

Programming Lab 0 due, Sunday night, January 22, 11:59pm. (The program itself will be empty. The purpose of the assignment is to make sure we are on the same page using the system.)

January 23: Lecture 2: Intro to Instruction Set Architecture, with examples taken from many diverse ISAs. ISA tradeoffs. Detailed discussion of LC-3b, with Assembly language constructs. The Assembler, how it works. PL1.


Problem Set 1 due before class, January 30. (Emphasis: ISA, uarch of the LC-3b, the Assembly Process.)

January 30: Lecture 4: Microarchitecture. LC-3b data path, continued.

February 1: Lecture 5: Performance Enhancements to the Microarchitecture: Pipelining, Branch Prediction (The HEP), Out-of-order execution (a la Tomasulo).


Programming Lab 1 due, Sunday night, February 5, 11:59pm. (Write a program in LC-3b Assembly Language. Write an Assembler. Assemble the program you have written.)

February 6: Lecture 6: Microarchitecture Performance Enhancements (continued).

February 8: Lecture 7: The notion of Process, the unit of work managed by the Operating System, and its implications on Interrupts and Exceptions and Virtual memory.


Problem Set 2 due before class, February 13. (Emphasis: uarch of the LC-3b, the Assembly Process.)

February 13: Lecture 8: Physical Memory. Unaligned access. Interleaving. SRAM. DRAM.

February 15: Lecture 9: Physical Memory, continued.

February 16, 17: Discussion session: Physical Memory. PL2.
Programming Lab 2 due, Sunday night, February 19, 11:59pm. (Write a program in C that simulates at the instruction cycle level the baseline LC-3b ISA. Test your simulator with the output of the assembler for the application program written in Programming Lab 1.)


February 22: Lecture 11: Virtual Memory, continued.

February 23, 24: Discussion session: Virtual Memory. Review for exam.

    Problem Set 3 due before class, February 27. (Emphasis: Physical Memory, Virtual Memory, Cache Memory, preparation for Midterm exam I.)

February 27: Lecture 12: Review or catch up!

March 1: Lecture 13: Exam 1.

March 2, 3: Discussion session: Discuss the exam.

March 6: Lecture 14: Cache Memory.

March 8: Lecture 15: Cache Memory, continued.

March 9, 10: Discussion session: Cache Memory. PL3.

March 13-18: No class, Spring Break.

    Programming Lab 3 due, Sunday night, March 19, 11:59pm. (Finish the clock cycle level Simulator for the LC-3b. Test it on the application program written in Programming Lab 1.)

March 20: Lecture 16: Input/Output.

March 22: Lecture 17: Input/Output, continued.


March 27: Lecture 18: Integer Arithmetic.


    Problem Set 4 due before class, April 3. (Emphasis: Cache memory, arithmetic.)


    Note: April 3 is the last date to Q-drop.


Programming Lab 4 due, Sunday night, April 9, 11:59pm. (Interrupts/Exceptions.)


April 12: Lecture 23: Cache Coherency. Sequential Consistency.

April 13, 14: Discussion session: Multiprocessors. Prepare for second midterm.

Problem Set 5 due before class, April 17. (Emphasis: Multiprocessing.)

April 17: Lecture 24: Review or catch up.

April 19: Lecture 25: Exam 2.

April 20, 21: Discussion session: Go over exam. PL5.

April 24: Lecture 26: Pot Pourri (Measurement methodology, GPUs, Maxeler, etc.)

April 26: Lecture 27: Systems Issues (BW, SMT, Power, Accelerators.)

April 27, 28: Discussion session. PL5 and PL6.

Programming Lab 5 due, Sunday night, April 30, 11:59pm. (Virtual memory.)

May 1: Lecture 28: Ideas for Research. Intro to Intellectual Property

May 3: Lecture 29: Last class, free for all!


Programming Lab 6 is due, Friday afternoon, May 5, 5pm. (Pipelining.)

Problem Set 6. A study guide, not to be turned in.

Final exam: Probably Friday, May 12, 7-10pm.

Please note: The Registrar has the right to change the dates of the final exams. Please keep checking the Registrar’s web site and our announcements to be sure when/where the final exam will be given.