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

Increase cooperation

- 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

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

- Teaching (explaining) deepens learning
- Cooperative learning is important
- Negotiation skills
- Writing is one efficient method of learning
- Teamwork skills 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)
  - ...

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- 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)

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- 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

Thank you!

Questions, please!

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