Dr. Michael Eichberg
Software Technology Group
Department of Computer Science
Technische Universität Darmstadt

Software Engineering

Organization

TECHNISCHE UNIVERSITÄT DARMSTADT

The Lecture's Goal

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The goal is to enable you to systematically carry out small(er) commercial or open-source software projects.

Basic Goals

- To get a brief overview of “all” areas of software engineering
- To understand agile software development processes
- To be able to perform object-oriented analysis and design
- To be able to read and create basic UML diagrams
- To perform basic Software Quality Assurance
- To get first hands-on experience and to learn to use basic software development tools
- To be able to use basic design patterns

Basic programming **skills** are required.

- Basic knowledge of object-oriented programming concepts is necessary
  I.e., you should readily understand the following terms:
  - **class, interface**
  - **object**
  - **inheritance**
  - **polymorphism**
- Working knowledge of the Java programming language
- We are going to use Java 8

The Lecture's Structure

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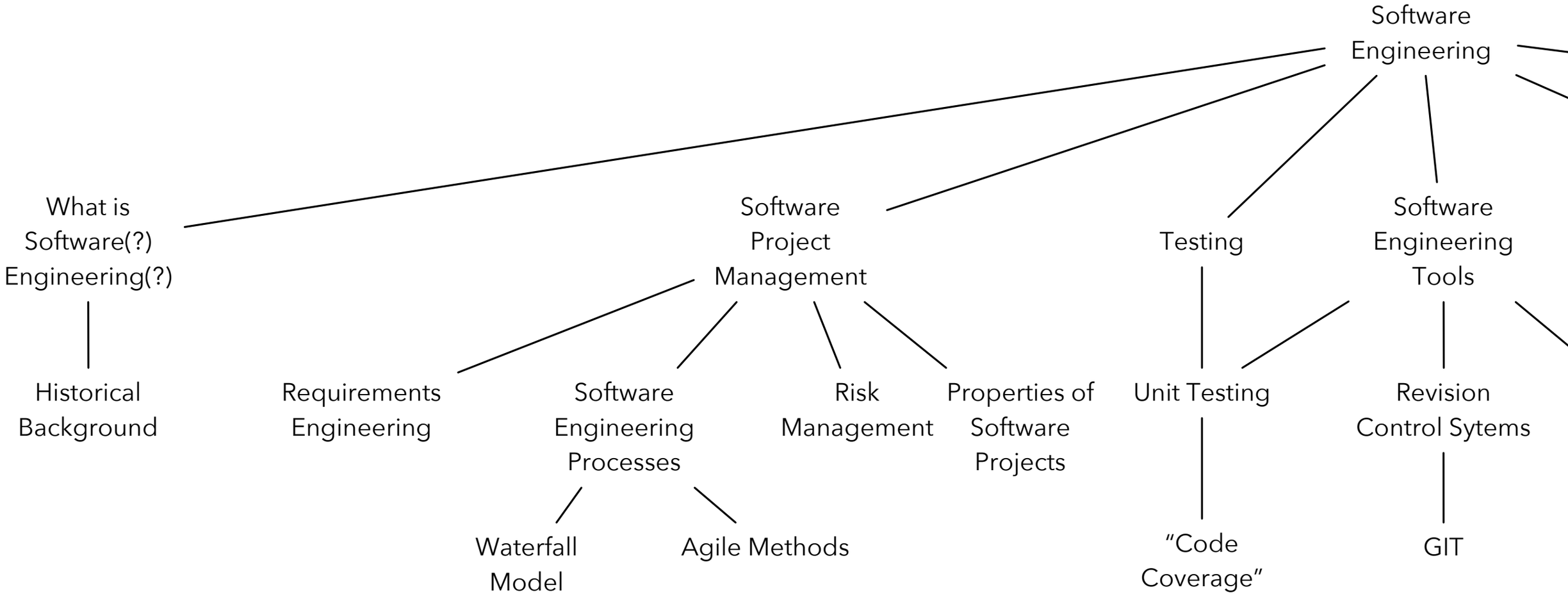
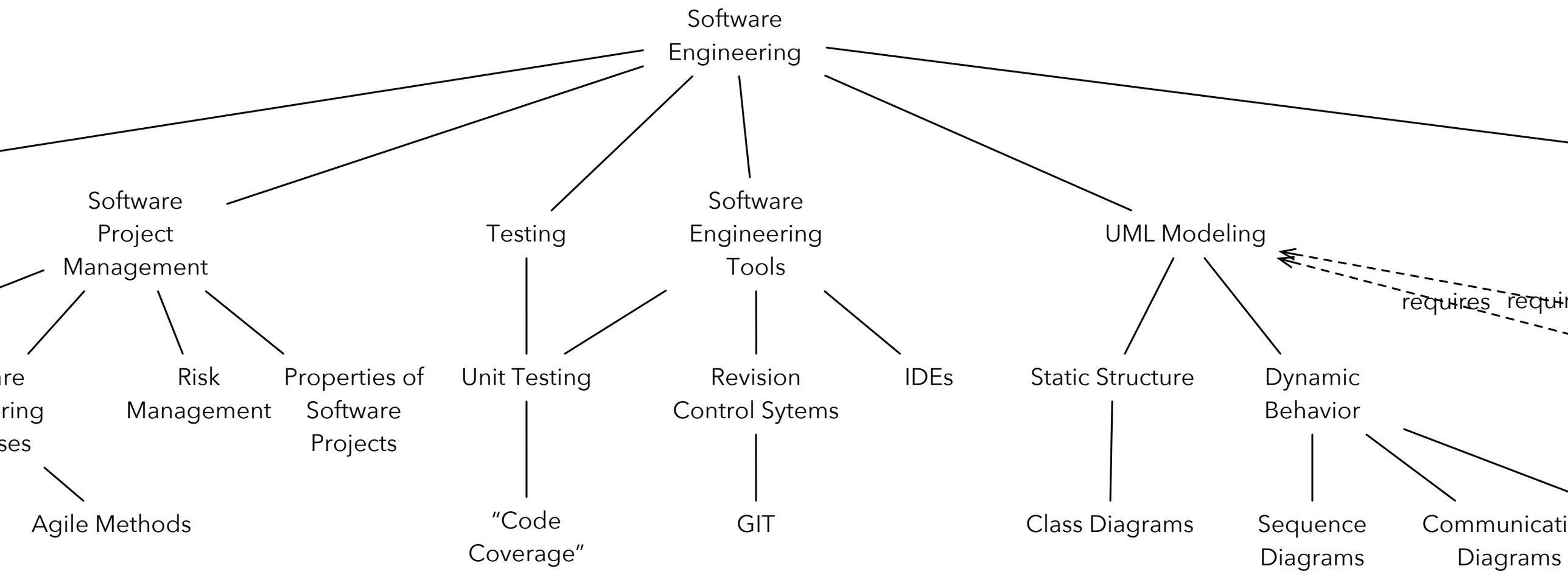

Software Engineering
What is Software(?) Engineering(?)
Historical Background
Software Project Management
Requirements Engineering
Software Engineering Processes
Waterfall Model
Agile Methods
Risk Management
Properties of Software Projects
Testing
Unit Testing
"Code Coverage"
Software Engineering Tools
Revision Control Sytems
GIT


Software Engineering
Software Project Management
Testing
Software Engineering Tools
UML Modeling
requires
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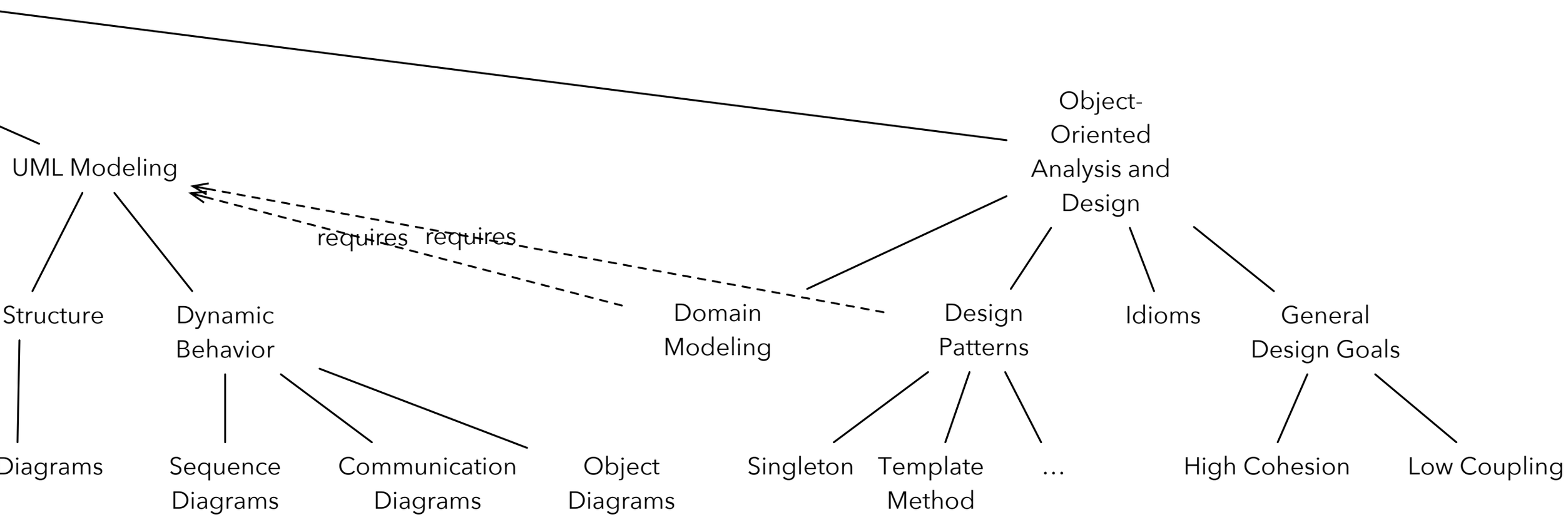
Risk Management
Properties of Software Projects
Unit Testing
Revision Control Sytems
IDEs
Static Structure
Dynamic Behavior
Agile Methods
"Code Coverage"
GIT
Class Diagrams
Sequence Diagrams
Communicati Diagrams


UML Modeling
Object-Oriented Analysis and Design
requires
requires
Structure
Dynamic Behavior
Domain Modeling
Design Patterns
Idioms
General Design Goals
Diagrams
Sequence Diagrams
Communication Diagrams
Object Diagrams
Singleton
Template Method
…
High Cohesion
Low Coupling

The Team

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The Team

Dr. Michael Eichberg

Leonid Glanz

Sven Amann

Contact

WWW

http://www.stg.tu-darmstadt.de/teaching/teaching_iverview.en.jsp

Forum

http://www.d120.de/forum/

→kanonische Einführungsveranstaltungen

→Einführung in Software Engineering

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Lecture

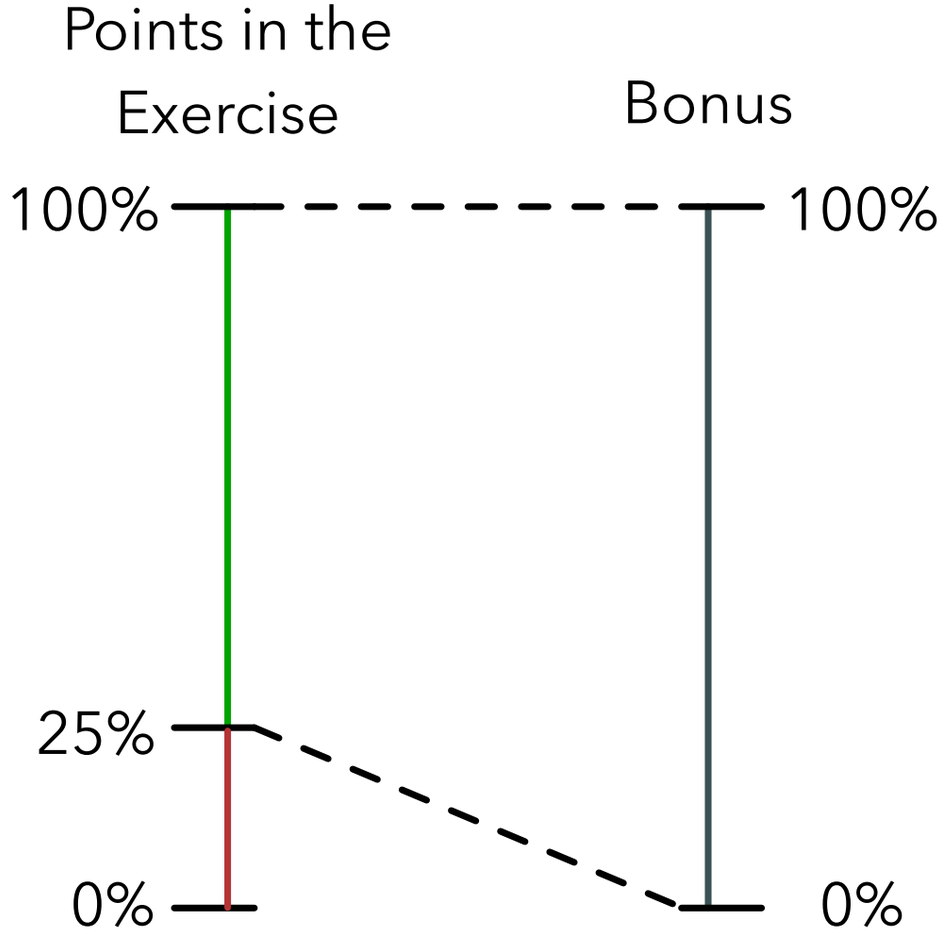
- Thursdays 13:30-15:00 in S2 02 | C205 and C110
- The slides are in English
  (Key terms will be translated into German.)
- The slides will generally be available after the lecture
  (I will try hard to make a preliminary version available the day before the lecture.)
- The slides can be found at
  http://stg-tud.github.io/eise/

Exercises

- Every week, we will have an exercise, starting today
- Exercises are expected to be solved in teams of 3 students
- The content of the exercise is relevant for the exam
- Sign-up as a team; if you don’t have a team, we will assign you to a team
- The content of the exercise is relevant for the exam

Exercises - Bonus

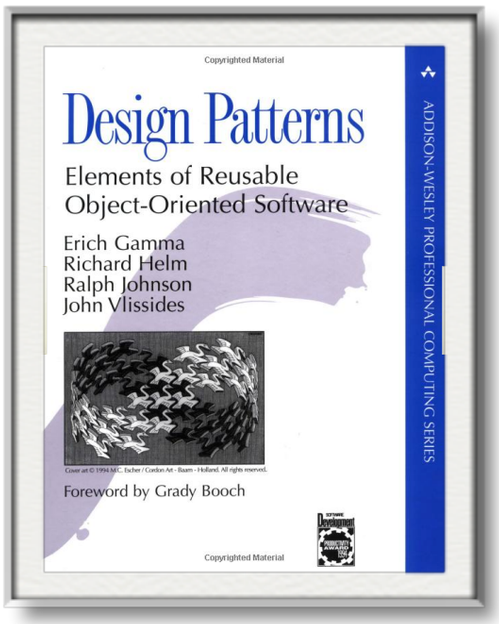
- You can get a bonus by successfully completing the exercise.
- The maximum bonus is equivalent to a full grade (e.g., 2,0 => 1,0).
- You need to achieve at least 25% of all exercise points to get some bonus.
- The bonus cannot be used to pass the exam.

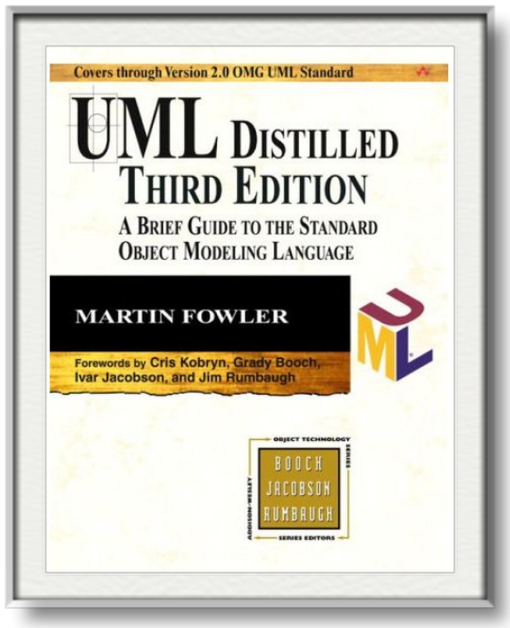


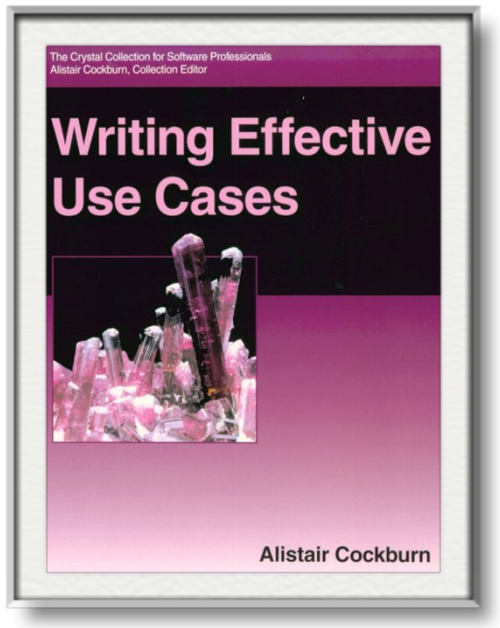
Written Exam

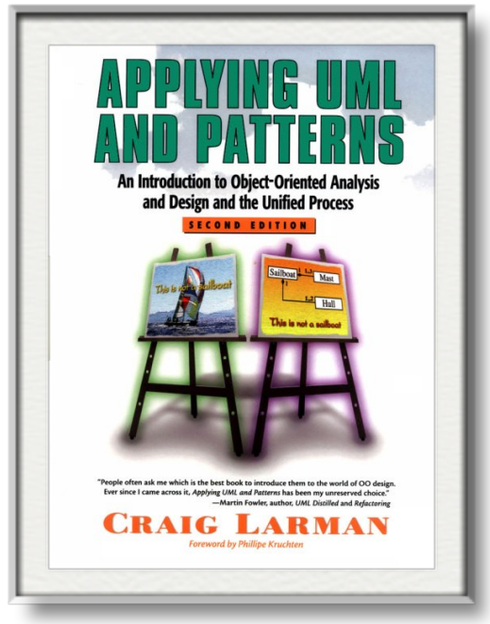
- The exam will be on February, 25th 2016 - 14:30 - 16:00
  (The rooms will be announced in the forum. The exam will take 90min.)
- You need to register for the exam in TUCaN
  (There are no further prerequisites; “everyone” can attend the exam.)
- The exam will be an open book exam
- The very best students are expected to be able to solve the entire exam

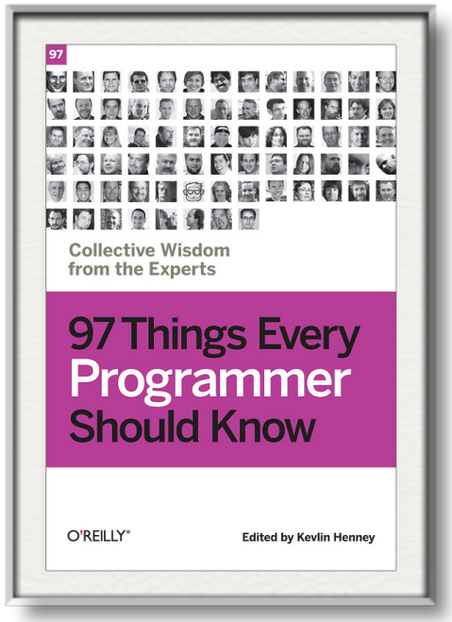
Related Bibliography

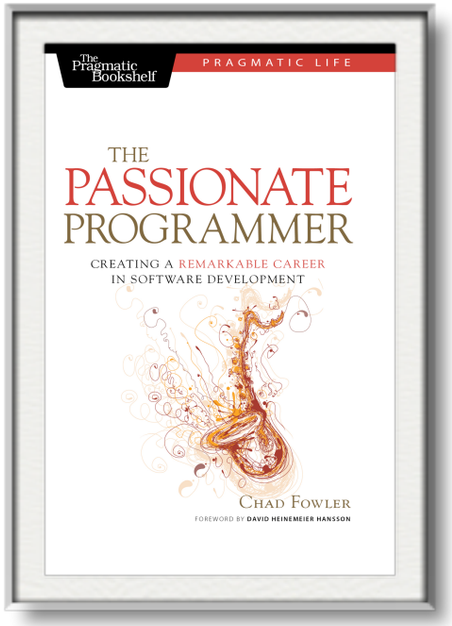












Essential Bibliography

- **Design Patterns - Elements of Reusable Object-Oriented Software**; Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides; Addison-Wesley, 1995
- **Applying UML and Patterns - An Introduction to Object-oriented Analysis and Design**; Craig Larman; Prentice Hall

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Filed in Episodes by SE-Radio on September 30, 2014 • 0 Comments

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  “Requirements Engineering”
  December, 2015
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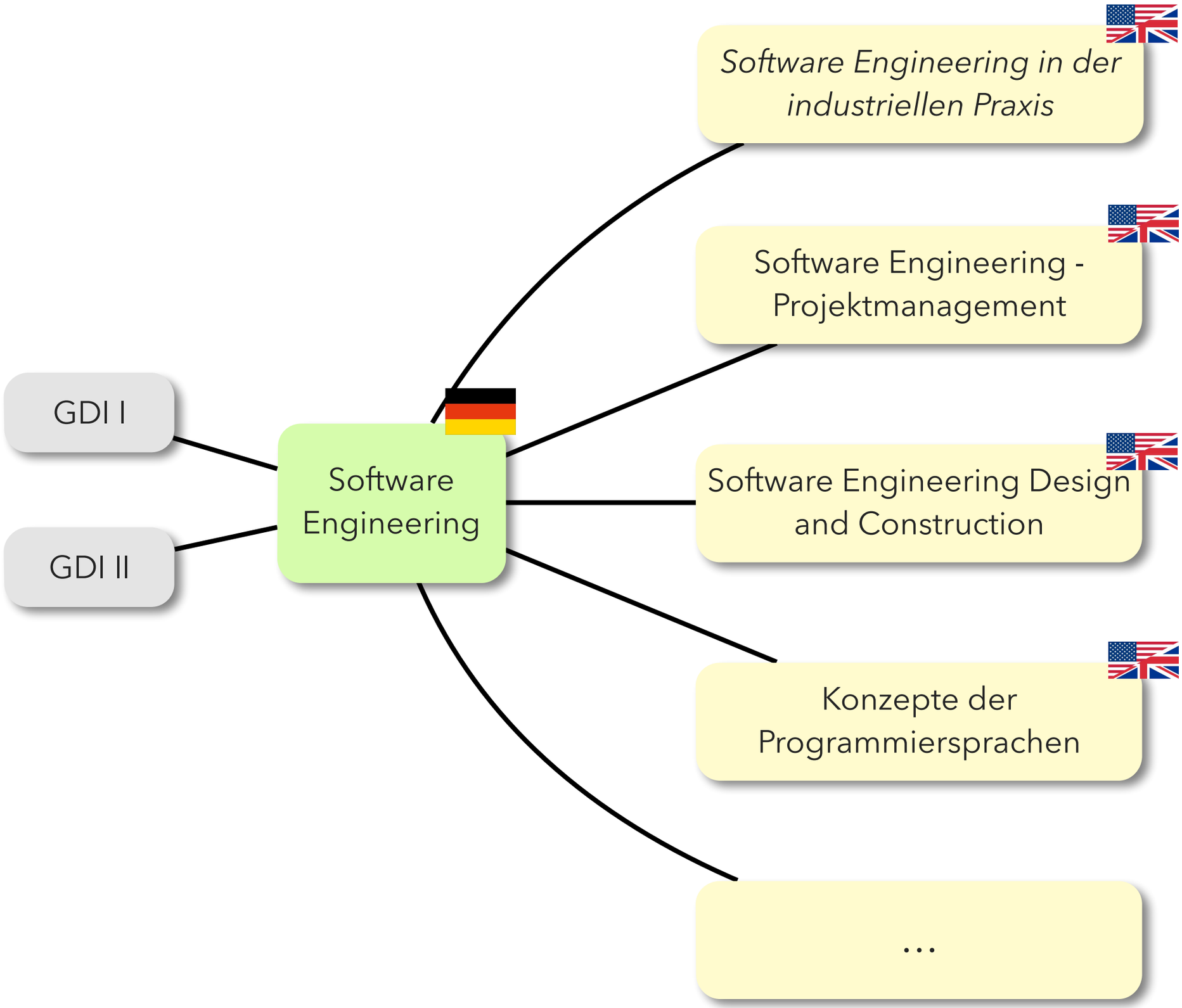
  December, 2015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