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

ECE 220: Computer Systems & Programming

Introduction and Overview
Fall 2020

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Digital Systems are Comprised of Seven Layers

The colors indicate the typical basis for each layer
◦ **human language / theory**
◦ **software**
◦ **digital hardware**

(figure based on Patt & Patel Ch. 1)

- Problems/Tasks
- Algorithms
- Computer Language
- Machine/Instruction Set Architecture (ISA)
- Microarchitecture
- Circuits
- Devices

2

Our Class Builds Upwards from ECE120

Your future work!
Future classes (CS374)
ECE220 is here!

In ECE120, you learned to build a computer from bits and gates.

- Problems/Tasks
- Algorithms
- Computer Language
- Machine/Instruction Set Architecture (ISA)
- Microarchitecture
- Circuits
- Devices

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What is ECE220?

◦ Teach a systems perspective that includes both hardware and software (and math!)
◦ ECE culture and goals
◦ Expectations of engineers
◦ Lifelong learning necessary
◦ Understand and identify tradeoffs
◦ International group—leverage it!
◦ Academic reality and grade philosophy

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