another person’s solution to a problem.

**Disabilities:** Students with disabilities should contact the Resource Center for Persons with Disabilities to establish reasonable accommodations. For an appointment with a disability specialist, call 353-9642 (voice), 355-1293 (TTY), or visit MyProfile.rcpd.msu.edu.

**Commercialization:** Commercialization of lecture notes and university-provided course materials is not permitted in this course.

**Religious Holidays:** You may make up course work missed to observe a major religious holiday only if you make arrangements in advance with the instructor.

**Required Activities:** To make up course work missed to participate in a required activity for another course or a university-sanctioned event, you must provide the instructor with adequate advanced notice and a written authorization from the faculty member of the other course or from a university administrator.

**Attendance:** Students whose names do not appear on the official class list for this course may not attend this class.

**Disruptive Behavior:** Article 2.3.5 of the Academic Freedom Report (AFR) for students at Michigan State University states that "The student's behavior in the classroom shall be conducive to the teaching and learning process for all concerned." Article 2.3.10 of the AFR states that "The student has a right to scholarly relationships with faculty based on mutual trust and civility." General Student Regulation 5.02 states that "no student shall . . . interfere with the functions and services of the University (for example, but not limited to, classes . . .) such that the function or service is obstructed or disrupted. Students whose conduct adversely affects the learning environment in this classroom may be subject to disciplinary action through the Student Faculty Judiciary process.

The course schedule is subject to change with appropriate notice. Dates for all assignments will be indicated on the class web site.