

**SU DEPARTMENT OF COMPUTER SCIENCE SYLLABUS (Tentative)**  
**COSC 456 Computer Architecture**

**Objectives:** To study the organization and internal composition of advanced computer systems.

**Prerequisites:** COSC 220 and COSC 250.

**Texts:** "Computer Architecture Class Notes and Lab Manual," by Dean DeFino and Asif Shakur; 2006. (Available only through SU's Bookstore)  
 "Fundamentals of Digital Logic and Microcomputer Design," by M. Rafiqzaman; Wiley Interscience Publishing, Fifth edition, 2005. (Optional)

|  | <b>Weeks</b> |
|--|--------------|
| <b>PART I: Overview of the Computer System</b>   | 2            |
| Introduction to Computer Systems, Microcomputer Organization Review, Addressing Codes.   |              |
| <b>PART II: Assembly Language</b>  | 6            |
| Instruction formats, Assembly Language Instruction Sets, Assembler Labs in Assembly language.  |              |
| <b>PART III: The Central Processing Unit</b>   | 3            |
| Data Path, ALU, Register File, Instruction Decoder, Instruction Register, Branch and Shift Units, ALU Control, ALU Status, ALU Operation |              |
| <b>PART IV: Memory, I/O</b>  | 2            |
| Memory Systems, Cache Memory Organization, I/O.  |              |
| <b>Tests and Oral Presentations and Optional Topics</b>  | 1            |
|  | 14           |

| EVALUATION                 |     |
|----------------------------|-----|
| Homework and presentations | 30% |
| Tests                      | 55% |
| Lab                        | 15% |