Introduction To Computer Science

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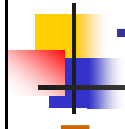
Fall 2013



Textbook

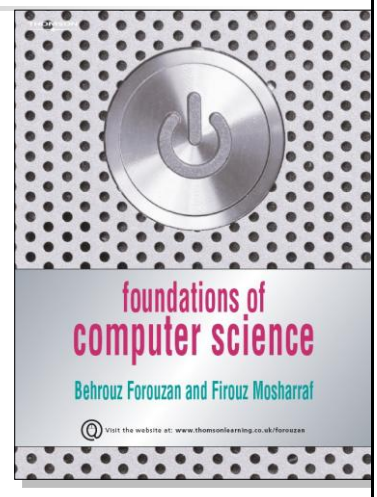
Foundations of Computer Science

Second Edition, 2008

By

Behrouz Forouzan

Firouz Mosharraf



Thomson Learning

Reference Book

Discovering Computers, Complete: Your Interactive Guide to the Digital World

International Edition, 2012

By

Gary Shelly, Misty Vermaat, Jeffrey Quasney, Susan Sebok, Steaven Freund

Cengage Learning

Course Time and Office Hours

- Course Time & Place:
  - A: 08:10 ~ 11:00, Monday, C320
  - B: 08:10 ~ 11:00, Tuesday, C320
- Office Hours & Place:
  - 14:00 ~ 16:00, Tuesday, C309
  - 14:00 ~ 16:00, Thursday, C309
- TA Hours & Place:
  - 13:10 ~ 15:00, Wednesday, C207 CSIE

Grading

- Attendance : -10 % ~ 5 %
- Homeworks (Assignments) : 40 %
- Mid-term Test : 30 %
- Final Test : 30 %

Attendances -10~5 %

- Roll call for each class
  -0.5 each since 2nd time arrival late
- Signature for each class
  -1 for 1st absence, -2 each since 2nd time absence

Exception:

- **Final test (Extra Final Test) will be rejected if number of absences is up to six because your learning has not been recognized to complete this course.**

Homeworks 40 %

- Paper work for assignments
  Grading for sum of righted answers in total problems
- Video work for assignments (*Q*New)
  Grading for sum of videos
- Deliver your paper or video works on time
  The score should be reduced due to the late works
- Don't cheat for your homeworks
  The score would be zero once one is verified.

Mid-term Test 30 %
Final Test 30 %

- 4-page Problems in English
- Closed book and 100 points are maximally graded from 115~130-point problems
- Don't cheat in any test
  The score would be zero once one is verified.
- Open all the grading (You can check your scores about homeworks and tests anytime)
- No 58~59.9 points in term score
- May an Extra make up for Final Test.

Teaching Web

http://www.nhu.edu.tw/~chun

Contents for Introduction To Computer Science

Ch1. Introduction:

- Turing model, Von Neumann model, Computer components, History, Social and ethical issues.

Ch2. Number Systems:

- Binary, Octal, Decimal, and Hexadecimal systems.

Ch3. Data Storage:

- Data types, Storing numbers, Storing text, Storing audio, Storing images, and Storing video.

Ch4. Operations on Data:

- Logic operations, Shift operations, and Arithmetic operations.

Contents for Introduction to Computer Science

Ch5. Computer Organization:

- Central processing unit, Main memory, I/O subsystem, Subsystem interconnection, Program execution, Different architectures, and A simple computer.

Ch6. Computer Networks:

- Introduction, TCP/IP protocol suite, Layers, and Internet applications.

Ch7. Operating Systems:

- Introduction, Evolution, Computers, and survey of operating systems.

Midterm Test

Contents for Introduction To Computer Science

Ch8. Algorithms:

- Concept, Three constructs, Algorithm representation, A formal definition, Basic algorithms, Sub-algorithms, and Recursion.

Ch9. Programming Languages:

- Evolution, Translation, Programming paradigms, and Common concepts.

Ch10. Software Engineering:

- Software lifecycle, Analysis phases, Design phase, Implement phase, Test phases, and Documentation.

Ch11. Data Structures:

- Arrays, Records, and Linked lists.

Ch12. Abstract Data Types:

- Stacks, Queues, General linear lists, Trees, Binary trees, Binary search trees, and Graphs.

Contents for Introduction To Computer Science

Ch13. File Structures:

- Access methods, Sequential files, Indexed files, Hashed files, Directories, and Text versus binary.

Ch14. Databases:

- Database management systems, Database architecture, Database models, Relational database model, Operations on relations, and Database design.

Ch15. Data Compression:

- Lossless compression and Lossy compression methods.

Final Test

The Structure of Each Chapter

Objectives

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Recommended Reading

Key Terms

Summary

Practice Set

- **Review questions**
- **Multiple-choice questions**
- **Exercises**