

Syllabus

CSC218 Computer Organization

Instructor: Sikder Huq

Block 1

August 27, 2018 to September 19, 2018

1 Our meeting times and places

- My office is in Law 206D.
- You may send me electronic mail at SHuq@cornellcollege.edu.
- You may call me in my office at (319) 895-4105.
- We will all meet together in the classroom in the mornings and in the laboratory in the afternoons.
- I will be in my office and available to meet with you Monday through Friday after the lab sessions (typically from 3:00 p.m. until 3:30 p.m) and by appointment.

	Where	When
Classroom	Law Hall 309	9 a.m. to 11 a.m.
Laboratory	Law Hall 113	1 p.m. to 3 p.m.

2 Textbook

- [The Elements of Computing Systems: Building a Modern Computer from First Principles](#), Noam Nisan and Shimon Schocken, The MIT Press, Cambridge, Massachusetts, 2005, ISBN 0-262-14087-X

3 Other resources

- [Build a modern computer from first principles: from NAND to Tetris](#)
- Textbook (optional): Digital Design and Computer Architecture, Harris and Harris, 2nd Edition, 2012.

4 Course Web Page

Homework assignments, lecture notes/slides, and announcements will be posted in Moodle.

Daily lecture/activity summaries will be posted in the following Web page:

<https://sites.google.com/site/saikatcit05/teaching/fall18csc218>

5 Course objectives

We will give special attention to three of Cornell College's **missions, values, and educational priorities**:

- **Knowledge:** you will develop an overall understanding on how computers work and how they are designed. After successful completion of this course, you should be able to:
 - Understand how hardware and software systems are built, and how they work together
 - Interpret the function of a digital logic circuit comprised of combinational and sequential logic
 - Explain how numbers and other data are represented and stored within the computer
 - Explain the role of various representations of a program, such as machine code binary and source code
 - Explain how computer programs run on a CPU in terms of the computing stack, comprised of layers of the system that each hide complexity below
 - Understand MIPS microarchitecture
- **Inquiry:** you will learn how to design a complex and fully functioning computer system from scratch using a hardware simulator. You will break complex problems into simpler ones and ask yourself how you can solve them efficiently to solve the overall larger problems.
- **Citizenship:** in this project-centered course you will learn how to collaborate with classmates. You will learn with one another and from one another.

6 Grades

You are expected to participate in the discussions and work actively in the laboratory. There will be in-class quizzes/exercises to verify your understanding of the materials presented in class. There will also be four/five short written assignment throughout the block.

Grading of this course will be based on the following components:

Activity	Points
Participation and in-class quizzes/exercises	10
Short written assignments	10
Graded exercise 1 (Monday, 3 August, 2018)	20
Graded exercise 2 (Friday, 7 September, 2018)	20
Graded exercise 3 (Friday, 14 September, 2018)	20
+ Graded exercise 4 (Wednesday, 19 September, 2018)	20
	100

Note that, the graded exercises are likely to take place in class. The dates mentioned above are tentative.

The final grade will be assigned according to the following percentages: 90 A, 85 A-, 82 B+, 78 B, 75 B-, 70 C+, 65 C, 60 C-, 55 D+, 50 D, 45 D-, <45 F.

The grades of the graded exercises might be curved to calibrate for the difficulty of the exercise relative to course objectives; your curved grade will always be equal to or higher than your raw points. The instructor reserves the right to adjust the weights and percentages if it is appropriate and will notify students if these adjustments occur.

7 Etiquette for the Classroom

Please show respect to your classmates, to me, and to the seriousness of our enterprise by exercising the following courtesies:

- Please give your attention to whomever is speaking. You cannot view unrelated pages on the Web and be part of our class' discussion at the same time.
- You learn from your classmates. Be generous in offering help to classmates in the laboratory. Take interest in your classmates' work. Encourage them. Compliment them for work that is well done. Give them a good audience when they stand at the front of the room to present their work. Show these courtesies to all of your classmates.
- Please do not interrupt the class by late entries or early departures. If you anticipate a need to be absent from all or part of one of our meetings,

please notify me in advance of your anticipated absence.

- You may listen to music while working in the laboratory so long as you are still able to hear your name when called and you do not disturb neighbors.
- Please refrain from bringing food or drink into the classroom or laboratory. We can make reasonable exceptions for eating that is not noisy and foods that do not have strong smells.

Acceptable beverages and foods include water, tea, and granola bars. Bringing breakfast to class is not courteous.

Please clean up crumbs and spills. Please dispose of empty containers and leftovers.

- Please dress as you might for an employer in the software engineering industry. Please keep your shoes on. Wearing hoods, hats, or sunglasses (except when there is a medical reason for shielding the eyes) that hide your face is not courteous.
- Imagine that you are seeking employment. How will you present yourself to your prospective employer?

Imagine that you are now employed in a software engineering firm. How will you speak to your teammates, the head of your team, and your company's clients?

Imagine that your grandmother has purchased the company for which you work. She has joined you in the company's conference room to hear and see you walk through the code that you have written for the company (her company).

Are there some words that you will keep out of your vocabulary during this hour?

8 Policies

Academic Honesty expectations: Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Catalogue, under the heading "Academic Honesty."

Students with disabilities: Cornell College makes reasonable accommodations for persons with disabilities. Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format. For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see <http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml>.

This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, inquiry, and citizenship.