



Some results of using LMS in teaching Informatics

Alka Korin - Lustig

lustig@gradri.hr

Faculty of Civil Engineering, University of Rijeka

Siniša Lukarić

Faculty of Civil Engineering, University of Rijeka



Faculty of Civil Engineering University of Rijeka

	Course	Year	Semester
University studies	Informatics	I	I
	Computer programming	I	II
Professional studies	Informatics	I	I
	Computer programming	I	II

Our continuous efforts:

- To adjust the content of the courses and practically oriented lessons, according to the progress of new technologies
- To correct and adjust the content of the courses to students' previous knowledge
- To detect students with higher potentials



IMPLEMENTATION OF DIFFERENT SOFTWARE TOOLS IN TEACHING

- ***Years 2002 – 2005:***
 - Web site of the courses – download of on-line materials
 - Web site located on the students' server, accessible from local network only – access to assignments, grading results

- ***Year 2005:*** Microsoft SharePoint Services 2.0

- ***Years 2006 - 2007:*** open source LMS package “Moodle”, which we customized and called “FRAK”



Some reasons for having adjusted the teaching model

Initial survey - Since 1999, at the beginning of each academic year

Some results from the survey analysis:

- The students own a computer at home
- The students are familiar with Internet services use, and would like to take part in education from home
- Students have significant expectations from university education
- The previous formal IT education has been poorly evaluated by the students – needs constant change and adjustment!!!



Some reasons for changing the teaching model (survey analysis)

		Is your home equipped with a personal computer?			
	2007	2006	2005	2002	1999
Yes	98%	96%	92%	75%	53%
No	2%	4%	8%	25%	47%

Almost all students own a personal computer!



Some reasons for changing the teaching model (survey analysis)

		How would you appraise your proficiency of Internet services utilization?			
	2007	2006	2005	2004	2003
Well	48%	48%	37%	24%	34%
Fair	46%	46%	56%	62%	52%
Poor	6%	6%	7%	14%	13%

Students are familiar with use of Internet services!



Some reasons for changing the teaching model (survey analysis)

Where did you obtain most of ICT knowledge?				
	2007	2006	2005	
I am self-taught	47%	48%	44%	
In school	22%	25%	33%	
Partly everything of the above	27%	25%	23%	
In extracurricular courses(outside school)	4%	2%	-	

Almost 50% of students consider to be self-educated???



Some reasons for changing the teaching model (survey analysis)

	What do you expect from “Informatics” course?					
	2007	2006	2005	2004	2003	1999
To finally learn something about computers	22%	22%	26%	24%	27%	30%
To improve my knowledge and to be introduced to the new technology trends	73%	68%	67%	70%	57%	67%
My interests lie in other areas	4%	5%	3%	1%	1%	2%
I don't know	1%	5%	4%	6%	5%	1%

Year 2006/07 : Teaching model

Blended (hybrid) learning:

Classroom learning

+

E-learning



Lectures in classroom
2 hours weekly



Computer lab



Types of students' lab assignments

- Individual work (most of the assignments)
- Team work (one team project per semester)
- Surveys



2006- APPLICATION OF LMS

The requirements that were set:

- Software should be LMS(web based)
- Software and data should be hosted locally
- Installation should be easy to perform and maintain
- Software should be low-cost or open source

The final selection:

“Moodle”

2006- Moodle version 1.5.

2007- Moodle version 1.9.

Građevinski fakultet u Rijeci - Windows Internet Explorer

http://www.gradri.hr/moodle/

File Edit View Favorites Tools Help

Links Customize Links HGspot Online Katalog Senso Web Shop T-Com Windows Windows Media

Google Go Bookmarks 45 blocked Check AutoLink AutoFill Send to Settings

Građevinski fakultet u Rijeci

Građevinski fakultet u Rijeci

Niste prijavljeni sustavu. (Login)

Hrvatski (hr)

Login

Korisničko ime:

Lozinka:

[Zaboravili ste lozinku?](#)

FRAK - Sustav za E-učenje

Dobrodošli na stranice Građevinskog fakulteta u Rijeci.

Naš sustav za E-učenje baziran je na programskom rješenju Moodle, a postavljen je s namjerom postizanja veće mobilnosti nastavnika i studenata u nastavnom procesu.

Kalendar

Rujan 2007

Pon	Uto	Sri	Čet	Pet	Sub	Ned
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Najsvježije vijesti

17. Ruj, 10:00
Korin-Lustig Alka
13.9.2007 Rezultati ispita iz Informatike (sveučilišni studij) [više...](#)

14. Ruj, 13:54
Korin-Lustig Alka
Rezultati ispita iz (stručni studij) 13.9.2007 [više...](#)

12. Ruj, 14:39
Korin-Lustig Alka
Rezultati ispita iz Računalne grafike 10.09.2007 [više...](#)

10. Ruj, 17:28
Korin-Lustig Alka
Računalni kabinet [više...](#)

8. Vel, 16:23
Korin-Lustig Alka
Pogledajte obavijest o polaganja ispita iz Informatike [više...](#)

[Prošle teme ...](#)

Vijesti i novosti

Zašto FRAK?

...ugi niz godina, FRAK (Fakultetski Rač. Klub) je bilo mjesto stalnog okupljanja studenata našeg fakulteta, koji su željeli naučiti nešto o računalima. Poželjeli smo starom imenu dodijeliti novo značenje - mjesto postane središte novog pristupa učenju pomoću računala.

The portal was named **FRAK**
(*Fakultetski RAčunalni Klub*)
University computer club: 10-20 years ago, the group for advanced learning and use of computers
<http://www.gradri.hr/frak>

start

Ula... Kori... \sri... Sear... \sri... Exp... Gra... HR

12:37



The organisation of access to local network and FRAK

- **Teachers** - account on Windows domain
 - Manually added to Frak as users with special rights

- **Students** – [AAI@EduHr](#) account
(unique Authentication and Authorization Infrastructure for Educational and Research Community):
 - Access to local network (PGina)
 - Access to webmail
 - Automatically added to FRAK via LDAP

- **PGina** – open-source extension to Windows that authenticate users with LDAP server



2006/07 Courses on FRAK portal

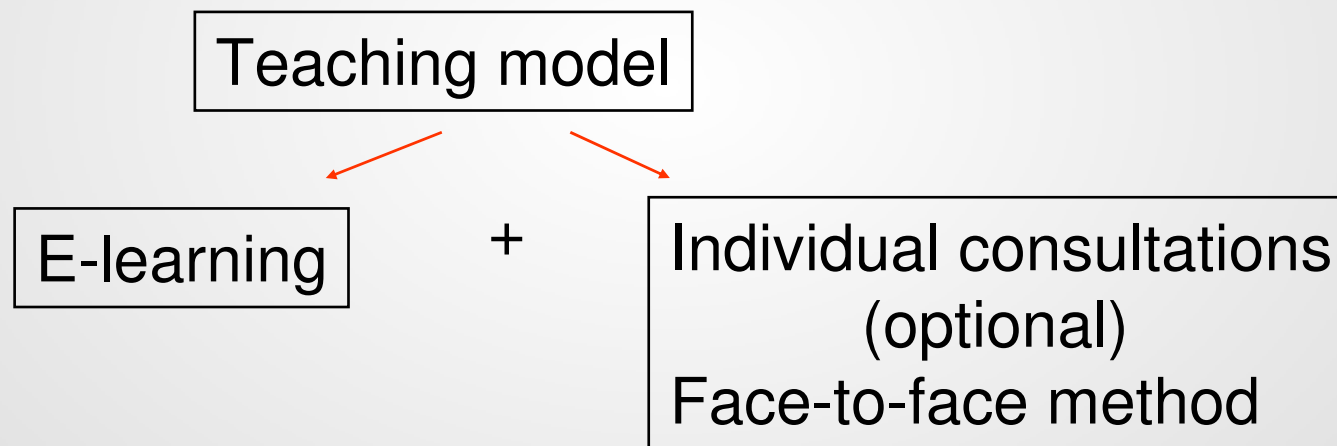
Curriculum	Course	Classification	Year	Semester	Number of enrolled students
University studies	Informatics	mandatory	I	I	116
	Computer programming	electoral	I	II	81
Professional studies	Informatika	mandatory	I	I	56
	Računalni programi	mandatory	I	II	52

In total: 205 students



Higher education of working adults

- 3-year study of Civil engineering (work and study scheme)
- 2006: 15 students





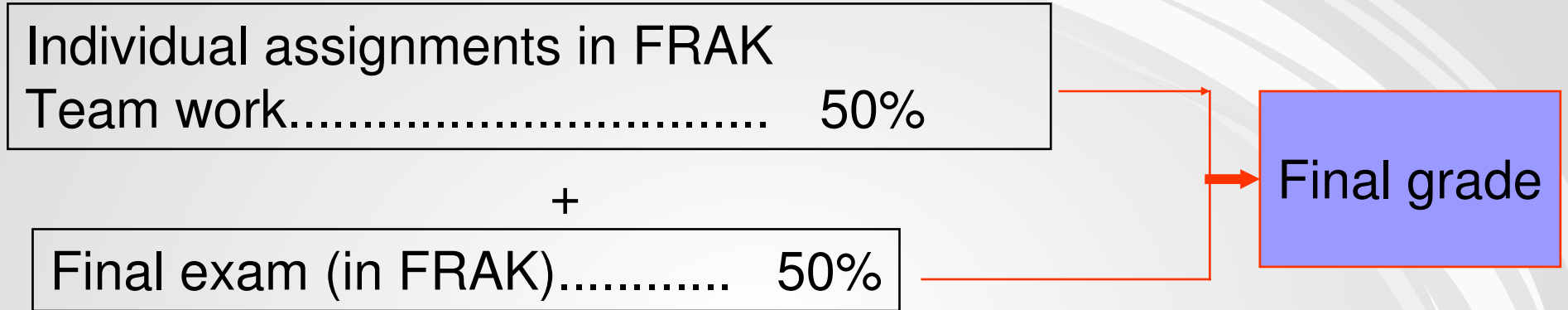
The number of university staff included in the complete E-learning process:

- Installation of LMS
- Administration of LMS
- Preparation of learning materials and assignments
- Creation of course pages (4 courses)
- Teaching in classrooms
- Computer lab assignment management
- Evaluation of assignments
- Evaluation of on-line tests
- Final exam

2 persons !!!



Assessment of students





SOME COMMENTS REGARDING THE USE OF LMS

	Problems	Solution
Installation and administration	Ver. 1.5	no problems !!!
	Ver. 1.9 - Croatian characters and regional settings (date,..)	successfully resolved



SOME COMMENTS REGARDING THE USE OF LMS

	Problems	Solution
Working with students	Copying - using other students' assignments	Restrictions which had to be established: <ol style="list-style-type: none">1. Students are allowed to work on assignments only in the computer lab2. Students are obliged to submit their completed assignments from the computer lab exclusively – auditing of clients' IP addresses



SOME COMMENTS REGARDING THE USE OF LMS

	Comments
Working with students	Lecture attendance: lessened due to availability of the on-line material



SOME COMMENTS REGARDING THE USE OF LMS

	Student-to-student collaboration	Activities
Working with students	Students grading students	Grading of the team work: - Students have evaluated the other students team work between themselves by means of web (FRAK) - The results and their comments didn't affect the final students' grade, but have been presented on the web – additional stimulation for work!!!
	Students helping students	On-line collection of the most interesting team works



Experience with FRAK

The students' point of view

Survey – at the end of the semester (lessons):

- Questionnaire on FRAK
- Official course evaluation at University level




Evaluation of FRAK: survey results

Question:

1. My evaluation of FRAK as a learning tool : 4,6 (1-5)

Ocijenite:
(N/A = ne znam)

	Average rank					N/A (#)	
	1	2	3	4	5		
Način rada s Frak-om ocjenjujem:						4.6	0



Evaluation of FRAK: survey results





Question:

2. Do you prefer FRAK to be introduced in other courses?

YES 88%

2.

Da li želite koristiti Frak u ostalim kolegijima?

Response	Average	Total
da	 88%	87
ne	 3%	3
ne znam	 8%	8
Total	 99%	98 / 99



Evaluation of FRAK: survey results

Question:

3. I like the way students are evaluated in FRAK:

YES 88%

3. Način ocjenjivanja sa Frakom mi se sviđa:

Response	Average	Total
da	88%	87
ne	2%	2
ne znam	9%	9
Total	99%	98 / 99



Students' comments:

Komentar ili prijedlog u radu s FRAK-om:

#	Response
1	:)
1	<i>Vrlo zanimljiv,efikasan,moderan i prije svega <u>podučan</u> način učenja koji bi svakako trebali primjeniti novi kolegij! Svaka čast!</i>
1	
1	😊
1	😊, samo tako naprijed
2	😊
3	
1	😊, Sviđa mi se što mogu vidjeti rezultete kod kuće na netu.😊😊
1	ma sve je za super😊
1	nemam komentara osim da mi se sviđa sto su nam ocjene dostupne on line...
1	Nemam komentara.
1	odlična stvar
1	sve je ok,i vrlo mi se sviđa taj način rada
1	b
1	bilo bi bolje da ima malo fleksibilnosti oko rokova
1	Dobar je, trebalo bi što prije uvesti i za ostale predmete.
1	dobar. nadam se da će i ostati tako.
1	fora je jer znam ocjenu bez dolaska na faks tj u svakom trenutku na bilo kojem mjestu mogu provjeriti ocjenu
1	grejt
1	Iako dobar i moderan način učenja koji je vrlo efikasan i omogućuje lakše učenje!



Evaluation of FRAK: survey results

Students' comments

- *Vrlo zanimljiv, efikasan, moderan i prije svega podučan način učenja koji bi svakako trebali primjeniti novi kolegij! Svaka čast!*
- samo tako naprijed!!!
- Sviđa mi se što mogu vidjeti rezultete kod kuće na netu.
- ma sve je za super
- nemam komentara osim da mi se sviđa sto su nam ocjene dostupne on line...
- odlična stvar
- Dobar je, trebalo bi što prije uvesti i za ostale predmete
- dobar. nadam se da će i ostati tako.
- fora je jer znam ocjenu bez dolaska na faks tj u svakom trenutku na bilo kojem mjestu mogu provjeriti ocjenu
- Grejt
- Jako dobar i moderan način učenja koji je vrlo efikasan i omogućuje lakše učenje!
- jednostavna primjena
- Ma super jeltrebali bi frak uvesti za sve predmete jer iz većine predmeta nismo dobro informirani o terminima kolokvija i sl..
- Mislim da je FRAK odličan. Rezultate vježbi možemo odmah po ispravku vidjeti na njemu što je odlično. Imamo sve potrebne informacije vezane za kolegije, predavanja, upute uz vježbe. Sve je odlično i dostupno i vjerujem da puno pomaže onima koji se ne snalaze baš najbolje na računalima.
- Smatram da bi u FRAK trebalo uvrstiti sve kolegije, te ako profesori već nemaju vremena, da u suradnji sa studentima održavaju prostor svog kolegija te stavljaju rezultate ispita na FRAK. Mislim da bi se uz dobru volju profesora, i uz pomoć studenata ili asistenata koji bi te podatke stavljali na FRAK napravio odličan posao i olakšao studentima da ne trebaju svaki put čekati rezultate na oglasnoj ploči. Bilo bi dobro da se i putem FRAK-a mogu kontaktirati profesori vezano za kolegije, za rezultate ili nešto slično.
- Rad s FRAK-om je dobar i zanimljiv. Potiče studenta na redoviti rad i razvija vještine za upravljanje računalom
- svaka čast!
- Svakako bi se trebao frak sustav primjenivati na ostalim kolegijima jer bi se tako mi studenti "informatizirali"! Vrlo edukativan i zabavan..brža, lakša i bolja komunikacija...
- Sve u redu.
- Sviđa mi se to da u svakom trenutku i bilo od kuda mogu pristupiti ovom kolegiju i dobiti potrebne informacije. Mislim da bi bilo dobro da nam se omogući ovakav način rada za svaki predmet.



Students' objections:

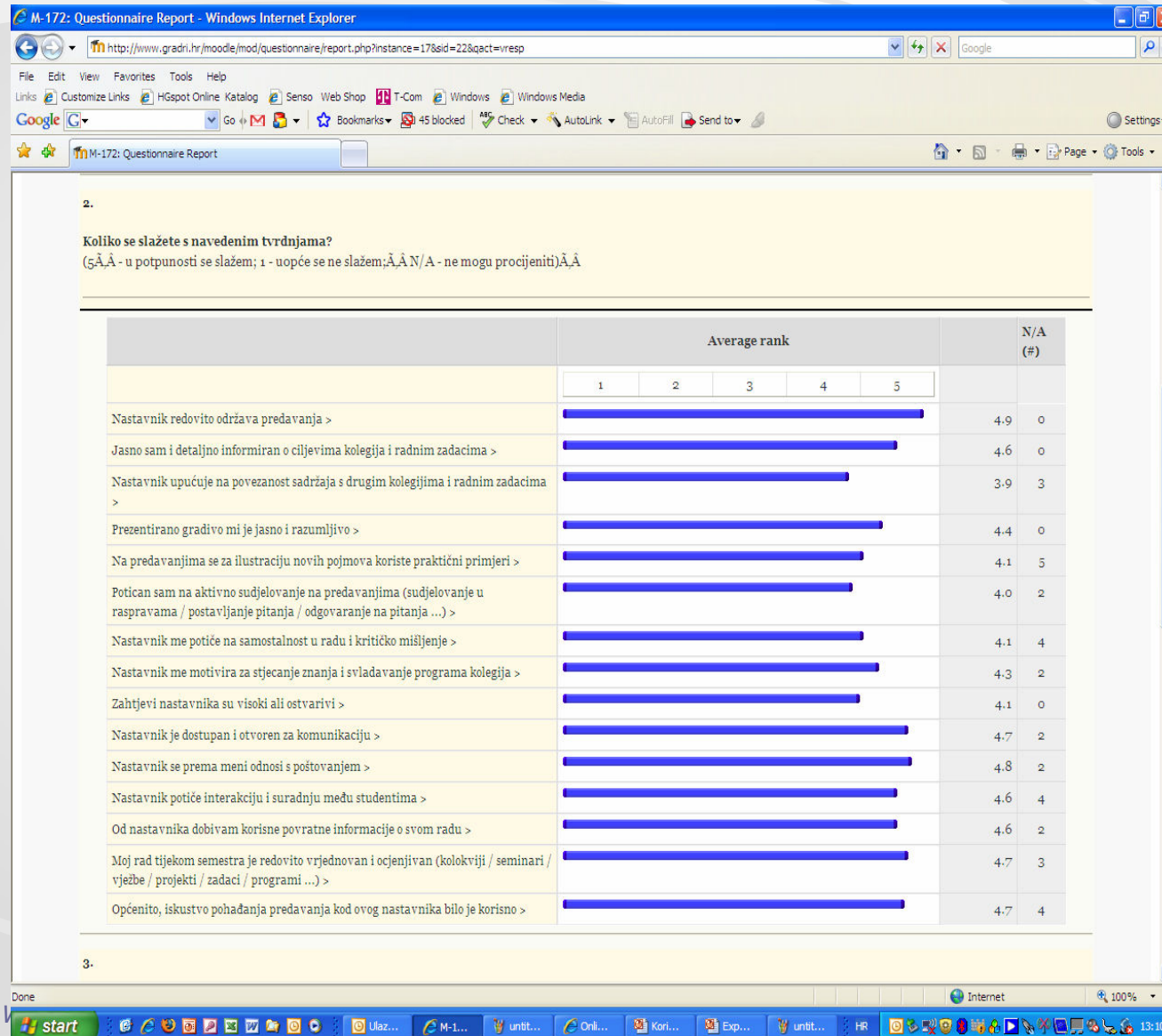
- *bilo bi bolje da ima malo fleksibilnosti oko rokova*
- *Kada dobijemo obavijest o ocjeni da nam ju pošaljete e-mailom.*
- *Ovaj način ocjenjivanja mi je potpuno nov, i još sam malo skeptičan po pitanju toga jer još uvijek ne vjerujem 100% računalima, ali nadam se da će taj osjećaj s vremenom nestati.*

- Few students complain about precise deadlines for assignment uploading
- They prefer to get e-mail about grading results
 - It is possible to do it automatically in Moodle (some students' addresses were not properly set up, resolved this year!!)
- One student expresses reservations about the grading method, but wants to continue this way and adjust in the meantime



The official course evaluation: the survey results

The survey is unique for the entire University of Rijeka



Ovaj kolegij mi je najbolji, svaka čast profesorici!!!!

što se ovog kolegija tiče--> bez posebnih primjedbi...😊

Bilo bi dobro da se na netu mogu naci točne informacije o terminima za demonstrature i "slobodno", kako bi se student lakše i pravilno organizirao i izvršavao dužnosti.

informatika je jedini interesantan kolegij u ovom semestru!!

Iskustvo sa ovog kolegija jako mi je pomoglo da se snađem na faxu. Pohvaljujem profesora i svo stručno osoblje koje je sudjelovalo u realizaciji ovog kolegija.Ā,Ā

Na vježbama bi trebalo biti više primjera primjene računalstva u graditeljstvu jer neki primjeri nemaju veze s graditeljstvom. Na predavanju se slažem da se uči povijest računalstva ali isto tako i pojava i primjena računalstva u graditeljstvu jer bi to učinilo kolegij informatike još zanimljivijim i privlačnijim!

Nema, sve OK

nemam

Nemam ništa pametno

Nemam šta reć osim da sam zadovoljan.Ā,Ā

odlično

Primjedbi nemam kao ni neka posebna zapažanja , ali imam jedan prijedlog a to je da bi u ovom kolegiju moglo biti više seminarski radova kao što je bilo u posljednjoj vježbi. Jer na taj način učimo, družimo se a i zabavimo se. Mislím da su ti seminarski radovi u grupi jako korisni za studente kao i za nastavnike.

Samo bi želio dodati da sam bio prisutan svega na nekoliko predavanja na početku.😊 Išao sam isključivo na vježbe jer sam od prije znao već sve što se na predavanjima učilo kroz ovaj semestar. Možda je bilo dosta ljudi koji su imali dobro predznanje iz informatike pa zato nisu posjećivali predavanja.Ā,Ā Na predavanjima što sam bio i vidio, mogu ocijeniti da su jako dobra i oni studenti koji nisu upoznati sa tim nazovimo ih osnovama, mogu naućiti puno stvari koje će im biti prijeko potrebne u daljnjem obrazovanju!😊

sve je ok samo jos da dođe AutoCAD i onda će biti još bolje

sve je ok, ali smatram da studenti koji imaju više predznanja trebali bi imati neke olakšice. npr oslobođeni usmenog...

Sve ok!

sviđa mi se ova anonimna anketa

trenutačno mi je informatika jedan od najdražih predmeta, tako da nemam nikakvih primjedbi😊😊

UĀ,Ā svakom slučaju bilo je korisno. Demonstratori su pristupaćni i profesorica je u redu.



Final conclusion From students' point of view

- Students have significant expectations of university education
- Students have recognized LMS as the right tool for teacher-student communication and evaluated its introduction with highest grades

The further challenge:

- Students expect the high quality graphical design of on-line materials



Final conclusion

From teachers' point of view

Some advantages of LMS in comparison to the previously used system:

- Surveys and questionnaires
- Possibility of monitoring every single students' activity
- Uploading of assignments with deadlines included
- Grading of students' work during the semester
- Team work and collaboration possibility
- Discussion groups and students' notification



Final conclusion

From teachers' point of view

- E-learning is a good tool for students to get acquainted to various computer skills:
 - E-mailing in professional environment,
 - forum discussion,
 - downloading and uploading of files
- It is probably a model of students' future life-long education and therefore necessary for them to get familiar with it



Final conclusion

From teachers' point of view

BUT:

E-learning is an exceptionally big challenge for the teachers:

- It demands good ICT skills of every teacher involved
- It demands a lot of extra time to monitor students' work:
 - *On-line task guides*
 - *Assignment preparation*
 - *The evaluation of students' work*
 - *Creating surveys*
- Additional problem (and additionally time-consuming):
 - *The examining of students that previously attended the same course without using e-learning tool (double preparation of exam)*



Final conclusion

Please, we need encouragment!!!