

University of Illinois at Urbana-Champaign  
Dept. of Electrical and Computer Engineering

# **ECE 120: Introduction to Computing**

## **Introduction and Overview**

Instructor: Ujjal Kumar Bhowmik

# ECE120: Introduction to Computing

## Lectures

	<u>M/W/F</u>	<u>Section:</u>
K. Levchenko	9 a.m.	AL1
A. Aggarwal	10 a.m.	AL2
U. Bhowmik	1 p.m.	AL3
S. Bhat	3 p.m.	AL4

## Teaching Assistants:

Vidisha Bhat, Yanan Liu, Christopher Ryu, Yeom Jaewook,  
Anh Leu, Kelvin Ma, Lijian Wang.

# ECE120 – Course Overview

- Understand the Computer Organization and how a computer executes instruction
- Understand systems perspective that includes both hardware and software (and some math!)
- Understand and identify design tradeoff
- Be able to write simple programs in assembly language and C

# ECE 120 Course Options

- ECE 120 is being offered in two different course delivery models
- **Traditional** sections AL2 (10 AM) and AL4 (3 PM)
  - 3 live (synchronous) lectures per week
  - 1 live discussion per week
- **Flipped** sections AL1 (9 AM) and AL3 (1 PM).
  - 3 pre-recorded (asynchronous) lectures per week
  - 3 live lecture-discussions per week
- All four sections will have the same labs, homework, and exams

# Traditional Course Delivery

- Closest to how ECE 120 was traditionally taught pre-COVID
- 3 live (synchronous) lectures per week over Zoom (Mon-Wed-Fri)
  - Lectures by Prof. Aggarwal and Prof. Bhat during designated lecture time.
- 1 live discussion per week over Zoom (Thu)
  - Discussions led by TAs during designated discussion times
  - Work in groups to complete a worksheet
- 10% of class grade based on discussion worksheets

# Flipped Course Delivery

- A more interactive model developed over the Summer
- 3 pre-recorded (asynchronous) lectures per week
  - Lectures by Prof. Lumetta you can watch on your own time before lecture-discussion
  - Self-study: textbook and course notes
- 3 live lecture-discussions per week over Zoom (Mon-Wed-Fri)
  - Lecture-discussions led by instructors during designated lecture times
  - View pre-recorded lecture and read course notes *before* lecture-discussion
  - Take a short quiz before each lecture-discussion
  - Complete an in-class worksheet (not graded) with instructor
- Do *not* need to attend discussion section
- 10% of class grade based on pre-lecture-discussion quizzes

# Your Next Step

- Decide which course delivery model works best for you
  - Attend both traditional and flipped sections this week
- Switch to your preferred section
  - **Traditional:** AL2 (10 AM) and AL4 (3 PM)
  - **Flipped:** AL1 (9 AM) and AL3 (1 PM)
- You do not need to attend discussion if you are in a flipped section
- You do not need to take pre-lecture quizzes in a traditional section

# Labs

- There are 13 labs in the class (one per week)
- Most labs are software-based
- Labs 4, 6, and 8 are *hardware* labs
- You will need the ECE 120 lab kit for these labs
- Kit for sale at <https://my.ece.illinois.edu/buy/>
- **Order the kit now** so you have it in time for Lab 4
- There will be *no extensions* given because of kits arriving late if you order your kit after August 29, 2020



# Homework

- There will be one homework assignment per week
- Homework will be due on Mondays at 9 PM
- Most homework assignments will have two parts:
  - **Skill Practice** and **Skill Application** problems on PrairieLearn
  - **Written** problems submitted via Gradescope

# Skill Practice and Application Problems

- Practice and apply core skills learned in class
- Each problem is a randomly-generated instance
  - You can do multiple instances of skill practice problems
- 100% credit if completed by deadline (Mondays at 9 PM)
- 50% credit if completed before end of instruction
- See instructions for each assignment for details

# Written Problems

- Problems that require analytical thinking
- First attempt graded on *completion only*
  - Full credit for attempting the problem even if your answer is not correct
- Second attempt (due a week later) graded on *corrections*
  - Only submit corrections for problems you did not answer correctly
  - Corrections must *explain* your mistake
- See instructions for each assignment for details

# Cheating and Academic Integrity

- Don't Cheat! We take cheating very seriously. Please read the [Student Code](#)
- The Student Code defines cheating as "Using or attempting to use in any academic exercise materials, information, study aids, or electronic data that the student knows or should know is unauthorized" (§1-402(a)) and notes that **"Substantial portions of the same academic work may not be submitted for credit more than once or by more than one student without authorization."** (§1-402(a)(4))
- How might cheating arise in a class like ECE 120?
  - If two people work together on a homework or lab assignment and hand in the same, or a substantially similar solution, that would be "Substantial portions of the same academic work." If you need help and, during the course of helping you debug, a friend gives you a few lines of code, this is "using... information... known to be unauthorized." Letting someone else do your homework or write code for you is absolutely a violation.

# Cheating and Academic Integrity (cont.)

- The student code also disallows facilitation of cheating, prohibiting "Helping or attempting to help another to commit an infraction of academic integrity, where one knows or should know that through one's acts or omissions such an infraction may be facilitated." (§1-402(c))
- How might cheating arise in a class like ECE 120?
  - Students should not post their code or problem solutions electronically. We recommend that students discuss flow charts and algorithms, but write their own code by themselves. Similarly, students are welcome to discuss homework assignments with peers, however, they must write up their final solutions on their own.

# Digital Systems are Comprised of Seven Abstraction Layers

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Problems

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Algorithms

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Language

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Machine (ISA) Architecture

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Microarchitecture

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Circuits

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Devices



Lecture format:

Lab Kit:

Academic Integrity:

Course wiki

PrairieLearn

Gradescope

Github

Zoom Poll

Worksheet