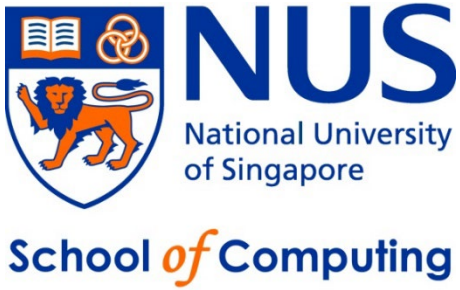
IT5002

Computer Systems and Applications

Welcome to IT5002

colintan@nus.edu.sg



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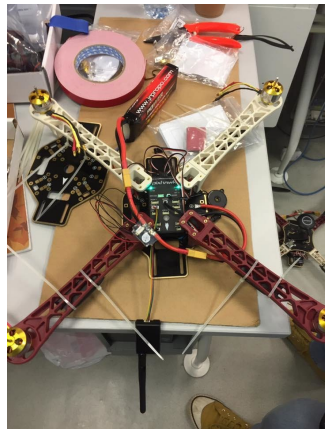

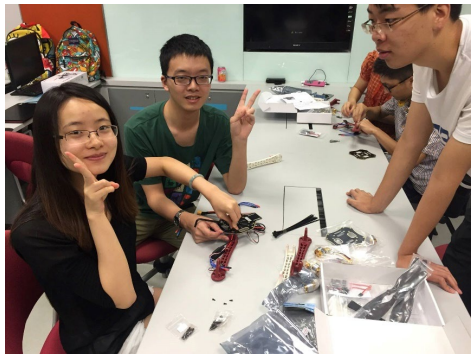

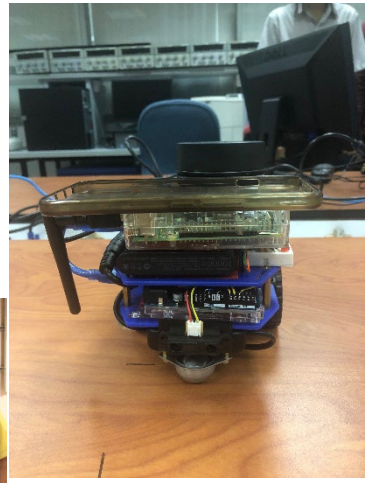

Colin Tan

Consultation:
Zoom only.

Email: colintan@nus.edu.sg

Admin appointment:
Chief Randomness Generator, Makers@SoC

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IT5002 Computer Systems and Applications
Course Objective

- **The objective of this module is to familiarise students with the fundamentals of computing devices and applications**
  - This is a fast paced, intense course.
  - But you will learn a lot.
- **Topics**
  - Part 1: Processor Organization
    - ✓ **Interfacing High Level Programming Languages to Hardware.**
    - ✓ **Data representation and number systems**
    - ✓ **Assembly language**
    - ✓ **Processor datapath and control**
    - ✓ **Pipelining (Brief)**
    - ✓ **Cache (Brief)**
  - Part 2: Operating Systems
  - Part 3: Applications - The Web, Databases and Blockchains

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- **Topics**
  - Part 1: Processor Organization
  - Part 2: Operating Systems
    - ✓ **OS Architecture.**
    - ✓ **Process Management**
    - ✓ **Process Coordination**
    - ✓ **Memory Management**
    - ✓ **File Management**
  - Part 3: Applications - The Web, Databases and Blockchains

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- **Topics**
  - Part 1: Processor Organization
  - Part 2: Operating Systems
  - Part 3: Applications - The Web, Databases and Blockchains
    - ✓ **Basics of the Web – HTTP, HTML, MIME Types, RESTful Servers**
    - ✓ **Relational Databases**
    - ✓ **Document Oriented Databases**
    - ✓ **Blockchains: Principles, Cryptographic Hashes, Chain Structure, Proof of work, Chain Resolution, 51% Attacks, Proof of Authority, Proof of Stake.**

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Lectures

- **Lectures are F2F and over Zoom. You should attend the F2F lectures.**

  https://nus-sg.zoom.us/j/99638418357?pwd=SXNiSm4zVm5NSThmaDRITnVGZTU1QT09

  Meeting ID: 996 3841 8357

  Passcode: 941586

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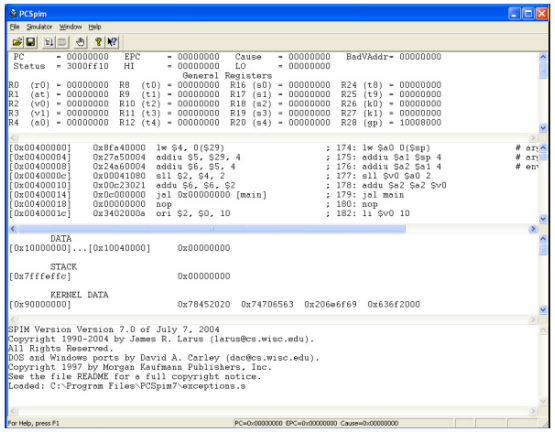
Practical Aspects

- Tutorials / Labs most Saturdays, 2-3 pm or 3-4 pm from Week 3 onwards
  - QTSpim (MIPS Assembly)
  - Creation and coordinating processes and threads (Python)
  - MySQL and MongoDB Programming (Python)



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Assessment

CA component	Weightage
Tutorials / Labs	5%
Assignment	15%
Mid-Term Test*	25%
Final Exam*	55%

* Face-to-Face Electronic Assessments (Examsoft). Four-page cheat-sheet (2 A4 sheets)

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Admin Matters

- **Lectures are 3 hours long, every Tuesday 6.30 pm to 9.30 pm**
- **All course materials will be uploaded on Canvas.**
- **Tutorials/Labs start in week 3 (29th August 2023)**
- **Mid-term test**
  - Saturday 21 October 2023, 2.00 pm – 3.30 pm (during tutorial slot)
  - Please check Canvas announcements for updates
- **Please post your queries on Canvas forums**
  - Everybody can help answer and everybody can read the answers
  - Email me at colintan@nus.edu.sg only for personal matters