

## COURSE DESCRIPTION

Department and Course Number	<b>CS 330</b>	Course Coordinator	<b>Bangalore</b>
Course Title	<b>Computer Organization &amp; Assembly Language Programming</b>	Total Credits	<b>3</b>

### Current Catalog Description

*Register-level architecture of modern digital computer systems, digital logic, machine-level representation of data, assembly-level machine organization, and alternative architectures. Laboratory emphasizes machine instruction execution, addressing techniques, program segmentation and linkage, macro definition and generation, and computer solution of problems in assembly language.*

### Textbook

*Computer Organization & Architecture, 6<sup>th</sup> ed., by William Stallings, Prentice Hall, 2003.*

*80x86 Assembly Language and Computer Architecture, by Richard C. Detmer, Jones & Bartlett, 2001.*

References *None*

### Course Goals

*Introduce students to assembly language programming, and expose them to the organization and architecture of a modern computer system.*

### Prerequisites by Topic

*Discrete Structures and Object-Oriented Design (with grades of "C" or better)*

### Major Topics Covered in the Course

*Number systems (binary, base-16, IEEE floating point, etc.), Intel X86 assembly language programming, computer system components, cache memory, internal/external memory and input-output, operating system support.*

### Laboratory projects (specify number of weeks on each)

*The course has six (6) programming assignments that cover different aspects of the X86 instruction set as they are introduced in class. The assembly language programming is interspersed with the computer organization and architecture topics, giving the students approximately 2 weeks per programming assignment.*

## Estimate CSAB Category Content

	CORE	ADVANCED		CORE	ADVANCED
Data Structures	_____	_____	Computer Organization and Architecture	<u>40</u>	_____
Algorithms Software Design	_____	_____	Concepts of Programming Languages	_____	_____

## Oral and Written Communications

*None*

## Social and Ethical Issues

*None*

## Theoretical Content

*None*

## Problem Analysis

*Students are given programming assignments. They have to analyze the assignments and implement solutions using X86 assembly language programming skills they acquire in this course.*

## Solution Design

*See Problem Analysis. The two are inter-related. The students have to understand the problem, then design programming solutions that solve the problem as given.*