Lectures

TuTh 3:05PM-4:20PM Bryan Center Griffith Theater

Recitations

W 1:25-2:40PM, 3:05-4:20PM, 4:40-5:55PM

Faculty

Professor Benjamin Lee (benjamin.c.lee@duke.edu) Office Hours: TuTh 1:30-3:00PM, Hudson 210

Graduate Teaching Assistants

Shujun Qi (<u>shujun.qi@duke.edu</u>) Vinith Sharma (<u>vinith.sharma@duke.edu</u>) Dan Sun (<u>dan.sun@duke.edu</u>)

Head Undergraduate Teaching Assistant

Joseph DeChicchis (joseph.dechicchis@duke.edu)

Webpage

http://people.duke.edu/~bcl15/class/class_ece250fall19.html See Sakai for homework assignments, lecture slides

Synopsis

Computer structure, machine language, instruction execution, addressing techniques, and digital representation of data. Computer systems organization, logic design, microprogramming, and interpreters. Symbolic coding and assembly systems. Prerequisite: Computer Science 201 or consent of instructor.

Text

(1) Patterson and Hennessy. *Computer Organization and Design: The Hardware/Software Interface*, 5th edition, Morgan-Kaufmann. (2) Kernighan and Ritchie. *The C Programming Language*, 2nd edition (optional)

Assignments and Grading

This course will require readings from the textbook, problem sets, programming assignments, and digital logic design. Grades are assigned based on homework (50%), midterm-1 (15%), midterm-2 (15%), final (20%). You are expected to complete the homework individually unless otherwise stated. However, you may discuss topics covered in the class. Late homework submissions incur a 10% penalty when <24 hours late, incur a 20% penalty when 24-48 hours late, and receive no credit when >48 hours late.

If students have concerns about homework or exam grades, they have 5 days to raise their concerns to graders. No concerns or regrade requests, regardless of merit, will be considered after five days. For homeworks, contact your recitation TA, a graduate TA, and the professor in that order. For exams, contact a graduate TA and the professor in that order. For exams, contact a graduate TA and the professor in that order. For exams, contact a graduate TA and the professor in that order. For homeworks, the 5 days begins when grades are released on Sakai. For exams, the 5 days begins from when exams are returned in lecture; not attending lecture does not postpone this 5-day window. Once the 5-day window begins, say on Day X, it ends at 11:59pm on Day X+5.

Academic Integrity

The discussion of ideas and design strategies is an integral part of the learning experience. However, cheating and plagiarism is not. Practically, you violate academic integrity when

(1) you obtain solutions and code from others, or

(2) you provide solutions and code to others.

The Duke Community Standard, will be strictly enforced with zero tolerance for cheating and/or plagiarism. If a student is suspected of academic dishonesty (e.g., cheating on an exam, copying code, collaborating inappropriately on an assignment), the instructor will report the matter to the Office of Student Conduct. A student found responsible for academic dishonesty faces formal disciplinary action, which may include suspension. A student twice suspended automatically faces a minimum 5-year separation from Duke University.

Week	Торіс	Reading
Aug 26	Module 1: Course Introduction and Overview Introduction	Chapter 1
	Module 2: Instruction Sets and Assembly Programming C Programming	Chapter 2
Sep 2	From C to Binary	
Sep 9	Assembly Programming	
Sep 16	Module 3: Digital Logic Design Sequential Logic, Finite State Machines	Appendix B
Sep 23	Module 4: Processor Design Datapath, Control, Exceptions / Interrupts / Syscalls	Chapter 4.1 – 4.4
Sep 30	Midterm 1	
Oct 7	Module 5: Memory Caches	Chapter 5
Oct 14	Caches	
Oct 21	Main Memory	
Oct 28	Virtual Memory	
	<u>Module 6</u> : I/O	Appendix A.8
Nov 4	Midterm 2	
Nov 11	Module 7: Pipelined Cores	Chapter 4.5 – end
Nov 18	Module 8: Multi-core	Chapter 6
Nov 25	Survey – Modern Processors	
Dec 2	Review for Final Exam	