IT1015: Introduction to Computer Science / 計算機概論

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Fall 2023 Syllabus

This is an introductory computer science course for CS undergraduate students. The students will get a big picture of computer science. The essential and fundamental technical principles in computer science including, basic knowledge about computer, data manipulation & abstraction, computer architecture, organization, software, operating system, database, network will be introduced. And the students will also gain the ability to solve problems with C/C++ using modern development tools, such as Cloud Editor and Git/Github repository.

Topics

This course is an introduction to computer science, with the emphasis on programming in the high level programming language C/C++. Topics include:
- Foundations of Computer Science:
  - The Shapes of Computers Today
  - Computer Organization
  - Operating system
  - Networking & The Internet
  - Database Systems
  - Computer Security
- Cloud Source Repositories (git/github)
- C/C++ Programming

Textbook

1. J. Glenn Brookshear, **Computer Science: An Overview** 13/e
3. Walter Savitch, "**Absolute C++, Global Edition**" Sixth Edition

Reference Book

1. Behrouz A. Forouzan, "**Foundations of Computer Science**," 4/e, 2018

2. Randal E. Bryant and David R. O'Hallaron, **Computer Systems: A Programmer's Perspective**, 3/E (CS:APP3e)
3. Deitel & Deitel, **C How to Program** 8th Ed., Prentice Hall
4. Brian W. Kernighan, Dennis M. Ritchie, **The C Programming Language**, 2/e

Grading

Your course grade will be determined approximately as follows:
- 30%: Mid-term exam
- 30%: Final exam
- 20%: Quizzes
- 20%: Exercises

教學進度 Course Progress Outline			
總授課時數 (Total Hours)： 54 小時 (Hours)			
項次 No.	時數 Hours	教學進度 Outline	作業和實驗 Homework&Lab
1	3	Course Overview & An Introduction to Computer Science	HW#0 問卷調查 同學資訊能力問卷填寫
2	3	The Shapes of Computers Today & Computer Organization Computer DIY	LAB#1 PC DIY 錄製並上傳一個的YT影片
3	3	Number Systems & Data Storage	HW#1 作業練習 課本習題作業
4	3	Operating system	LAB#2 虛擬機安裝設定 Virtual Box 安裝 ubuntu & 課本習題作業
5	3	Computer Network & The Internet & WWW	LAB#3 ubuntu使用 練習 Ping and tracert cmd & 課本習題作業 練習 curl cmd & 課本習題作業
6	3	Database Systems	HW#2 作業練習 課本習題作業
7	3	Mid-term Exam	100題 90題選擇，10題問答
8	3	An Introduction to Programming Concepts	
9	3	git/github	LAB#4 git/github練習 Git cmd and GitHub push
10	3	C/C++ Basics	HW#3 C語言練習 程式作業 & github push

11	3	Variables, Expressions, and Assignment Statements	HW#4 C語言練習 程式作業 & github push
12	3	Flow of Control: Boolean Expression	QZ#1 C語言小考 20題選擇 2題手寫程式
13	3	Flow of Control: Loops	HW#5 C語言練習 程式作業 & github push
14	3	Function Basics	QZ#2 C語言小考 20題選擇 2題手寫程式
15	3	Programming with Arrays	
16	3	Final Exam	40題選擇 10題手寫程式