РОЗДІЛ «ОСВІТА»

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THE GENERAL CONCEPT OF ANALYSES AND IMPLEMENTATION OF THE LEGAL, ETHICAL, HUMAN, TECHNICAL AND SOCIAL FACTORS OF ICT AND E-LEARNING DEVELOPMENT IN SEVERAL EUROPEAN COUNTRIES – INTERNATIONAL RESEARCH NETWORK

Introduction. On the eve of a new century, there is an unprecedented demand for and a great diversification in higher education, as well as an increased awareness of its vital importance for sociocultural and economic development, and for building the future, for which the younger generations will need to be equipped with new skills, knowledge and ideals. At the same time, higher education is being challenged by new opportunities relating to technologies that are improving the ways in which knowledge can be produced, managed, disseminated, accessed and controlled. Equitable access to these technologies should be ensured at all levels of education systems [22].

Setting of the task. IRNet Project Summary.

IRNet - International Research Network for study and development of new tools and methods for advanced pedagogical science in the field of ICT instruments, e-learning and intercultural competences. Project financed by the European Commission under the 7th Framework Programme, within the Marie Curie Actions International Research Staff Exchange Scheme. Grant Agreement No: PIRSES-GA-2013-612536 Duration of the project: 48 months1/01/2014 – 31/12/2017.

Nowadays, we can observe a rapid transition of the knowledge society to the "society of global competence", in which both the global economy and the education systems are undergoing changes. It is evident that without an active implementation of innovative forms and methods of education, and above all, distance learning at all levels of education these objectives cannot be successfully achieved. At the same time we should identify the existing problem - the fact that e-learning methodology is not yet fully developed and specified, both within the EU and in Ukraine. Developing and implementation of the system designed to develop IT competences of contemporary specialist, in particular the future teachers, current teacher, leadership, based on the systematic use of selected Internet technologies, such as some LCMS systems (as Moodle), Massive Open Online Courses, "virtual classroom" technology, social media, other selected Web 2.0 and Web 3.0 technology positively contributes to the development of skills in the area of IT and intercultural competences. The IRNet project aims to set up a thematic multidisciplinary joint exchange programme dedicated to research and development of new tools for advanced pedagogical science in the field of ICT instruments, distance learning and intercultural competences in the EU (Poland, the Netherlands, Spain, Portugal, Slovakia) and Third Countries (Australia, Russia, Ukraine). The programme will strengthen existing collaboration and establish new scientific contacts through mutual secondments of researchers. The main objectives of the project are: 1. to exchange expertise and knowledge in the field of the innovative techniques of education between EU and

Third Countries and suggest effective strategies of implementing new tools in their profession; 2. to analyse and evaluate social, economic, legal conditions, as well as methodologies and e-learning techniques being developed in the European and Third Countries involved.

The IRNet project aims to set up a thematic multidisciplinary joint exchange programme dedicated to development of new tools for advanced pedagogical science in the field of ICT instruments, distance learning and intercultural competences in the EU, Australia, Ukraine and Russia. The programme will strengthen existing collaboration between EU partners, and 2 third country institutions of higher education through mutual secondments of researchers.

More detail conception of the project described in the Project application and on the project web-site [7]

WP2: analyses of different factors of ict and of e-learning development in partner countries.

The overall goal of the WP2 is to anticipate the coming years when universities will face the need to work together, both in terms of student exchange and in terms of technological and infrastructural procedures for exchanging staff members and open online courseware material. The recent attention for MOOCs (Massive Open Online Courses) is only a small part of the solution. Much more vital are the compatibility of institutional policies, benchmarks for effectiveness and the mutual recognition of assessment characteristics.

Building on the leading work of the team the participants will engage in a critical review of the existing literature, legal documents, web sources, etc., drawing on contributions from a range of relevant disciplines (education, computer science, intercultural education, sociology, anthropology, political science) and analyse legal, ethical, human, technical, social factors of development ICT, e-learning and intercultural development in partner's countries. They will add new perspectives on the problem of understanding the higher education and developing some key competences - globalization nexus in different regional and national contexts.

This WP2 is coordinated by the University of Twente (UT, The Netherlands), utilising its particular expertise in a number of key competences and education. It will advance existing knowledge by creating a synergy between UT's expertise and the expertise of the University of Silesia in Katowice (US, Poland, Beneficiary 1 (Coordinator of the IRNet Project)), University of Extremadura (UEx, Spain), Constantine the Philosopher University in Nitra (UKF, Slovakia), Lisbon Lusíada University (LU, Portugal), University of Ostrava (OU, Czech Republic), Borys Grinchenko Kyiv University (BGKU, Ukraine), Dniprodzerzhinsk State Technical University (DSTU, Ukraine), Herzen State Pedagogical University of Russia, St. Petersburg (HSPU, Russian Federation) on legal, ethical and human factors of ICT development as well as psychological accomplishment of face-to-face learning and e-learning as well as teaching and sharing of the latest blending teaching methods via technology in Curtin University in Perth (CU, Australia), and expertise of other universities.

The most important WP2 tasks were described on the project web-site (http://www.irnet.us.edu.pl/documents/wp2, 2014) and in the article of several participants of the project [8] and include:

- Mapping and developing an account of factors involved in process of globalisation and regionalization in developing key competences, including their interests, scales of influence, and temporal horizons.

- Examining the role of higher education policy in globalisation processes (e.g. shifts from servicing to driving development of a knowledge society and from aid to e-learning as a means of competences' building) and the role played by higher education institutions and their projects as potential models for other world regions.

- Identifying the role of key international higher education institutions in policy developing of key competences and in new forms of international cooperation.

- Analysis of processes of competences development – e.g. processes operating simultaneously on different scales, contemporary trends and previous research.

- Researchers will engage in individual/joint-research in the visited institution. If it is in a city they happen to be researching they will be able to carry out fieldwork and/or archive research.

- Analysis of legal, ethical, human, techniques, social factors of Development ICT, e-learning and intercultural development in every partner's countries.

Methods. Scientific research involves the selection of appropriate methods and practices in order to achieve a particular purpose, solve a research problem, and obtain the results of research. "The *research method* is understood to mean a set of theoretically justified conceptual and instrumental procedures covering generally all of the researcher's actions in the course of the attempt to solve a certain scientific problem " [12]. The concept of research methods is directly related to the term *research techniques*. According to [10] "... a research technique is always a particularized variety of research methods." It is used for carefully collecting suitable research material.

The planned scientific activities are divided into seven interconnected work packages (http://www.irnet.us.edu.pl/documents) in order to structure the work planned, of which five are based on joint researches of all the partners, one is focusing to dissemination of results (WP7) and one WP is designed to project management (WP1) (http://www.irnet.us.edu.pl/documents). Each of Work Packages is designed to one of main research activities of the project and aims to develop a new conceptual and methodological approach in the thematic research area. These will be also a basis of long term research collaboration promoting knowledge transfer between EU and third countries. The project seeks to use the synergies and complementarities of the 10 research teams (http://www.irnet.us.edu.pl/partners) to furnish a more accurate and holistic picture of the current state of universities. Each of these Work Packages is designed to produce specific outputs: workshops to discuss the results, a website, a working paper series to put the research results quickly into the public domain, and a book covering the scientific achievements. Overall, the work packages aim to widen an established research agenda and to develop a new conceptual and methodological approach. These will be the basis of a joint research application and long term research collaboration, which will assist in promoting and reflecting upon knowledge transfer between EU and non-EU countries.

Comparison of different factors of ICT and e-learning in several partner countries is carried out using *methods*, *research techniques and tools* compatible with the aims and tasks of WP2. Research methods are divided into *quantitative* and *qualitative* pedagogy.

I.   Methods of pedagogical research:
  a. *Quantitative*: 1) pedagogical monograph (research papers), 2) method of individual cases, 3) method of diagnostic survey.
  b. *Qualitative*: 1) depth interview, 2) qualitative analysis of the text (documents), 3) observation.

II. Techniques of educational research:
  1) observation,
  2) interview,
  3) questionnaire,
  4) study and analysis of documents,
  5) content analysis.

III. The main research tools:
  1) interview questionnaire,
  2) questionnaire,
  3) survey,
  4) observation tools,
  5) *development of the subject dictionary,*

6) research trip and visiting a partner university,

7) meeting, (video)conference, seminar, workshop, etc.

Researchers will be expected to take part also in events, such as conferences, workshops and roundtables, particularly ones that deal specifically with their topic(s) of research, for example:

- Initial seminar in Poland in remote form (using Adobe Connect technology for video-conferences) (was held 12 November 2013).
- Meeting for all project participants in Spain (was held in March 2014).
- Videoconferences and roundtable debate ones a month (scheduler of the project video-conferences available on http://www.irnet.us.edu.pl/news).
- Meeting and Workshop (HSPU, Russia) (was held in April 2014).
- Conferences:
  - International scientific-practical conference "High-tech information educational environment", April 15, 2014 at Herzen State Pedagogical University of Russia (was held 15 April 2014).
  - International Scientific Conference DIVAI 2014 (Distance Learning in Applied Informatics) UKF (Slovak Republic), (was held 5-7 May, 2014);
  - International Scientific Conference "Innovations in higher education and dissemination of the initial results of the research on the law, ethical, human, technical, social factors of ICT developments, e-learning and intercultural developments in deferent countries" (DSTU, Ukraine), (will held 24-26 June, 2014), others.

Results of research. During the study and analysis of global (international) and local (national) documents as well as university documents tables were prepared which set forth a comparison of legal, ethical, human, technical and social factors of ICT and e-learning development in several partner countries, for example Poland, Spain and Portugal in the context of the IRNet project – international scientific network, which will be described below. Some earlier research outcomes were conducted in the framework of WP2 in the Netherlands, Poland, Russia and Ukraine and have been published in [9].

The recommendation to the Committee of Ministers to pay particular attention to the ethical and social aspects related to basic skills in the use of ICT. In the Recommendation (2006/962/EC of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning), the European Parliament and the Council of the European Union (http://eurlex.europa.eu/, 2006) defined eight key competences that are needed by every person for self-realisation and personal development, for being an active citizen and for achieving full social potential. The digital competence is ranked fourth. Table 1 shows the comparison of legal factors and Table 2 shows the legal factors defined in documents published at the participated universities.

Table 1 – Comparison of legal factors

Factors	Poland	Spain	Portugal	Czech Republic
1	2	3	4	5
ICT and e-learning in education	Standards of education. Preparing for the teaching profession (Law on Higher Education, ACT of 27 July 2005 Article 9c.)	Law of Universities. Organic Law 6/2001. BOE 24-12-2001 (http://www.boe.es/boe/dias/2001/12/24/pdfs/A49400-49425.pdf).	Education System Base Law (Law 46/86, modified by the Law 115/97)	ACT NO. 111/1998 Coll. (AMENDED AND CONSOLIDATED) ON HIGHER EDUCATION INSTITUTIONS AND ON AMENDMENTS AND SUPPLEMENTS TO SOME OTHER ACTS (THE HIGHER EDUCATION ACT)

Continuation of table 1

1	2	3	4	5
		Law that modifies the Law of Universities: Organic Law 4-2007. BOE 13-4-2007 (http://www.boe.es/boe/dias/2007/04/13/pdfs/A16241-16260.pdf).		
Could be distance learning officially used as a legal learning and teaching form and teaching at the high school? What are the conditions?	The number of hours in remote mode does not exceed 60 % of the total number of hours of classes. (Regulation of the Minister of Science and Higher Education of 9 May 2008)	It is not officially regulated. Options: 1. Officials Titles of the Ministry of Education are regulated by the National Agency for Quality Assessment and Accreditation (ANECA). 2. Officials Titles of the each University are regulated by the Council of Government of University.	In the Article 16th c), of the 46/86 law the distance learning is considered as a special yet valid method for learning Article 21st of the same law is specific for distance learning and it states on its point number 3 that the open University is part of distance learning	Section 44, ACT NO. 111/1998 Coll. states that „A higher education is earned through studies within the framework of an accredited degree programme offered in line with the curriculum for the given mode of studies". **Distance mode of study and combination of full-time and distance mode** All study programmes must be backed up by study support in all the courses taught in the distance mode. Study support consists of a set of information which substitutes direct teaching. It cannot be an excerpt from a textbook or another reduced text. Study support must include tasks for student's individual work, rules for communication with the tutor etc. The proportion of contact and distance part of studies must be clearly defined and the ways in which instruction will take place in the contact part (organization of trainings and work of the students during the training) and in the distance part (study support, e-learning, contact with the teachers, information about the presumed number of students per tutor etc.) must be precisely described. The application for accreditation (in the characteristic of study courses) must include the concrete tasks for student's individual work and the mode of their evaluation or this information must be a part of a separate methodology of the distance or combined mode of study of the respective study programme/field of study. The possibility of communication with the teacher via the internet must be assured. The system of consultations and a selection of other education options must be established.

Table 2 – Comparison of legal factors at universities participating in the project

University of Silesia in Katowice, Poland	University of Extremadura, Spain	Lusiada Lisbon University, Portugal	University of Ostrava, Czech Republic
Decree No. 66/2012 formally allows one to teach up to 60% of classes in the remote mode.	It is not officially regulated. Each educational project, face to face, e-learning or b-learning, can have various modalities and configurations. It must be approved by the Council of Government of University	Law 46/86 allows open University to use distance learning. We are implementing a way to use distance tools to teach our students in partner countries such as Angola or Cape Verde	The University of Ostrava has the „Internal Accreditation Commission" that considers whether the accreditation applications of study programmes respect the Accreditation Commission Standards.
Increase in the number of e-learning courses, and greater activity in distance teaching. Organisation of lifelong learning courses and trainings – also in the form of e-learning in Polish and English – in the use of electronic databases for students, doctoral candidates and employees. Using and developing modern computer and information technologies for more individualised education in the form of e-learning and blended learning (Development Strategy 2012-2020).		Increase of using e-learning platforms such as Moodle platform for general contents and DSpace for multimedia contents. Virtualization of the Academic procedures allowing that great part of the information can be consulted either by internet or by mobile platforms (smartphones, tablets, and so on). Teachers are being impelled to acquire digital competences to deal with the teaching media of the future.	Approximately 50% of regular students studies using the combined form of study, at The Pedagogical Faculty, University of Ostrava. The students use study support, internet and tutorials that are provided once a week (6 – 7 hours) each semester.

Recommendation to the Committee of Ministers places emphasis on paying particular attention to the ethical and social aspects related to basic skills in the use of ICT (Resolution, session Athens, Greece, 10-12 November 2003). Table 3 shows the comparison of ethical and social factors.

Maintenance of its work program, as the main priority, learning foreign languages, in order to ensure that all people involved in educational systems will be able to effectively communicate in foreign languages and fully benefit from the increasing wealth of information and opportunities for contacts and exchange, to promote the training of teachers and teacher trainers in the use of information and communication technologies (ICT) for educational purposes (Resolution, session Athens, Greece, 10-12 November 2003). Table 4 shows the comparison of human and educational factors.

Table 3 – Comparison of ethical and social factors

University of Silesia in Katowice, Poland	University of Extremadura, Spain	Lusiada Lisbon University, Portugal	University of Ostrava, Czech Republic
Maintaining high ethical standards in research and compliance with the best practices code (Development Strategy 2012-2020). Implementation of a zero tolerance policy on plagiarism and other unethical behaviours (Development Strategy 2012-2020).	From the Council of Rectors of Spanish Universities an ethical perspective on the use of ICT in higher education is promoted. Official document that analyses the situation of ICT in Spanish universities (2013): http://www.crue.org/Publicaciones/Documents/Universitic/2013.pdf	A strong internal regulation that makes clear either for students, either for teachers or for the academic services how and when the tests should be carried and also when grades should be delivered. This regulation also states what are the minimal grades to pass, to have a second examination, or fail.	Each faculty has a disciplinary commission that deal with plagiarism of students when writing their bachelor and master theses. The THESES system is used to search for traces of plagiarism in theses from all around the Czech Republic. There is also a negative phenomenon of companies that offer preparing final theses instead of students as a paid service.

Table 4 – Comparison of human and educational factors

University of Silesia in Katowice, Poland	University of Extremadura, Spain	Lusiada Lisbon University, Portugal	University of Ostrava, Czech Republic
Individualised education in the form of e-learning and blended learning (Development Strategy 2012-2020).	Spain has an active policy to promote the training of teachers and teacher trainers in the use of ICT for educational purposes, also to remove barriers linked to the language competence in foreign languages, especially in English. The analysis of the situation in Spain is to be found in this document, the Final Report of the study "Vision, Roadmap and Foresight Scenarios for Europe 2012-2020": http://ec.europa.eu/enterprise/sectors/ict/files/eskills/vision_final_report_en.pdf	Group classes in presential form and b-learning, with individual accompaniment in tutorial classes. Also classes are held to teach Portuguese language, aimed for Erasmus students to allow them to integrate.	At the beginning of studies, students of teacher programmes complete the INPOG course (information and computer literacy). The prepared national Standard for teachers puts the „ICT application in teaching" among the basic professional competences. University teachers (who prepare the trainee teachers) continually improve their qualification in using ICT on various projects from Education For Competitiveness Operational Programme (one of the structural funds of the European Union (EU)).

The Digital Agenda for Europe 2013-2014 (https://ec.europa.eu/digital-agenda/en/news/digital-do-list-new-digital-priorities-2013-2014) analyses and describes in

particular 5) Entrepreneurship and digital jobs and skills, and in this documents it is stressed that "The Commission signals that by 2015 700,000 to 1 million ICT jobs will not be filled in Europe, due to lack of skilled personnel. Additional action is needed to boost the overall number and the employability and mobility of ICT experts. Therefore the Commission will launch a 'Grand Coalition on Digital Skills and Jobs'. Table 5 shows the comparison of technical factors.

Table 5 – Comparison of technical factors

University of Silesia in Katowice, Poland	University of Extramadure, Spain	Lusiada Lisbon University, Portugal	University of Ostrava, Czech Republic
Using and developing modern computer and information technologies for more individualised education in the form of e-learning and blended learning; (Development Strategy 2012-2020). Making the University of Silesia's infrastructure available for events important for the Region and Country (Development Strategy 2012-2020).	This document analyses and describes the Spanish strategy about science, technology and innovation 2013-2020: http://www.idi.mineco.gob.es/stfls/MICINN/Investiga-cion/FICHEROS/Estrategia_espanola_ciencia_tecnolo-gia_Innovacion.pdf Assumes a high sensitization and policy development to improve employability, for example of the ICT experts.	Lusiada is using digital technologies to deliver high quality content to students. That includes an e-learning platform for support (Moodle), rooms and classrooms with videoconference abilities (Polycom) and support for webcasts in partnership with the FCCN (National Foundation for the Scientific Computation).	The LMS Moodle system is used at the University of Ostrava. It is a system for learning management in present, distant and combined for of study. For each student, the Moodle system represents an individual virtual study environment where he/she can find his/her courses. The courses contain instructions for studying, study materials, tests, surveys, distand tasks, forums etc. The study agenda is fully digitalized – from study application, subjects choice, study results evidence to diplomas and Diploma Supplement printing.

To support the development of research on the educational use of information and communication technologies (ICT) in all subjects included in the curriculum (Resolution, session Athens, Greece, 10-12 November 2003), other. Table 6 shows the scientific aspects of factors.

Table 6 – Scientific aspects of factors

University of Silesia in Katowice, Poland	University of Extremadura, Spain	Lusiada Lisbon University, Portugal	University of Ostrava, Czech Republic
1	2	3	4
Cooperation under international research and educational projects and scientific networks (Development Strategy 2012-2020).	In primary and secondary education, ICT is considered as a key competence and is covered in all subject areas of the curriculum. One of the main goals of primary education2 is to "begin to use information and communication technology and develop	Inclusion where appropriate of computer skills in every course ministered. Also for teachers, every year a session to explain how	The Pedagogical Faculty offers a study subject "Information technologies" in all three degrees and in present or combined form of study. The Faculty holds an annual international conference called

Continuation of table 6

1	2	3	4
	critical awareness of the messages sent and received." As a separate subject, ICT is first encountered at Secondary School level3 (7th to 10th grade); pupils can choose to study "technology" (which is partly devoted to computer science) each year from 7th to 9th grade. In 12th grade, they can choose to take "computer science" and/or "technology" or neither of them. In secondary education it is said that a student must "develop basic skills in the use of information sources to acquire new knowledge and basic training in the field of technology, especially in information and communication technologies". Furthermore, goals related to the use of ICT are detailed within the curriculum of every school subject. In mathematics, for instance, one of the defined goals is that of "using information technologies for conceptual analysis and the recognition of the properties of functions and graphs". These goals try to make the student competent in the use of ICT as a means of obtaining and processing information as well as a way of expressing themselves. The information is here: http://www.eun.org/c/document _library/get_file?uuid=cf3d1138 -b576-4f7a-a2f5- fc8b536bd204&groupId=43887	Moodle works allows to make a more fruitful use of that platform.	ICTE (Information and communication technology in Education), 15th Annual International Conference in 2014. A specialized scientific journal (ICTE Journal) is published as well (https://periodicals.osu.eu /ictejournal/). The mission of ICTE Journal is to mediate new findings and approaches of experts in the field of ICT application in Education. Using ICT in education is one of Main trends in research at the University of Ostrava.

Outcomes. The authors of this paper have extensive research experience as well as a track record of previous publications within the framework of the subject of the described research [1, 2, 3, 4, 6, 8, 11, 13, 16, 17, 18, 19, 20]. The global, regional and local aspects of the situation concerning the evolution and development of the educational policy in European and third countries are changing simultaneously. We can observe a reduction in differences in education systems in European and third countries thanks to such programme and projects as Bologna process, 7 Framework Programme, Erasmus etc. However, differences still remain and one of the aims of our research consortium is to explore indicators of educational effec-

tiveness in the EU and third countries involved in the project and factors influencing this. In the previous chapter 'Results' we have presented the first outcomes of WP2 research carried out within the framework of the IRNet project – International Research Network - study and analyses of documents. Below we present one of the surveys, intended to be conducted in the coming months in all the partner universities. Received outcomes could help us to understand the current situation concerning educational policy and effectiveness in the consortium countries; these will be compared with earlier research outcomes and will support the development of more adequate research directions and project methodology.

One of the surveys, intended for students and for university authorities and academic teachers, described in [8] and in other items of references is available for filling in on-line at this address: https://el2.us.edu.pl/ankiety/index.php/198896/lang-en Survey for teachers for fulfilling on-line is available at: https://el2.us.edu.pl/ankiety/index.php/358271/lang-en

Conclusion. In this paper the authors presented the objectives of the international project irnet - international research network for study and development of new tools and methods for advanced pedagogical science in the field of ict instruments, e-learning and intercultural competences as well as wp 2: analyses of legal, ethical, human, technical and social factors of ict and e-learning development and the state of intercultural competences in partner countries: objectives, tasks, deliverables. the second part of the paper includes data from preliminary research. during the study and analysis of global (international) and local (national) documents as well as university documents table (1-6) was prepared which sets forth a comparison of legal, ethical, human, technical and social factors of ict and e-learning development and the state of intercultural competences in several partner countries, for example poland, spain and portugal in the context of the irnet project – international research network. the international team of researchers from the university of silesia in katowice (us, poland, beneficiary 1 (coordinator)), university of twente (ut, the netherlands), university of extremadura (uex, spain), constantine the philosopher university in nitra (ukf, slovakia), lisbon lusíada university (lu, portugal), university of ostrava (ou, czech republic), curtin university in perth (cu, australia), borys grinchenko kyiv university (bgku, ukraine), dniprodzerzhinsk state technical university (dstu, ukraine), herzen state pedagogical university of russia, st. petersburg (hspu, russian federation) will be continuing the study and research in the framework of the project documentation, according to the project scheduler, and in near future, they will publish subsequent papers and manuscripts in the conference proceeding as well as well in the scientific journal and monograph.

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CONDITIONS FOR CREATION AND IMPLEMENTATION OF CORPORATE STANDARD OF MASTERS' ICT COMPETENCE

Introduction. One of the main challenges in the information society, which is built in Ukraine, is the introduction of ICT in education, which is necessary in order to enhance the efficiency of the use of modern information technologies in educational process in higher education. The labour market requires skilled professionals with a flexible and operational knowledge able quickly adapt to technological change, ready to improve and update their own educational level. At the same time the requirements of the current labour market determine changes in the system of higher education including refocusing from the educational process to its final qualitative result, conversion from the knowledge-based education paradigm to competence-based. For solving complex practical problems a modern student has to acquire basic and specialized knowledge, the methodology of scientific research, information and communication technologies; to be able to use everything new that appears in the science and practice; to adapt to market changes; to improve their skills and to master skills of the 21st century.

The basis for substantive changes to ensure the compliance of education with the current market requirements is the concept of competence-based approach in education, realization of which is possible due to national qualifications framework [1]. In conditions of the rapid development of information and communication technology, a modern student must have the ICT competence, which in fact has to become a part of a professional competence of an expert of any profile. However, by now such standard is not accepted at the state level, so the universities have to develop and approve their own internal (corporate) standards, which will ensure the appropriate competencies of a modern specialist, who satisfies the demands of the labour market, and allow university graduates to be employed and successful in the modern information society.