

# ECSE-322

4 January 2008

Winter 2008

# Computer Engineering

ECSE-322B

# Instructor

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

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*↑  
use this!*

# 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 start  
keep Thursday n reserve*
- 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%

117 hours  
in course  
10%  $\approx$  12 hours  
1 hour/week

# 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

data storage device

communications

electrical device for data I/O

mechanical?  
quantum  
biological



# Why do we need Computers?

| Safety

→ Information processing

makes fewer mistakes  
perform faster than humans  
good at repetitive tasks  
computer games -

# Information Processing

- Acquire information as data
  - Encode data
  - Store data
  - Transmit data
  - Modify data
  - Output data – recreate information
- People do this really well!*