

Software Architectures

(Programming in the Large, Architecture Modeling,
Software Design etc.)

An Integrating Approach

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0. Preliminaries

Two (of Many) Reasons for the Course

Hot Topics: Evaluation

- ❑ UML
- ❑ MDA
- ❑ Domain-specific architectures
- ❑ Product families
- ❑ ...

Integration Approach: Applicability

- ❑ Functional abstraction
- ❑ Data abstraction
- ❑ Object-orientation
- ❑ Maintenance
- ❑ Distribution

Aims of the Course

- ❑ Concepts for software architectures / architecture description languages
- ❑ Basis for discussion on the structure of software systems
- ❑ Prerequisite for:
 - » Maintenance: changes
 - » Quality evaluation
 - » Reuse
- ❑ Programming language independence
- ❑ Applicability in practice
 - » for maintenance tasks
 - » for embedded systems
 - » ...

Contents

1. The Context: Software Engineering Basics
 2. The Problem: Modeling on Design Level
 3. Without Knowledge: First Examples
- } Introductory Part
4. The Notation: An Architecture Description Language
 5. Subarchitectures: Methods & Patterns
 6. Preparation for Practice: Translation to Programming Languages
 7. Extensions and Annotations
 8. The Complete View: Some Software Architectures
- } Main Technical Part
9. Practical Life: Building Right, Maintenance, and Reuse
 10. Summary & Reflections
- } Summary Part

Literature

- ❑ “Software Engineering: Methodological Programming in the Large (in German)”, Manfred Nagl, Springer-Verlag (1990), 2nd Edition in 2007
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