901 10110

Basic Computer Concepts

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Purpose

An introductory survey to computer science

- exploring the breadth
- exposing enough depth

Audience

- EE, CS majors
  - beyond programming, web-browsing, internet file-sharing
    - IC, computer architectures, operating systems, programming languages, algorithms, network, security, software engineering, database, …
  - for appreciation of future courses
- students from other disciplines
  - to live in a technology society
  - with a practical and realistic understanding of the entire field

Prerequisites

- **None!**

Course information
901 10110

Time: Spring 2012

13:20-14:10, Tuesday & 15:30-17:20, Wednesday

Room: 電二102

Textbook: *J. Glenn Brookshear*

Computer Science – An Overview

10th Edition, Addison-Wesley.

台灣代理：新月圖書公司

台北市重慶南路一段143號3樓

02-2331-1578

http://www.bookcake.com.tw

newmoo@ms15.hinet.net

Instructor

- **Instructor:** 王凡 教授
- 博理館 616
- 03-33663602
- webpage

    http://cc.ee.ntu.edu.tw/~farn

- email

    farn@cc.ee.ntu.edu.tw

Teaching assistant

?

office hour

Evaluation

- Midterm exam 30%

- Final exam: 40%

- Term project: 20%

- Homework: 10%
  - questions selected from the textbook
  - submitted through emails to the TA

非目的

- 本門課程不以當學生為目的！
  - 六十分不能證明什麼，只能傷害你往後的申請案。
- 可是，
  - 作業缺交多次
  - 期中考、期末考成績慘不忍睹
  - 學期計畫敷衍了事
  - *必當！！！*

Term Project

Do whatever you like!

- Please identify a topic that you like to do.
- Explain why it is worth doing.
- Describe the design.
- Describe how you plan to test it.
- Implement it.
  - MS Visual Studio C++ Ultimate.

Term Project
team

- 2 students a team
  - a programmer and a tester
- They define the specification together.
- Then they work in parallel respectively for the program and testplan implementation.
- *Note that changes to the specification in later stages of the project will cause pains of the team members. Thus such changes should be avoided.*

Term Project
team, continued

- programmer-specific job
  - design the program according to the spec.
  - implement the program according to the design.

- tester-specific job
  - design the test plan according to the spec.
  - implement the test plan according to the test design.
  - The tester is not responsible for testing any property different from the spec.

Term project
checkpoint 1, team registration (3/7)

Submission to the TA via email the follwing team member information:

- Name of the programmer,

- Name of the tester, and

- Student ID numbers of the two members

Term project
checkpoint 2, proposal (4/25)

- 5 mins presentation for each team.

- *Submit to the TA via email:*
  - *the powerpoint document and*
  - *design framework, including*
    - *sequence diagrams,*
    - *use cases,*

- Explain why it is worth doing.

Term project
checkpoint 2, proposal (4/25), continued

- Specify your program
  - explain why it is reasonable.
  - Note that once the specification is fixed, it is not supposed to change. Spec. change will create the difficulties for the tester in constructing test plans.

- For the *programmer*, describe your design
  - classes, methods, control flows, …

- For the *tester*, describe your test plan.
  - **explain why it is sufficient.**

Term project
Checkpoint 3, final presentation (6/12,13)

- 8 mins presentation for each student.
- Submit to the TA via email:
  - the powerpoint document and
  - the programs
- Explain your change to the specification.

Term project

Checkpoint 3, final presentation (6/12,13)

continued,

- For the *programmer*, describe your implementation.
  - classes, methods, control flows, …
  - ***Please do not ask the audience to trace your code in the presentation!***

- For the *tester*, show how you validate your implementation through testing.
  - instrumentation, bug reports, coverage, …

Term Project

- Please use MS Visual Studio C++ Ultimate.
    - Available from NTU Computing Center.
    - MS Visual Studio supports the output of
        - *for design*: class diagrams, sequence diagrams, use cases, and state charts;
        - *for testing*: unit test template generation
- The two students in a team will be graded independently.
    - If the program is not finished but the test plan is good, the tester can still get good score.

Course schedule (I/III)

- 2/21   syllabus presentation
- 2/22, 2/29   Chapter 0
- 3/6   Chapter 1
- 3/7   Chapter 1,

               Term project team registration

- 3/13,14   Chapter 2
- 3/20,21   Chapter 3
- 3/27,28   Chapter 4

Course schedule (II/III)

- 4/10,11   Chapter 5
- 4/18   Midterm
- 4/24   Chapter 6
- 4/25   Term Project, proposals
- 5/1,2   Chapter 6
- 5/8,9   Chapter 8
- 5/15,16   Chapter 9

Course schedule (III/III)

- 5/22,23   Chapter 10
- 5/29,30   Chapter 11
- 6/5,6   Chapter 12
- 6/12,13   Term project, presentation
- 6/20   Final exam