

CSTE 2021 COMPUTER ORGANIZATION

HUGH CHESSER,
CSTE B 1012U



Agenda



- Introduction to course
- High level language versus Assembly language versus Machine Language
- Categorization of Software: Applications, Systems, Hardware
- Components of a Computer: Input, Output, Memory, Control, and Datapath
- Integrated Circuits (IC's)

Reading: Patterson, Sections 1.1 – 1.3.

CSE 2021: Computer Organization

Section E



Course Instructor: Hugh Chesser
Teaching Assistants: TBA
Contact Information: *Instructor*
Office: CSB 1012U
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Teaching Assistants
TBA

Course URL: http://www.cse.yorku.ca/course_archive/2009-10/F/2021/

Text: D. A. Patterson and J. L. Hassey, *Computer Organization and Design*,
San Francisco, CA: Morgan Kaufmann Publishers, Inc., 4th edition
(2008)

Class Schedule: MW 17:30 – 19:00, Room R S203

Office Hours: *Instructor*: CSEB 1012U, By appointment
Teaching Assistants: TBA

Laboratory: CSE 2004, SPIM simulator is freeware, downloadable to PC's.

Assessment: Quizzes: 10% (Best 2 out of 3 counted)
Lab Exercises: 35% (Your higher scoring 7 out of 8 labs at 5% each)
Mid-term Exam: 20%
Final Exam: 35%



Course Overview

“Had the transport industry kept pace with the computer industry, today we would travel coast to coast in 5 seconds for about 50 cents !” (Patterson, 1998)

What is CSE 2021 about?

The course explains what is inside a computer, describing its hardware (HW), and introducing the assembly language representation of a program compiled from a high level language such as ANSI C.

You will learn:

1. How computers work?
2. How to analyze their performance?
3. How to code directly in MIPS?
4. What are the issues affecting modern processors (e.g. caches, pipelines)?

Why do I learn this stuff?

1. To build *better* software people use (improved performance)
2. To offer *expert* advice in applications, purchasing, etc.

Typical Schedule (Fall 09)



WEEK OF	Mon	Wed	Lab	Topic
Sep 07	-	□	-	Overview of the course
Sep 14	□	□	-	Performance and Data Translation
Sep 21	□	□	A	Code Translation
Sep 28	□	Quiz #1	B	Translating Utility Classes
Oct 05	□	□	C	Translating Objects
Oct 12	-	-	-	READING WEEK - No Classes
Oct 19	□	Mid-term in TEL 0014	D	Introduction to Hardware
Oct 26	□	□	Make-up Labs	Machine Language + Floating-Point
Nov 02	□	□	K	The CPU Datapath
Nov 09	□	Quiz #2	L	The Single-Cycle Control
Nov 16	□	□	M	Pipelining
Nov 23	□	□	N	Caches
Nov 30	□	Quiz #3	Make-up Labs	
Dec 07	□	-	-	No lecture on Wednesday