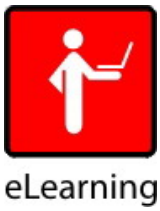

financed by
Austrian
Development Cooperation

N° /06
(Filled in by WUS)

Application form

Please complete the form below on a computer

IMPORTANT: Please read the instructions carefully as they are an integral part of this application form!

SECTION 1: General information about the project

Name of the Project Leader, title and positon at the faculty:	Dr. Zoran Budimac, full professor, Head of the Computer Science Chair	
Applying institution:	Department: Department of mathematics and informatics	
	Faculty: Faculty of Science	
	University: University of Novi Sad	
Town: Novi Sad	Address (institution): Trg D. Obradovića 4	e-mail: zjb@im.ns.ac.yu
Phone (work): +381-21-458-888	Fax (institution): +381-21-6350-458	Mobile: +381-63-8169-061

Members of the Project Group, Names, positions, faculty where employed:	Dr. Mirjana Ivanović, full professor, Faculty of Science, Univ. of Novi Sad, Novi Sad
	Zoran Putnik, M.Sc., teaching assistant, Faculty of Science, Univ. of Novi Sad, Novi Sad
	Ivan Pribela, teaching assistant, Faculty of Science, Univ. of Novi Sad, Novi Sad
	Živana Komlenov, Graduate student of computer science, Faculty of Science, Univ. of Novi Sad, Novi Sad

Place, date **Signature-Dean**

[Stamp of the Faculty]

SECTION 2: Project Description

2.1. Project title:

Web-based course-supporting and e-learning system for courses in informatics

2.2. Objectives:

Please describe the objective(s) of the project.

1. To create course supporting and e-learning system for at least two undergraduate courses and one graduate course in the field of informatics. The system is web-based and accessible through Internet.
2. The system would consists of:
   a. eContent (repository of teaching materials),
   b. quizzes and testing facilities,
   c. live chats between students and teachers,
   d. specialized forums for students to exchange ideas, additional sources of information and ways to solve assignments,
   e. statistics on earned points and progress reports for teachers and students,
   f. e-lessons (specialized electronic lessons for independent study and checking the progress)
   g. facilities to submit solutions to assignments with prevention of cheating,
   h. automatic checks of certain aspects of solutions to assignments (when solutions are computer programs).
3. The objective would be fulfilled by using one of the existing course-supporting and e-learning platforms and extending it with specialized services, such are:
   a. ability to call external programs;
   b. direct referencing (jumps) from eContent to other parts of eContent;
   c. sub-system to prevent cheating when submitting solutions to assignments;
   d. automatic checks of certain aspects of solutions (when solutions are computer programs), such is style checker
4. The system would be illustrated and used on:
   a. The undergraduate and graduate courses of software engineering that are compatible with several other courses in the region and with the similar course at the Humboldt University in Berlin. Thus the systems will be used in international environment to exchange ideas and knowledge, esp. via live chats and student forums
   b. The undergraduate course in Operating Systems, where prevention from cheating and automatic checks will be used.
5. The collected experience, principles and rules will be published in the form of two documents: a) how to use the system (manual for students) and b) how to create lessons using the system (manual for teachers).

2.3. Relevance:

Please describe the relevance of the project.

By fulfilling the objective of the project, at least two of the general aims of the eLearning program will be directly fulfilled: development of quality content and services for students and collaboration, information exchange and knowledge dissemination.

Users of the project results (undergraduate and graduate students and teachers in informatics) would benefited from the results in the following way:

- As the continual assessment is coming into the wider practice, it is almost impossible to efficiently track students' progress without the help of appropriate systems. The proposed system would help students to submit solutions of assignments outside designated time and help teachers to track efficiently the students' progress.
- This is especially true in the courses of informatics where solutions are often in the form of computer programs that are hard to check efficiently, including the check for possible cheating. The proposed systems would help teachers by preventing some kinds of cheating and by automatic checks of some aspects of solution.
- Graduate students traditionally cannot attend lectures regularly. The proposed system would help them to be in contact with the teachers and other students and to study independently (by using e-lessons that are part of the system). This is even more true in the new organization of master studies ('Bologna-compliant') where the lectures are organized during studies.
- Since the course in Software Engineering (on which the system will be used) is internationally compatible, the proposed system will be useful to facilitate the exchange of knowledge, experience, and ideas between students and teachers in different countries.

2.4. Expected results:

Please list expected results (verifiable project outputs and outcomes).

- Increased efficiency in tracking the students' progress and suggesting the final grade.
- Increased efficiency in checking students' solutions.
- Increased number of submitted solutions to assignments.
- Decreased need to face-to-face or e-mail consultations between teachers and students.
- Increased efficiency of studying, i.e., the greater number of students that passed the exam in the first examination period.

Above results can be measured by comparison with the equivalent courses on which the proposed system was not applied.

2.5. Indicators of progress

Performance indicators, their data sources and data collection methods that you plan to use to measure the results.

The system will be used for the courses mentioned in **Objectives** - point 4 and will be publicly available and accessible (on the web).

The progress will be tracked by checking if subsystems/documents mentioned in **Objectives**: points 2-a, …, 2-h, 5-a, 5-b have been implemented and used.

Measurements enumerated in **Expected results** will be conducted immediately after the corresponding system has been used for at least a month.

2.6. Target group(s):

Please indicate the project target group(s), (their number, structure, common needs).

- *Teachers in higher education - directly involved during the course of the project:* 5 within the Department and at least 3 from different institutions (Belgrade and Berlin)
- *Students – directly involved during the course of the project:* 120 undergraduate + 11 graduates.
- *Teachers in higher education - indirectly involved, i.e., after every successful stage in implementation of the project:* 4 more within the Department
- *Students – indirectly involved, i.e., after every successful stage in implementation of the project:* 100 more undergraduate + 10 graduate.
- *Teachers of high-school teachers in informatics:* 2 (since the Department is involved in education of 'Teaching methods in informatics' at undergraduate and graduate level, the gained experience will be transferred to graduates as a pert of their study.

Common needs of all mentioned target groups are contained in **Expected results**.

2.7. Sustainability of Project Results:

Please specify how the project will be sustained.

The proposed system will be installed on existing computer equipment and will be maintained under the usual software maintaining activities at the Department (i.e., no additional costs and efforts are involved).

Based on proven and measured results (see **Expected results**) and published documentation, it is reasonably to expect that teachers will continue (or to begin to) use the system for their own courses.

Moreover, gained experiences, as well as implemented and used system will provide a good infra-structure for future research (by graduates in 'teaching methods in informatics' studies) and usage (by teachers in high-schools). Therefore, the system will be continually used also as a research vehicle in teaching methods.

2.8. Project Activities:

Please describe key activities planned to be carried out in order to reach the expected results, specifying where possible the role of each group member. Please use extra sheet if this space is not sufficient.

1. Analyse the different sources (books, papers, Web) on best practices in creation of eLessons (Budimac, Ivanović, Putnik).
2. Analyse the available (tools, software, and infra-structure, … mostly 'open-source') suitable for the implementation of the proposed system (Pribela, Komlenov)
3. Implement sub-systems as described in **Objectives:** 2-a to 2-e: eContent (repository), quizzes, live chats, specialized forums, statistics. (Budimac, Ivanović, Putnik, Pribela).
4. Start using the implemented subsystems.
5. Create eLessons (**Objectives:** 2-f) (Budimac, Ivanović, Putnik, Pribela, Komlenov).
6. Start using the implemented subsystems.
7. Based on the chosen infra-structure, build extensions if necessary (like those mentioned in **Objectives**: 3-a, 3-b) (Budimac, Komlenov)
8. Based on the chosen infra-structure, build extensions if necessary (like those mentioned in **Objectives**: 3-c, 3-d) (Ivanović, Pribela)
9. Create facilities to submit solutions to assignments with prevention of cheating (**Objectives**: 2-g) (Budimac, Ivanović, Pribela)
10. Create automatic checks of certain aspects of solutions to assignments (**Objectives**: 2-f)
11. Start using the implemented subsystems. (Budimac, Ivanović, Pribela)
12. Produce documents/manuals as described in **Objectives**: 5-a, 5-b. (Putnik)

Numbers of activities will be used in the **Time schedule** below.

2.9. Time schedule:
Please specify duration of the project and timetable of planned activities, based on the following model: (eLearning Projects can last from 5 to 10 months)

Duration of the project:	
Start: 1. March 2006	End: 31.12.2006

Month	Year	Activity	Explanation
March	2006	1, 2	The project starts with analisys of best practices, principles and available tools
April	2006	1, 2	
May	2006	1, 3	Based on a chosen tool, some subsystems of the final systems are implemented…
June	2006	1, 4	… and used
July	2006	4, 5	After the analisys of best practices is finished, the project starts with creation of eLesson subsystems. The usage of available parts continues.
August	2006	4, 5, 6, 7, 8	Created eLessons are being used. At the same time the build of possible extensions starts.
September	2006	4, 5, 6, 7, 8	
October	2006	4, 5, 6, 7, 8, 9, 10	Built extensions are put into the system…
November	2006	4, 5, 6, 9, 10	
December	2006	4, 5, 6, 11, 12	… and being used. The documents are published.

2.10. If you are applying for the purchase of equipment and software, please:

a) Explain the necessity of requested equipment and software for successful implementation of the project.

N/A

b) Describe how will the equipment and software be used (teaching, research, assessment etc.) and who will have access to it.

N/A

c) Provide photographs (with short description) of facility/facilities (laboratory, classroom, library...) where the equipment will be located.

N/A

SECTION 3: Project Assets

3.1. Experience:
Please specify experiences of the Project Group members with similar actions related to eLearning.

- Creation of educational software for teaching, learning and testing (TEA, LEA, and EXA) - in eighties of the last century (Budimac, Ivanović, Putnik).
- Supervisors and members of committees of several MSc theses on e- and distance learning – in the last several years (Budimac, Ivanović). Also published several papers on the subject.
- Organizers of student project on distance learning – last year (Budimac, Putnik).
- Implemented an e-learning course on Personal Software Process (Komlenov)
- Started experimenting with 'open-source' tool Moodle (www.moodle.org) as a course-supporting tool in several undergraduate courses – since last year. (Budimac, Putnik, Pribela)

3.2. Previous cooperation with WUS:
Please specify previous cooperation with WUS in the framework of following programs: Centres of Excellence Projects (CEP), Course Development Program (CDP), Course Development Plus Program (CDP+) if case.

- CDP, 2003-2004, Mirjana Ivanović: 'Educational Software I' and 'Educational software II'
- CDP, 2003-2004, Zoran Budimac, 'Methodic of Informatics I' and 'Methodics of Informatics II'
- CDP, 2001-2002, Zoran Budimac, Oberon0 as a Case Study in Operating Systems Lectures

3.3. Partnerships (EU, regional, local):
Please specify partners of the Project Group, if partnership is considered.

Prof. Klaus Bothe, Department of Software Engineering, Humboldt University, Berlin

3.4. Publications:
Please estimate how many scientific articles or other publications based on this project will be published.

5

3.4. Other Assets of the proposed Project:

- Reliable Internet connection
- Several available servers to host the proposed system

SECTION 4: Budget

4.1 Total budget summary. Please specify the planned budget, item by item:

Description	Maximum amount	Requested amount (EUR)	Filled by WUS! Granted amount (EUR)
Honoraria for eLearning Project Group	500,00 EUR	500	
Instructional material production costs		250	
The purchase of equipment and software			
Scientific Literature	500,00 EUR	443	
Travel costs	200,00 EUR	-	
Total amount requested from WUS:		**1193**	

4.2 Literature specification:

No.	Item	ISBN	Item price (EUR)
1.	Ruth Colvin Clark, Richard E. Mayer e-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning Pfeiffer (October 28, 2002)	0787960519	28.7
2.	Michael W. Allen Michael Allen's Guide to E-Learning Wiley; 1 edition (November 27, 2002)	0471203025	19.02
3.	Marc J. Rosenberg Beyond E-Learning : Approaches and Technologies to Enhance Organizational Knowledge, Learning, and Performance (Pfeiffer Essential Resources for Training and HR Professiona) Pfeiffer (December 2, 2005)	0787977578	32.98
4.	William Horton, Katherine Horton E-learning Tools and Technologies : A consumer's guide for trainers, teachers, educators, and instructional designers John Wiley & Sons; 1st edition (January 10, 2003)	0471444588	20.78
5.	William Horton Designing Web-Based Training : How to Teach Anyone Anything Anywhere Anytime Wiley; 1 edition (February 9, 2000)	047135614X	25.96

6.	Ryan Watkins, Michael Corry E-Learning Companion: A Students Guide to Online Success Houghton Mifflin Company; Study Gd edition (January 1, 2004)	0618379703	20.42
7.	Roger C. Schank Lessons in Learning, e-Learning, and Training : Perspectives and Guidance for the Enlightened Trainer Pfeiffer (February 14, 2005)	0787976660	28.86
8.	Margaret Driscoll, Saul Carliner Advanced Web-Based Training : Adapting Real World Strategies in Your Online Learning Pfeiffer (April 21, 2005)	0787969796	49.47
9.	Clark Aldrich Learning by Doing : A Comprehensive Guide to Simulations, Computer Games, and Pedagogy in e-Learning and Other Educational Experiences John Wiley & Sons (May 5, 2005)	0787977357	49.47
10.	Rena M. Palloff, Keith Pratt The Virtual Student: A Profile and Guide to Working with Online Learners Jossey-Bass; 1st edition (March 10, 2003)	0787964743	26.38
11.	Clark N. Quinn Engaging Learning : Designing e-Learning Simulation Games (Pfeiffer Essential Resources for Training and HR Professiona) Pfeiffer (May 19, 2005)	0787975222	37.1
12.	Ryan Watkins 75 e-Learning Activities : Making Online Learning Interactive John Wiley & Sons; Bk&CD-Rom edition (April 18, 2005)	0787975850	61.84
13.	Rita-Marie Conrad, J. Ana Donaldson Engaging the Online Learner : Activities and Resources for Creative Instruction (Online Teaching and Learning Series (OTL)) Jossey-Bass (January 7, 2004)	0787966673	20.61
14.	Tisha Bender Discussion-Based Online Teaching to Enhance Student Learning: Theory, Practice and Assessment Stylus Publishing (VA) (November 1, 2003)	1579220657	20.57

4.3 Equipment and software specification (if applying for it)

Please fill out this chart carefully. Only items you enumerate in this budget line are eligible for support. If you need more space copy this form.

Important notes (failing to fulfil the following will result in rejection of the application):

1. **The following items are not allowed: interest owed, duplicated/already financed through other institution/donor, costs for international travel, study visits, construction work, dispensable material, furniture, subscriptions to databases.**
2. **Submitted offers must contain only prices of the equipment and software, without tax and customs expenses, with terms of payment of maximum 35% advance payment and the rest upon delivery! Delivery period can't be longer than 12 weeks.**
3. **Requested items must be sorted according to the priority, starting with highest priority items**

No.	Item	Company 1 Item price 1 (EUR)	Company 2 Item price 2 (EUR)	Company 3 Item price 3 (EUR)	Preferable offer/company (1,2 or 3) and explanation	Quantity	Total price (EUR)
N/A							
					Total value:		

SECTION 5: Accompanying documents (in English only)

5.1. Letter of commitment of the faculty

5.2. Letter of commitment of the Project Leader and Project Group members

5.3. Letter of commitment – producing and publishing instructional materials

5.4. Letter of eLearning Centre support

5.5. CVs of the Project Group members

5.6. Letter of endorsement by partner (if applicable)

5.7. Photos of the facilities (for applications which include the purchase of equipment)

5.8. 3 offers for the equipment and software (for applications which include the purchase of equipment and software)

• Submit any kind of documentation that might support your application!

• Please describe your project exactly according to the following series of questions! Omitting to fill in any of the fields or failure in submitting any of the requested documents will result in rejection the application as incomplete!

WUS Austria, as an equal opportunity organization, strongly encourages female candidates to participate in its programs.

5.1. Letter of commitment of the faculty

In case this eLearning Project receives the support from WUS Austria, the Faculty commits itself to ensure the implementation of the project in accordance with the proposal and eLearning Program instructions.

It is hereby confirmed that the implementation of the proposed project will be supported by the faculty.

Date:
Place:

_____	[Stamp of the Faculty]	_____
Dean of the Faculty		Project Leader

5.2. Letter of commitment of the Project Leader and Project Group members

In case this eLearning Project receives the support from WUS Austria I commit myself to strictly uphold the proposed plan of implementation. Should any other commitment conflicting with demands and schedule of this project occur during its implementation, it would not cause any delays or changes in the proposed timetable. I also commit myself to submitting all the foreseen reports, evaluations, invoices and receipts within the deadline.

Date:
Place:

_____
Project Leader
Dr Zoran Budimac

_____
Project Group member
Dr Mirjana Ivanovic

_____
Project Group member
Mr Zoran Putnik

_____
Project Group member
Ivan Pribela

_____
Project Group member
Zivana Komlenov

5.3. Letter of commitment – producing and publishing instructional materials

In case this eLearning Project receives the support from WUS Austria, the Project Group led by Project Leader commits to produce instructional materials, as described in the project proposal.

The Project Group and the faculty also commit themselves to the following:

- The instructional materials have to be produced and published before the final monitoring.
- All beneficiaries (project target group) must receive a copy of the instructional material free of charge or have free access to it, if dissemination of materials is planed and stated in project description.
- 20 copies of the produced instructional material must be placed in the Faculty library.
- 2 copies of the produced instructional material must be delivered to WUS Austria.

Date:
Place:

_____	[Stamp of the Faculty]	_____
Dean of the Faculty		Project Leader

5.4. Letter of eLearning Centre support

In case this eLearning Project receives the support from WUS Austria, eLearning Centre will support implementation of the project according to the proposed plan and its available resources.

Should any other commitment conflicting with demands and schedule of this project occur during its implementation, it would not cause any delays or changes in the proposed plan.

Date:
Place:

_____	[Stamp of the University]	_____
eLearning Centre Coordinator		Rector