

CS2100

<http://www.comp.nus.edu.sg/~cs2100/>

COMPUTER ORGANISATION

# Welcome

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(AY2019/20 Semester 2)



**NUS**  
National University  
of Singapore

School of  
Computing

# Welcome to CS2100

1. Lecturers
2. Course Materials
3. Course Description
4. Assessments
5. Textbooks
6. Admin Matters

# 1. Lecturers



Running



Weekly group run with students. You're welcome to join us!  
Check out facebook.



Cantonese opera



A/P Tan Tuck Choy, **Aaron**

Office: COM1-03-12

Email: tantc@comp.nus.edu.sg

*Admin appointment:*

Assistant Dean

(Undergraduate Studies)

Singing



SoC Gala Dinner  
2018

Wing Chun



Pottery



# 1. Lecturers



**Adi** Yoga Sidi Prabawa

Office: COM2-02-55

Email: [dcsaysp@nus.edu.sg](mailto:dcsaysp@nus.edu.sg)

Cycling



Soccer



Board Games



My shelfie showing partial collections



NUS Board Game Club (every Friday & Saturday @ YIH or E4-04-04)



## 2. Course Materials

- CS2100 website
  - <https://www.comp.nus.edu.sg/~cs2100>



### Module Info...

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[Staff](#)  
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### Resources...

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### AY2019/20 Semester 2

- **Welcome all CS2100 students!**

Please read through the web pages on this site before your first lecture and check out for LumiNUS announcements regularly.

- This website is currently being updated for the coming semester. More information will be updated progressively. Thank you.

Aaron Tan

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Hits since 28-Dec-07: 210893. Accesses today: 4. [Statistics](#).

- LumiNUS

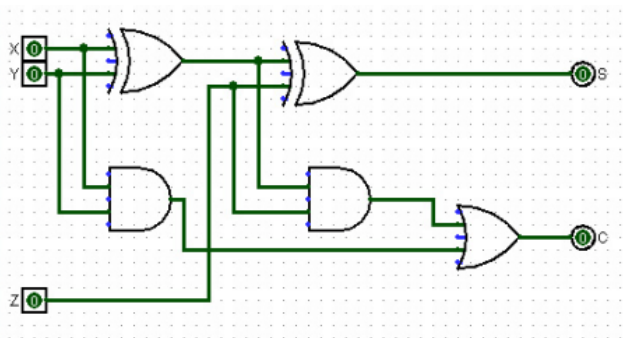
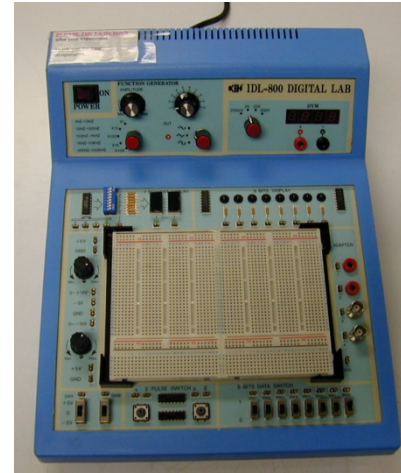
- <https://luminus.nus.edu.sg>

# 3. Course Description (1/3)

- The objective of this module is to familiarise students with the fundamentals of computing devices
  - The basics of data representation
  - How the various parts of a computer work, separately and with each other
- Topics
  - C programming language
  - Data representation and number systems
  - Assembly language
  - Processor datapath and control
  - Pipelining
  - Cache
  - Combinational and sequential circuit design

# 3. Course Description (2/3)

- Practical aspects
  - C debugger
  - QTSpim software
  - Logic design experiments
  - Logisim software



 A screenshot of the PCSpim MIPS simulator window. The window displays the following information:
 

- Registers:** PC = 00000000, EPC = 00000000, Cause = 00000000, BadVAddr = 00000000, Status = 3000ff10, HI = 00000000, LO = 00000000.
- General Registers:** R0 (r0) = 00000000, R1 (at) = 00000000, R2 (v0) = 00000000, R3 (v1) = 00000000, R4 (a0) = 00000000, R8 (t0) = 00000000, R9 (t1) = 00000000, R10 (t2) = 00000000, R11 (t3) = 00000000, R12 (t4) = 00000000, R16 (s0) = 00000000, R17 (s1) = 00000000, R18 (s2) = 00000000, R19 (s3) = 00000000, R20 (s4) = 00000000, R24 (t8) = 00000000, R25 (t9) = 00000000, R26 (k0) = 00000000, R27 (k1) = 00000000, R28 (gp) = 10008000.
- Instructions:**
  - [0x00400000] 0x8fa40000 lw \$4, 0(\$29) ; 174: lw \$a0 0(\$sp) # ar
  - [0x00400004] 0x27a50004 addiu \$5, \$29, 4 ; 175: addiu \$a1 \$p 4
  - [0x00400008] 0x24a60004 addiu \$6, \$5, 4 ; 176: addiu \$a2 \$a1 4
  - [0x0040000c] 0x00041080 sll \$2, \$4, 2 ; 177: sll \$v0 \$a0 2
  - [0x00400010] 0x00c23021 addu \$6, \$6, \$2 ; 178: addu \$a2 \$a2 \$v0
  - [0x00400014] 0x0c000000 jol 0x00000000 [main] ; 179: jol main
  - [0x00400018] 0x00000000 nop ; 180: nop
  - [0x0040001c] 0x3402000a ori \$2, \$0, 10 ; 182: li \$v0 10
- DATA:** [0x10000000]...[0x10040000] 0x00000000
- STACK:** [0x7ffffeffc] 0x00000000
- KERNEL DATA:** [0x90000000] 0x78452020 0x74706563 0x206e6f69 0x636f2000

# 3. Course Description (3/3)

## ■ Quotes

“What I hear, I forget.  
What I see, I remember.  
What I do, I understand”

– Chinese Proverb

不闻不若闻之，闻之不若见之，见之不若知之，知之不若行之；学至于行之而止矣。

– 《荀子·儒效》

“The important thing is to understand what you are doing, rather than to get the right answer”

– Tom Lehrer



## 4. Assessments

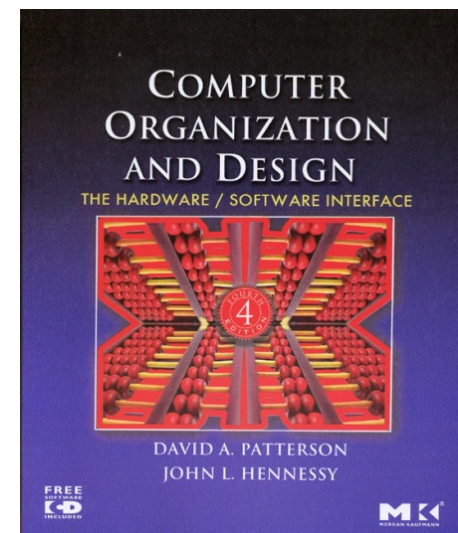
| CA component         | Weightage |
|----------------------|-----------|
| Tutorial attendance  | 5%        |
| Assignments (3 or 4) | 12%       |
| Labs                 | 13%       |
| Mid-term test *      | 20%       |
| Final exam *         | 50%       |

\* Closed book; one A4 double-sided reference sheet allowed.

# 5. Textbooks

- **Digital Logic Design (DLD)**  
**2<sup>nd</sup> edition**  
by Aaron Tan  
McGraw-Hill
  - Book + ebook bundle (include errata sheet)
- **Computer Organization and Design (COD), 4<sup>th</sup> edition**  
by David A. Patterson and John L. Hennessy, 4<sup>th</sup> ed, Elsevier

Please refer to CS2100 website "[Errata](#)" page for errors in the book.



## 6. Admin Matters (1/3)

- Lectures are webcast
- All course materials (lecture slides, tutorial questions, lab questions, etc.) will be uploaded on LumiNUS and the CS2100 website week by week
- You are encouraged to use LumiNUS Forum for queries/discussion.
  - Everybody can help answer and everybody can read the answers
  - Email me at [tantc @ comp.nus.edu.sg](mailto:tantc@comp.nus.edu.sg) only for personal matters
- **Tutorial attendance**
  - Every week, tutorial attendance for that week will be released on LumiNUS.
  - You are given a week from the release to inform your respective tutor of any discrepancy in that week's records.
  - Thereafter, NO changes will be made to the attendance records.
  - You may pass your medical certificate or excuse letter to your tutor.

## 6. Admin Matters (2/3)

### ■ Week 3

- No lecture on 27 January; watch webcast on Tuesday's lecture
- No labs in week 3; labs will start in week 4 (3<sup>rd</sup> Feb).
- Monday tutorial groups: do make-up tutorial or join other groups.

### ■ Mid-term test

- Week 8: 11 March 2019, Wednesday, 6 – 8pm
- Mark this down!
- Do not arrange activity on that day/time
- If there is a clash with other midterm test, please inform the other module's coordinator to make alternative arrangement
- If all else fails, email me (tantc@comp.nus.edu.sg) (in advance!)

## 6. Admin Matters (3/3)

### ■ Appeals

- Teaching staff are not allowed to add students into the module, add students into a tutorial/lab group, or change tutorial/lab group for students, etc.
- Students have to submit appeal through the system.

### ■ Tutorial/Lab Registration

- Please submit appeal through registration system
  - do NOT email me.
- If your allocation is not settled by week 3, please attend ANY tutorial group in week 3.
- Note that labs start in week 4.
- Once you are assigned a group, please stick with it.
- If you need to join a different group just for that week, please obtain permission from me in advance.



End of File