Orange Coast College
Business Division
Computer Science Department

CS 116- Computer Architecture

Course Orientation
How to Reach Me?

- **Office location:**
  - Computing Center, Room D

- **Office Hours:**
  - See Syllabus

- **Phone:**
  - Off-Campus: (714) 432-5616
  - On-Campus: Ext. 21127

- **CS/CIS URL:**
  - [http://csjava.occ.cccd.edu](http://csjava.occ.cccd.edu)

- **Email:**
  - mmalaty@occ.cccd.edu
Text & Software

Text:

Optional
Text & Software

- PPT Presentations
  - Copyright 2004 Morgan Kaufmann Publishers
  - Adapted & Modified by Martha Malaty

- Software used
  - SPIM Simulator

- Where to find your textbook
  - MKP-Elsevier
  - Bookpool
  - Amazon
Other Useful References

- **Digital Electronics**
Other Useful References

- **Computer Architecture & Organization:**
Catalog Description

- Prerequisites:
  - CS 115 or CS 150

- OCC Catalog Description:
  - A course in the architecture of computers. Topics include Boolean algebra and computer arithmetic, digital logic, micro and macro-architecture, assembly language, performance, Datapath and control, memory hierarchies, interfacing and peripherals, and multi-processing. Three and one-half hours lecture, one and one-half hours non-lecture.

- Transfer Credit:
  - UC

- Recommended preparation:
  - Assembly language course (CS240-Microcomputer System Development)
Catalog Description

Important!!

- This course can be now taken for **Credit/No Credit** or **Grade** options
- If you want to transfer to University system, you have to take the **Grade** option
Rules & Dates

- Materials
- Grading
- Academic Honesty Policy
- Special Needs
- Lectures Rules and Requirements
- Homework & projects
- Tests
- Course Objectives
- Tentative Course Contents & Schedule
Contents

- Chapter 1:
  - Computer Abstraction & Technology
- App.B & more:
  - The basics of logic design
- Chapter 2 & App. A:
  - Instructions: The language of the Computer, Assemblers, Linkers, & SPIM Simulator
- Chapter 3:
  - Arithmetic for Computers
- Chapter 4:
  - Assessing & Understanding Performance
- Chapter 5:
  - The Processor: Datapath & Control
- Chapter 6:
  - Enhancing Performance with Pipelining
- Chapter 7:
  - Large & Fast: Exploiting Memory Hierarchy
- Chapter 8:
  - Storage, Networks, & other Peripherals
- Chapter 9:
  - Multiprocessors
Why Learn Computer Architecture?

**Hardware-Aspects:**
- In-depth understanding of inner-structure, evolution, tradeoffs, & HW/SW boundary of modern computers
- Understand how data are processed & controlled
- Learn about limitations caused by I/O devices and how to overcome some of them
- Measure CPU’s & other HW performance
- Follow the changes in technology and it’s impact on all aspects of computer science & engineering

**Software-Aspects**
- Efficient programming needs computer organization knowledge (e.g. hierarchical memories, parallel processors, & how can the organization affect performance)
- Build high-performance SW for yourself & for others

**Personal Aspects:**
- Make purchasing decisions
- Offer “expert” advice
- Call yourself a “computer expert / scientist / programmer/ system analyst/ . . .”