

CS2100

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

COMPUTER ORGANISATION

Welcome

(AY2022/23 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



Colin Tan

Office: COM2-02-08

Email: dcstanc@nus.edu.sg



1. Lecturers



Mr Tan Tuck Choy, **Aaron**

Office: COM1-03-12

Email: tantc@comp.nus.edu.sg

Admin appointment:
Assistant Dean
(Undergraduate Studies)

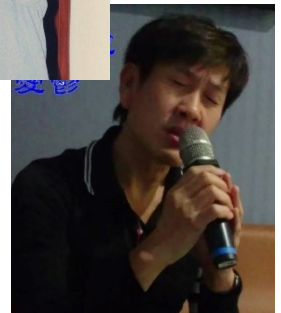
Running



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



Singing



Wing Chun



Karaokeing with students.

1. Lecturers



Carlson, **Trevor**

Office: COM3-02-10

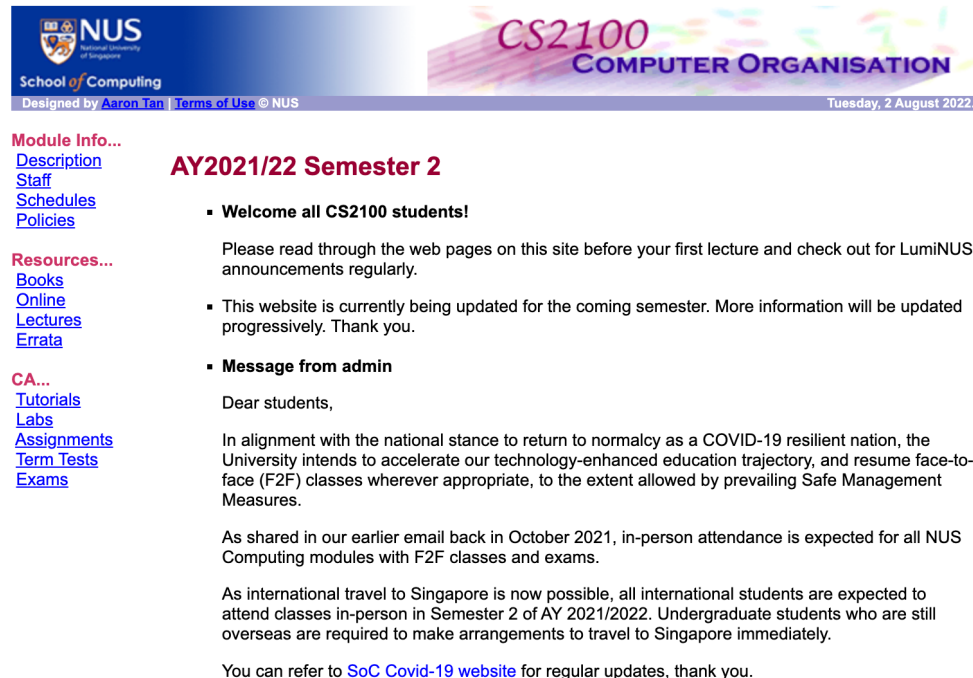
Email: tcarlson@nus.edu.sg

“I am a neutrino”

Ask me what this means when you meet me.

2. Course Materials

- Canvas
 - <https://canvas.nus.edu.sg>
- CS2100 website (Good source of past year papers)
<https://www.comp.nus.edu.sg/~cs2100>



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School of Computing
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CS2100
COMPUTER ORGANISATION

Tuesday, 2 August 2022

Module Info...
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AY2021/22 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.

- **Message from admin**

Dear students,

In alignment with the national stance to return to normalcy as a COVID-19 resilient nation, the University intends to accelerate our technology-enhanced education trajectory, and resume face-to-face (F2F) classes wherever appropriate, to the extent allowed by prevailing Safe Management Measures.

As shared in our earlier email back in October 2021, in-person attendance is expected for all NUS Computing modules with F2F classes and exams.

As international travel to Singapore is now possible, all international students are expected to attend classes in-person in Semester 2 of AY 2021/2022. Undergraduate students who are still overseas are required to make arrangements to travel to Singapore immediately.

You can refer to [SoC Covid-19 website](#) for regular updates, thank you.

2. Course Materials

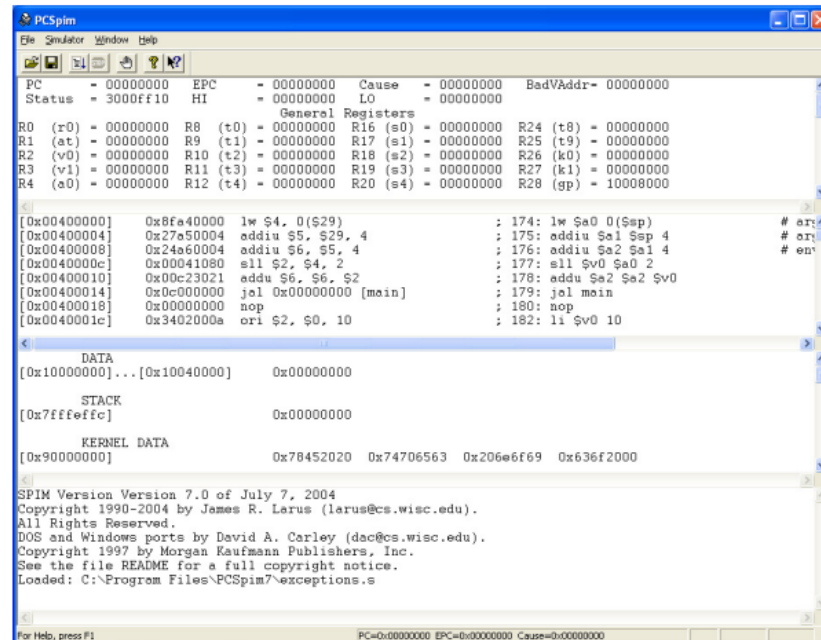
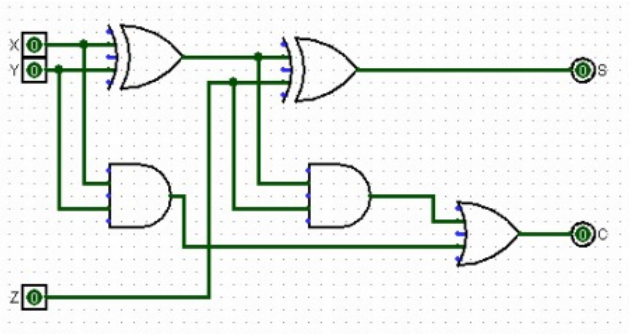
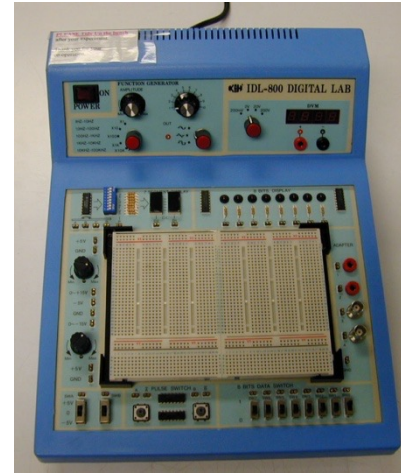
- Credit for Lecture Materials
 - All materials used in this course are from A/P Aaron Tan:
 - Colin's parts may contain minor modifications and additions/deletions.

3. Course Description (1/2)

- 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 (2/2)

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



4. Assessments

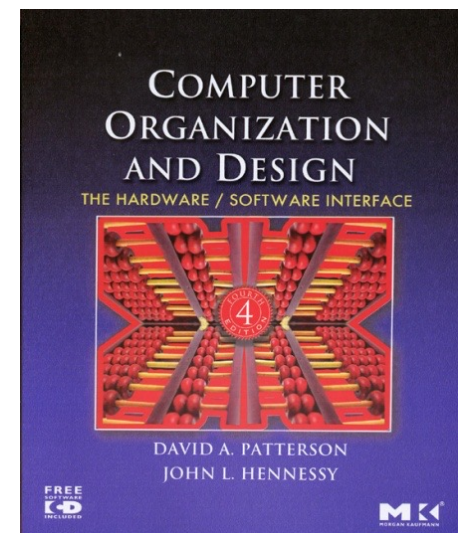
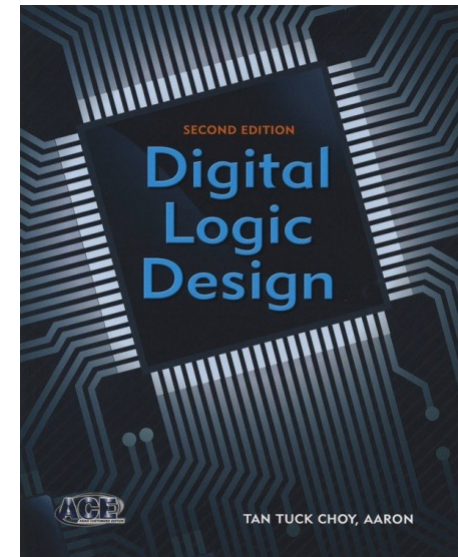
CA component	Weightage
Lecture quizzes	5%
Tutorial attendance	1%
2 Assignments	10%
Labs	14%
Mid-term test *	20%
Final exam *	50%

* Face-to-face. Venues TBA.

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)

- CS2100 is taught in **Blended Learning** mode.
 - All course materials (lecture slides, tutorial questions, lab questions, etc.) will be uploaded on Canvas week-by-week
- Recitations start in Week 2 (16 January 2023)
- Tutorials and labs start in Week 3 (23 January 2023)
- **Mid-term test**
 - **11 March, 9 am to 10.30 am. (Tentative)**
 - Please check Canvas announcements for updates
- Please post your queries on Canvas forums
 - Everybody can help answer and everybody can read the answers
 - Email instructors at colintan@nus.edu.sg (Colin), tantc@comp.nus.edu.sg (Aaron) or tcarlson@nus.edu.sg (Trevor) for personal matters.

6. Admin Matters (1/4)

- CS2100 is taught in **Blended Learning** mode.
 - Sequence of lectures and quizzes for the week are shown in the CS2100 “Home” screen on Canvas.
 - Follow the sequence of notes and do the quizzes.
 - Lecture recordings are in the Videos/Panopto tool on the left of the screen (circled).
 - Please view all lecture recordings and do all the quizzes for Week n before the start of Week $n+1$.
 - I.e. view all the lectures and do the quizzes for Week 1 before the start of Week 2.

Pages

Files

Syllabus

Outcomes

Rubrics

Quizzes

Modules

Collaborations

New Analytics

Item Banks

Studio

Chat

Zoom

Videos/Panopto

Student Feedback

Attendance

Week 1 (8 August): 1 - Introduction, 2 - Overview of C Programming,...		
		✓ + ⋮
Week 1 Materials	✓	⋮
Lect01_Introduction.pptx	✓	⋮
Lecture 2a Introduction to C	✓	⋮
Lecture 2b Computations in C	✓	⋮
CS2100 Programming Quiz 1 16 Aug 1 pts	✓	⋮
Lecture 2c Control Structures in C	✓	⋮
CS2100 Programming Quiz 2 16 Aug 2 pts	✓	⋮
CS2100 Lecture 3a: Data Representation and Number Systems 1	✓	⋮

6. Admin Matters (2/4)

- We will have Recitation Sessions every **Monday 10 am to 12 pm. Three concurrent sessions:**
 - Seminar Room 1
 - LT 19
 - Zoom
- First Recitation is on **Tuesday 16 August 2022.**
- **Limited seating!!**
 - F2F venues have a combined capacity of <350. If there is no space please join online.
 - Advantages:
 - You're more likely to pay attention and benefit here than on Zoom. We know this from 2.5 years of running classes on Zoom.
 - More personal interaction since we're actually "there".
 - Instructor will stay on to answer questions personally after recitations.

6. Admin Matters (3/4)

- What do we do at Recitation?
 - Every set of Lecture Notes have a **QR code and a link** to ask questions.
 - As you view the slides if you don't understand something, scan the QR code to bring you to a Slido page where you can ask questions.
 - We will **answer these questions** at recitation AND **do additional exercises** (e.g. from past year papers).

10.8 Excess Representation (2/2)

- Example: For 4-bit numbers, we may use excess-7 or excess-8. Excess-8 is shown below.

<i>Excess-8 Representation</i>	<i>Value</i>
0000	-8
0001	-7
0010	-6
0011	-5
0100	-4
0101	-3
0110	-2
0111	-1

<i>Excess-8 Representation</i>	<i>Value</i>
1000	0
1001	1
1010	2
1011	3
1100	4
1101	5
1110	6
1111	7



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

- **CS2100 MIDTERM QUIZ**

Tentatively Saturday 11 March 2023, 9 AM to 10.30 AM. Venue TBA, subject to Registrar Office.

- **CS2100 FINAL ASSESSMENT**

FRIDAY 28 April 2023, 2.30 PM TO 4.30 PM, venue TBA.

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