

# coe608: Computer Organization and Architecture

## 1.Introduction:

- Computer Abstraction and Technology
- Below your program
- Integrated Circuit

## 2.Instructions

- Introduction
- Operation of Computer Hardware
- Operands of computer Hardware
- Representing Instructions in the Computer
- Logical Operations
- Instructions for Making Decisions
- Supporting Procedures in Computer Hardware
- Other Addressing for 32 bit immediate
- Arrays versus Pointers

## 3.Arithmetic for Computers

- Introduction
- Addition and Subtraction
- Logical Operations
- Constructing an Arithmetic Logic Unit
- Multiplication
- Division
- Floating Point

## 4.Performance

- Introduction
- Measuring Performance
- Relating Metrics and Factors affecting Performance
- Programs to Measure Performance
- Comparing Performance

## **5.The Processor Data Path**

- Introduction
- Building a Data Path
- A Simple Implementation Scheme
- Multicycle Implementation
- Microprogramming Control
- Exceptions

## **6.Enhancing Performance with Pipelining**

- Overview of Pipelining
- A Pipelined Data Path
- Pipelined Control
- Data Hazards and Stalls
- Branch Hazards

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