



香港中文大學

The Chinese University of Hong Kong

CSCI2510 Computer Organization

Lecture 00: Course Information

Ming-Chang YANG

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Course Information



- **CSCI2510 Computer Organization**
- Course Time and Place
 - **Lecture (*3)**
 - MON 12:30~13:15 (@ [ELB LT2](#) ~~SC L2~~)
 - MON 13:30~14:30 (@ [ELB LT3](#) ~~SC L2~~)
 - TUE 12:30~13:15 (@ [YIA LT4](#) ~~ERB 407~~)
 - **Tutorial (*1)**
 - TUE 14:30~15:15 (@ [LHC 104](#))
- Course Websites
 - <http://www.cse.cuhk.edu.hk/~mcyang/csci2510/2223T1/csci2510.html>
 - <https://blackboard.cuhk.edu.hk/>

Course Instructor



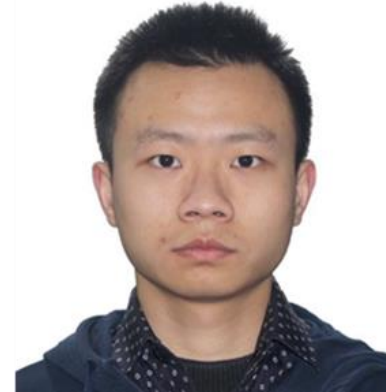
- Prof. Ming-Chang YANG (楊明昌)
 - Office: SHB 906
 - Office Hours: TUE 13:30~14:30
 - mcyang@cse.cuhk.edu.hk



Teaching Assistants



- Junliang HU (胡俊良)
 - Office: SHB 921
 - Office Hours: FRI 11:15~12:00
 - jlhu@cse.cuhk.edu.hk
- Xirui NIE (聂希瑞)
 - Office: SHB 921
 - Office Hours: FRI 13:00~13:45
 - xrnie21@cse.cuhk.edu.hk
- Xiangjun PENG (彭湘鈞)
 - Office: SHB 921
 - Office Hours: WED 14:30~15:15
 - xjpeng@cse.cuhk.edu.hk



Before We Start ...



Faculty of Arts



Faculty of Business Administration



Faculty of Education



Faculty of Engineering



Faculty of Law



Faculty of Medicine



Faculty of Science



Faculty of Social Science



Graduate School



Having More Interactions via uReply




1) Visit **uReply** & Enter **Session Num.**

<http://ureply.mobi>

2) Confirm the **Session Number** and Click **“JOIN”**

3) **“JOIN”** with **Student ID** and **CWEM Password**

Language English



Session Number (Required)


Student ID (Optional)

Student name (Optional)

Remember my student ID and student name

JOIN


Language English



LC5376

CWEM login after 'join'

JOIN



CWEM Authentication

This session requires your CWEM account.

LC5376

1155123456

.....|

JOIN

[uReply Attendance User Guide](#)

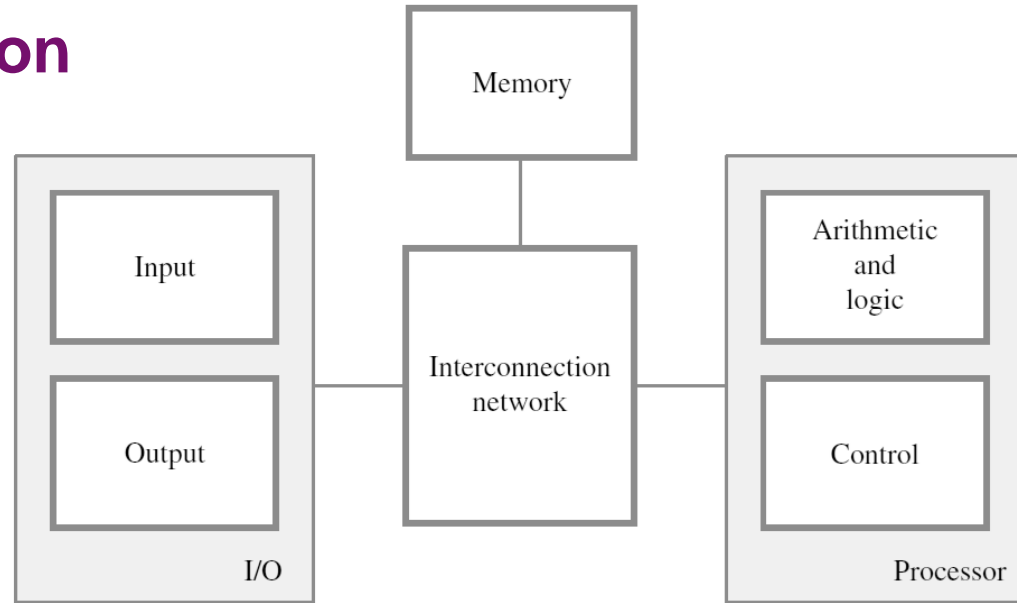
Course Description



- To understand ① how a computer works internally and ② how to instruct a computer using assembly.

① Computer Organization

- Processor (CPU)
- Memory unit
- Input/Output units
- Interconnection buses



② Assembly Language Programming

- Internal coding of information
- Number and character representation
- Arithmetic operations
- Flow of information within a microcomputer

```
mov ecx, ebx
mov esp, edx
mov edx, r9d
mov rax, rdx
```

Programming Tool/Environment



- **Microsoft Macro Assembler (MASM)**

- **Microsoft Visual Studio** (*Community Ed.*):

- Free for genuine Windows users
 - Full-featured industrial-grade software

- **System Requirement:**

- A desktop/laptop computer that can run **Windows** natively or on a virtual machine
 - **Note: M-series Macs are NOT qualified.**
Please contact us for further assistance.



Attend our **tutorials** to learn it from scratch!

- **Textbook**

- **Computer Organization and Embedded Systems**

- Carl Hamacher, Zvonko Vranesic, Safwat Zaky, and Naraig Manjikian
 - Sixth Edition, McGraw Hill, 2012

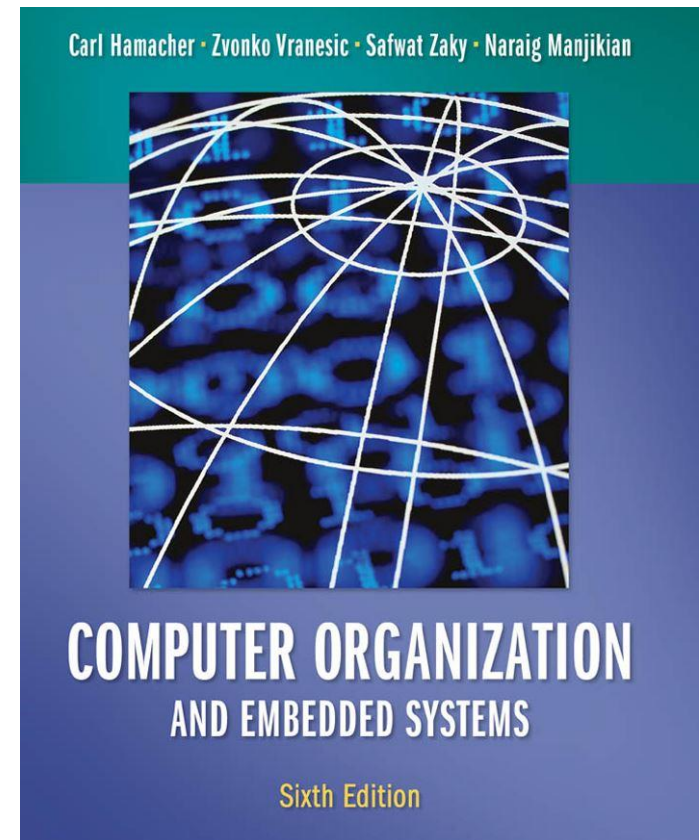
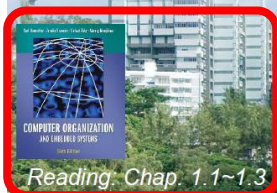


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CSCI2510 Computer Organization
Lecture 01: Basic Structure of Computers

Ming-Chang YANG

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Course Schedule (*subject to change*)



W	Date	Lecture (MON & TUE)	Tutorial (TUE) / Note
1	Sep 5, 6	Lec00 Course Information	UG class suspended until 13:30 on Sep 5 Tut00 MASM Environment Setup (No Tutorial)
2	Sep 12, 13	Public Holiday (Sep 12) Lec01 Basics of Computers	Tut01 MASM Basics (I)
3	Sep 19, 20	Lec02 Num. & Char. Representation	Tut02 MASM Basics (II)
4	Sep 26, 27	Lec03 Memory Basics	Tut03 MASM Addressing Modes / HW01
5	Oct 3, 4	Lec04 Machine Instructions	Public Holiday (Oct 4)
6	Oct 10, 11	Lec05 Program Execution	Tut04 Midterm Review
7	Oct 17, 18	Lec06 Memory Hierarchy Midterm Exam (Lec01~05, Tut01~04, HW01)	Tut05 Implementing Stack in MASM / HW02
8	Oct 24, 25	Lec07 Cache in Action	Tut06 MASM Subroutines
9	Oct 31, Nov 1	Lec08 Cache Performance	Tut07 Implementing Queue in MASM
10	Nov 7, 8	Lec09 Basic Processing Unit	Tut08 Implementing Direct Cache in MASM / HW03
11	Nov 14, 15	Lec10 Control Unit & Instruction Encoding	Tut09 Implementing Associative Cache in MASM
12	Nov 21, 22	Lec11 Pipelining	Tut10 Optimizing Branch Handling in MASM
13	Nov 28, 29	Lec12 Basic Input and Output	Tut11 Final Review
	Dec ?? (TBA)	Final Exam (Lec05~12, Tut05~11, HW02~03)	

Course Assessment (*subject to change*)



- Grading
 - Assignments **30%**
 - Hand-written Exercises
 - Programming Assignments (using MASM)
 - Midterm Exam **25%**
 - Final Exam **40%**
 - Class Participation **5% (uReply!)**
 - Bonus **5% (extra!)**
- Notes
 - **Late submission** of assignments is **NOT** acceptable.

Important Notes



- **Plagiarism** will **NOT** be tolerated!
 - Do **NOT** copy!
 - Do **NOT** let other(s) copy!
 - **Can** discuss but write up the solutions by yourself!
- **Honesty** in Academic Work: A Guide
 - <http://www.cuhk.edu.hk/policy/academichonesty/>

The best way to learn is through **PRACTICE**



Questions?



- Not enrolled yet?
 - Only **a few** extra seats can be offered.
 - Please contact me (mcyang@cse.cuhk.edu.hk) **only if** it is really **the last chance** for you to take CSCI2510 this term.
 - Note: Once approved, we will have you enrolled via the **special add/drop** at CSE department during **20-26 September**; but you will be added into Blackboard prior to the formal enrollment.
- Other questions?

