Course Syllabus: Computer Architecture Spring 2021

Course Information
CS/SE 2340 Computer Architecture (Online)

Class Resources

- **eLearning**: We will use eLearning for the grade book, links to quizzes and exams, and links to upload assignments.
- **YouTube**: Content lectures are on YouTube in the Computer Architecture playlist on my channel: https://www.youtube.com/user/JaniceMazidi
    - Videos for homework explanation or exam review will be unlisted. Links to these videos will be provided in Piazza.
- **Piazza**: We will use Piazza for asynchronous class discussion, announcements, homework instructions, and more.
    - Rather than emailing questions to me or the Grader, please post your questions on Piazza so that everyone has the same information.
    - Piazza also has a free android/iphone app.
    - Participation in Piazza is part of your grade this semester.
    - Sign up here: piazza.com/utdallas/spring2021/csse2340
    - Piazza is moving from the free version to paid models. For now, you will get contributions requests from Piazza, you are not required to contribute.

Equipment Needed for this Course

- a computer
- Chrome (needed for Honorlock, described below)
- A webcam and microphone for tests (for Honorlock)

Professor Contact Information
Dr. Karen Mazidi
Karen.Mazidi@utdallas.edu
972.883.3868 Office phone (goes to MS Teams)
You can also message me through Teams
Office hours: Mon/Tue/Wed/Thu 7:00 – 7:30 pm
Emails are generally answered during office hours.

Grader Information

TBD.

Course Modality: Online

This course has the online modality. All course content is online and asynchronous, but there are still due dates for assignments, quizzes, and exams. There is no 'attendance'; rather participation/contribution is measured in Piazza.

Course content videos are on YouTube with public access. Videos specific to this course such as homework or exam discussions are on YouTube with link access. Links to all videos are in a weekly To-Do list posted in Piazza.

Participation Policy

- Piazza keeps statistics by student for their viewing and contributions.
- Please don't try to juice your grade by posting just for the sake of posting. If I see too many trivial posts, I may have to delete some of them.
- I am strongly opposed to outside chat apps such as GroupMe. There is no legitimate reason to use these instead of Piazza. If you want to provide leadership, do it in Piazza where you get credit for it.

Exams and Honor Lock

This course will use Honorlock – an online exam proctoring tool. To successfully take an exam, you must have a web camera with microphone, a laptop or desktop computer (no tablets/phones), Chrome browser, a reliable internet connection and your photo ID. You will be prompted to install the Honorlock Chrome Extension (which you can remove after you finish the test). You will then access the exam within your eLearning course and go through the authentication process. The web camera will monitor you throughout your test.

Read more about Honorlock: https://honorlock.com/
Support info: https://honorlock.com/support/

I will post an Honorlock sample test so that you can test your equipment prior to the exam. Honorlock will not be used on quizzes.

Course Pre-requisites

CS/CE/TE 1337 (Computer Science I) with a grade of C or better, and
CS/CE/TE 2305 (Discrete Math I) with a grade of C or better

Course Description

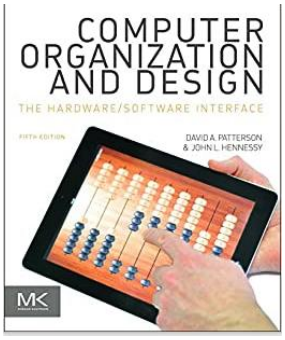
This course introduces the concepts of computer architecture by going through multiple levels of abstraction, and the numbering systems and their basic computations. It focuses on the instruction-set architecture of the MIPS machine, including MIPS assembly programming, translation between MIPS and C, and between MIPS and machine code. General topics include performance calculation, processor datapath, pipelining, and memory hierarchy. Credit cannot be received for both courses, (CS 2340 or SE 2340 and (CE 4304 or EE 4304).

Student Learning Objectives

After successful completion of this course, students will:

1. Be able to write a fully functional, stand-alone medium size assembly language program
2. Have an ability to represent numbers in and convert between decimal, binary, and hexadecimal and perform calculations using 2's complement arithmetic
3. Understand the basic model of a computer including the datapath, control, memory, and I/O components
4. Be able to program efficiently in an assembly level instruction set, including the use of addressing modes and data types
5. Understand the role of compilers, assemblers, and linkers and how programs are translated into machine language and executed
6. Be able to demonstrate comprehension of a pipelined architectures including datapaths and hazards
7. Be able to demonstrate comprehension of computer performance measures and their estimation
8. Understand the memory hierarchy including caches and virtual memory

Required Textbooks and Materials



Textbook: Computer Organization and Design MIPS Edition (5th ed) by David A. Patterson and John L. Hennessy
ISBN-13: 978-0124077263
ISBN-10: 0124077269

Software

This course will involve coding in the MIPS assembly language using MARS (MIPS Assembler and Runtime Simulator). Get it free here:
http://courses.missouristate.edu/KenVollmar/mars/ or google MIPS MARS

This is a simple jar file that you can download and run.

Important Dates

- Tuesday 1/19 – UTD Spring semester begins
- Friday 2/19 - Exam 1 (estimate)
- Friday 4/2 - Exam 2 (estimate)
- Wednesday 5/12 - Exam 3 (estimate)

Grading

Course grade is composed of:

- 25% Homework; approx. 8 assignments
- 20% Quizzes; at least one per week
- 15% Exam 1
- 15% Exam 2
- 15% Exam 3
- 5% Project
- 5% - Contribution/participation on Piazza

Letter grades will be assigned according to the UTD +/- conventions in elearning:

- 0,1,2,3 are minus
- 7,8,9 are plus
- 4,5,6 are neither
- Grades are not rounded up to the next level. That is, 89.7 for example is a B+.

  Note: Computer Architecture is a challenging course. I expect about 25% percent of the class will make an A.

Instructor Policies

- Assignments must be turned in on the due date, by 11:59 pm. It's a good idea to *screen shot your upload confirmation as proof* that you did submit the homework.
  - As Charles Isbell said: There is nothing wrong with waiting until the last minute. The secret is knowing when the last minute is.
- Late assignments are deducted by 10% on the first and second days late. After two days, assignments are not accepted.
- Upload your homework files with netid and section name like this:
  - abc012345-0w1-Homework1.asm
- Makeup exams are not given unless prior permission is granted due to extreme circumstances.
- Do not turn in work that is not your own, original work. Discussion and collaboration with your peers is a good thing, turning in someone else's work as your own is not. Coding assignments are checked for plagiarism programmatically.
- **If you do not agree with a grade you have been given, you must make your case within a week of receiving the grade or the grade stands as is**

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to Academic Support Resources webpage for these policies.

UT Dallas Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.