CSE 4305
Computer Organization and Architecture
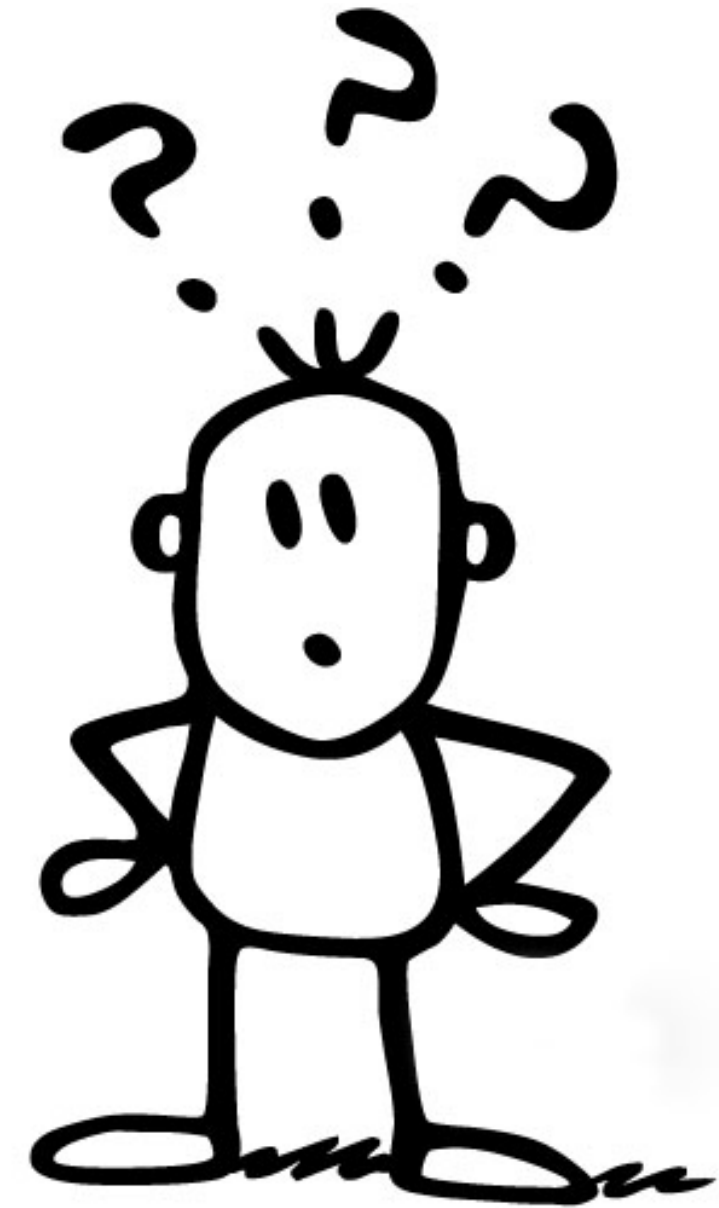
Lecture 0
Course Overview

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What is COA??

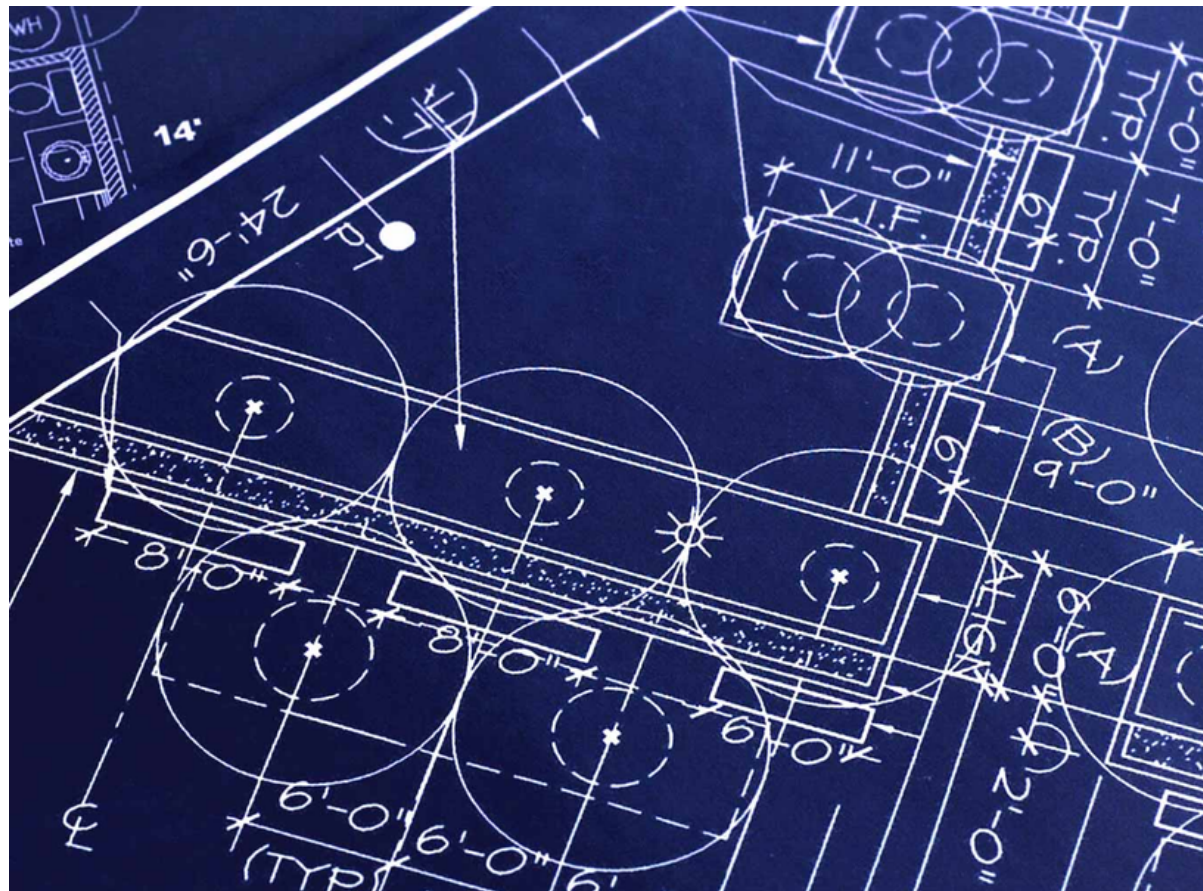It's about **Computer Organization** and **Computer Architecture.**

Computer Organization deals with the internal structure and operation of hardware components.
Ex: The design of components such as registers, memory systems, input/output interfaces, etc.

Computer Architecture deals with the overall design and organization of a computer system.
Ex: The design of instruction set architecture (ISA), the memory hierarchy, performance optimization strategies, etc.

CA vs CO

CA

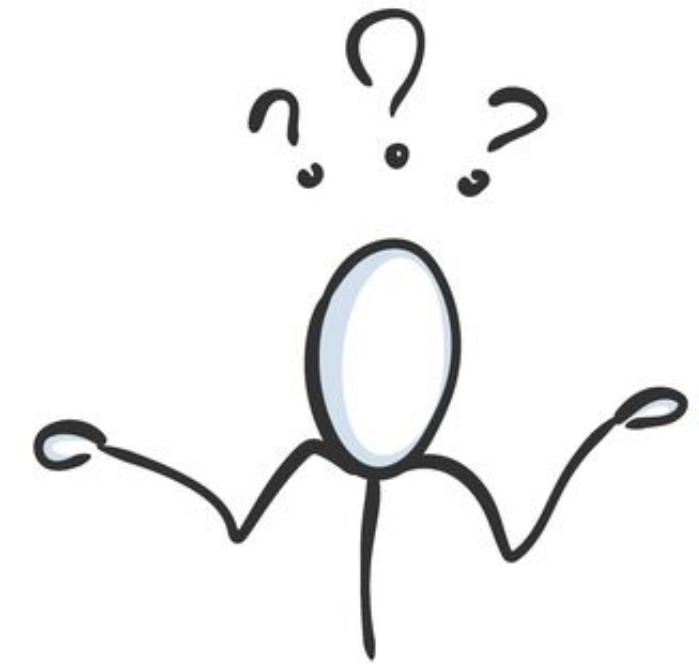
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Why COA??

Understanding the underlying hardware beneath your program

Improving energy efficiency

How a software instructs the hardware to perform needed functions

Improving the performance of your program

Suggesting new hardware for your company

Course contents

- Introduction and history
- Computer function and interconnection
- Instruction set Designs
- Memory hierarchy
- I/O organization
- Pipelining strategy, performance, and hazards
- Multiprocessor and multicore computers

Textbooks

- Computer Organization and Architecture, by William Stallings, 10th edition.
- Computer Architecture- A Quantitative Approach, by David A. Patterson and John L. Hennessy, 5th edition.

Thank You!

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