Advanced Topics in Software Construction

ATSC 00 – Media Informatics
Organization

Prof. Armin B. Cremers,
Daniel Speicher, Jan Nonnen

b-it Bonn-Aachen
International Center for
Information Technology

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The Team of the ATSC Lecture

Course Director:

- Prof. Dr. Armin B. Cremers (abc@cs.uni-bonn.de)

Lecturer:

- Daniel Speicher (dsp@cs.uni-bonn.de)
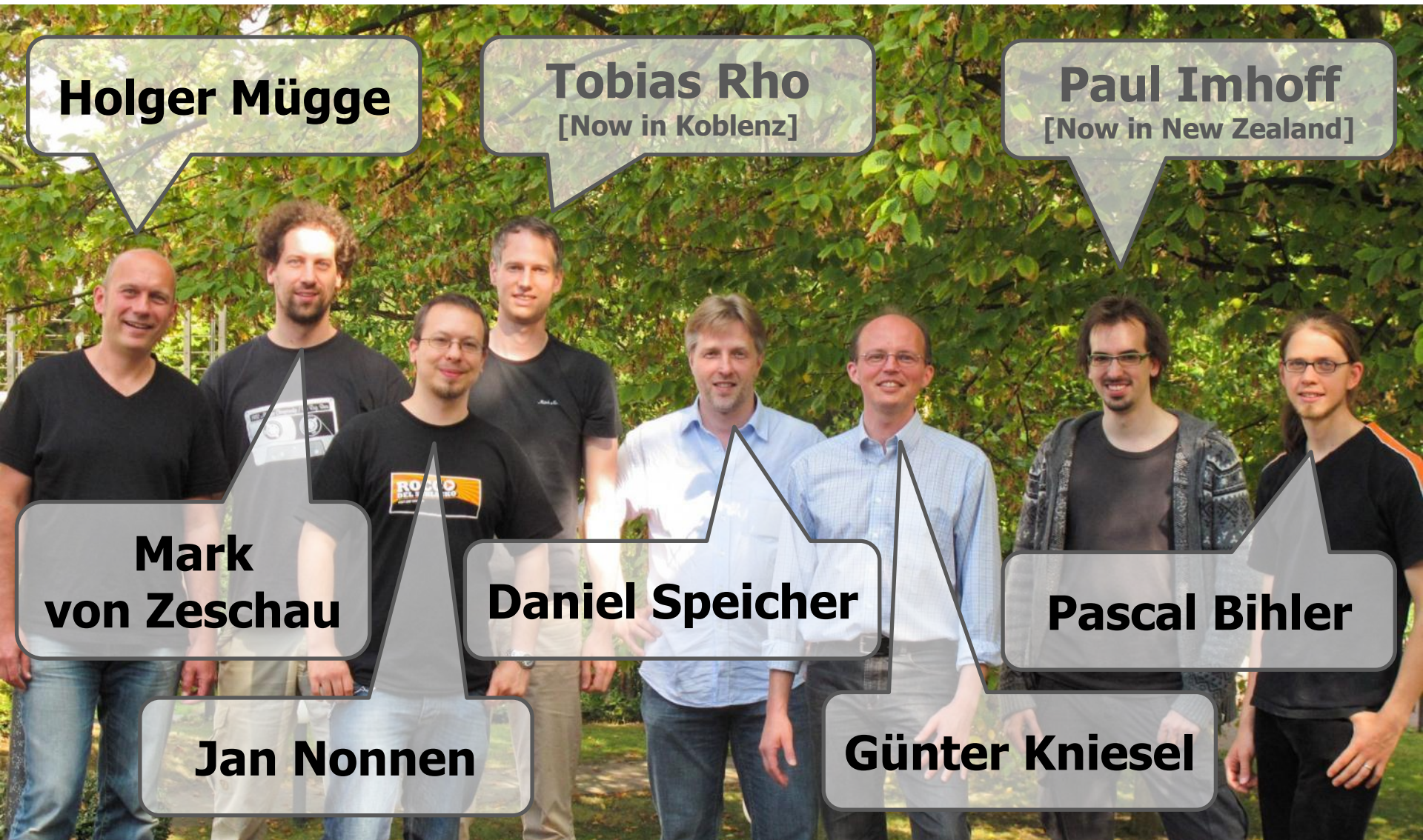- Jan Nonnen (nonnen@cs.uni-bonn.de)

Tutors

- Stefan Walter (stefan.walter@uni-bonn.de)
- Christian Langer (christian.langer@uni-bonn.de)

Please add "[ATSC2013]" to the subject of your mails to us.

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Software Technology Colleagues

Focus: Addressing Complexity and Change

Requirements:

Hotel Management System

Main Functionality:
Handle Reservations, Check In, Check Out

Variations:

High Class Hotels:
Includes database of special wishes of customers (chocolate, flowers, …).

Budget Hotels:
Has to manage more than one guests per room.

Wellness Hotels:
Includes modules to manage facilities, book massages, …

The system should be responsive, highly available, keep the privacy of customer data, easy to use.

Software Systems are **complex** and requirements and technology are **changing**.

To handle the complexity we need to be able to think about different **concerns separately**.

Functional Requirements

[Domain] Modeling

Technologies like Components, MDA, AOSD make separation possible.

[Technical] Architecture

Non-Functional Requirements

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Means to handle Complexity and Change

- **Separation of Concern**
  - Functional vs. Non-Functional Requirements
  - Information Hiding (Interfaces vs. Implementation)
  - Abstraction (Domain →Model)
  - Decomposition (Whole vs. parts within a model)
  - Hierarchies (General vs. special cases within a model)

  [MDA and AOSD support SoC]

- Minimize semantic gap between **domains** and **models**
  - "Domain Driven Design", "MDA", Domain Specific Languages
  - Conceptual Integrity, OOA/D
  - Requirements Engineering!

  ➔ The "parts" are easier to understand and to change

Outline of the lecture

Main Lecture (CS, Monday 10:15-11:45, Rö.164, Hs.2)		
14.10.13	Software Construction with UML	
21.10.13	Software Construction with UML	

~ Minimalistic Summary of the OOSC Lecture

Main Lecture (CS&MI, Monday 11:15-12:45, B-IT)	Practical Lecture (MI, Monday 16:30-18:00, B-IT)	
28.10.13 Domain Driven Design	28.10.13	MI Orga, SCM (SVN, git)
04.11.13 Requirements Engineering, Advanced Approaches		
11.11.13 Components	11.11.13	OSGi, Webservices
18.11.13 Service Oriented Architecture		
25.11.13 Aspect Oriented Programming	25.11.13	AspectJ & AJDT
02.12.13 Aspect Oriented Software Development		
09.12.13 Model Driven Engineering	09.12.13	ecore & xtext
16.12.13 Model Driven Software Development		
Christmas Holidays (21.12.2013 - 04.01.2014)		
06.01.14 Introduction to Reengineering	06.01.14	Cultivate, CodeCaterpillar
13.01.14 Software Visualization		
20.01.14 Introduction to Agile Software Developement	20.01.14	Kanban Simulation
27.01.14 Agile Processes: Scrum and Kanban		
03.02.14 Invited Talk	03.02.14	Q&A

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Practical Lecture

- Bi-weekly on Mondays 16:30-18:00
    - Part of the lecture for Master MI students
    - Master CS students are welcome as well

- Starting 28.10.2013 == Today

- First Topic **SCM: SVN & Git**
    - What is a Software Configuration Management?
    - How to use SVN + Git (Learning by example)

- **Your own laptops are welcome!**

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Class Organization, Master MI
Requirements to be credited – In short

- SWS: V3/E1, number of ECTS Credits: 6

- Requirements to get admittance to the written exam

- **In short:**

  - *50% of the possible points for the exercises. The points are acquired by presenting the solutions in the small exercise groups.*

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Class Organization, Master MI
## Requirements to be credited − In more detail

- You work in a group of three students.

- The submission is via the repository.

- **Regular attendance** to the exercises by all group members.
  - You will meet with your tutor in the week following the deadline.
  - Points will be tracked individually.
  - The whole group has to attend the meeting with the tutor. If you are not there you get zero points.
  - **Each group member** has to be able to present the solution. You can only get points for tasks that you can explain.
  - No explanation from you = Zero points.

- Still, we recommend that you solve the assignments together.

- **50%** of the points of the total points from all the assignments are required to get admitted to the exam.

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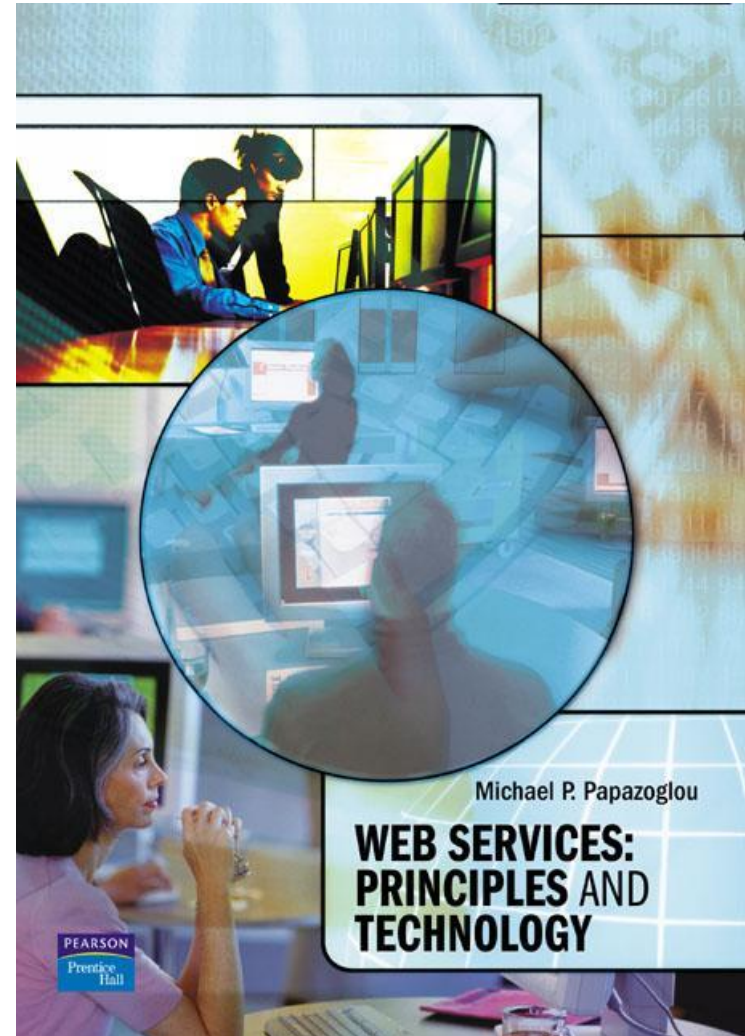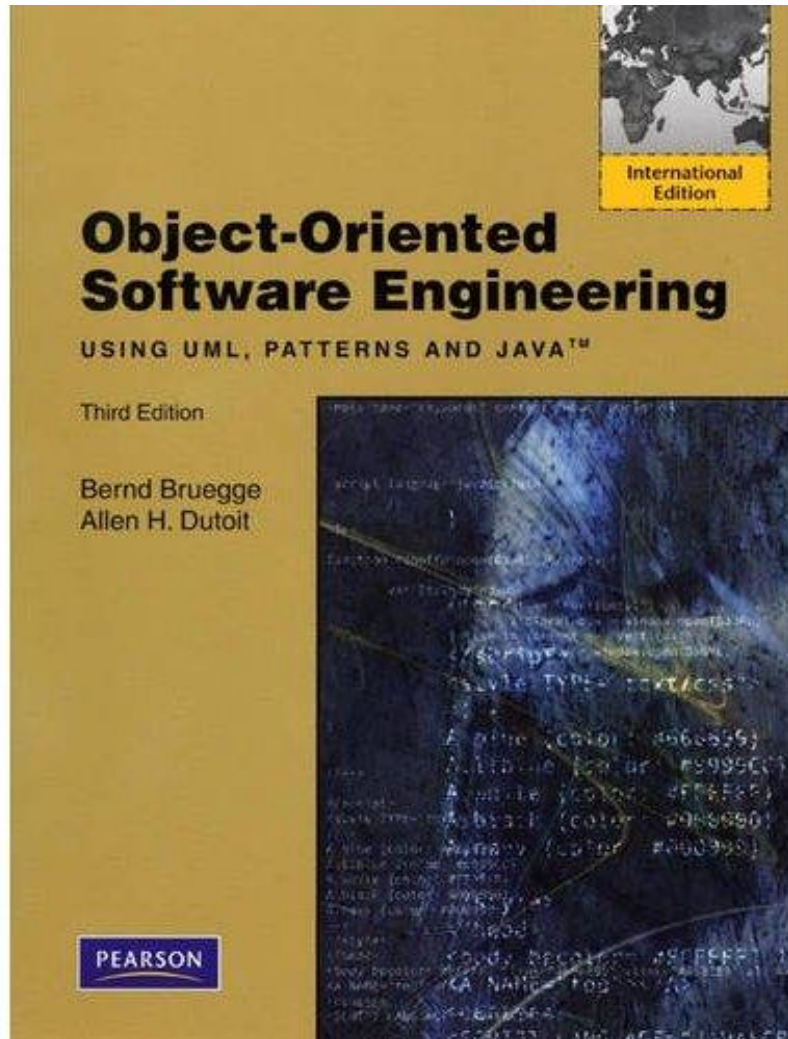
Literature
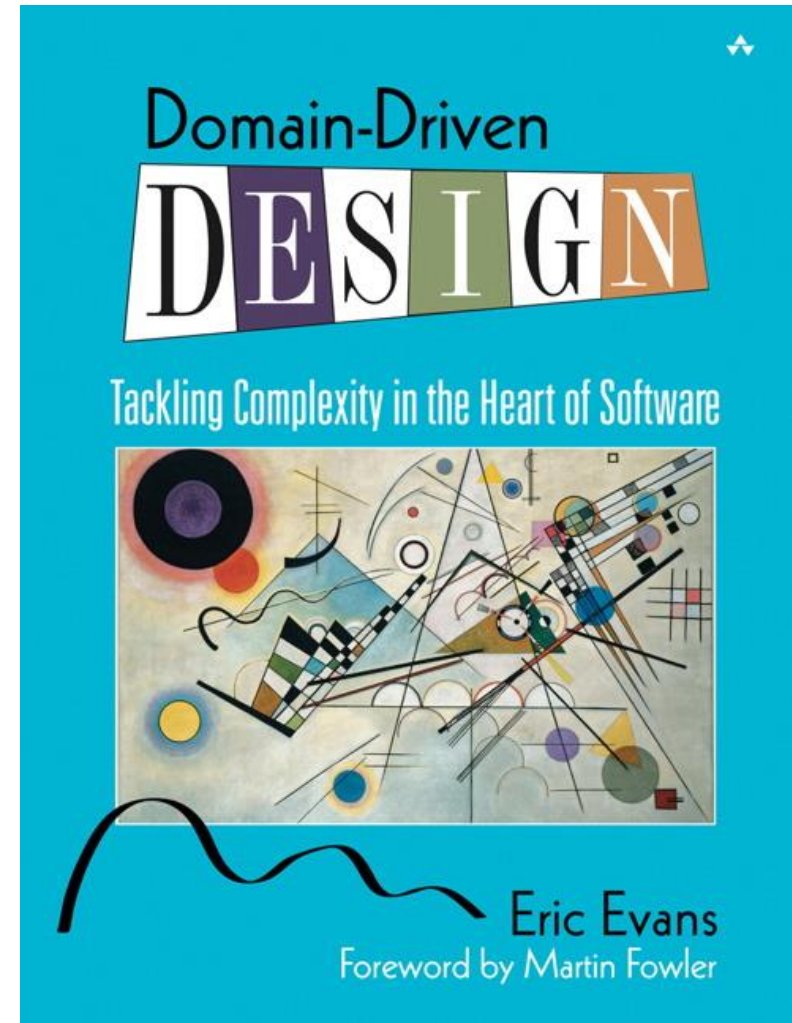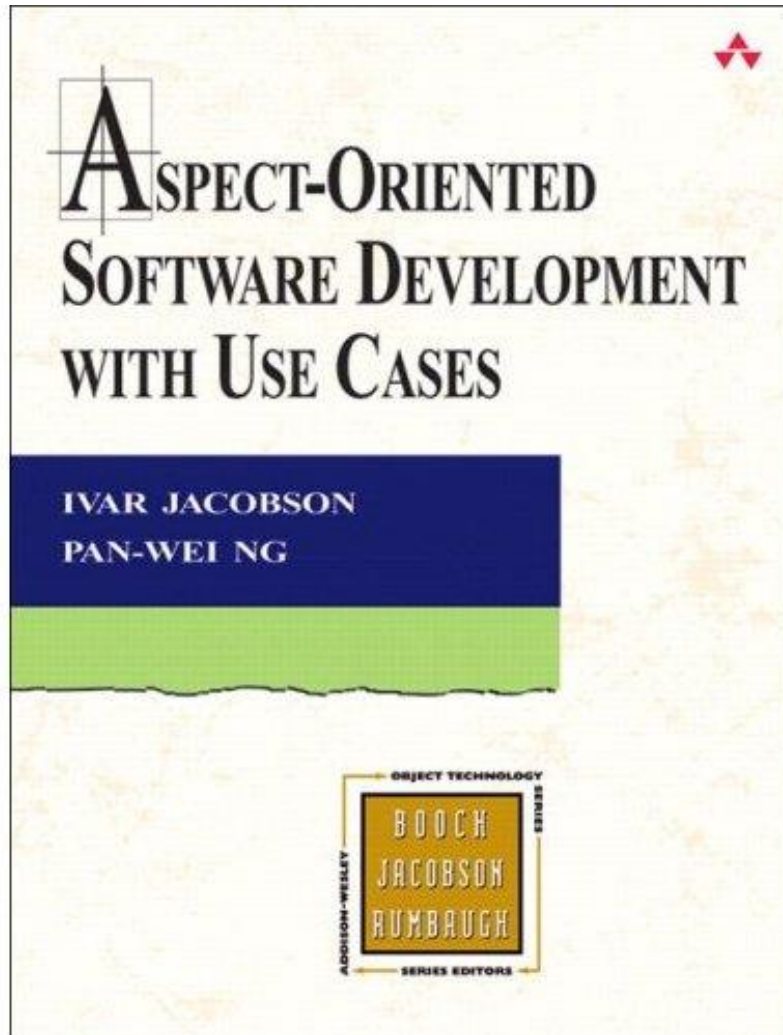
Literature

Literature
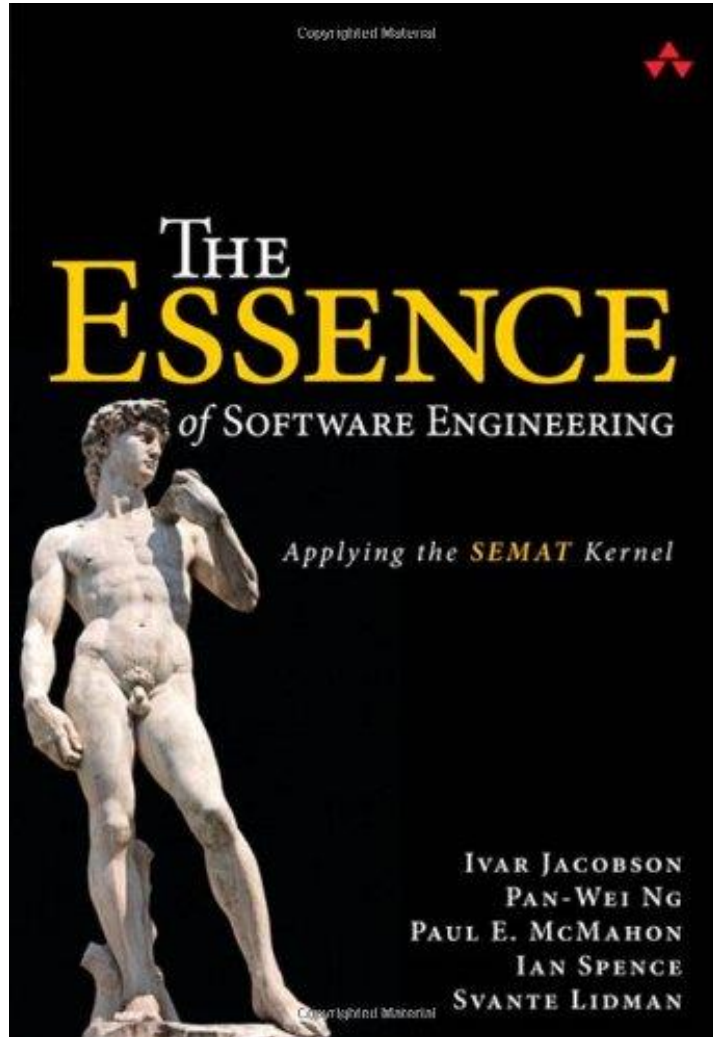
- All five books are useful for software engineers.
- None covers the whole lecture, but only parts.
- During the course we might mention other literature as well.
- The slides and the assignments will be your main resource.

Student Assignment Competition

- Every assignment gives a personal score.

- Weekly updated score sum
  - **Available on the ATSC Wiki**

- Pseudonyms
  - Your identity is only known to us

- Quit at any time
  - Competition is optional!
- Top ranks maybe receive a *reward*.

Scoreboard ATSC 2012

Rank	Change	Handle	Score
1	⬆	Wojedu	880
2	⬇	Cavelot	876
3	⬇	Cuter	870
4		Noluwa	866
5		Tanimor	859
		Cepin	859
7		Nenekala	848

To participate send us your name + a chosen handle by email until the deadline for *Assignment Sheet 2*.

=> See Assignment Sheet 0 for more details

Schedule / Slides [SE-Wiki]

https://sewiki.iai.uni-bonn.de/teaching/lectures/atsc/2013/schedule

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R O O T S
Research on Object-Oriented Technologies and Systems

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Trace: » Assignment 00: Hello ATSC! » Assignment 01: Requirements Engineering Basics » 2013-10-23 » Advanced Topics in Software Construction 2013/14 (B-IT, MA-INF 3212) » Schedule / Slides
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Lectures
ATSC 13/14

http://sewiki.iai.uni-bonn.de/teaching/lectures/atsc/2013/schedule

ATSC!
Assignment 01: Requirements Engineering Basics
😎 Competition

Tips and Tricks
SVN Trouble Shooting
🔒 Internal
edit sidebar

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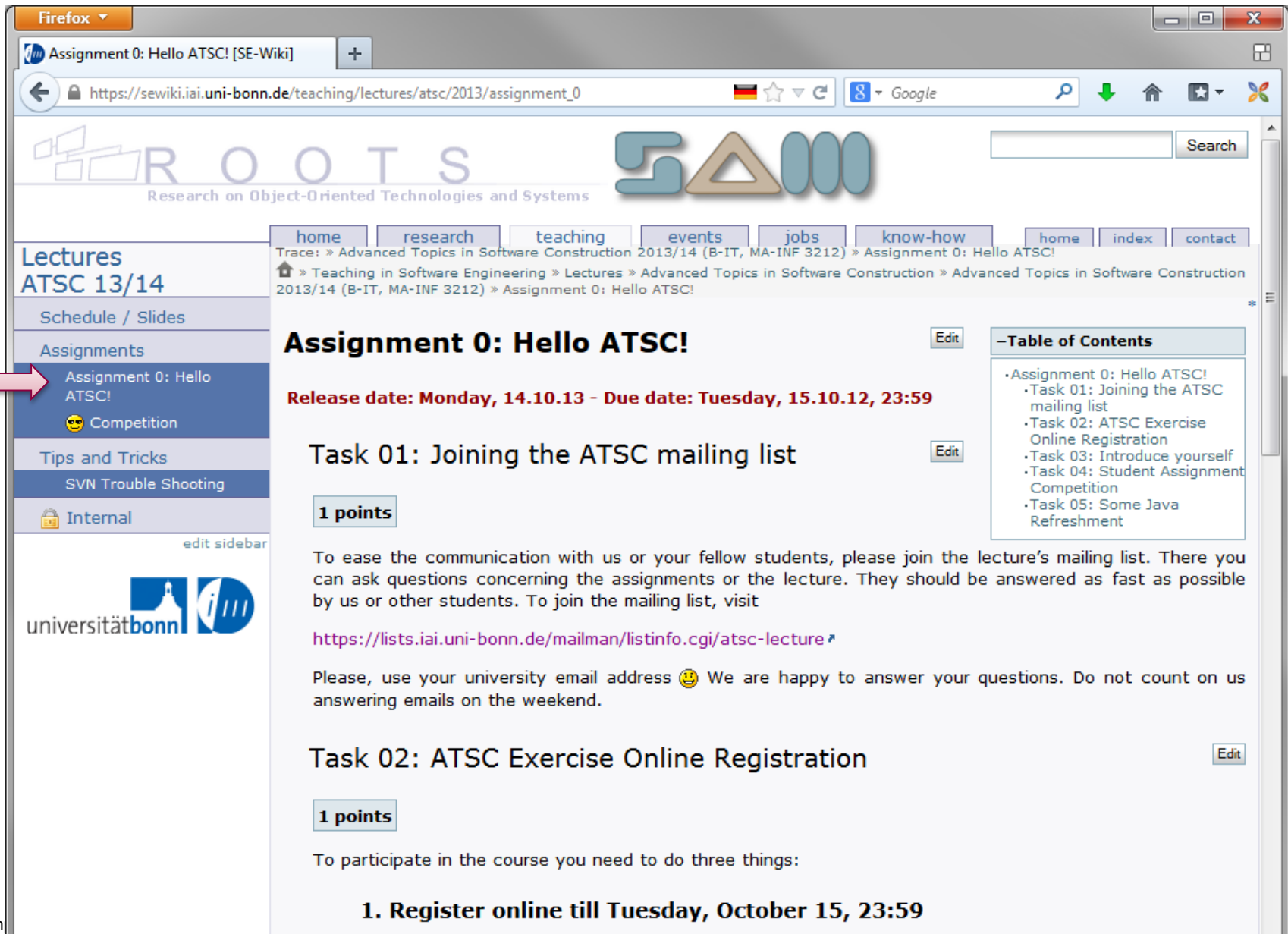
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ecore & xtext

Kanban Simulation

Q&A
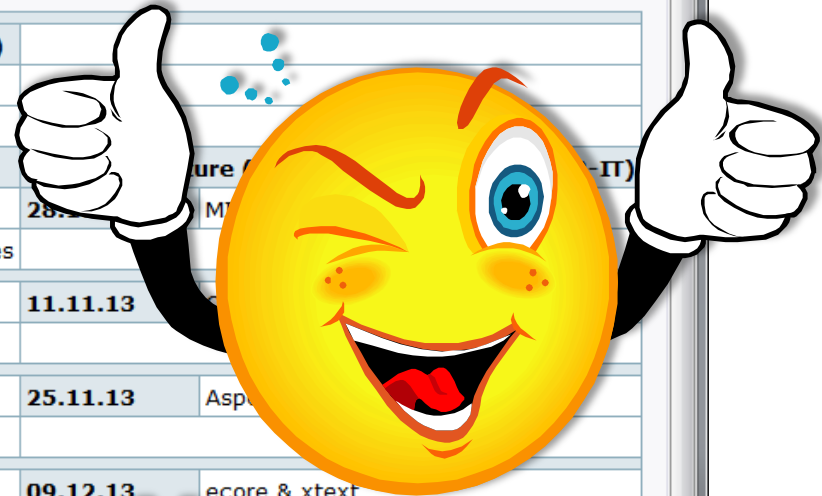
Your source for information

Your next step:
Register for the assignments!

The semester starts here (for MI)

- Today after this lecture or during the practical lecture :
  - Join the mailing list + Register for exercises.
  - Join the student competition
- Assignment 01: Requirements Engineering Basics
  - Optional. Recommended if you did not yet take the OOSC.
- Assignment 02: Domain Driven Design
  - Published today, Due Sunday night.
- (MI) Regular exercise groups starting at the 04.11.13.

Good luck, have another successful semester here in Bonn!

Photo: Thomas Wolf , http://de.wikipedia.org/w/index.php?title=Datei:Universit%C3%A4t_Bonn.jpg&filetimestamp=20081019131140

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