Selected topics in software development

Description:

A collection of articles and book chapters concerning software development will be presented by the teachers. Additionally, the students will themselves select and present articles within the subject matter. Development of software will be presented with focus on the areas: analysis, design, programming, and testing.

Course team:

- Claus Jensen `<surf@diku.dk>`

- Jyrki Katajainen `<jyrki@diku.dk>` (course manager)

- Lars Yde `<larsyde@gmail.com>`

Course home page:

`http://www.diku.dk/forskning/performance-engineering/`
`Software-development/`

Communication theorem

Theorem: Let N be a positive integer denoting the number of people involved in the development of a software product. The number of point-to-point communication links in the whole development team is $N(N-1)/2$.

Proof: The number of point-to-point communication links $L(N)$ can be expressed using the recurrence:

$$
\begin{cases}
L(1) &= 0 \\
L(N) &= L(N-1) + (N-1)
\end{cases}
$$

The solution of this recurrence is $N(N-1)/2$. $\qquad\square$

The theme of this course: **communication in programming**.

Course elements

Lectures: 7 Tuesdays (teachers)

Assignments: 4 in all; all are compulsory

Discussion sessions: 7 Fridays (students and teachers)

Reading: See the *pensum* list published on the course home page

Oral exam: 8 Apr (and 11 Apr); re-exam in Aug (on request)

Grading

Presentation assignment: 10 points

Review assignment: 10 points

Testing assignment: 0–20 points

Survey assignment: 0–30 points

Oral exam: 0–30 points

Points	Grade
0–49 points	Fx, F
50–59 points	E
60–69 points	D
70–79 points	C
80–89 points	B
90–100 points	A

Lectures

Time: 7 Tuesdays (for details, see the course plan)

Place: *Lille auditorium* at DIKU

Contents: We follow the selected articles and book chapters quite closely (for details, see the *pensum* list)

Keywords: patterns, habits, tools, testing, conventions, notation, processes, personality

Assignments

Handouts: via course home page

Deadlines: Presentation a Friday; Review Fri 15 Feb; Testing Fri 14 Mar; Survey Fri 28 Mar

Group size: Presentation (1); Review (1–3); Testing (1–3); Survey (1)

Answer length: Presentation (5-10 slides); Review (2–4 pages); Testing (6–12 pages plus the programs); Survey (max 12 pages)

Answer format: LaTeX `DIKU-article` and `landscape-slides` styles available via the CPH STL home page `http://cphstl.dk` under Tools.

Handing in: electronically via ISIS or the CPH STL CVS repository

No late assignments, please!

Discussion sessions

Time: 7 Fridays (for details, see the course plan); the whole afternoon of Tuesday, 19 Feb is reserved for inspection meetings

Place: N026 at DIKU

Presenters: 2–3 people present an article each

Opponents: 2–3 other people comment the presentations

28 Mar: also course evaluation

Exam

Time: 8 Apr (and 11 Apr); re-exam in Aug

Place: *nordfløjen* at DIKU

Form: individual, oral, 30 minutes, no preparation (internal examin-
ers)

Content: Testing assignment (about 15 minutes) and the material
covered by the lectures (about 15 minutes)