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**TALLINNA TEHNIKAÜLIKOOL**

TALLINN UNIVERSITY OF TECHNOLOGY

## **Innovative teaching methods at TUT**

# Estonia



- is a small country
  - by area ~ Denmark, Switzerland, the Netherlands
  - by population 8% of the Netherlands
- 11 universities (5 private)
  - public universities have 11 colleges
  - 67,325 students (2004) – 50% Estonian governmental financing
  - TUT: 10,327 students
  - Distant learning is not *long* distance learning

# Estonia & IT

- numerous wide-spread Internet and mobile applications:
  - banking
  - parking
  - ticketing
  - car security
  - positioning
  - Skype
  - voting



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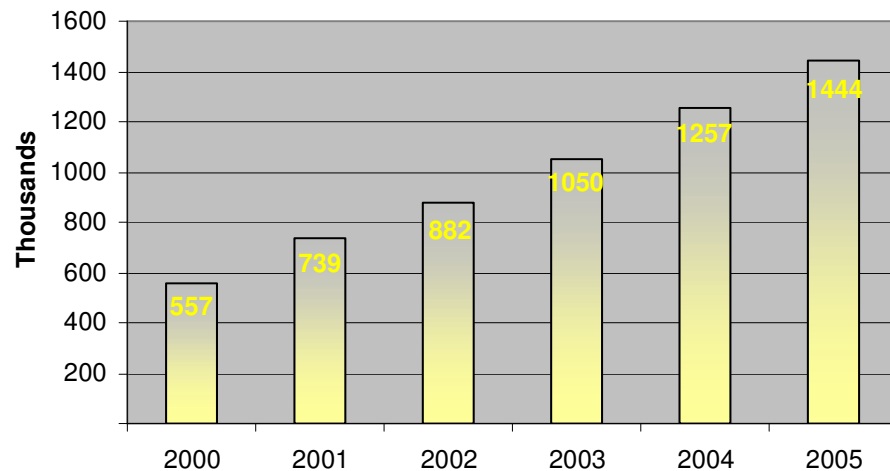
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# Estonia & IT (2005)

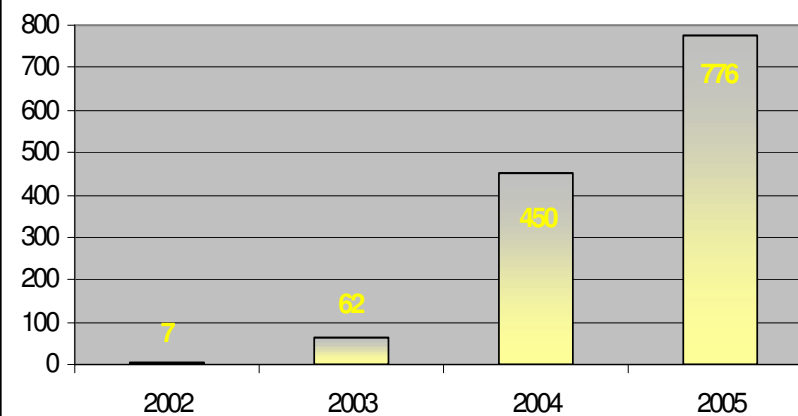
(siia tuleb võrdlusdiagramm kuni 5 aastat)

- Mobile phones: 107 per 100 habitants
- 776 free WiFi zones
- 54% of population uses the Internet (90% at the age of 10-24)
- 34% of homes have computers at home, 82% connected to the Internet
- 90% students *reported* they use their own computer

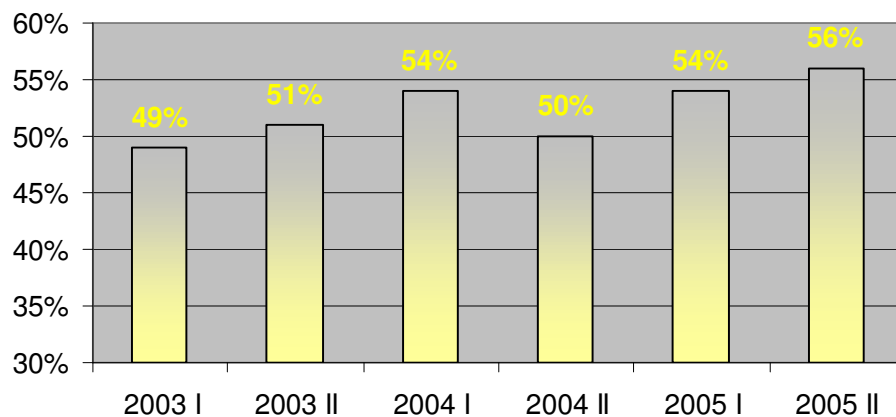
**Mobiiltelefonivõrgu kliendid 1991-2005**



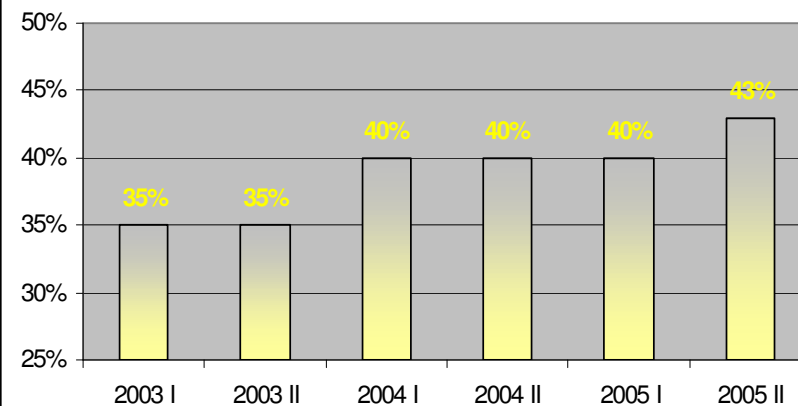
**WiFi area 2002-2005**



**homeusers**



**used internet on the last 7 days**



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# Estonian e-University

- Estonian e-University is a consortium of universities and universities of applied sciences.
- Estonian e-University was founded in February 2003.
- Membership: Ministry of Education and Research, IT Foundation, 4 public and 4 private universities

# e-University: functions

- Coordination of e-learning activities
- Financial support (through universities)
  - training teachers
  - course development
- Projects
  - UNIVE ("Creating network-based e-university model for the small countries in the context of e-learning in Europe")
  - REDEL ("Regionally accessible qualitative higher education via e-learning development")

# REDEL

The main purpose of the project is

- ▣ to improve the accessibility of qualitative higher education to all target groups (with special attention to disabled people and people in peripheral regions) and
- ▣ to create a possibility for lifelong learning by developing web-based courses.

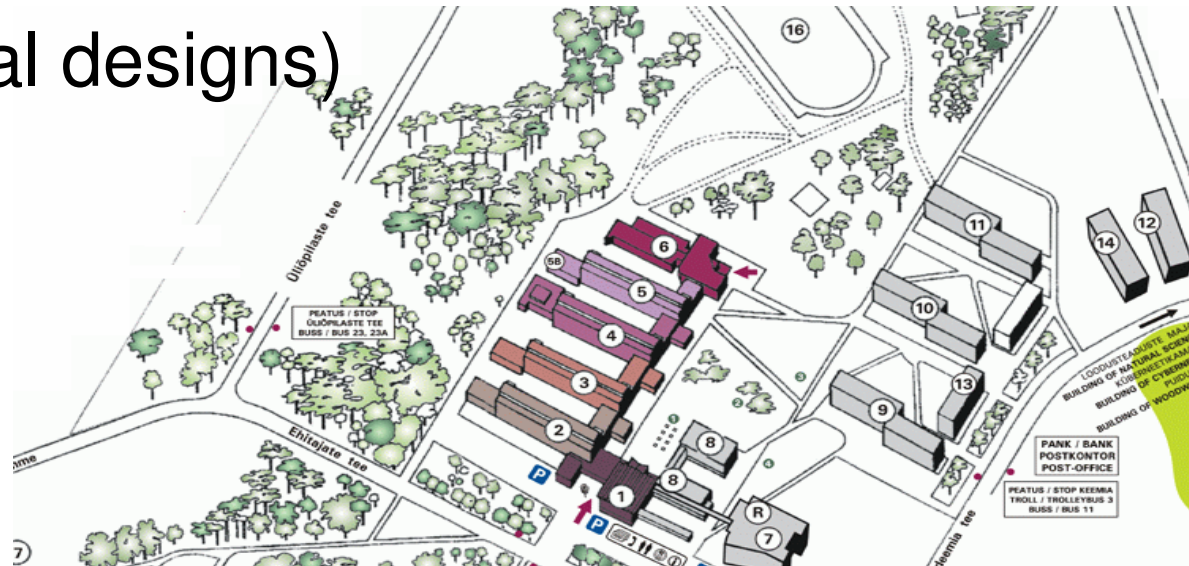
# Support for staff

Since September 2004 when the REDEL project was launched, new staff were employed:

- ▣ 18 educational technologists in Estonia
- ▣ 2 educational technologists at TUT

# e-Learning at TUT

- WiFi at TUT campus 100%
- WebCT Campus
- Moodle
- other (incl local designs)



# WebCT Campus



Tere tulemast kursusele Mikro- ja makroökonoomika (TET)

Teaduskond	kasutajaid	kursuseid
Eelõppeosakond	50	5
Ehitusteaduskond	6	1
Energeetikateaduskond	44	5
Humanitaarteaduskond	247	7
Infotehnoloogia teaduskond	695	15
Kuressaare Kolledž	112	3
Majandusteaduskond	79	5
Matemaatika-loodusteaduskond	972	4
Mehaanikateaduskond	300	9
Tallinna Kolledž	225	4
Virumaa Kolledž	27	2



Tegevuskava



Õppurid



Foorum



Muud vahendid



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# Moodle




## Moodeldamine talvekoolis

[e-Kutsekool](#) » Moodeldamine

### Inimesed


 [Osalejad](#)

### Tegevused

 [Foorumid](#)  
 [HotPotatoes testid](#)  
 [Kursuse materjalid](#)

### Teema lõim

 [Moodeldamise juhend](#)  
 [Moodle juhendid \(ik\)](#)  
 [Uudistefoorum](#)  
 [Sõnastik](#)  
 [Sotsiaalne foorum](#)

1 [Krista oma](#)  
 [IVA reklaamvoldik](#)

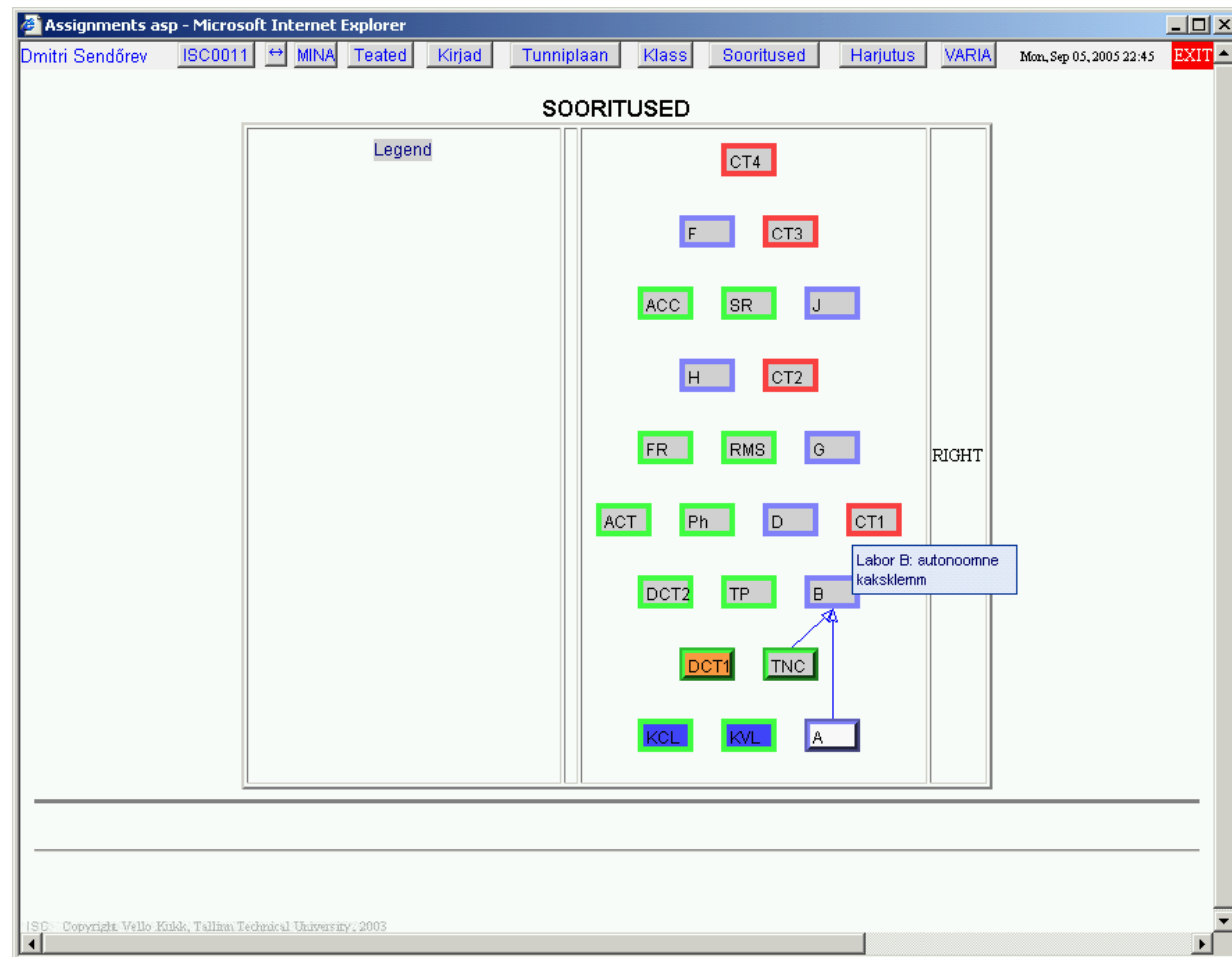
Teaduskond	kasutajaid	kursuseid
Energeetikateaduskond	44	1
Humanitaarteaduskond	57	7
Majandusteaduskond	617	48



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# Local LMS



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## HARJUTUSVÄLJAK

LearningCard

$L[i] = \frac{1}{s}$

$\sum V = 0$

$\sum I = 0$

$I = \frac{V}{R}$

$\frac{V}{A} \frac{S}{m} \frac{M}{m}$

$2+j3$

$\frac{d}{dt}$

$\int$

$1GHz$   
 $1ns$

$\begin{bmatrix} -3 & 4 \\ 2 & -8 \end{bmatrix}$

$\frac{V}{F} \frac{H}{m} \frac{M}{m}$

$x+\ddot{x}=0$

CTQuiz.asp - Microsoft Internet Explorer

EXIT

Ohm's Law

Antud  
 $V=8V, R=2\Omega$

Ülesanne  
 Leia voolu I väärtus [A]

vastan

Done
Internet



# Problems with e-learning

- Complexity of lab tasks encountered in transfer to e-learning environment
- High quality software packages are typical of very high volume. Thus, they need powerful servers.
- e-learning leads to a demand for optimization of contact hours

# Video in different forms at TUT

- Videoconference
- Videostreaming
- Video materials

# Videoconferencing equipment

## Polycom VX7000



Convenience and innovation  
are combined in a compact,  
entry-level powerhouse.

Picture from:  
<http://www.teamsolutions.co.uk/>



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# Videostreaming

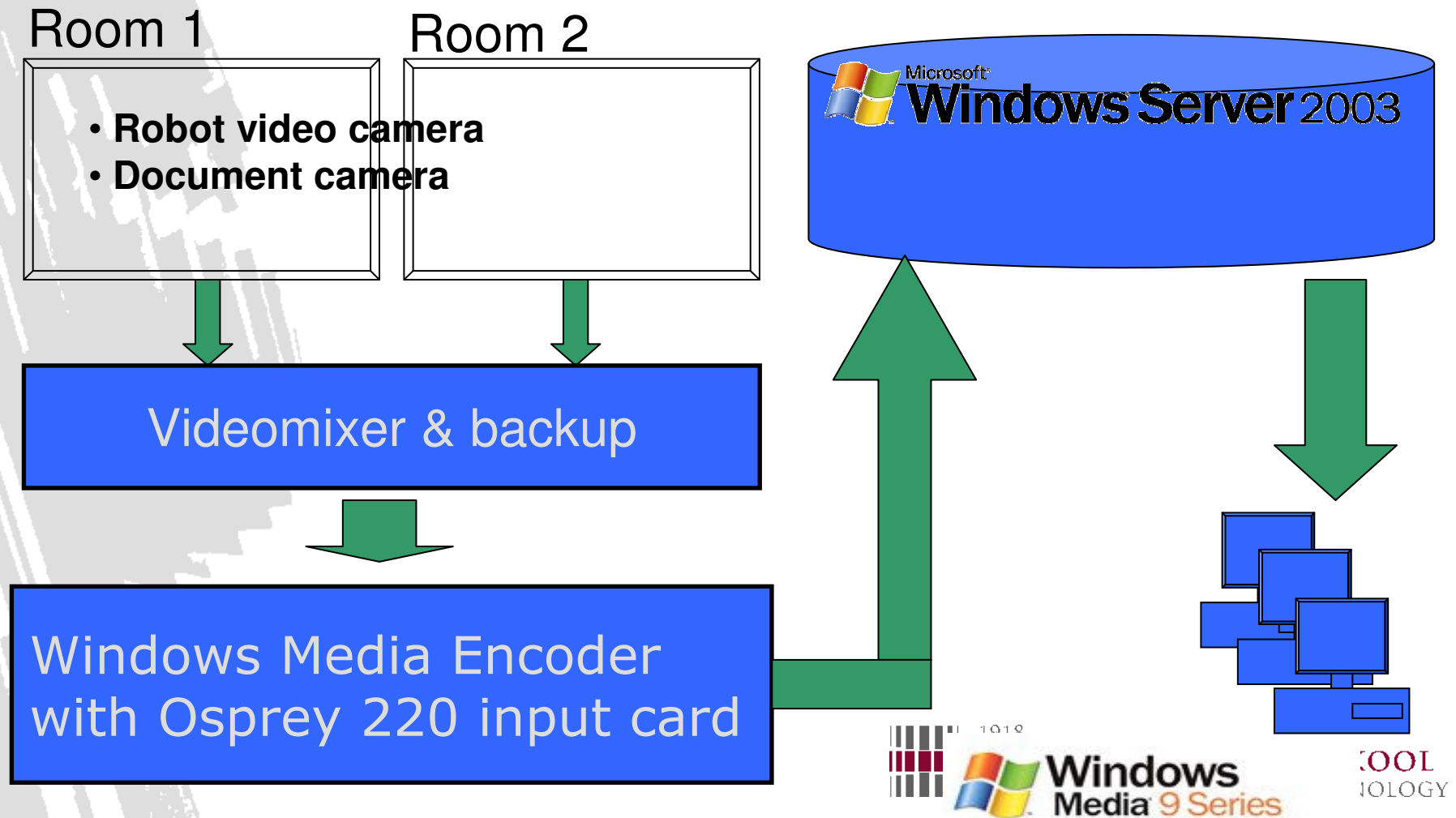
- TUT promotional events
- TUT news
- Research and development conferences
- Lectures
- Study materials

# VIDEO TRANSMISSION OF LECTURES 2004/2005

- 8 courses transmitted and stored
- 123 lectures transmitted
- 246 hours of lecture transmissions
- 10 743 viewers of stored lectures
- $123+67=190$  stored video clippings
- video clippings viewed for 48 290 times



# Videostreaming equipment



# Video materials

- Extend electronic materials using visual content
- Visualize laboratory work
- Short and concentrated video clips of lectures that can be used in other subjects

# Labs

- Conventional
- Home labs
- Remote labs
- Virtual labs



# TUT's e-learning strategy 2006-2010

- indicators
  - percentage of e-support courses from the total of courses - 90%
  - ▣ cp percentage acquired in e-learning from total cps - 50%
- TUT's e-learning strategy



# Thank you!