Software Engineering

> multi-person construction of multi-version software

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How to Program?

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Organization stuff

Course link: https://peter-baumann.org/Courses/SoftwareEngineering/index.php

Project:

A group of 4-5 people submit a design doc, then there are 2-week phases:

- Specification & design (teams of 5 – free to join up)
- Code sprints Implementation (teams of 2 – random)

Grading:

Software Engineering *lecture* (2.5 CP) = 33%

Software Engineering *project* (5 CP) = 67%

Failures and Catastrophes

http://catless.ncl.ac.uk/Risks/

Lessons from cases:

1. ***don't optimize to death.***

   Y2K: "1997" in COBOL stored as "97", and "2000" -- as "00".

2. ***be careful with guessing user intent. Users need guidance.***

   a bug in FORTRAN code: "DO 20 I = 1,100" and "DO 20 I = 1.100"

How to Program?

1. Write code
2. Test it on a few samples
3. Bug fixing, improving efficiency
4. GOTO 1

This is usually appropriate for 1-person projects. In real-life projects there are different people $\Rightarrow$ different ideas through years. Also, if developer $\neq$ user, there is a frequent dissent about expected vs. implemented functionality.

Common problems for SE projects are mostly about organization:

- Complexity of the idea
- Communication (b2b, b2c)
- Flexibility: change of requirements, components, methods, tools over lifetime
- Lack of education
- Bad project management