

TDDD16 Compilers & Interpreters Tddb44 Compiler Construction 2010 Organizational Issues

Peter Fritzson, IDA

Staff 2010

- Peter Fritzson (PF) , Examiner, Course leader, Lecturer
- Jonas Wallgren (JW), Lecturer
- Kristian Stavåker, Course assistant TDDD16 and Tddb44; Lab/tutorial assistant Tddb44
- Sergio Raffilio, Lab assistant Tddb44
- Kristian Stavåker, Lab/tutorial assistant TDDD16
- Gunilla Mellheden, Course secretary
- Patrick Lambrix, Studierektor

Lecture Plan



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

Lecture plan (cont.)



- F8: Semantic analysis and internal forms. Syntax-driven translation. (PF)
- F9: Memory Management; Run-time organization (PF)
- F10: Code optimization (PF)
- F11: Code generation, general (JW)
- F12: [opt. f. TDDD16] Code generation for RISC and superscalar processors (JW)
- F13: Error management. Interpreters (PF)
- F14: Bootstrapping. Compiler Generators (PF)

Lessons/Tutorials

5 for TDDD16, by Kristian Stavåker
4 for Tddb44, by Kristian Stavåker

- Exercises on background theory (TDDD16)
- Preparation for the lab assignments
- Exam preparation session

Labs

- Separate for TDDD16 (1.5p) and Tddb44 (2p)
 - TDDD16: 2 lab groups
 - Kristian Stavåker (2)
 - Tddb44: 3 lab groups
 - Kristian Stavåker (2), Sergio Raffilio (1)
- Teams of size 2
- Register via webreg <https://www.iida.se/webreg> (Also linked from the course home)
 - Deadline for registration: Next friday (29/ Oct / 2010)
- Lab deadline: 15/Dec/2010
- **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, 2005, Bokakademin

Optional:

- P. Fritzson: *TDDDB44 Compiler Construction Lecture Notes*, 2005, 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/~TDDD16
- www.ida.liu.se/~TDDDB44

- Schedule
- Reading directions
- References to additional literature
- Lab instructions for TDDD16
– (but the lab skeletons are in /home/TDDD16)

What comes after this course?

- Follow-up course:
TDDC86 Compiler optimizations and code generation, 4p
(C. Kessler)
- Join our compiler research team at PELAB and do a **master thesis project** in compiler technology!
 - Compiling for OO modeling languages (P. Fritzson)
 - Natural 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!

