

# **INTERNET-TECHNOLOGIES AND COMPUTER-SYSTEMS (ITC)**

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COORDINATOR OF ITC 1ST YEAR**



# InternetTeknologies andComputersystemer

- **Use and design:** Analysis of use patterns, dialog with users with respect to IT system design, e.g. user interfaces.
- **Electronic and systems:** Analysis, design and construction of analog and digital electronic circuits and systems
- **Software and data:** analysis, design and implementation (programming) of softwaresystems as well as theories and algorithms for analysis and processing of data
- **Organization and market:** company operation, communication, understanding and establishment as well as economi, management, law, innovation, market analysis etc.

## Fagbarometer

Brug & design



Elektronik & systemer



Software & data



Organisation og marked



0

100 %



# Structure of 1st and 2nd semester

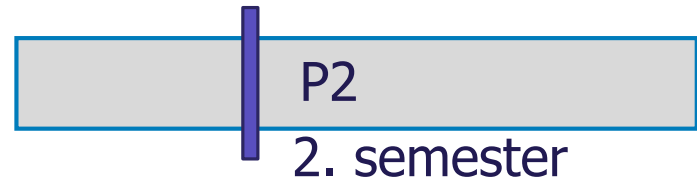


- Linear algebra
- Imperative programming
- Problem based learning in science, technology and society

## Mid term seminar

- Groups assessing groups
  - Feedback on other groups written material
  - Feedback on students presentation
  - Groups must prepare questions to other group

➤ Students learn a lot by looking at other students mistakes

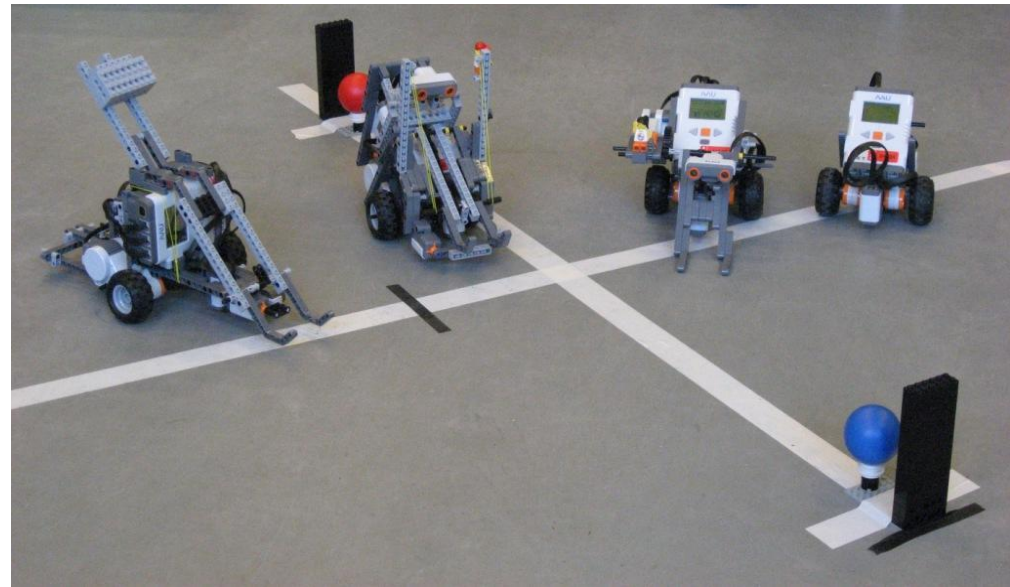


- Interactions and design
- Calculus
- Structural system engineering



## First period – P0

- Not a classic “*save the world*” kind of problem
  - But lots of fun and technical problems to be analyzed
- Practical hands on experience with programming
- Analysis is required!
  - Selection and priority of challenges are required
- Learnings
  - Models, expectations and reality are not always the same thing
  - Don’t assume – know what you are doing
  - Working together is not just quite the same as in high school



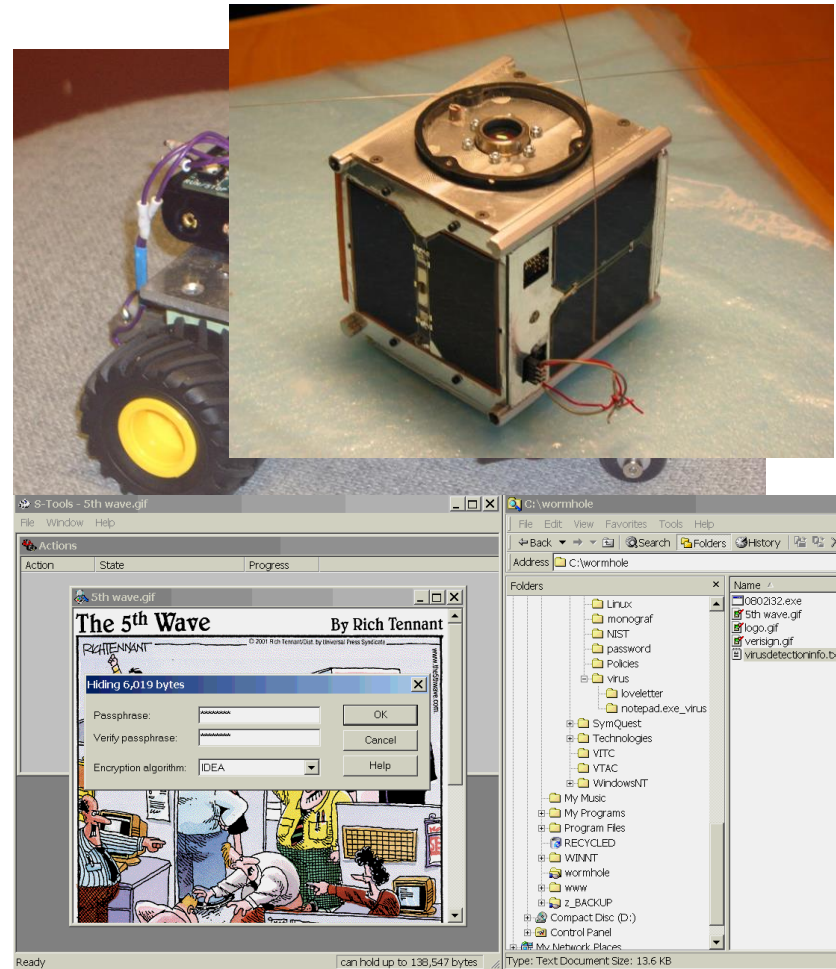
## ”Classic” approach to semester project

- Students get together and starts thinking about what to do
- Often it takes a long time to get to the root of the problem
  - Typically, the students tend to focus on solutions and not problems
  - Mid term seminar usually helps on their understanding the difference between solution and problem
- During project there are quite a number of iterations on text and problem definition
  - Students learns to collaborate with supervisors (generally much needed)
- Students gets more occupied and busy with project
  - Problems often arise on the first year with collaboration
  - Students learn to tackle (or at least cope with) very different personalities



# In addition to the "Classic" approach

- Multi- or interdisciplinary projects
  - Mobile robot as main example
  - Student satellite project
  - Steganography
- Requires students from ITC to work with
  - Students from EIT and/or Mechanics
  - Students later in their education
  - Some interpretation of the study regulations because projects never fully fits the expressed words in these documents
  - Involves to a high degree supervisors and their will to do this
- Experiences
  - Very good, but also extremely challenging
  - Less efficient for younger students than for older students, as it requires multiple layer of group work



Steganography: Hiding Data Within Data [Gary C. Kessler](http://www.garykessler.net/library/steganography.html), September 2001, <http://www.garykessler.net/library/steganography.html>



# Course integration in projects

## Just-in-time-ressources

- Imperative programming
    - Timed with P0 and initial learning of programming
    - Small video clips available on selected topics 7-10 min. duration
  - Network course
    - Interactive video and information available when needed as needed
    - Interactive quiz'es in Moodle
- Generally good feedback, but preferably combined with physical present discussions

## Integration of courses in project

- *Problembaseret læring i videnskab, teknologi og samfund* – a.k.a. PV
    - Course directly linked to project
    - Assignments based on project work -> mid term evaluation
  - Interaction design
    - Project requirement to include user interface which is worked on in the course
  - Structural system engineering
    - Many of the assignments are directly linked to the students project
- Excellent when it works, but lots of work/ressources has to be spend
- Helps also on motivation for students to work with topics in the course



# Motivation is on some subjects a big issue

- "Perspektiveringskursus" with older students and old students now working in the industry
  - We invite people from outside to give insight into what they have been using from their time at the university
  - On the short term very good, but no direct impact on their daily life
- Cross ITC day
  - We invite for a day workshop where 1., 2., and 3. year students meet
  - Presentation of project work, similar to mid term seminar or exam
  - focusing a bit more on social interaction between students than feedback
  - create a positive atmosphere around presentation of project

