

# 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](mailto: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