Advanced Software Engineering, FS 2012

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Learning Goals

- Learn advanced techniques, methods, and processes in software engineering.

Organization

- Day/Time: Wed, 9.00-12.00, BIN 1.D.07
- Language: English
- ECTS: 6
- Target Audience:
  - Students in MSc Informatik
- Requirements:
  - MSc Informatik: Master-Basismodul
  - Programming, Software Engineering

Topics

- Requirements: Problem Frames
- Software Architecture (styles & patterns)
- Development Paradigms
  - Agile Software Development
  - Model-Driven Software Development
  - Aspect-Oriented Programming / Design
- Design
  - Domain-Driven Design
  - Object-oriented Design Heuristics
  - Software Design and Reuse
- Collaborative Software Engineering
- Specification and Programming (Spec#)

Format

- This course offers a **mixture of lectures, discussions, and case studies**.
- This allows the students to actively learn during the lecture and in preparation before and after the lecture based on concrete examples.
- Topics will be introduced by presentations triggering the essence of the area. The deepening then is done by **reading scientific papers** and book chapters.
- A discussion based on examples or case studies completes specific topics.

Weekly Schedule

- Weekly presentations and/or discussions of topics
- Investigating a topic by paper reading and case studies

- Typically, first introduction of topic by presentation
- Then, deepening of understanding by scientific papers
- Applying the knowledge on case studies

Lab Assignments

- 3 Lab Assignments
  - Case studies and small project work
- Discussion of solutions in class
- Mini exercises in class
- Focus on case studies (where possible) and practical work
- No separate Lab sit-in (Übungsstunde)

Exam

- Written exam:
  Wed, 20 June 2012
  10.15-12.00, BIN 2.A.10

- In case of only few participants, there will be an oral exam (with individual exam dates)