Final Overview

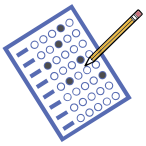
Basic Information

Midterm Information

- 120 minutes
- 500 points
- May contain multiple choice and short answer questions
- May have you write some code

What you need to bring

- Exam booklets will be provided for the exam
- So, you only need to bring a pen or pencil
- No electronics allowed
- No notes allowed



Exam Time

- Since next Thursday is Independence Day, we will not have class
- Instead, the Final will be on July 3rd (Wednesday) at 1:00 pm

What Will Be Covered

- Exam will cover Parts 1 to 8
- All Labs
- No question will be asked that is not in the lecture notes or labs
- Download from: *athena.csus.edu/~cookd/35*

Part 1

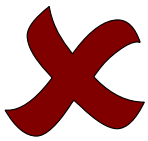
Data

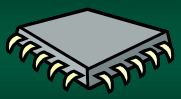
Part 1 – Important to Understand

- Binary & hex numbers!
- ASCII
- Integers
- Floating Point Numbers

Part 1 – Don't Worry About

- All the different ASCII values
- Unicode and EBCDIC
- How to convert ASCII





Part 2

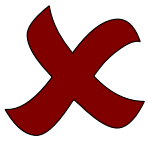
Computer Processors

Part 2 – Important to Understand

- Privileged mode
- Types of operands
- Types of opcodes
- x64 Registers

Part 2 – Don't Worry About

- *Know it all!*



Part 3

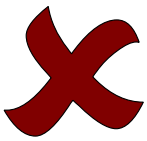
Programs

Part 3 – Important to Understand

- Compilers
- Assemblers
- Linkers
- Assembly concepts
- UNIX

Part 3 – Don't Worry About

- The UNIX header objects
- Intel vs. AT&T assembly



Part 4

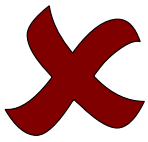
The ALU

Part 4 – Important to Understand

- Sign-magnitude
- One's complement
- Two's complement
- Multiplication
- Division
- Sign Extension

Part 4 – Don't Worry About

- *Know it all*



Part 5

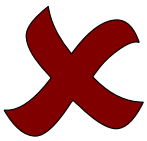
Memory

Part 5 – Important to Understand

- What is memory (address, etc.…)
- Endianness
- Buffers
- How arrays work
- Tables
- Buffer overflow

Part 5 – Don't Worry About

- Big-endian / little-endian example files
- Mario's countless crimes



Part 6

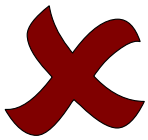
Control Logic

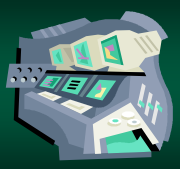
Part 6 – Need to Know

- Concept of flags
- How jump statements work
- How to implement If Statements, While, For, Switch

Part 6 – Don't Worry About

- How each flag is set – in particular that diagram I showed you
- Each of the flags – still important if you want to be an expert





Part 7

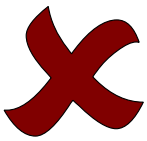
Operating Systems

Part 7 – Important to Understand

- Subroutines
- How the stack is used
- The Kernal
- Vector Tables
- Interrupts

Part 7 – Don't Worry About

- *Know everything*
- *If I ask a question that requires a kernal call, I will provide the table values*



Part 8

Design Philosophies

Part 8 – Important to Understand

- von Neumann architecture
- The Bus
- CISC vs. RISC

Part 8 – Don't worry about…

- Example RISC and CISC processors