Look for when buying one?

What is important in a computer? What features do you

Question:

As you wait for class to start, answer the following

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ECE/CSE 469

Review Problem 0
25% - Homeworks 40% - Design Project 15% - Midterm 20% - Final Exam

Grading (approximate):


Patterson, Hennessy, Computer Organization and Design: The Hardware/Software Book:

Office hours: up-to-date times on website

Trung Le (tle45@uw.edu)
TA: Donovan Erickson (donavennz@uw.edu)

Office hours: email w/schedule

Professor Scott Hauck, 307Q, hauck@uw.edu

ECE/CSE 469: Computer Design and Organization
Some good ways to use Zoom/etc. Email me please!

Answers - Send chat message just to me.

Questions - Raise hand.

Stay muted until called on.

Please leave cameras on - but I won't force it.
If you don't remember this material, REVIEW NOW.

If you don't know this material, DO NOT TAKE THE CLASS

C/C++/Java Programming

Verilog

Binary numbers, 2's complement, negation, overflows

D flip-flops, registers, and memories

Boolean Algebra

AND, OR, NAND, NOR gates

Basic Logic Design and Boolean Algebra
Potentially fail class, be expelled from UW
Report of Academic Misconduct to Dean’s level.
Loss of twice the points of that assignment.
Violation of these rules is at minimum:
Checking homework answers between groups
Implementing the CPU between groups
Developing a design between groups

Not OK:
Help in debugging, CAD tools peculiarities, etc.
Talking about general approaches
Discussing lectures or readings
Studying together for exams

OK:

Let me know if you need help forming groups.
All submitted student work must be from their own efforts and not from any other source.
Groups may not collaborate on the specifics of homework or on the projects.
The processor design and homeworks will be done in groups of 1-2.

Joint Work Policy
Labs at the Labs is grounds for failing the class.
Labs are an integral portion of the class learning. Failure to make a good-faith effort at the Labs is grounds for failing the class.

- 40% for all additional hours (total - 100%)
- 30% for the third 24 hours (total - 60%)
- 20% for the second 24 hours (total - 30%)
- 10% for the first 24 hours

Late penalties:
All assignments due by the end of the class period.

Late Policy, Lab Policy
Computer Architecture

Interaction between hardware and software

Hardware sets realities, requirements
Area, power, performance

Software places demands on hardware
Processor only as good as software it runs

Instruction Set
Architecture

CS 4769

Compiler
Firmware

Operating System

Application

Instr. Set Proc. I/O system
Datapath & Control
Digital Design
Circuit Design
Layout

Readings: 1.1-1.4
Implementing Software – The Compilation Process
Computer Organization

Five classic components:

- Output
- Input
- Devices
- Memory
- Processor

Data path:
- Perform operations
- (Add, subtract, ...)

Control:
- Orchestrate operations
- (who does what when)

Memory:
- Store instructions, data
- Network SSD
- Hard disk, etc.
- Keyboard, mouse

Input:
- Get information from the outside world

Output:
- Provide results
Determine successor instruction
Deposit results in storage for later use
Compute result value or status
Locate and obtain operand data
Determine required actions and instruction size
Obtain instruction from program storage

Instruction
Next
Store result
Execute
Fetch operand
Decode
Instruction
Fetch instruction
Execution cycle