Syllabus
CS250-Assembly Language and Computer Organization

Instructor

Yu-Cheng Lin

- Office：R1312
- Lab：1413B
- Mail：linyu@saturn.yzu.edu.tw
- Office Hour：(三)12:00~23:59

Course objectives

This is what you will learn through this course.

- Apply the principle of abstraction in analysis and design problems.
- Given the syntax and semantics for an assembly language, design, implement, test, and debug simple programs.
- Design an instruction set architecture(ISA) that is appropriate for a given application.
- Use modern computer aided design tools to model, simulate, test, and debug that implementation.
- Analyze the performance of an ISA in terms of metrics such as CPU time, instruction count, CPI, clock frequency, throughput, and response time.

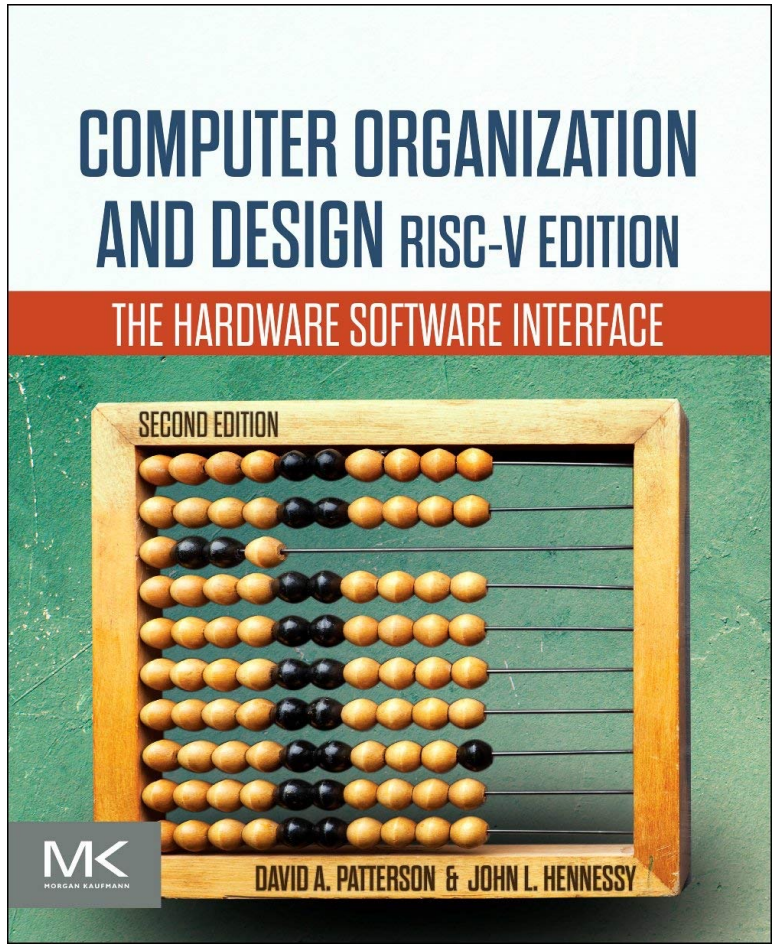
Course Content, Work Load and Grading

- 3 Homework, 3-4 Quizzes, and 1 Midterm and 1 Final, all individual
- Grade distribution
  - Homework - 25%
  - Midterm - 15%
  - Final Exam - 15%
  - Quizzes - 45%
  - Class Attendance - 5%
    - Short test (open books)
- (D or higher) average grade on above all to pass the class

Letter	Percentage
A	90-100
B+	86-90
B	80-86
C+	76-80
C	70-76
D+	66-70
D	60-66
F	0-60

Required Textbooks (COD)

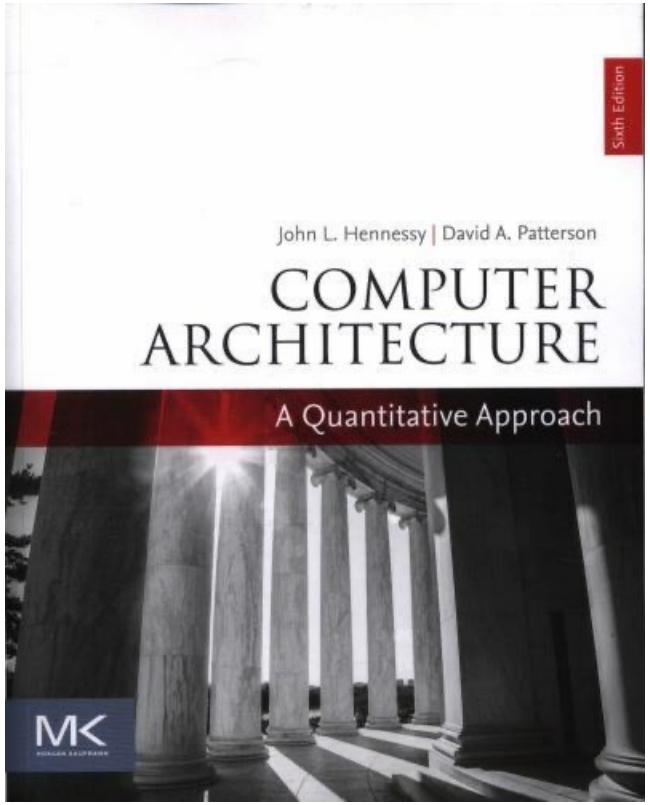
- Computer Organization and Design RISC-V Edition, 2nd edition
  - D. A. Patterson & J. L. Hennessy
  - Morgan Kaufmann, 2021
  - ISBN 978-0-12-820331-6



Textbook: 東華：吳飛龍 0937-950267，02-2311-4027
flwu@tunghua.com.tw.

Reference Textbooks (CAQA)

- Computer Architecture A Quantitative Approach, 6th Edition 2017
- John L. Hennessy and David A. Patterson



Homework

- Simulation tools: **RARS RISC-V Simulator**.

  RARS -- RISC-V Assembler and Runtime Simulator from https://github.com/TheThirdOne/rars

  A standalone Java software that you need for writing RISC-V assembly program and execute the program using simulation.

  Do not plagiarize if you want to pass this course.

  Above all it must be legible-if the graders can't read it, you won't earn credit.

Class Schedule

週數	課程進度	Quiz&Homework	Date
1	Introduction		
2	Computer abstractions and technology		
3	Computer abstractions and technology		
4	Instructions: Language of the Computer	Homework-1	(Due: 3/28)
5	Instructions: Language of the Computer	Quiz 1	(3/21)
6	Instructions: Language of the Computer		
7	Instructions: Language of the Computer	清明連假	
8	Instructions: Language of the Computer	~~Quiz 2~~	~~(4/11)~~
9	**Midterm Examination week**		(4/18)
10	Arithmetic for Computers	Homework-2	4/24,25~(Due: 5/15)
11	Arithmetic for Computers	Quiz 2	(5/2)
12	Arithmetic for Computers		
13	The Processor	Homework-3	(Due: 6/5)
14	The Processor		
15	The Processor		
16	Memory Hierarchy & Parallel Processors	Quiz 3	(6/6)
17	Memory Hierarchy & Parallel Processors		
18	**Final Examination week**		(6/20)