CARLETON UNIVERSITY
School of Computer Science

COMP 2003A Computer Organization
Course Description: Fall 2005

OBJECTIVES: This course is a follow-up course to COMP 1002/1402. This course stresses the important concepts of computer organization. It covers aspects of computer organization seen as a hierarchy of levels. These include the digital logic level, assembly language level and the conventional machine level. We will use the Pentium assembly language extensively as a tool to explore processor and system organization (expect to spend about half the class in assembly language programming).

PREREQUISITE: COMP 1002/1402 or ECOR 1606

INSTRUCTOR: Prof. Sivarama Dandamudi (5328HP)

OFFICE HOURS: See the course web page for the instructor and TA office hours.

MAIN TEXT: S. Dandamudi, "Fundamentals of Computer Organization and Design," Springer, 2003.

GRADING:
20% approx. 4-5 assignments
35% Mid-term
45% Final examination

Notes:

1. **To pass the course, you MUST get a passing mark in the mid-term and final examinations (combined)**
2. Assignments should be submitted through the RAVEN online submission system
3. Read class news (on the course web page) for up-to-date course information
4. Course URL: `http://www.scs.carleton.ca/~sivarama/comp2003`
5. Main text URL: `http://www.scs.carleton.ca/~sivarama/org_book`
6. Lecture slides are available at the above website
7. Attending lectures and participating in class discussions are strongly encouraged

LAB FACILITIES: SCS labs on the 4th floor

COURSE OUTLINE: Time permitting, we will cover the following topics.

1. Overview of computer system organization
2. Basics of digital logic and hardware construction
3. Processor organization and performance
4. Instruction set design and addressing modes
5. Pentium assembly language
6. RISC and CISC processor basics
7. Programmable I/O, interrupt-driven I/O, DMA
8. Interrupts and writing interrupt service routines
9. Cache memory principles and system buses