

IT1015: Introduction to Computer Science / 計算機概論

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Fall 2022 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 Platform, Cloud Shell 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 Platform/Cloud Shell Editor
- Cloud Platform/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:

- 25%: Mid-term exam
- 25%: On-line programming exam (Final exam)
- 20%: Quizzes
- 30%: 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
3	3	Number Systems & Data Storage	HW#1 作業練習
4	3	Operating system	LAB#2 虛擬機
5	3	Computer Network	LAB#3 ubuntu
6	3	The Internet & WWW	LAB#4 ubuntu
7	3	Database Systems	HW#2 作業練習
8	3	Computer Security	LAB#5 ubuntu
9	3	Mid-term Exam	
10	3	An Introduction to Programming Concepts	
11	3	Cloud Editor/Cloud Source Repositories/git/github	LAB#6 git/github 練習 Git cmd and GitHub push
12	3	C/C++ Basics	HW#3 C語言練習 程式作業 & github push

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13	3	Variables, Expressions, and Assignment Statements	HW#4 C語言練習 程式作業 & github push
14	3	Flow of Control: Boolean Expression	HW#5 C語言練習 程式作業 & github push
15	3	Flow of Control: Loops	HW#6 C語言練習 程式作業 & github push
16	3	Function Basics	HW#7 C語言練習 程式作業 & github push
17	3	Programming with Arrays	HW#8 C語言練習 程式作業 & github push
18	3	Final Exam	手寫程式