Student teams in Course Operating Systems I

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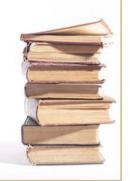
Overview

- Department's course structure
 - Traditional
 - New
- Student teams
 - Why and how
- Case study: OS course
 - Course structure
 - Organisation
- Recommendations



Course structures at CS dept

- Two different course sizes
 - 6-8 weeks
 - 12-14 weeks
- Lectures (traditionally)
 - 2 * 2h per week
- Exercise sessions
 - 2h week
 - Guide by teaching assistants (TA)



Exercise sessions

- First model (1980s)
 - individual tasks,
 - presented individually
- Second model (1990s)
 - individual tasks,
 - discussed in small groups
 - presented to all
- Now (2000-):
 - team tasks
 - presented to all

Increase cooperation



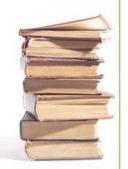
Using teams at the dept

- Several courses (8-10)
- 50% of first year CS courses
- Research about "study groups" – Jukka Oksanen
- Recommendations for teachers – Jaakko Kurhila and Heikki Lokki



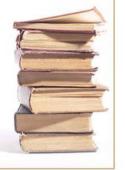
Student teams: why

- <u>Teaching (explaining)</u> deepens learning
- Cooperative learning is important
- Negotiation skills
- Writing is one efficient method of learning
- <u>Teamwork skills</u> needed in the future



Student teams: how

- Organised teams
 - Teacher's responsibility
 - Participation obligatory
- Relatively small size
 - 3-6 students
- Exercise session group split to smaller teams
- Whole team is responsible
 - No individual grading



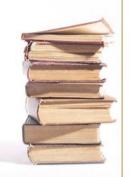
Team organisation

- Formed at first meeting by teaching assistant (TA)
 - Students sitting near each other or
 - Based on suitable meeting times
- Working modes free
- Teams have used
 - Face-to-face meetings
 - Email
 - Discussion forum in WebCT
 - Irc (Internet Relay Chat)
 - ...



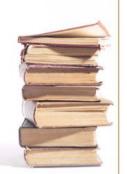
Operating Systems I, Autumn 2004

- Course goal
 - overview of operating system's functionalities
- Duration: 6 weeks
- Structure (each week):
 - 2 * 2 hours lectures
 - 2 hour meeting with TA (20-30 students)
 - Students form teams (4-6 students per team)



Operating Systems I, Autumn 2004

- 150 students participated (125 passed)
- 3 phases
 - two weeks each
- 5-6 different questions in each phase
- Written team report
- Feedback to teams



Course content

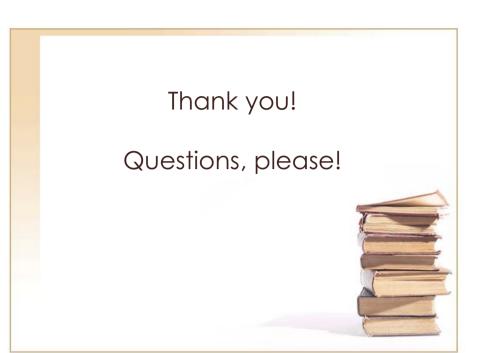
- Phase 1: overview
 - Architectural structure
 - System calls, interrupts
- Phase 2: memory management
 - Memory allocation
 - Virtual memory
- Phase 3: processes, file systems
 - File allocation
 - Threads



Next Operating Systems I

- Team structure will be used
- Small changes:
 - More explicite learning goals and motivation for teams
 - Teams organised by suitable meeting times
 - Explicite membership form to sign by team members
 - Only one team task per phase





Current general recommendations

- Team forming
 - Based on calendars
 - Heterogeneous teams
- Motivation
 - Concreate goals
 - Tasks support the goals
- One task at a time only
 - Enhances collaboration
- Written agreement
 - Everyone signs

