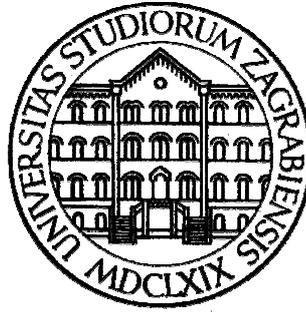


UNIVERSITY OF ZAGREB



**E-LEARNING STRATEGY
2007 – 2010**

May 2007

This strategy was developed and proposed by the Commission for Development of Elearning strategy at the University of Zagreb, appointed at the 8th session of the Senate in the 338th academic year, which was held on February 13th, 2007. Members of the Commission are:

- Professor Ljiljana Pinter, Ph.D., Vice-rector for studies and quality assurance of the University of Zagreb, Commission Chair
- Professor Vlasta Bahovec, Ph.D., Faculty of Economics and Business
- Professor Dalibor Blažina, Ph.D., Faculty of Philosophy
- Professor Blaženka Divjak, Ph.D., Faculty of Organization and Informatics
- Professor Davor Škrlec, Ph.D., Faculty of Electrical Engineering and Computing
- Professor Melita Valentić-Peruzović, Ph.D., School of Dental Medicine
- Assist. Professor Tomica Hrenar, Ph. D., Faculty of Science
- Assist. Professor Damir Markučić, Ph.D., Faculty of Mechanical Engineering and Naval Architecture
- Assist. Professor Nikola Mrvac, Ph. D., Faculty of Graphic Arts
- Assist. Professor Mirza Žižak, Ph.D., Medical School
- Zoran Bekić, Mr. sc., University Computing Center (Srce)
- Berislav Lisnić, B. Sc., Faculty of Food Technology and Biotechnology
- Martina Hajsig, student, Faculty of Food Technology and Biotechnology
- Vjekoslav Hlede, DVM, postgraduate student, Faculty of Veterinary Medicine

Development of the e-learning strategy at the University of Zagreb was further initiated by Tempus project UM_JEP-19105-2004 "*EDUCATION QUALITY IMPROVEMENT BY E-LEARNING TECHNOLOGY (EQIBELT)*" which is coordinated, on behalf of the University of Zagreb, by the University Computing Center (Srce). For this purpose, experiences of European and Croatian universities – members of EQIBELT project consortium – have been used too.

Public debate on the strategy proposal was conducted at the University of Zagreb during the period between 10th and 20th May 2007. Public presentation of the strategy proposal and discussion with the Commission members took place in the University Computing Center on 18th May 2007.

The strategy was discussed and accepted at the 14th session of the Senate of the University of Zagreb held on June 12, 2007, in the academic year 338.

Class. No: 602-04/07-09/03
Reg. No.: 380-03/12-07-15

Rector of the University of Zagreb

Professor Aleksa Bjeliš, Ph.D.

CONTENTS

EXECUTIVE SUMMARY	3
THE UNIVERSITY OF ZAGREB AND ITS ENVIRONMENT	4
E-LEARNING	5
VISION, MISSION AND STRATEGIC OBJECTIVES OF E-LEARNING AT THE UNIVERSITY OF ZAGREB	6
VISION	6
MISSION.....	6
FUNDAMENTAL GUIDELINES	6
STRATEGIC OBJECTIVES.....	7
AREAS OF STRATEGIC OPERATIONS AND PLANNED ACTIVITIES	9
MONITORING OF STRATEGY IMPLEMENTATION	21

EXECUTIVE SUMMARY

The University of Zagreb supports and actively encourages e-learning, i.e. application of information and communication technology in learning and teaching processes on all levels of higher education. E-learning is a legal and desirable way of learning and teaching at the University of Zagreb.

Systematic introduction of e-learning contributes to the quality of higher education by creating an environment in which active cooperation between students and their teachers is enabled and encouraged. Introduction of e-learning leads to the improvement of research work, opens a space for lifelong learning programs, increases importance of the social role of the University and betters its competitiveness in both national and international environments.

E-learning is a synonym for new, modern and quality education. E-learning technologies and information technologies in general, can and should act as a catalyst of integration processes within the University and be an efficient tool in the realization of quality changes at the University of Zagreb, as well as in the implementation of the Bologna Declaration principles.

E-learning is an integral part of higher education process.

As a rule, at the University of Zagreb the mixed (blended, hybrid) form of e-learning is applied. Such approach is based on the combination of classic teaching methods and those employed in virtual learning and teaching environments. Choice of the form and intensity of e-learning is left to the faculties and academies of the University. They should recognize and apply the forms of e-learning which are appropriate for particular education areas, i.e. particular studies and/or courses.

The University of Zagreb encourages harmonization of various approaches and ways of applying e-learning at the University, supports adoption of common standards and recommendations for the development and use of e-learning teaching materials, as well as for the establishment of common, university repositories of e-learning teaching materials.

The University of Zagreb and its faculties and academies take good care about the sustainability of e-learning by creating necessary preconditions through systematic planning of activities and ensuring financial resources for the application of e-learning, through continuous support and evaluation of the teachers' work, through provision and maintenance of the infrastructure required, and through enhancing and co-funding the development of quality e-learning teaching materials and promotion thereof.

By introduction and active implementation of e-learning the University of Zagreb aims to accomplish the following strategic objectives:

- ① Enhance the quality of university education
- ② Facilitate teachers and students to achieve new roles in the process of education
- ③ Increase the competitiveness of the University and its study programs
- ④ Enable students to use lifelong learning technologies.

By this strategy it is planned to conduct a number of activities within the following areas of strategic operations:

- A Improvement of formal/legal and organizational environment, assurance of sustainability
- B Development of human resources
- C Support to teachers
- D Support to students
- E Development of educational contents
- F Development of basic and specific infrastructure.

The purpose of this strategy is to create a positive and stimulating environment for the development and systematic implementation of e-learning at the University of Zagreb. The strategy neither imposes any specific teaching models nor does it restrict the autonomy of faculties, academies and university teachers in their choice of the most appropriate way of teaching.

THE UNIVERSITY OF ZAGREB AND ITS ENVIRONMENT

The beginning of 21st century has brought new challenges for universities and the system of higher education in general. How to ensure continuity of traditional values provided by university education, accepting and implementing, at the same time, new forms of knowledge and skills demanded by contemporary students and their future employers? Questions associated with the quality of education, efficiency of the teaching process, relevance of knowledge and sustainability of the qualifications acquired have rightfully been considered as primary issues imposed by the Bologna process on most European countries, Croatia being one of them.

At the same time, higher education system, public universities in particular, is facing problems caused by limited financial and physical resources while the number of students is constantly growing along with the number of educational groups. It is rightfully expected that more attention is provided to each student and that an individual approach is ensured in the environment of team and project work, even though it is not really possible to substantially increase the number of teaching staff.

It is necessary to take into account the fact that knowledge and education have been globally recognized as fundamental factors of success and competitiveness of any society. This is why the market of knowledge and education has become one of the most significant and most dynamic global markets today where it is no more possible to rely on any national or regional isolation or preferential treatment.

Universities should respond to all these challenges and accept the responsibility of managing inevitable changes in the system of higher education and in their own activities. In doing so, they should take advantage of the opportunities the technology, if applied properly and efficiently, can offer.

Under the Lisbon Strategy, the goal of the European Union is to become, by the year 2010, the most dynamic and most competitive knowledge-based economy in the world, capable of maintaining sustainable growth and of creating better employment opportunities in the milieu of social cohesion and well preserved human environment. Pillars of this strategy are programs in the area of lifelong learning and those associated with application of e-learning. The expectations, however, are not limited to increased competitiveness of the economy and improved employment opportunities. They also refer to fostering better social involvement and more energized attitude of the citizens, and to enabling their individual growth and satisfaction of their personal needs.

Speaking about educational areas of special priority, Croatian national strategy of the development of education (*Plan of the development of education 2005-2010 in the Republic of Croatia*) also specifies «development of lifelong learning habits», «application of information communication technologies», and «innovative approaches in the process of education and their harmonization with EU programs on all levels».

Responses of the University of Zagreb to the challenges of 21st century are formulated in its development strategy entitled «Iskorak 2001» («Breakthrough 2001»), which also served as the starting point in the creation of this e-learning strategy.

The University of Zagreb promotes the unity of teaching and research work, the greatest priority being insurance of top quality academic development for its students.

The need for quality changes in the organization of educational process and in the teaching practice has been recognized and introduction of such changes is being planned. The purpose is to reduce the growing gap between what is acquired through formal and traditional education on one side and the demands of the modern labour market and knowledge-based economies on the other.

The University of Zagreb should intensify its efforts in getting involved in the continuous lifelong education of Croatian citizens. It should face the competition and challenges in the growing markets of education, both national and global.

E-LEARNING

In this strategy, we have assumed the following definition:

E-learning is a process of education (learning and teaching process) conducted using the information and communication technology which improves the quality of the process itself and the quality of its result.

Depending on the manner and intensity with which information and communication technologies (hereinafter referred to as **ICT**) are used, in the process of education we can distinguish several forms of e-learning: application of elementary ICT tools in otherwise classic form of teaching (*face-to-face* or *F2F*), through blended, mixed mode or hybrid teaching, i.e. a combination of classic classroom teaching methods with those using advanced ICT possibilities, and, finally, distance, fully online teaching conducted by means of ICT. To achieve successful and efficient application of e-learning, i.e. successful and efficient application of ICT, it is important to select the method and approach which correspond with the demands of a particular course and with the abilities and needs of particular teachers and students.

No doubt, e-learning improves the process of education. Among its numerous advantages, let us mention only a few: flexibility (in terms of time and space) in teaching and learning; flexible approach (in terms of time and space) to actual and current multimedia and interactive teaching materials; access (offered as integral part of the teaching process) to Croatian and world repositories of teaching materials, digital libraries, archives and museums; possibility of adjustment to individual styles of learning, possibility of collaborative learning and of the development of skills for project and team work; accessibility to broader student population (students with special needs, students at distant locations, foreign students, etc).

On the other hand, inappropriate or incorrect application of the technology, therefore of e-learning too, may result in undesirable consequences or in the absence of expected positive effects. Such outcome creates a negative attitude in the environment due to useless investment of efforts and money. This is the reason why e-learning should be well planned and prepared, its goals being realizable and well harmonized with the status and requirements of the system within which it is conducted.

Generally, e-learning is not an alternative to the existing teaching process, it is its integral part i.e. it's upgraded and improved form. Introduction of e-learning increases the role and importance of the teacher as a mentor, coordinator and stimulator in the process of learning. E-learning makes it possible to place the student in the centre of the process. He or she plays an active part in it and takes the responsibility for its results.

Finally, e-learning is a quality educational process in which teachers and students actively cooperate in order to achieve previously set objectives. For this purpose they intensively use information and communication technologies, thus creating an adjustable virtual environment where they develop and utilize multimedia interactive teaching materials. They communicate and cooperate with each other, the students carry out individual or group assignments and projects, whereas their knowledge is continuously self-tested and tested.

Because of the facts mentioned above, e-learning is a synonym for new, modern and quality education, whereas e-learning technologies and information technologies in general can and should act as a catalyst of integration processes within the University and be an efficient tool in the realization of quality changes at the University of Zagreb, as well as in the implementation of the Bologna Declaration principles.

VISION, MISSION AND STRATEGIC OBJECTIVES OF E-LEARNING AT THE UNIVERSITY OF ZAGREB

VISION

(Desirable situation at the University of Zagreb at the end of the period, i.e. in the year 2010)

The University of Zagreb is a research-oriented university with centuries-old tradition in higher education. University is technologically aware and recognized, both in Europe and worldwide, as a regional leader in higher education and research.

Educational process at the University of Zagreb is an active partner's relationship between teachers and students, adjusted to individual characteristics and needs of each student. Its learning objectives are clearly defined, as well as the assigned responsibilities in achieving them.

Information and communication technology is harmoniously applied in the teaching process, enabling both students and teachers to communicate and efficiently cooperate within the overall virtual environment in which learning and teaching are conducted. The process itself is a combination of classic classroom teaching model and the one in which information and communication technologies are used.

The results of university education comply with advanced requirements of both knowledge-based society and knowledge-based economy. The skills obtained during the studies are the fundament for lifelong education and further independent learning, as well as for scientifically founded collection and interpretation of various data and information.

MISSION

(Role of e-learning)

Systematic introduction of e-learning contributes to the quality of higher education by creating an environment in which active cooperation between students and their teachers is enabled and encouraged. Introduction of e-learning leads to improvement of research work, opens a space for lifelong learning programs, increases importance of the social role of the University and betters its competitiveness in both national and international environments.

FUNDAMENTAL GUIDELINES

(E-learning at the University of Zagreb)

1. Having recognized the opportunities offered by the technology in the area of improving the quality of university education and in the area of implementing the Bologna Declaration principles, the University of Zagreb supports and actively encourages e-learning, i.e. application of information and communication technology in the processes of learning and teaching on all levels of higher education.
2. E-learning is an integral part of the process of higher education. University faculties and academies should recognize and apply the form of e-learning that is most appropriate for particular educational areas and particular studies/courses respectively.
3. As a rule, at the University of Zagreb the mixed (blended, hybrid) form of e-learning is applied. Such approach is based on the combination of classic teaching methods and those conducted in virtual learning and teaching environments.
4. The University of Zagreb encourages harmonization of various approaches and ways of applying e-learning at the University, supports adoption of common standards and recommendations for the development and use of e-learning teaching materials, as well as for the establishment of common, university repositories of e-learning teaching materials.

5. The University of Zagreb and its faculties and academies take good care about the sustainability of e-learning by creating necessary preconditions through systematic planning of activities and ensuring financial resources for the application of e-learning, through continuous support to the teachers and evaluation of their achievements in the application of e-learning, through provision and maintenance of the infrastructure required, and through enhancing and co-funding the development of quality e-learning teaching materials and promotion thereof.

STRATEGIC OBJECTIVES

(What do we aim to accomplish by introducing e-learning at the University of Zagreb?)

By introduction and active implementation of e-learning the University of Zagreb aims to accomplish the following strategic objectives:

- ① Enhance the quality of university education
- ② Facilitate teachers and students to achieve new roles in the process of education
- ③ Increase the competitiveness of the University and its study programs
- ④ Enable students to use lifelong learning technologies

The relationship between e-learning and the aforesaid objectives is explained and elaborated below.



The University considers ensuring the top quality academic development of the students to be its greatest priority. (Iskorak 2001/Breakthrough 2001)

① Enhance the quality of university education

By assuring access to repositories of quality teaching materials, digital libraries, archives and museums, by making multimedia and interactive programs and virtual laboratories available and by enabling simulation experiments, e-learning directly improves the quality of educational process. Further improvement of education is accomplished by intensifying communication and interaction between the teachers and their students, communication and interaction among the students, communication and interaction among the teachers and, finally, communication of both teachers and students with various experts outside the university environment.

E-learning increases the possibilities of individualization of the teaching process by allowing the student to influence the dynamics of learning and the extensiveness of investigating particular areas, but also to test his or her own knowledge. This enables and encourages development of individual abilities, which leads to excellent learning accomplishments.

E-learning inevitably creates an environment where students develop various new skills important for their future work: skills for project and team work, communication skills, investigative approach in problem solution, etc, which is also a way in which e-learning contributes to the completeness and quality of learning accomplishments.

Students' creative and research work are strongly encouraged, while the process of learning is not only oriented to transfer of knowledge, but to creation of knowledge as well.



...it should be made possible for the students to become equal participants in the process of learning... the teacher appears as a coordinator of educational activity who encourages his or her students to think about the problems, to develop their own creative approach and critical thinking not only about the academic discipline, but also about broader social implications of the application of certain scientific achievements. (Iskorak 2001/Breakthrough 2001)

② Facilitate teachers and students to achieve new roles in the process of education

E-learning facilitates and enhances intensive communication between teachers and students and helps them to direct the time of their direct contact to the best and most efficient forms of reaching the desirable learning accomplishment. The space is thus created for the teacher to realize his or her new role of a mentor and coordinator of the learning process, while the students play an active role of a creative partner, not only in the transfer of knowledge, but also in its creation, as well as in the research work.

The educational process becomes more transparent for the students and the public, because e-learning implies clearly established learning objectives, accessible teaching materials and clearly defined dynamics and terms of the process, as well as precisely explained conditions and criteria of making progress and accomplishing formal results in the process of learning.

Along with traditional summary model of evaluating acquired competences and knowledge at the end of the learning cycle, introduction of formative models integrated in the programs of particular courses is being encouraged, too. This enables getting feedback information about the dynamics of one's progress, continuously and throughout the learning process.

An important prerequisite in such «student-centred» model of education is a committed and responsible student whose primary interest is the quality of knowledge and skills obtained during his or her university studies.



The University is seen as the key factor in the system of lifelong learning, orientated towards strengthening the postgraduate programs relevant for social development and, at the same time, attractive and competitive in the European environment, too. (Iskorak 2001 /Breakthrough2001)

⑥ Increase the competitiveness of the University and its study programs

Improved quality of education and modernization of the learning process resulting from the introduction of e-learning significantly contribute to the reputation of the University and increase competitiveness of its study programs, both in domestic and international environments.

E-learning enables efficient organization of the teaching process and efficient use of all (in most cases limited) resources available: human, material and financial. Employment of information and communication technology enables integration of business and educational University systems as well as repeated use of quality teaching materials and programs which also contributes to the efficacy of the activities conducted by thus integrated University. E-learning facilitates access to various study programs for all student groups, either from Croatia or from any other country in the world. Also, e-learning facilitates access to university education for students with specific needs as well as for special student groups, such as categorized sportsmen.

The use of e-learning technologies facilitates intensified involvement of the University in lifelong learning programs. Besides, it enables its cooperation with other universities, both in Croatia and worldwide, which facilitates creation of joint study programs or elements thereof. ICT can also be used as an efficient tool in enabling and encouraging mobility of students and teachers.

④ Enable students to use lifelong learning technologies

Undoubtedly, e-learning is one of fundamental platforms, in terms of both technology and pedagogy, for any lifelong learning program. This is proved by its growing presence in developed segments of economy and society. The ability of active learning with the use of e-learning technologies has become an element of general literacy in any knowledge-based society. Consequently, familiarizing students with e-learning has become an obligation of every modern educational system and a duty of every modern university.

AREAS OF STRATEGIC OPERATIONS AND PLANNED ACTIVITIES

In connection with the implementation of this strategy, the University of Zagreb and its constituents (thereinafter referred to as: **faculties**) will carry out operational activities within the following areas of strategic operations:

- A Improvement of formal/legal and organizational environments, assurance of sustainability
- B Development of human resources
- C Support to teachers
- D Support to students
- E Development of educational contents
- F Development of basic and specific infrastructure

A	Improvement of formal/legal and organizational environments, assurance of sustainability	Competent / responsible bodies	Deadline for realization / duration
A-1	<p>Establish and ensure functioning of permanent University Commission for E-learning (CoEL) Purpose of the commission is monitoring of the implementation of e-learning strategy and active proposing and implementing measures for successful and efficient application of e-learning at the University of Zagreb. The commission actively cooperates with the commissions and other bodies competent in matters related to teaching and ensuring its quality.</p>	Senate / Rector's Collegium	01.12.2007. / continuously
A-2	<p>Ensure continuous functioning of the University Office for E-learning (OEL) Purpose of the office is monitoring of the application of e-learning at the University, coordination of joint activities associated with e-learning at the University, establishing and supporting the university net for e-learning, encouraging and coordinating production of university standards in the area of e-learning, encouraging and coordinating application of e-learning at the University, supporting the operations of the University Commission for E-learning.</p>	Rector's Collegium / Srce	immediately/ continuously
A-3	<p>Ensure continuous functioning of the University Centre for E-learning (CEL) Purpose of the centre is rendering support to teachers and students, support to and cooperation with e-learning teams at University faculties, ensuring a generally accessible e-learning platform, ensuring joint/centralized resources required for application of e-learning, promotion and stimulation of e-learning.</p>	Srce / Rector's Collegium	immediately / continuously

A-4	<p>Systematically plan activities and resources for e-learning on the University level Measures related to promotion and implementation of e-learning at the University should be planned on annual level. In doing so, it is necessary to ensure required funds in the University budget, the infrastructure and, especially, sufficient human resources for the realization of plans.</p> <p>Systematically plan activities and resources for e-learning at each faculty within the University It is necessary to create long term plans of the introduction of e-learning at the faculties within the University and to ensure regular production and release of plans related to the application of e-learning at the faculties within the University. In doing so, it is necessary to plan and ensure required human potentials and other resources needed for the realization of plans, including financial resources in faculty budgets.</p>	Senate / Rector's Collegium / CoEL / OEL	01.09.2007. / continuously
A-5	<p>Ensure the jobs and establishment of local centres/groups to support e-learning</p> <p>Systematically monitor the implementation of e-learning at the University It is necessary to continuously monitor record, analyse and release the data about the implementation of e-learning at the University.</p>	⇒⇒⇒ B-1 & B-2 OEL / CoEL	01.11.2007. / continuously
A-6	<p>Regulate the intellectual property rights, the rights of the University, the rights of faculties and the rights of teachers in connection with e-courses and e-learning materials produced at the University Questions related to intellectual property rights and protection of intellectual property, as well as precise definition of mutual relationships and rights of the University/faculties and those of teachers-authors are very important issues in an e-learning environment.</p>	Rector's Collegium / OEL / Deans/ Faculty councils	31.12.2008.
A-8	<p>Ensure formal recognition of electronic documents and provide formal/legal prerequisites for the implementation of electronically-based examinations of students Based on the existing legislation (Law on Electronic Signature, Law on Electronic Document), it is necessary to ensure formal/legal regulation of the procedures associated with electronically-based knowledge evaluation.</p>	Rector's Collegium / OEL / Deans	31.12.2008.
A-9	<p>Enhance and support research work in the area of e-learning E-learning is associated with changes in pedagogical principles and teaching methodology. It is necessary to ensure continuous research and development of pedagogical models applicable in e-learning along with efficient models of ICT application in the process of education. In the University environment it is necessary to support new pedagogical models which are capable of efficiently using the possibilities offered by e-learning.</p>	Senate/ Rector's Collegium / Faculty councils/ Deans	immediately / continuously

A-10	<p>Investigate the needs and, in compliance with the findings, enhance establishment of graduate study, and later on of postgraduate study in the area of e-learning</p> <p>To be able to manage organization of the educational system, it is necessary to ensure qualified experts who will know how to manage development and progress of the system. At the same time, the labour market will be faced with a growing need for experts in the areas of education and e-learning management. When establishing this study, it is possible to rely upon currently existing specialized educational programs (E-Learning Academy) or to cooperate with other universities in Croatia and elsewhere in the world.</p>	Senate/ Rector's Collegium / Faculty councils / Deans	01.01.2009. / 31.12.2010.
A-11	<p>Apply e-learning in new university programs for lifelong learning</p> <p>The University should develop new programs for lifelong learning and it should strengthen its involvement in the market of educational services. According to the experiences and practices reported by many European universities, due to the advantages of e-learning it is in the programs of lifelong education that it is most intensively used.</p>	Rector's Collegium / Deans / Faculty councils	01.01.2009. / continuously
A-12	<p>Encourage and establish inter-university and inter-institutional cooperation within Croatia with reference to the issues associated with application of e-learning and development of e-learning programs.</p> <p>Introduction of e-learning and creation of e-learning programs is a time-consuming and resource-consuming process which can be accelerated and improved through cooperation with other universities and institutions. Establishing joint consortia for particular areas is also an option.</p>	Rector's Collegium / OEL / CEL / Deans	immediately / continuously
A-13	<p>Encourage and implement international interuniversity and inter-institutional cooperation in the field of e-learning application and development of e-learning programs</p> <p>Apart from cooperation in the production of joint e-learning programs, it is necessary to ensure transfer of e-learning-related knowledge and experiences from other universities, as well as to ensure the access to European and global repositories of teaching programs and modules.</p>	Rector's Collegium / OEL / CEL / Deans	immediately / continuously
B	<p>Development of human resources</p>	Competent / responsible bodies	Deadline for realization / duration
B-1	<p>Jobs of the tutors and jobs of technical staff to support e-learning should be included in the job systematization act of the University</p> <p>By using ICT it is possible to organize the process of education efficiently and professionally, provided that teachers have enough assistant-tutors and an efficient team for support. New jobs should be provided on the University level, but on the level of each faculty too.</p>	Rector's Collegium / Deans	immediately / 01.01.2009.

2- B	<p>Encourage and ensure necessary prerequisites for establishment and operation of centres/groups whose task is to provide support to e-learning programs carried out at university faculties</p> <p>With regard to the size of the University and to specific requirements at some faculties, besides central services it is also necessary to encourage establishment and operation of local groups (at individual faculties) and centres for e-learning. These groups and centres are able to offer better support to the teachers. Members of such local centres/groups are employed by the faculties, but they act as part of the overall university e-learning supporting network.</p>	Rector's Collegium / Dean / Faculty councils	immediately / 01.01.2009.
3- B	<p>Establish and support a network of experts and promoters of e-learning practice at the University for the purpose of exchange of experience and mutual assistance.</p> <p>To make the process of introduction and application of e-learning successful and less time consuming, it is important to establish connections between all individuals and all groups engaged in the development, implementation and support to e-learning. Thus they will be able to share experiences, work together, solve problems together and jointly advance further.</p>	OEL / CEL / Deans	01.12.2007. / continuously
4- B	<p>Initiate and maintain promotion programs and familiarize the teachers with the opportunities offered by e-learning</p> <p>By means of promotion and technical events it is necessary to systematically and regularly inform the teachers about both fundamental and newly developed benefits of e-learning and ICT in the area of learning and teaching, thus raising the level of their awareness and knowledge about e-learning in the University environment.</p>	OEL / CEL	01.12.2007. / continuously
5- B	<p>Organize annual conferences of experts, teachers and students about the status and progress of e-learning at the University</p> <p>Organization of annual conferences will enable presentation of accomplishments and exchange of experiences in the implementation of e-learning at the University.</p>	Srce / OEL / CEL	30.06.2008. / continuously
6- B	<p>Initiate and organize training courses and workshops about technological and pedagogical aspects of e-learning</p> <p>It is important to ensure regular and generally available teachers' training courses and workshops (including on-line ones), both introductory and those containing more advanced issues and novelties in the methodology and technology of e-learning. Organizers of such workshops should also rely upon the experience of University teachers who have been using e-learning in the way that is appropriate from both pedagogical and technological perspectives.</p>	CEL / OEL / local teams for e-learning	01.01.2008. / continuously

B-7	<p>Include the topics about technologies and pedagogical/methodological aspects of e-learning in the teachers' advanced training programs</p> <p>Programs of continuous teachers' improvement should include the themes about the possibilities of e-learning as well as the modules containing basic elements of e-learning methodology and technology because these are fundamental qualifications of any modern university teacher.</p>	Rector's collegium / Deans / Teachers' education centres	01.01.2008. / continuously
B-8	<p>Provide the opportunity for teachers to attend specialized programs as well as postgraduate and doctoral studies in the field of e-learning</p> <p>Scientific and technical improvement in the field of e-learning is one of the possible and logical directions of university teachers' professional development and progress, and the one which contributes to the improvement of both organization and quality of teaching. Therefore, teachers should be supported with scholarships and paid expenses for attending postgraduate and doctoral studies in the field of e-learning (for the time being, they would have to go to the universities in Europe and elsewhere in the world, but after such studies are established in Croatia, they will be able to attend them here as well) and for participating in quality specialized programs (such as the two-term CARNET's E-learning Academy).</p> <p>Assuming that each University faculty should have at least one person qualified to offer support in the area of e-learning, it is necessary to provide opportunity for at least one staff member to be professionally trained in this area. At the same time, when and where such a need exists, faculties are encouraged to provide equal opportunity to all other interested employees too. Informal learning about e-learning should be encouraged and recognized as well.</p>	Deans / Faculty councils	immediately / continuously
C	<p>Support to teachers</p>	Competent / responsible bodies	Deadline for realization / duration
C-1	<p>The system of teachers' individual promotion should be completed in such a way that his or her contribution to the improvement of university education and e-learning in particular, is appropriately evaluated.</p> <p>One of the alternative criteria of the Rector's Collegium for being promoted to a scientific-educational title is the criteria associated with the development of e-learning. However, this criteria is not clearly defined and, therefore, it does not recognize real contributions in this area. Such situation is further complicated by different attitudes of some parent commissions regarding these criteria. That is why it needs to be defined more clearly and supplemented with additional explanations to be used by competent commissions and bodies.</p>	Senate/ Rector's Collegium / University commissions / Faculty councils / Deans	30.06.2008.

☞☺	<p>Establish the system for standardization of teachers' work, recognizing in the teacher's time-table adequate time needed for development, preparation and conduct of teaching in the course of which e-learning methods and technologies are applied</p> <p>E-learning is a novelty in the teaching process. It promotes and implies teacher's additional and continuous orientation to his or her students and their needs. Consequently, development, preparation and implementation of teaching process demands substantial investment of human resources, teachers' work in particular. In recognition of the time required for development and conduct of e-courses examples of good practice should be adopted. When establishing university teaching standards, teachers' individual investments in the application of e-learning should be evaluated too.</p>	Senate / Rector's Collegium / University commissions / Deans / Faculty councils	30.06.2008.
☞☺	<p>Specialized knowledge's and skills for the production of e-learning materials and implementation of e-learning should be provided and made accessible for the teaching staff.</p> <p>Besides various educational activities and opportunities for professional improvement, teachers should be enabled, by means of a teachers' e-learning web portal, to access quality materials about different aspects of e-learning and to share experiences with their colleagues by means of forums and debates within interest groups.</p>	CEL / local teams for e-learning	01.01.2008. / continuously
☞	<p>Positions of tutors and those of technical staff to support e-learning should be «incorporated» in the University job systematization act. Local centres/groups for support need to be established too.</p>	☞☞☞ B-1 & B-2	
☞	<p>Provide opportunities for the teachers to participate in education and professional improvement programs in the areas of e-learning and ICT application in the process of education.</p>	☞☞☞ B-6 & B-8	
☞☺	<p>Initiate and carry out the program of extra convenient conditions in purchasing computer equipment for teachers.</p> <p>Possessing adequate computer and communication (network) equipment, both at work and at home, has become a prerequisite for e-learning. That is why special collective academic discounts for teachers should be agreed upon with suppliers of ICT equipment.</p>	Rector's Collegium / Deans	01.01.2008. / continuously
☞	<p>Ensure for University teachers and students quality and convenient access to the internet</p>	☞☞☞ F	

D	Support to students	Competent / responsible bodies	Deadline for realization / duration
10	<p>Initiate and carry out the program of extra convenient conditions in purchasing of computer equipment for students</p> <p>Possessing adequate computer and communication (network) equipment at work as well as at home has become a prerequisite for e-learning. That is why special collective academic discounts for students should be agreed upon with the suppliers of ICT equipment.</p> <p>Depending on general circumstances in the academic year 2008/2009 or 2009/2010, prescribe that possessing an adequate personal/portable computer is a precondition for studying at the University of Zagreb.</p>	Rector's Collegium / Deans	01.01.2008. / continuously
11	<p>Ensure for University teachers and students quality and convenient access to the internet</p>	⇒⇒⇒ F	
12	<p>Initiate and conduct training courses and workshops about the use of virtual learning environment and establish counselling centres for students at the faculties.</p> <p>Learning in a virtual environment (VLE/LMS) should be made easier for students by organizing short training courses and/or workshops about the use of VLE/LMS and other ICT tools in the teaching process. An advisory centre/helpdesk service for assistance in the use of VLE/LMS should be established too.</p>	Deans / Vice-deans for Education	01.10.2008. / continuously
13	<p>Establish a system for evaluating personal engagement of the students involved in e-learning development and support.</p> <p>Establish and plan a system by which it will be possible to evaluate students' engagement in the development/organization/implementation of e-learning. Students can participate in the activities associated with program development, support to teachers and students, implementation of e-learning, etc. The said evaluation can be carried out, for example, by awarding extra ECTS points, by monetary compensation or in some other way.</p>	Deans / Vice-deans for Education	01.10.2008.
14	<p>As part of the procedure of granting the Rector's Award, students should be awarded for their distinguished contribution to the implementation of e-learning at the University.</p> <p>Ensure that in choosing the candidates for the Rector's Award, distinguished advances in the implementation of e-learning and ICT in general in the process of education are selected and strongly pointed out.</p>	Rector / Rector's Award Committee	01.10.2007. / continuously

D-5	<p>Establish and maintain an e-portfolio system at the University and/or at the University faculties</p> <p>A system of unified (interoperable) recording of the qualifications and experiences obtained in the course of education should help students not only in achieving mobility during their studies, but also in getting adequate jobs and starting professional career.</p>	Rector's Collegium / OEL / CEL / Srce / Faculty councils / Faculty IT services	01.10.2008. / continuously
E	<p>Development of educational contents</p>	<p>Competent / responsible bodies</p>	<p>Deadline for realization / duration</p>
E-1	<p>Define university standards and recommendations for e-learning materials</p> <p>With regard to the fact that production of e-learning materials is expensive, it is desirable to define pedagogical and technical standards and recommendations for e-learning materials. These standards and recommendations will ensure the quality of e-learning materials, their compatibility with other programs and the possibility of their repeated utilization, both within and outside the University environment.</p> <p>Obligatory standards should be limited to fundamental pedagogical principles prescribed for university teaching practice and to fundamental technical norms generally accepted by European universities. In matters related to other questions, recommendations and examples from good practice should be applied.</p> <p>For the purpose specified above, the document produced, on CARNet initiative, by a group of university teachers in 2005 and conclusions of EQIBELT workshop (held in 2006) on standards and recommendations for e-learning can be used as the starting point.</p>	Commission for teaching / OEL / CEL / local teams for e-learning	01.10.2008.
E-2	<p>Define the criteria, prescribe and implement the procedure of approving and evaluating e-learning materials</p> <p>E-learning materials are legitimate and valid educational materials for learning and teaching at the University of Zagreb. As such, they are subject to the procedure of evaluation and approval, just like any other educational materials (mimeographed course materials, university textbooks etc.)</p> <p>For the purpose of classification and in the procedure of evaluating e-learning materials, the document produced, on CARNet initiative, by a group of university teachers in 2006 can be used as the starting point.</p>	Rector's Collegium / Senate / OEL / Commission for teaching and commission for educational literature	01.10.2008. / continuously

F-3	<p>When deciding on the promotion of the teaching staff (election to titles), equality of e-materials should be ensured.</p> <p>Among the conditions prescribed by Rector's Collegium for being elected to scientific-educational title of associate and full professors, there is an alternative condition demanding that «lectures from 2 courses are placed on the web» and that these texts have been «rated favourably by an expert commission» (condition no. 1). In connection with this, it is necessary to resolve two questions: (a) introduce the standards defining e-learning materials and (b) determine which commission is competent for evaluation of these materials. Besides, in order to motivate teachers to produce e-learning materials, condition no. 1 should be divided into two sub-conditions; the first referring to the authorship of classic university textbooks and the second referring to the authorship of e-learning materials (whose quality would be subject to the judgment of a competent commission).</p>	Rector's Collegium / Senate/ Commission for teaching and commission for educational literature / Faculty councils	01.10.2008. / continuously
F-4	<p>Establish and maintain university repository of e-learning materials</p> <p>On the university level and in compliance with adopted standards, a repository of e-learning materials should be established and maintained. These materials should include the meta data enabling their quality storage and search, i.e. their multiple usability. It is also necessary to ensure connection with and access to international repositories of e-learning materials.</p>	OEL / CEL / Srce	01.10.2008. / continuously
F-5	<p>Establish the Fund for awards for the best e-courses at the University and carry out annual competitions for the best university e-courses</p> <p>The purpose of this fund is highlighting positive /best examples of the application of technology in education and adequate awarding of individual authors /teams of authors for their outstanding accomplishments.</p>	Rector's Collegium / CEL/ OEL	01.11.2007. / continuously
F-6	<p>Establish and ensure functioning of the Fund for the production of e-courses</p> <p>The purpose of this fund is to make sure, through competition, that proposes of the best projects get initial resources for the production of e-courses, especially the resources for engaging specialists (such as web designers, computer animators, experts for simulation models, methodologists, etc.).</p>	Rector's Collegium / OEL	01.01.2008. / continuously
F-7	<p>For each university course a virtual space within VLE/LMS must be obligatorily/automatically created.</p> <p>The purpose of this measure is to motivate all teachers to accomplish, at least to the minimal extent, presence of their courses in the virtual space for e-learning.</p> <p>Access to the space of the courses within VLE/LMS should also be provided through the web of a particular course within ISVU.</p>	OEL / CEL / Srce / Local teams for e-learning and IT teams	01.10.2008. / continuously

F	Development of basic and specific infrastructure	Competent / responsible bodies	Deadline for realization / duration
T ₁	<p>Ensure multiservice broadband network of great throughput and with functionalities enabling service quality management</p> <p>In cooperation with the national academic and research network CARNet, a multiservice broadband network of great throughput (in all its segments, i.e. 'end-to-end') and with functionalities enabling service quality management should be ensured for the needs of the University, including the needs associated with higher education.</p>	Srce / Rector's Collegium	immediately / continuously
T ₂	<p>Ensure, for all teachers and students, favourable conditions for broadband access to the internet (at work and from home/student dormitory)</p> <p>In cooperation with CARNet and through direct contacts with the providers of internet services a broadband access to the internet should be ensured for teachers and students. The said broadband access to the internet should be possible from their home and under most favourable conditions.</p> <p>In doing so, it is necessary to take into account the fact that high-speed (broadband) access to the internet has been already provided, through StuDOM project, for all students accommodated in student dormitories.</p> <p>Given the fact that practically all University locations have already been connected to the core of CARNet network for the purpose of broadband access to the internet from work-place, what may be necessary is upgrading of local and wireless networks.</p>	Srce / Rector's Collegium / Deans	Immediately / continuously
T ₃	<p>Establish an all-university wireless network (UNIZG WIRELESS) for the purpose of access to the internet</p> <p>Flexible possibility of wireless access to the internet from all locations within the University of Zagreb is important for the implementation of e-learning.</p>	Srce / Rector's Collegium / Deans	30.06.2008.
⇨	Ensure extra favourable conditions in purchasing computer equipment for teachers and students	⇨⇨⇨ C-4 & D-1	

4	<p>Support development and improve ICT infrastructure at the faculties.</p> <p>Although complete provision of teachers and students with personal computer equipment is being planned, during the transition period it is necessary to allow for all students a simple access to the internet from their faculties.</p> <p>On the long run, it is necessary to ensure local network infrastructure for broadband (wire and wireless) access to the internet for all students and teachers, as well as the resources required for electronically-based student examinations.</p>	Deans	continuously
5	<p>The use of various forms of videoconferencing systems should be simplified and made more accessible for all teachers and students.</p> <p>Although videoconferencing systems have been present in Croatian system of higher education for a long time and in a generally satisfactory way, their utilization should be made easier and more accessible for teachers and students. This particularly refers to room and personal (desk) configurations of videoconferencing links, as well as to the teachers' autonomy in using the VC system in a classroom environment.</p>	Srce / CEL	31.12.2007. / continuously
6	<p>Encourage and implement integration of ICT systems at the University (business and administrative information systems, VLE/LMS, library systems, etc.) as well as the employment of electronic identities from the AAI@EduHr system on all authentication and authorization levels</p> <p>Integration of information systems and creation of a unique end users' interface toward them is an important prerequisite for efficient functioning of the University and satisfaction of its teachers and students.</p>	Rector's Collegium Deans / Srce	31.12.2008. / continuously
7	<p>Establish and maintain a reliable e-learning platform (VLE/LMS) available to everyone at the University</p> <p>On the University level, a reliable e-learning platform (VLE/LMS) should be provided. This platform will be used by teachers at the faculties where no such platforms exist, or by the teachers who prefer the selected and supported university platform.</p>	Srce / CEL	01.10.2007. / continuously
8	<p>Establish and maintain reliable servers (such as streaming server) for multimedia contents available to everyone at the University</p> <p>On the University level, servers for multimedia contents (such as video) should be provided. These servers will be used by teachers at the faculties where no such servers or services exist.</p>	Srce / CEL	as required

T-9	Improve the university library system and ensure access to electronic publications Efficient functioning of university and faculty library systems is very important in the implementation of e-learning. Through these systems it is necessary to ensure the rights and technically (practically) enable both teachers and students to access required electronic publications and sources.	National and University Library and faculty libraries	01.10.2008. / continuously
-----	--	---	----------------------------

MONITORING OF STRATEGY IMPLEMENTATION

For the purpose of monitoring the implementation of this strategy and for the purpose of monitoring the conditions for application of e-learning at the University of Zagreb and the levels thereof, during the period from 2007 to 2010 the following quantitative parameters will be continuously established and monitored:

Denotation	Parameter	Expected value 31.12.2010.
PeU01	Percentage of the courses offering basic information about their contents and educational objectives through web sites	100%
PeU02	Percentage of the courses actively using virtual environment for learning (VLE/LMS), for delivering materials and for communication between various participants in the educational process	50%
PeU03	Percentage of teachers and associates actively using virtual environment for learning (VLE/LMS) and Web 2.0 technologies in the teaching process	60%
PeU04	Percentage of students in the last year of undergraduate study who have actively used virtual environment for learning (VLE/LMS) and Web 2.0 technologies in the learning process	100%
PeU05	Number (on the annual level) of e-learning materials approved by the competent university commission	30
PeU06	Number (on the annual level) of teachers and associates included in professional development programs	500
PeU07	Number (on the annual level) of teachers and associates included in various training programs for the use of e-learning technologies	500
PeU08	Number of individuals (FTE - full time equivalent) engaged at the University in the support to e-learning	70
PeU09	Number (on the annual level) of courses entered for the university contest for the best e-course	50
PeU10	Increased share of the financial resources allocated from the University budget for the improvement of teaching	positive (every year)
PeU11	Increased share of the financial resources allocated from the University budget for establishing, maintaining and supporting the use of ICT infrastructure	positive (every year)
PeU12	Number of computers (on the annual level) purchased on the basis of extra favourable conditions for University teachers and students	2500
PeU13	Percentage of the University of Zagreb locations «covered» with the university wireless network	95%

The University Office for E-learning shall be competent for qualitative and quantitative monitoring of the application of e-learning and for the monitoring of implementation of this strategy at the University of Zagreb.

Once a year, the Office for E-learning shall submit to the Senate of the University in Zagreb and to the Commission for E-learning its report on the status of e-learning at the University of Zagreb.

The Commission for E-learning and the Office for E-learning shall propose to the Senate additional measures required for improving the application of e-learning and implementation of this strategy.

The Office for E-learning shall, in due time, propose to the Senate preparation and enactment of the new strategic document for application of ICT in the process of education following the year 2010.