

TDDD55 Compilers & Interpreters Tddb44 Compiler Construction 2013 Organizational Issues

Peter Fritzson, IDA

Staff 2013

- Peter Fritzson (PF), Examiner, Course leader, Lecturer
- Jonas Wallgren (JW), Lecturer
- Kristian Stavåker, Course assistant TDDD55 and Tddb44; Lab/tutorial assistant Tddb44
- Sergio Raffilio, Lab assistant Tddb44
- Kristian Stavåker, Lab/tutorial assistant TDDD55
- Liselotte Lundberg, Course secretary
- Patrick Lambrix, Director of studies

Lecture Plan



- F1: Introduction Peter Fritzson (JW)
- F2+3: [opt. f. Tddb44] Short introduction to formal languages and automata (JW)
- F4: Lexical analysis; Symbol tables (JW)
- F5: Parsing; Top-Down Parsing (JW)
- F6: Top-Down Parsing cont., Bottom-Up Parsing (intro) (JW)
- F7: Bottom-Up Parsing [LR(0) items opt. f. TDDD55] (JW)

Lecture Plan (cont.)



- F8: Semantic analysis and internal forms. Syntax-driven translation. (JW)
- F9: Memory Management; Run-time organization (JW)
- F10: Code optimization (PF)
- F11: Code generation, general (PF)
- F12: [opt. f. TDDD55] Code generation for RISC and superscalar processors (PF)
- F13: Error management. Interpreters (PF)
- F14: Bootstrapping. Compiler Generators (PF)

Lessons/Tutorials

4 for TDDD55, by Kristian Stavåker
4 for Tddb44, by Kristian Stavåker

- Exercises on background theory (TDDD55)
- Preparation for the laboratory assignments
- Exam preparation session

Laboratory Assignments

- Separate for TDDD55 (2hp) and Tddb44 (3hp)
 - TDDD55: 2 lab groups
 - Kristian Stavåker (2)
 - Tddb44: 4 lab groups
 - Kristian Stavåker (2), Sergio Raffilio (2)
- Teams of size 2
- Register via webreg <https://www.ida.liu.se/webreg/> (Also linked from the course homepages)
 - Deadline for registration: Sunday November 10 2013
- Lab deadline: December 20 2013
- **Extra Tddb44 Exam 3 points:** If your Tddb44 labs are completed and approved latest at the deadline you get 3 points at the exam.



Literature

Mandatory:

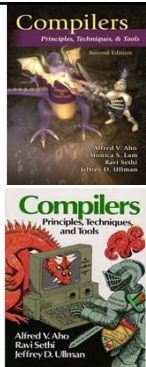
- Aho, Lam, Sethi, Ullman: *Compilers Principles, Techniques, and Tools*, Second Edition. Addison-Wesley, 2006. (Also as paperback, 2007)
- Or the old, first edition (still ok)
Aho, Sethi, Ullman: ..., 1986.

Mandatory for TDDDB44:

- *Compiler Construction Lab Assignments*, Kompendium, 2012, Bokakademin

Optional:

- P. Fritzson: *TDDDB44 Compiler Construction Lecture Notes*, 2013, and other lecture notes, are on the course home page.
- *Compiler Construction Exercises*, Kompendium



For more information ...

See the course homepages,

- www.ida.liu.se/~TDDD55
- www.ida.liu.se/~TDDDB44

- Schedule
- Reading directions
- References to additional literature
- Laboratory instructions for TDDD55
– (but the lab skeletons are in /home/TDDD55)

What comes after this course?

- Join our compiler research team at PELAB and do a **master thesis project** in compiler technology!
 - Compiling for OO modeling languages (P. Fritzson)
 - Operational semantics based compiler generation (P. Fritzson)
 - Compiler bootstrapping, Java code gen, international open source www.openmodelica.org (P. Fritzson)
 - OO modeling language compilation on parallel machines (P. Fritzson)
 - Compilation & parallel programming on industry clusters (P. Fritzson)
 - Compiling for parallel / embedded systems (P. Fritzson, C. Kessler)
 - Code generation for embedded systems (C. Kessler)
 - Debugger technology (P. Fritzson)
 - ... and more!

