### **ECSE-322**

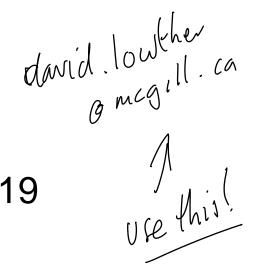
4 January 2008 Winter 2008

### **Computer Engineering**

ECSE-322B

### Instructor

- D.A.Lowther
  - Lowther@ece.mcgill.ca
  - McConnell Eng Bldg room 619
- Office Hours:
  - From January 7
    - Mondays 1030 to 1130 room to be announced
    - Also by appointment



# Web Site

- WebCT:
  - http://www.mcgill.ca/webct/
  - Available after January 4
    - Login should be set up the first time you use it.

## The Course

- An extension of 304-221
- Stresses computer structure at the system level...
  - Emphasis is on data communications, buffering, storage and structuring principles.
  - The principles are motivated by the characteristics of the peripherals

## The Course

- The confluence of hardware and software
  - The similarity between hardware and software in the issue of data communications
  - The hardware / software interface

## **Pre-requisites**

- ECSE-221
  - We will build on the concepts of digital circuits and processor architecture
- ECSE-200
  - We will be using basic circuit theory in discussing electrical characteristics of communications systems and peripheral devices

# The Course Leads To...

- ECSE-425 Comp. Org and Arch
- ECSE-427 Operating Systems
- ECSE-428 Software Engineering
- ECSE-525 Computer Architecture
- ECSE-526 Artificial Intelligence
- ECSE-531 Real Time Systems
- ECSE-532 Computer Graphics
- ECSE-543 Numerical Methods in EE
- ECSE-547 Finite Elements in EE

# Learning Outcomes

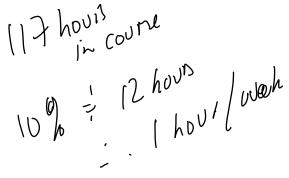
- Major components of a computer system
- Requirements of I/O devices average and peak transfer rates, buffering, etc.
- Classification of bus protocols
- Design of a simple I/O controller
- Relationship between abstract data structures and hardware
- Organization and concepts of operating systems

## Instructional Method

- Lectures (3 per week)
- Problem sets given weekly but not marked Tutorials (3 per week) M+ Fri to stat rever
   Small "dentitient"
- Small "design" project: 5 member teams 1 hour per week per member

### **Evaluation Method**

- Pop Quizzes in class time random 5 during the semester – 4 to count = 8%
- 2 Class Tests designed to be similar to problems on the problem sets – 1 hour in class time = 8% each
- MidTerm 1 hour in class time similar to final – 16%
- Project 10%
- Final 50%



# Textbooks and Course Materials

- There is no one textbook. Several are suggested in the handout.
- A full set of notes for the course will be supplied
- The Web is a great source of current information for much of this course.

## Have Fun!

### What is a Computer?

Calculator communications mechanical? electrical device for data 1/0 nechanical? prological Auta Norage device

#### Why do we need Computers?

Safety

- Information processing

# Information Processing

- Acquire information as data
- Encode data
- Store data 🧹
- Transmit data 🧉
- Modify data #
- Output data recreate information 
  People do this really well!