378 Final - Where: EE1 125 - When: Dec 18th 2:30 - 4:20 - Be there or Be Square

Homeworks: HW: Lecture Coverage: Purpose

HW1: 1-2: Binary numbers
HW2: 3-7: SPIM programming
HW3: 2-9: Binary Translation
HW4: 2-13: Single-cycle processor design
HW5: 2-22: Pipelined processor design
HW6: 2-26: Caches (and software-hardware continuum)

Lectures (Roughly)

1 - Introduction
2 - Architecture overview
3 - Binary numbers
4 - MIPS Overview
5 - Computational instructions
6 - Load/Store instructions
7 - Control instructions
8 - Misc. instructions
9 - Procedures
10 - Other ISA's, RISC vs. CISC
11 - Performance Metrics
12 - Implementation: Data path
13 - Implementation: Control
14 - Implementation
15 - Microprogramming
16 - Microprogramming
17 - Microprogramming
18 - Pipelining as Microprogramming
19 - Pipelining as Microprogramming
20 - Pipelining
21 - Pipelining
22 - Pipelining / VLIW / Advanced Topics
22 - Memory Hierarchy / Caches
23 - Caches
24 - Virtual memory (TLBs)
25 - Review
26 - Review / Multiprocessors / Virtual memory / Caches
27 - Floating point
28 - Advanced Topic: Tomasulos Algorithm
29 - Advanced Topic: Tomasulos Algorithm
30 - Advanced Topic: Quantum Computing

General comments:

I don't expect you to memorize much -- this won't be a "what's on page 156?" test.

You can expect to have to demonstrate skills you learned to complete the homework. This includes skills required to debug and test your homework's.

You can expect questions that have more than one right answer.

You can expect at least one question that will cause you to think for a very long time. Do this question last.

The test will be cumulative across the entire quarter.

My advice for studying for this final is to understand all of the projects and to do the cache/TLB questions that Tim & Dmitriy handed out. This class is about doing -- particularly working on projects. So you can expect the test to also focus around this.

You should be proficient at implementation questions and understand how to modify existing code / processor wiring to create new functionality.

Be sure to practice good test taking skills. Skim the entire test first prior to starting on any questions.