



香港中文大學

The Chinese University of Hong Kong

*CSCI2510 Computer Organization*

# Lecture 00: Course Information

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# Course Information



- **CSCI2510 Computer Organization**
- Course Time and Place
  - Lecture (\*3)
    - MON 12:30~14:15 ([ZOOM](#))
    - TUE 12:30~13:15 ([ZOOM](#))
  - Tutorial (\*1)
    - TUE 14:30~15:15 ([ZOOM](#))
  - *Note: Password has been announced via [BlackBoard](#).*
- Course Website
  - <http://www.cse.cuhk.edu.hk/~mcyang/csci2510/2020F/csci2510.html>

# Course Instructor



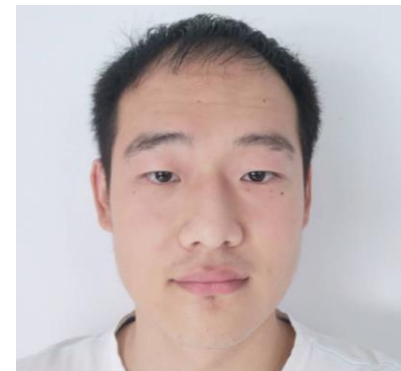
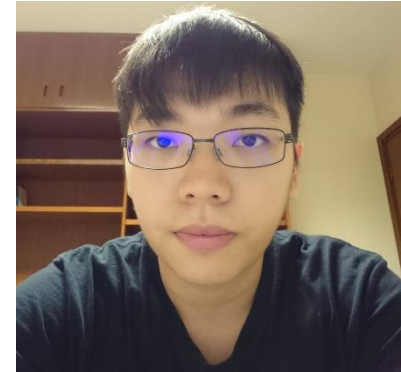
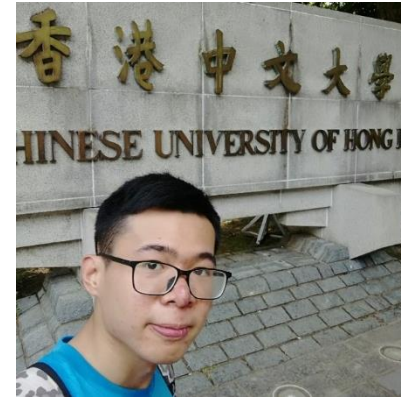
- Prof. Ming-Chang YANG (楊明昌)
  - Office: SHB 906
  - Office Hours: TUE 14:30~15:30 ([ZOOM](#))
  - [mcyang@cse.cuhk.edu.hk](mailto:mcyang@cse.cuhk.edu.hk)



# Teaching Assistants



- Yuhong LIANG (梁裕宏)
  - Office: SHB 101
  - Office Hours: TUE 16:00~17:00 ([ZOOM](#))
  - [yhliang@cse.cuhk.edu.hk](mailto:yhliang@cse.cuhk.edu.hk)
- Tsun-Yu YANG (楊尊宇)
  - Office: SHB 1005
  - Office Hours: FRI 16:00~17:00 ([ZOOM](#))
  - [yangty@cse.cuhk.edu.hk](mailto:yangty@cse.cuhk.edu.hk)
- Chao WANG (王超)
  - Office: **TBA**
  - Office Hours: THU 16:00~17:00 ([ZOOM](#))
  - [cwang@cse.cuhk.edu.hk](mailto:cwang@cse.cuhk.edu.hk)



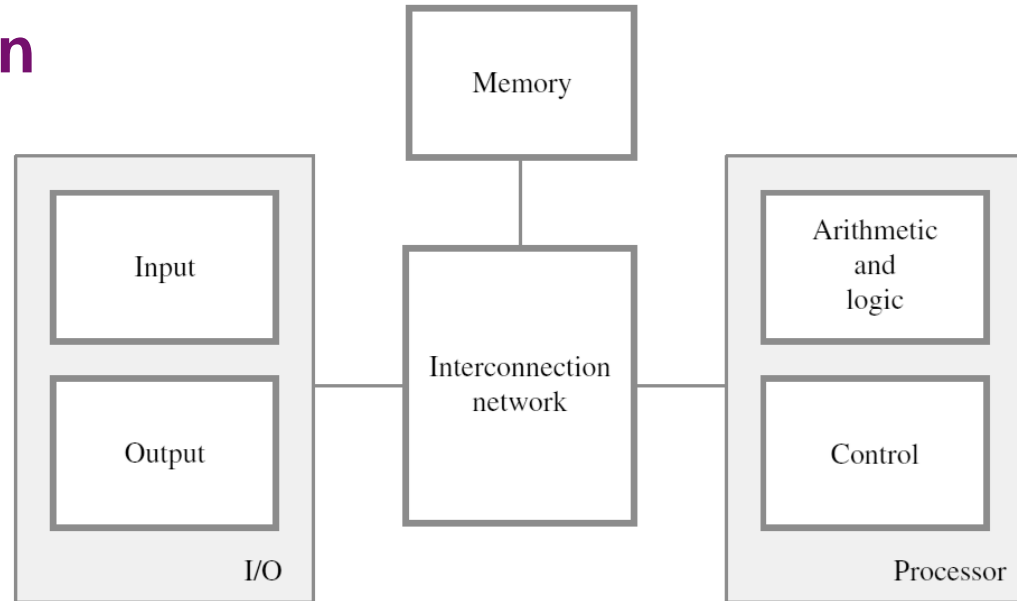
# Course Description



- This course is to understand how a computer **works internally** using **assembly language**.

## – Computer Organization

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



## – Assembly Language Programming

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

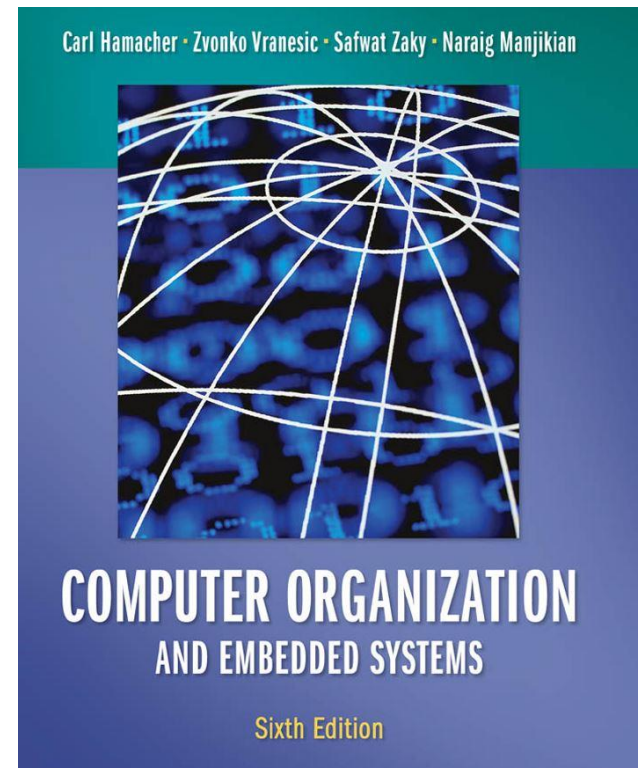
```
mov ecx, ebx
mov esp, edx
mov edx, r9d
mov rax, rdx
```



- **Microsoft Macro Assembler v14**  
(within Microsoft Visual Studio 2015)
  - Community Edition:
    - Free for Genuine Windows users
    - Full-featured industrial-grade software
  - Usage Guideline:
    - Install **Visual Studio Community 2015**
      - <https://www.visualstudio.com/>
    - Create C/C++ Project and accept default MASM/ML build rule (step-by-step instructions to be provided in **Tutorials!**)

 **Visual Studio**  
**Community 2015**

- Textbook
  - **Computer Organization and Embedded Systems**
    - Carl Hamacher, Zvonko Vranesic, Safwat Zaky, and Naraig Manjikian
    - **Sixth Edition**
    - McGraw Hill, 2012



# Course Assessment



- Grading
  - Assignments 40%
    - Hand-written Exercises
    - Programming Assignments (using MASM)
  - Midterm Exam 20%
  - Final Exam 40%
  - ~~– Class Participation 0% (subject to change!)~~
  - Bonus 5% (extra!)
- Notes
  - **Late submission** of assignments is **NOT** acceptable.



# Course Schedule *(subject to change)*



W,	Date	Lecture	Tutorial / Note
1	Sep 7, 8	Lec01 Basic Structure of Computers	<b>No Tutorial on Sep 8</b>
2	Sep 14, 15	Lec02 Number & Character Representation	Tut01 MASM Environment Setup
3	Sep 21, 22	Lec03 Memory Basics	Tut02 MASM Basics, <b>HW1</b>
4	Sep 28, 29	Lec04 Machine Instructions	Tut03 MASM Addressing Modes
5	Oct 5, 6	Lec05 Program Execution	Tut04 Stack & Queue Implementations, <b>HW2</b>
6	Oct 12, 13	Lec05 Program Execution	Tut05 Hints for Stack Implementation
7	Oct 19, 20	Lec06 Memory Hierarchy	Tut06 Reviews for Midterm Exam
8	Oct <b>26, 27</b>	<ul style="list-style-type: none"> <li><b>No Class on Oct 26 (Public Holiday)</b></li> <li><b>Midterm Exam (Lec01~05, Tut01~06)</b> <ul style="list-style-type: none"> <li>➤ <b>12:30~13:30 (Lecture) on Oct 27</b></li> </ul> </li> </ul>	<b>No Tutorial on Oct 27</b>
9	Nov 2, 3	Lec07 Cache in Action	Tut07 MASM Subroutines
10	Nov 9, 10	Lec08 Cache Performance	Tut08 Cache Implementations (I) , <b>HW3</b>
11	Nov 16, 17	Lec09 Basic Processing Unit	Tut09 Cache Implementations (II)
12	Nov 23, 24	Lec10 Control Unit & Instruction Encoding	Tut10 Exercises for Basic Processing Unit
13	Nov 30, Dec 1	Lec11 Pipelining	Tut11 Reviews for Final Exam
	<b>Dec ?? (TBA)</b>	<b>Final Exam (Lec06~11, Tut07~Tut11, HW3)</b>	

# 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:
  - <http://www.cuhk.edu.hk/policy/academichonesty/>

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

A hand holding a blue marker, positioned as if writing the word 'PRACTICE' on a whiteboard. The word 'PRACTICE' is written in large, blue, capital letters and is underlined with a blue line.