

TDDD55 Compilers & Interpreters Tddb44 Compiler Construction 2015

Organizational Issues

Peter Fritzson, IDA

Staff 2015

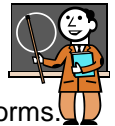
- **Peter Fritzson (PF)** , Examiner, Course leader, Lecturer
- **Jonas Wallgren (JW)**, Lecturer
- **Martin Sjölund (MS)**, Lecturer, Course assistant TDDD55 and Tddb44, Tutorial assistant Tddb44
- **Mahder Gebremedhin**, Lab assistant Tddb44
- **Zeinab Ganjei**, Lab/tutorial assistant TDDD55
- **Åsa Kärman**, Course secretary
- **Ahmed Rezine**, Director of studies

Lecture Plan



- F1: Introduction (PF)
- 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. (MS)
- F9: Memory Management; Run-time organization (MS)
- F10: Code optimization (MS)
- F11: Code generation, general (MS)
- F12: [opt. f. TDDD55] Code generation for RISC and superscalar processors (MS)
- F13: Error management. Interpreters (MS)
- F14: Bootstrapping. Compiler Generators (PF)

Lessons/Tutorials

4 for TDDD55, by Zeinab Ganjei
4 for Tddb44, by Martin Sjölund

- 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
 - Zeinab Ganjei (2)
 - Tddb44: 2 lab groups
 - Mahder Gebremedhin (2)
- Teams of size 2
- Register via webreg linked from the course homepages
 - Deadline for registration: Friday November 13 2015
- Lab deadline: December 22 2015
- Recommended last day to hand in final labs is the last scheduled lab: 2015-12-07 (TDDD55), 2015-12-17 (Tddb44).
- **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:

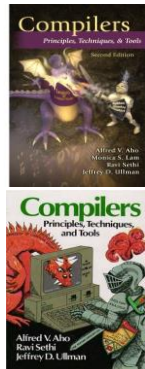
- Aho, Lam, Sethi, Ullman: *Compilers Principles, Techniques, and Tools, Second Edition*. Addison-Wesley, 2006. (Also as paperback, 2007)
- Or the old, first edition (still ok)
Aho, Sethi, Ullman: ..., 1986.

Mandatory for TDDB44:

- *Compiler Construction Lab Assignments*, Kompendum, 2015 (or 2014), Bokakademien

Optional:

- P. Fritzson: *TDDB44 Compiler Construction Lecture Notes*, 2014, and other lecture notes, are on the course home page.
- *Compiler Construction Exercises*, Kompendum



For more information ...

See the course homepages,

- www.ida.liu.se/~TDDD55
- www.ida.liu.se/~TDDB44

- 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!

