

Advanced Algorithms and Data Structures

General information

Wolfgang Jeltsch

Wolfgang.Jeltsch@ttu.ee

Department of Software Science
Tallinn University of Technology

1 February 2017

Overview

- master level course
- 6 ECTS credit points
- staff:
 - teaching Wolfgang Jeltsch
 - homework marking Tiina Zingel
- builds on the bachelor course “Algorithms and Data Structures” (ITI0050)
- topics:
 - ▶ more in-depth treatment of selected topics from the bachelor course
 - ▶ further algorithms and data structures
- based on the book “Introduction to Algorithms” (3rd edition) by Corman, Leiserson, Rivest, and Stein (MIT Press)

Communication

- course web page on `courses.cs.ttu.ee`
- mailing lists:
 - ▶ students and staff:
`iti8590@lists.softbase.org`
 - ▶ staff only:
`iti8590-staff@lists.softbase.org`
- Please send me an e-mail, so that I have your e-mail addresses.
 - ▶ Send it to `Wolfgang.Jeltsch@ttu.ee`.
 - ▶ Send it **now**.

Structure

- weekly classes:
 - lecture Wednesday, 14:00–15:30, ICT-315
 - exercise/lab Monday, 14:00–15:30, U03-103
- necessary to use your own laptop
- homework:
 - ▶ roughly every two weeks
 - ▶ timing:
 - ★ submission of solutions on Monday, before the class
 - ★ publishing of new tasks on the same Monday, after the class
 - ▶ submission per e-mail to iti8590-staff@lists.softbase.org
 - ▶ first homework:
 - ★ to be published today
 - ★ almost two weeks for solving
 - ▶ no deadline extensions
- exam (after the classes)

Ada

- focus:
 - ▶ reliability
 - ▶ efficiency
 - ▶ reusability
- paradigms:
 - ▶ procedural programming
 - ▶ object-oriented programming
- reasonably close to pseudo code in text books
 - ▶ imperative
 - ▶ more high-level than C and C++
 - ▶ no mandatory “object-oriented clutter” in contrast to Java and C#
- latest standard from 2012
- portable open-source software:
 - compiler GNAT (GNU Ada Translator)
 - IDE GPS (GNAT Programming Studio)
- several online tutorials, in particular the Ada 95 Lovelace Tutorial