UIT2201: CS & IT Revolution

❑ **Course Web-Site: (Fall 2016)**

  ❖ http://www.comp.nus.edu.sg/~leonghw/uit2201/Fa2016/

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  ❖ **Office: COM1, 03-17**

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  ❖ **Dept of Computer Science, SOC**

❑ **Consultation:**

  ❖ **Office Hours: Wed 2-4pm (USP-JAR), (& by email-appt)**

UIT2201 – is not…

Not practice oriented	**Not a Computer Literacy Course**	**Do NOT need programming background**
Don't teach Java, C,C++, Python, etc	**Computer Literacy is Assumed**	**Open Mind, Logical Mind Keen to Learn**
Not to train Computer Scientist Software coder	**Literacy is NOT CS or IT or CT**	**Learn that CS/IT Can be interesting, Rewarding, and FUN!**

UIT2201 – teaches…

Fundamental Ideas of CS & IT	with Examples & Analogies	Sources: Books, Internet
What drives the CS & IT Revolution	**From many other disciplines**	**Newspapers, Magazines, on the bus/MRT**
Key ideas! Not indepth Coverage	**A&E (Anywhere and Everywhere)**	**View things from CS/IT perspective**

UIT2201: teaches…

How to Leverage on IT
(what's possible, what's not)

ITEM: IT Enabled MindSet
(Able to apply IT knowledge)

ITEM-1:
NLB Story
(Christopher Chia)

ITEM-2:
MOH Story
(Koh Boon Wan)

"If you know *what is possible*, you can *always* find the right people to do it."

Some Recurring Principles

Recurring principles (themes) in CS & IT.

1. **Multiple Levels of Abstraction**
   - *from very high level to very low level*

2. **Divide and Conquer**
   - *also called "Decomposition"*

3. **One data, multiple views**
   - *Different "interfaces"*

4. **Defining set of basic primitives (building blocks)**
   - *Or basic-operations, mini languages*

5. **Power of Iteration**
   - *doing something multiple times*

"These *recurring principles* also apply to other disciplines"

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❑ **Textbook:**

  ❖ **Invitation to Computer Science, (6th edition), 2012 G. Michael Schneider & Judith L. Gersting**

  ❖ **Chapter covered: (roughly)**
    ➢ *Chapters 1-5, 7, 12, 14-16*

❑ **Lecture Materials:**

  ❖ **Powerpoint files**

  ❖ **Related reading materials on course-site**

  ❖ **Assigned reading materials (not so much)**

UIT2201: Other fun things…

❑ **Good jokes, fun jokes…**

❑ **Learning to "think outside the box"**

    ❖ **Many ways to view the same thing**

    ❖ **Applying the lessons**

❑ **Fun Project: (some past ones…)**

    ❖ **Games/Apps/Storyboarding with Scratch**
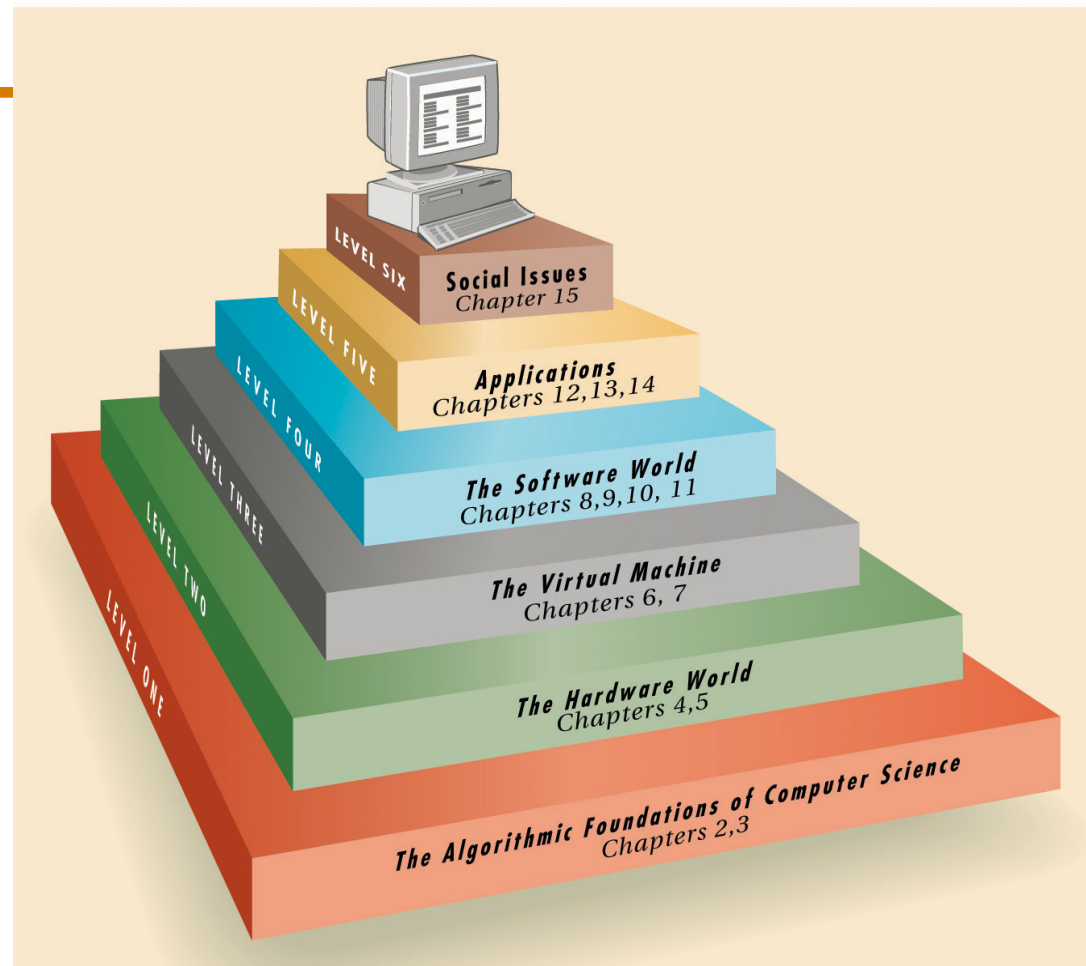
Figure 1.9

Organization of the Text into a Six-Layer Hierarchy

UIT2201 – Course Assessment

Participation (5%)

MidTerm (closed book) (20%)

On 05-Oct, 7-8pm. (email me ASAP if you have conflict)

Tutorials (20%)

Final (Open Book) (30%)

Enough room to plan how to do well.

Group Project (25%)

"No computing background" is not barrier to doing well

About Scratch

- ❑ **Some Demo Scratch Program**

- ❑ **Having FUN with programming**
  - ❖ **Without the pain of syntax error, bus error, segmentation fault, unexpected exception, etc**

- ❑ **Focus on how to program for FUN**

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COURSE OUTLINE (Rough!)

- ❖ **Introduction, Tourist Problem, Scratch (2L)**
- ❖ **Pervasive IT (1L)**
- ❖ **Algorithms (5L)**
- ❖ **Database (2L)**
- ❖ **Hardware & Computer Design (4L)**
- ❖ **Network / Internet / WWW (2L)**
- ❖ **Artificial Intelligence (2L)**
- ❖ **Theory (2L)**
- ❖ **e-Commerce, Security (2L)**
- ❖ **Past, Present and Future Trends (1L)**

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This Year (2016):
Inject
Computational Thinking
&
Unplugged activities

A few word about Revolution

- ❑ **Revolution: many meanings…**
  - ❖ **http://en.wikipedia.org/wiki/Revolution**
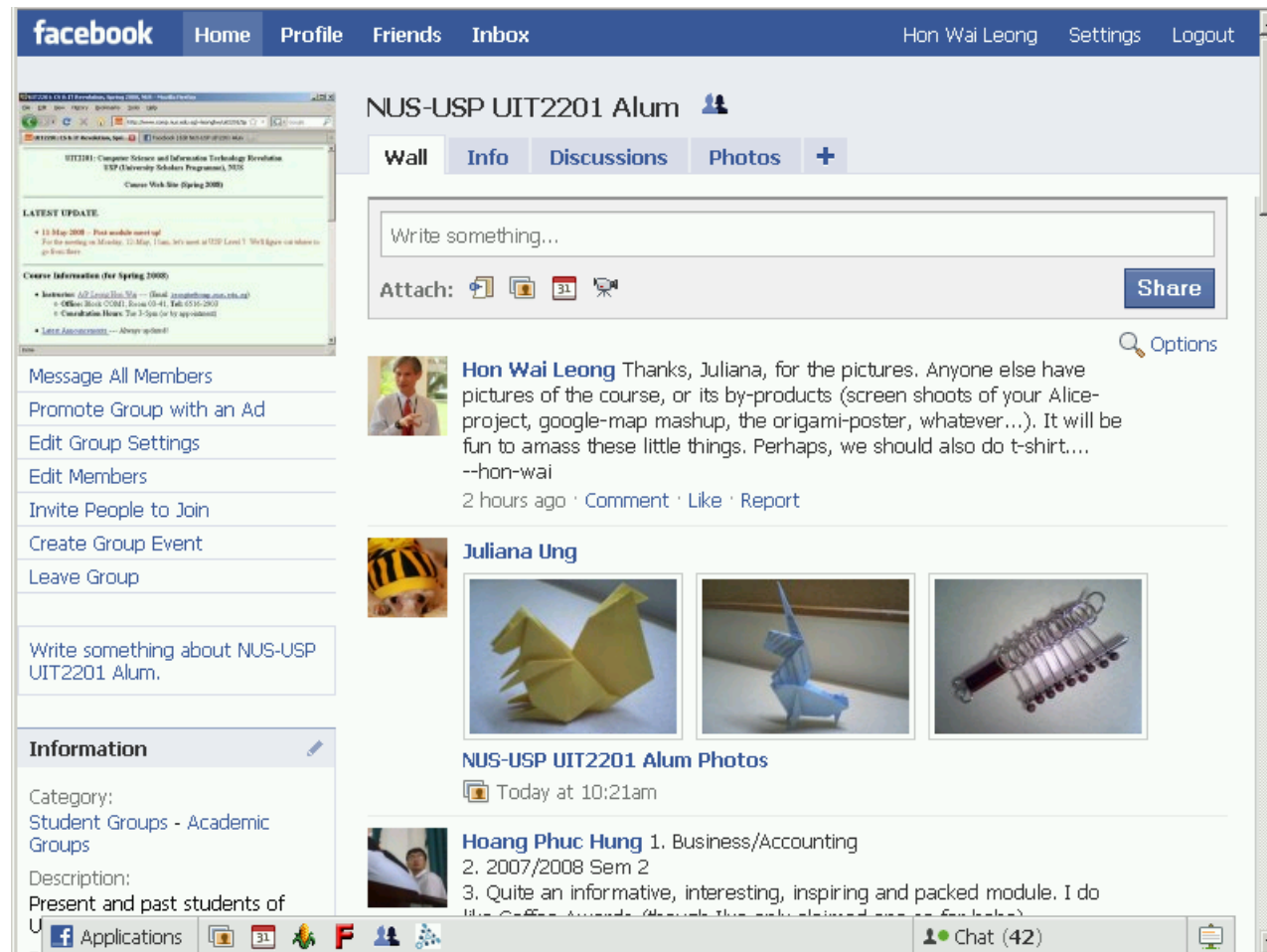
- ❑ **Scientific Revolution**
  - ❖ **http://en.wikipedia.org/wiki/Scientific_revolution**

- ❑ **Digital Revolution**
  - ❖ **http://en.wikipedia.org/wiki/Digital_Revolution**

"NUS-USP UIT2201 Family" FB-Group

❑ **See what the UIT2201 alums says…**

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What students say… (Strengths) [1]

* But I think the best part about him is the way he teaches us to think and stuff... =) A lot of what I learned was not specific to computer science... and was very applicable on a general basis, to life. I think he made this a very USP-like science module... and I enjoyed it thoroughly - especially the Scratch program

* He's really entertaining =). And he seems to put in a lot into the module - it's very personal, which makes it rather fun. He creates ways to make us enjoy the module and even gives us food during tests! =) I thought the coffee award thing was also very creative and a very good teaching method. =)

(…student feedback Spring 2010)

What students say… (Strengths) [2]

* He's a good lecturer who knows the subject very well and has a great sense of humour. He's easily approachable, and creates an atmosphere where it's easy to participate. Lessons are entertaining.

* Clear and concise, knowledgeable, friendly, effective

* I love Prof Leong, he is a very happy and passionate teacher and it translates into his teaching! His examples, analogies and jokes are all very interesting! It's a pleasure to learn from prof Leong!

(…student feedback Spring 2010)

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What students say… (Strengths) [9]

* Prof. Leong is an inspiring tutor who is more concerned with process than outcome. Through questioning, he encourages students to think out of the box, to think in reverse, and to think in any way other than the standard, textbook way. He also makes it a point to show us that we learn better and faster by thinking in new ways (such as in problem solving). He is also a caring mentor who is concerned with the well-being of his students, as seen from his provision of snacks during tests (thank you prof!), as well as his detailed review sessions for the final project (during which he advised not only on the technical part of the project, but also on team dynamics).

(…student feedback Spring 2010)

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What students say… (improve?) [1]

* Spends too long on some explanations, though students unfamiliar with the topic might have found it useful.

* Perhaps you can mentor other TAs/prof so they may learn how to teach effectively too!

* Nil. (more jokes please? :D)

(…student feedback Spring 2010)

* This semester is short of time to cover all the topics, some of which are quite interesting. Maybe next time, he can speed up the class and try not deviate from the topic although it is good to know the messages in the talks.

(…student feedback Spring 2010)

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What students say… (improve?) [2]

* - [sic]

•perhaps, less frequent homework.

* more life examples of how IT can be used ha.

* Sometimes dwelled very long on certain concepts, thus we were not able to finish the whole syllabus.

* Thank you for your lecturing. Keep it up.

(…student feedback Spring 2010)