Software Architecture
Bertrand Meyer
ETH Zurich, 30 March – 29 June 2005
Lecture 1: Introduction

Goal of the course
Enabling you to master techniques for building and enhancing successful software systems of large size and industrial quality

This includes in particular:
- The move from programming to software engineering
- Principles of software engineering and in particular software quality
- Object technology principles and methods; the practice of object-oriented analysis, design and implementation
- Design patterns
- Principles of building reusable software
- An introduction to formal reasoning about software
- Some recent developments

Some topics
- Quality issues
- The software lifecycle, software project management
- Validation and verification
- Software metrics
- Abstract Data Types
- Inheritance techniques
- Other O-O techniques: genericity, persistence, event-driven programming
- Design patterns
- O-O language mechanisms
- Hoare semantics

Choose your language
- Exercise sessions (Übungsgruppen) are available in German and English (or if there are enough requests, French)
- Languages spoken by assistants: German (several varieties), English, French, some Italian

Exercise sessions
- All groups have one session a week:
  - Tuesday, 14:00 – 15:00
- Registration in a few moments
Practical information

Course material

  - Check it at least twice a week

- Lecture material:
  - Lecture slides
  - Textbook:
    - Available from Polybuchhandlung

- Exercise material:
  - Exercise sheets
  - Master solutions

Exercise sessions

- Registration starting Thursday 31st March:
  - [https://www.prs.ethz.ch](https://www.prs.ethz.ch)

- Choose your session according to preferred language, schedule constraints, and availability
**Electronic forums**

Discussion forums:
- Inforum: [http://forum.vis.ethz.ch](http://forum.vis.ethz.ch)
- Mailing list for each group

Advice and rules:
- Use the forums and mailing lists! Take advantage of every help you can get.
- Don’t be shy. There are no stupid questions.
- Criticism welcome, but always be polite to every participant and observe the etiquette.

To email the whole teaching team (professor and assistants):

soft-arch-assi@se.inf.ethz.ch

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**Programming environment**

- Free version available for Windows, Linux and MacOS

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**Exercise sessions and project**

- Make sure to attend all sessions
- Exercise sheets will be distributed by your assistant during the exercise session
- Do all exercises (you’ll need them, see “Testat”)

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**Exam: end of semester**

- July 4th 2005
- 2h exam
- No material allowed

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**Exercises, “Testat“ regulations (tentative)**

- “Testat”: Needed for admittance to the exam.
- Exercises:
  - 6 project milestone exercises
  - Project documentation
  - Project presentation
- To get the “Testat” you need to have done at least:
  - 5 project milestone exercises
  - Project documentation
  - Project presentation
  - Must show serious effort to address the questions
  - Must have filled out questionnaire
  - Military services or illness ⇒ contact your assistant.

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**The project**

- Integral part of the course
- Goal will be a video game, using ESDL
- Public presentation in June!
End lecture 1