

CS2100

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

COMPUTER ORGANISATION

Welcome

(AY2020/21 Semester 2)



NUS
National University
of Singapore

School of
Computing

Welcome to CS2100

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

1. Lecturers



Mr Tan Tuck Choy, **Aaron**

Office: COM1-03-12

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Admin appointment:
Assistant Dean
(Undergraduate Studies)

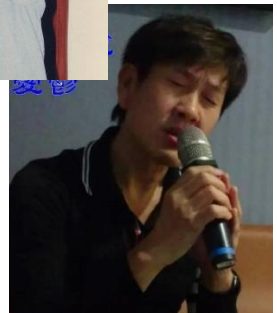
Running



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



Singing



Wing Chun



Karaokeing with students.

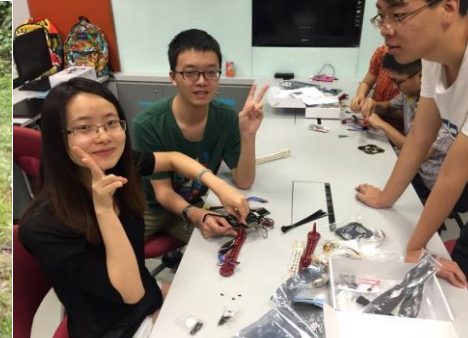
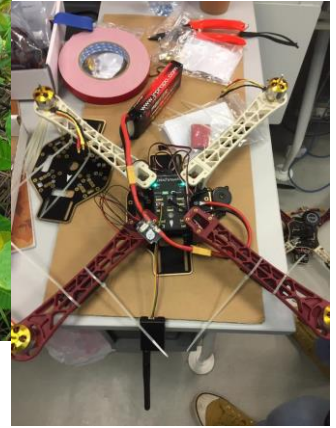
1. Lecturers



Colin Tan

Office: COM2-02-55

Email: dcsaysp@nus.edu.sg



2. Course Materials

- LumiNUS
 - <https://luminus.nus.edu.sg>
- CS2100 website (backup in case LumiNUS is down)
 - <https://www.comp.nus.edu.sg/~cs2100>



Module Info...

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AY2020/21 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

Hits since 28-Dec-07: 222200. Accesses today: 43. [Statistics](#).

2. Course Materials

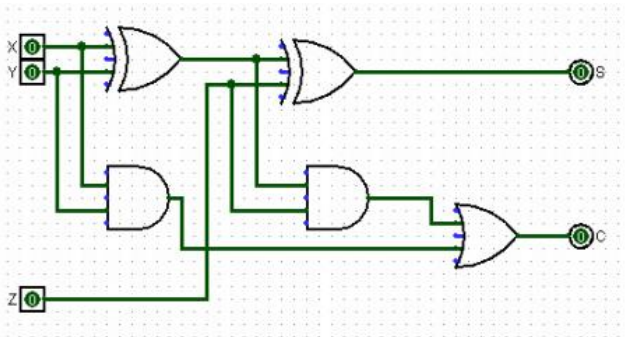
- Credit for Lecture Materials
 - All materials used in this course are from A/P Aaron Tan:
 - Colin's parts may contain minor modifications and additions/deletions.

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
 - Logic design experiments
 - Logisim software
 - QTSpim software



```

PC = 00000000 EPC = 00000000 Cause = 00000000 BadVAddr = 00000000
Status = 3000ff10 HI = 00000000 LO = 00000000

General Registers
R0 (r0) = 00000000 R8 (t0) = 00000000 R16 (s0) = 00000000 R24 (t8) = 00000000
R1 (at) = 00000000 R9 (t1) = 00000000 R17 (s1) = 00000000 R25 (t9) = 00000000
R2 (v0) = 00000000 R10 (t2) = 00000000 R18 (s2) = 00000000 R26 (k0) = 00000000
R3 (v1) = 00000000 R11 (t3) = 00000000 R19 (s3) = 00000000 R27 (k1) = 00000000
R4 (a0) = 00000000 R12 (t4) = 00000000 R20 (s4) = 00000000 R28 (gp) = 10008000

[0x00400000] 0x8fa40000 lw $4, 0($29) ; 174: lw $a0 0($sp) # at
[0x00400004] 0x27a50004 addiu $5, $29, 4 ; 175: addiu $a1 $p 4 # or
[0x00400008] 0x24a60004 addiu $6, $5, 4 ; 176: addiu $a2 $a1 4 # or
[0x0040000c] 0x00041080 sll $2, $4, 2 ; 177: sll $v0 $a0 2 # or
[0x00400010] 0x00c23021 addu $6, $6, $2 ; 178: addu $a2 $a2 $v0
[0x00400014] 0x0c000000 jal 0x00000000 [main] ; 179: jal 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

SPIM Version Version 7.0 of July 7, 2004
Copyright 1990-2004 by James R. Larus (larus@cs.wisc.edu).
All Rights Reserved.
DOS and Windows ports by David A. Carley (dac@cs.wisc.edu).
Copyright 1997 by Morgan Kaufmann Publishers, Inc.
See the file README for a full copyright notice.
Loaded: C:\Program Files\PCSpim7\exceptions.s
  
```


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

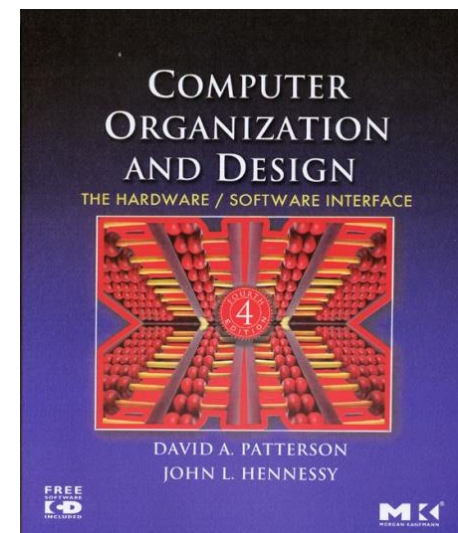
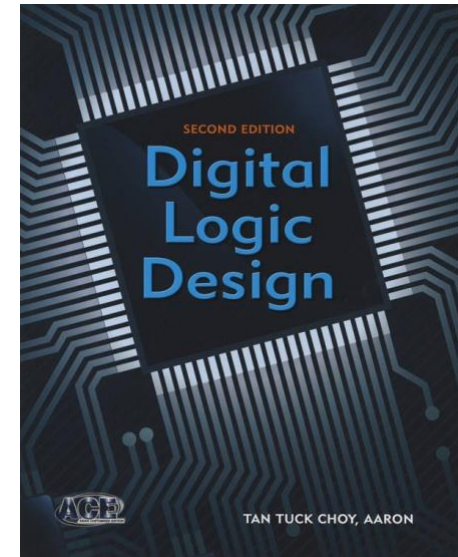
| CA component | Weightage |
|---------------------|-----------|
| Tutorial attendance | 5% |
| 3 Assignments | 12% |
| Labs | 13% |
| Mid-term test * | 20% |
| Final exam * | 50% |

* Open Internet. All tools except those that facilitate communications are allowed.

5. Textbooks

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

Please refer to module website “[Errata](#)” page for errors in the book.



6. Admin Matters (1/2)

- Lectures are on Zoom
- All course materials (lecture slides, tutorial questions, lab questions, etc.) will be uploaded on LumiNUS and the CS2100 website week by week
- Tutorials and labs start in week 3 (25th Jan 2021)
- **Mid-term test**
 - 10 March 2021, Wednesday, 6.30 – 8.30 pm
 - **PLEASE BLOCK THIS DATE.**
 - Please check LumiNUS announcements for updates
- Please post your queries on LumiNUS forums
 - Everybody can help answer and everybody can read the answers
 - Email instructors at ctank@comp.nus.edu.sg (Colin) or tantc@comp.nus.edu.sg (Aaron) for personal matters.

6. Admin Matters (2/2)

- Online tutorial/lab registration – through ModReg.
 - Lab group and tutorial group are independent.
 - Appeal through ModReg, please do NOT email me!
 - Priority will be given to those without a group, instead of those who already have a group but wish to change.
 - Do not worry if your lab/tutorial is back to back with the lecture. I will be punctual in starting my lesson and CS2100 lectures/tutorials/labs should end 15 minutes before the hour.
 - After you get your assigned group, please stick with it.
 - If you need to attend another group for just one week, please send an email to me (at least a few days in advance) with your reason or attendance will not be taken by the tutor/labTA.

7. IMPORTANT DATES

- See

https://www.comp.nus.edu.sg/~cs2100/1_module_info/sched.html

- **CS2100 MIDTERM QUIZ**

WEDNESDAY 10 MARCH 2021, 6.30 PM to 8.30 PM. BLOCK OUT THIS DATE AND TIME.

- Assignment 1: Issued 5 Feb 2021, Due 1 pm 15 Feb 2021.
- Assignment 2: Issued 10 Mar 2021, Due 1 pm 20 Mar 2021.
- Assignment 3: Issued 31 Mar 2021, Due 1 pm 10 Apr 2021.
- **CS2100 FINAL ASSESSMENT**

TUESDAY 27 APRIL 2021, 4 PM TO 8 PM (Actual assessment is from 5 pm to 7 pm, but block the time indicated)

8. Important Links

- Lectures:

- <https://nus-sg.zoom.us/j/86710701168?pwd=TmwzcEdYWwJsV2ZXd1JKVG1oZ2g1dz09>

Meeting ID: 867 1070 1168

Password: 227945

- Telegram (Please join!):

- <https://t.me/joinchat/HQWzz-UiLOc1vIHF>

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