

1. Introduction to Problem Solving with Computers

Frank Stephan and Thomas Kister

GEM 1501 - Overview

Lecturers

In 2014, the lecturers are Frank Stephan (fstephan@comp.nus.edu.sg) and Thomas Kister (thomas.kister@nus.edu.sg). Stéphane Bressan is teaching the same course in other years and the slides have been made jointly with him.

Method

We follow a principled approach, augmented with practical programming exercises (programming in JavaScript) to study algorithms and the possibilities and limitations of computers. The course will include concepts and formalisations of the notion of tasks (problems) to be solved as well as of methods (computational tools) to solve such problems.

Syllabus

- Computers
- Programming (with JavaScript)
- Problems
- Algorithmic methods
- Sorting
- Efficiency and Tractability
- Decidability and Computability
- Parallelism
- Randomness

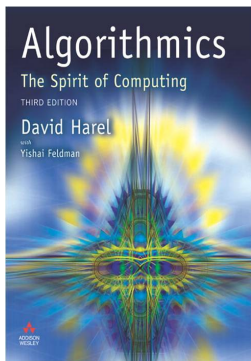
Textbook

Algorithmics: The Spirit of Computing, 3/e

Authors: David Harel and Yishai Feldman

Publisher: Pearson

ISBN: 9780321117847



Resources

<http://www.w3schools.com>

- HTML: <http://www.w3schools.com/html>
- JavaScript: <http://www.w3schools.com/js>
- Own Resources: <http://www.comp.nus.edu.sg/~gem1501/javascriptintroduction.html>

Workload

- 2 hours of lecture hours per week
- 2 hours of lab hours per week
- 4 hours of hours for projects, assignments, fieldwork etc per week
- 2 hours of hours for preparatory work by a student per week

Time Table

- The lecture is on Thursdays, 12.00-14.00 in Video Conference Room of School of Computing
- The laboratory sessions are on Fridays. There are two groups: 12.00-14.00 and 14.00-16.00 in Programming Lab 4 (COM1#B1-11 - bring your Student Card to enter the laboratories-). The laboratory sessions start in Week 4 (07-Feb-2014)
- The project starts in Week 4 (07-Feb-2014)

Grading

- Final examination (Monday, 07-May-2014, morning): 50%
- Continuous assessment: 50%
 - Midterm test 1 (Thursday, 20-Feb-2014): 10%
 - Midterm test 2 (Thursday, 27-Mar-2014): 10%
 - Laboratories: 20% (deadline for presenting assignments)
 - 0 to 5, Friday, 21-Feb-2014,
 - 6 to 16, Friday, 20-Mar-2014,
 - 17 to 19, Friday, 11-Apr-2014)
 - Project: 10% (presentation in Week 13)

Attribution

The images and media files used in this presentation are either in the public domain or are licensed under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation, the Creative Commons Attribution-Share Alike 3.0 Unported license or the Creative Commons Attribution-Share Alike 2.5 Generic, 2.0 Generic and 1.0 Generic license.