Data Structure and Algorithms [CO2003]

Chapter 0 - Introduction

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Contents

Outcome

Learning outcome

- Be able to use fundamental data structures like list, stack, queue, tree, graph, and hash table for programming and particular problems
- Express algorithms using pseudocode as well as using C++
- Analyze the computational complexity of algorithms associated with these data structures.

Contents

Contents at a glance

About this course

Structure

- Lectures: course contents in class
- Readings: course contents at home
- Tutorials: QAs and exercises
- Lab: coding practice
- Assignments: small projects

Distribution

- **Course credit: 4**
- Lectures: 45 period units
- Exercises: 15 period units
- Lab: 15 period units
- Total: 75 period units

Assessment

- Exercises: 15%
- Lab: 10%
- Assignments: 25%
- Final Exam: QAs and Writing, 50%

Assessment

Regulations:

- Any plagiarism act will lead to zero in all tests!
- Final grade of assignment depends on the exam:

$$A_{final} = (A_i + E_i)/2$$

  where A_i, E_i are the assignment score and the question in the final exam associated with the assignment A_i.
- Detail mapping of exam questions and assignments will be announced during the progress of the course.

References

1. **"Data Structures and Algorithm Analysis"** - Clifford A. Shaffer (Edition 3.2).
2. "Data Structures: a Pseudocode Approach with C++", R.F.Gilberg and B.A. Forouzan, Thomson Learning Inc., 2001.
3. "Data Structures and Algorithms in C++", A. Drozdek, Thomson Learning Inc., 2005.
4. "C/C++: How to Program", 7th Ed. – Paul Deitel and Harvey Deitel, Prentice Hall, 2012.
5. Internet.

Preparation for the course

- Materials:
  - Slides of this course
  - E-book: **Data Structures and Algorithm Analysis** - Clifford A. Shaffer (Edition 3.2). `http://people.cs.vt.edu/~shaffer/Book/`
- Tools:
  - CodeBlocks (Cross-platform)
  - Visual C++ Express (Windows)
  - XCode (Mac OS)
  - Anything that works!

Methodology

- Outside of lecture room
  - Read slides, books, online documents
  - Check course site & make discussions
  - Take exercises
  - Implement examples
- During lectures:
  - Listen & Discuss