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CORPORATE STANDARD OF ICT COMPETENCE OF MASTERS

Current labor market demand determines the modification of the system of higher education, including the transfer of emphasis on the educational process in its final qualitative result, a paradigm shift from knowledge education to competency. Student should must possess ICT competence that today has become a part of professional competence of professionals of any type. The purpose of the study is to develop standards in the ICT competence of all members of the educational process to ensure the quality of university education and the creation and subsequent implementation of educational policies of the University. The paper highlights the need to develop a corporate standard of ICT competence of masters based on UNESCO scientific approaches. It describes model, the level of ICT competence and tools for monitoring its formation in the future for today's professionals. For each of the selected three levels of ICT competence (basic, advanced and professional) determined necessary knowledge and skills, talents and ideas to master. The necessary and sufficient conditions are determined for the formation of the ICT competence of masters in modern university, proffered examples of tasks and competency requirements for the personal educational electronic space for student and educational electronic space of university. Developed and approved corporate standard provides appropriate expertise contemporary specialist who meets the requirements of the labor market and will allow the graduate to be successful in today's information society.

__Key words:__ ICT competence, standard, ICT competence model, monitoring, personal educational electronic space for master, e-portfolio.

1. 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 labor market requires skilled professionals with a flexible and operational knowledge of system capacity to applications in related fields who can quickly adapt to technological change, ready to improve and update their own educational level. Current labor market requirements determine the modification of the system of higher education, including the transfer of emphasis on the educational process in its final qualitative result, a paradigm shift from knowledge education to competitive. To solve complex practical problems the modern student has to master 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 and to improve their skills, have skills of the 21st century.

The basis for substantive changes to ensure that the education of modern market requirements is the concept of competence-based approach in education, to realize what is possible thanks to adopt national qualifications framework [1]. The modern student must have ICT competence that under modern conditions the rapid development of information and communication technology has become a part of professional competence specialist of any type. However, this time at the state level such standard is not accepted, and therefore universities should develop and approve its internal (corporate) standard, which will provide the appropriate competencies of modern specialist that would satisfy the demands of the labor market, and allow university graduate to find employment and be successful in the modern information society.

2. The essence of the concept of ICT competence

Competence approach is a key methodological tool for achieving the goals of the Bologna process and in essence is on student concentrated [2]. Competence, designed by the European Commission Tuning underlying the modern graduate training.

Due to active use of ICT in the literature of individual components secreted ICT competence, which is quite diverse interpretation [3]. We distinguish between the key and the subject of ICT competence.

Key information and communication competence - the ability to effectively use ICT in teaching, research and daily activities to address the information and professional problems [4].

Subject ICT competence - is regarded as the student's ability to apply in a particular life, education and research situations, including problematic acquired knowledge, skills, ways of working for the selection of appropriate ICTs and their use for finding the necessary data, analysis, organization, conversion, storage, transfer in compliance with ethical and legal standards and meet the challenges of the subject area [4].

Importance of the ICT literacy, development strategies, standards in ICT competencies are clearly defined by the International Programme of UNESCO (ICT Competency Framework for Teachers) [5]. Given that the standards in the field of ICT competencies of teachers in Ukraine is not accepted , the challenge is to develop such standards for all members of the educational process of the University to ensure quality education, the foundation of which is laid UNESCO approach to determine the ICT competencies of teachers.

3. ICT competence Standard of UNESCO

Standard ICT competence of UNESCO established the intersection of three approaches to education reform, based on the development of human capabilities in areas such as technical literacy, increasing knowledge and creating and includes the following components of the education system as a policy, programs, pedagogy, ICT (Table 1).

The first edition was published in 2008. An updated version was published in 2011 through the cooperation of UNESCO, CISCO, INTEL, ISTE, and Microsoft. It takes into account the recommendations of experts in the field of information, check the requirements for ICT competencies of teachers.

Table 1.

ICT Competence Standard of UNESCO

Politics and concept	Technical literacy	Deepening knowledge	Knowledge creating
Programs and Evaluation	Basic knowledge	Application of knowledge	21st Century Skills
Pedagogy	Introduction of technologies	Solving complex problems	Self-government
ICT	Basic tools	Sophisticated tools	Widely distributed technology
Organization and Administration	Ordinary class	Cooperation groups	Knowledge organizing
Vocational training	Digital literacy	Manage and direct	The teacher as a model of the student

4. ICT Competency Model of Masters

ICT competency model of masters can be represented as a matrix in which the specified master key activities, highlighting a particular aspect of the activities associated with the knowledge

and skills use ICT in solving various tasks and levels of ownership of ICT in each of these activities. Formation of ICT competence masters share conditional on three levels: basic (first year undergraduate), advanced (undergraduate) and professional (master). Such a standard of ICT competence of masters as corporate, it is developed and approved by the Borys Grinchenko Kyiv University.

Having accomplished the distribution aspects of the master in accordance with the formation of the ICT competency model we get ICT competence of masters (Table 2).

Table 2.

ICT competence Model of Masters

Levels Aspects of Masters	Basic (basic knowledge and skills to meet the needs of their own cognitive)	Advanced (to meet the challenges of educational, scientific, social, cultural and practical nature)	Professional (component of professional competence to solve professional tasks)
Exploring ICT	Basic knowledge and skills Basic tools	Advanced Knowledge and skills Complex tools	Ability to self-education in ICT
Educational Activities	Application of knowledge and skills	Solving Competence Tasks of educational nature	The solution of the tasks of the competent professional designation
Research activities	The use of scientific communication	Scientific cooperation The ability of application of e-Science	Presentation of research results in the form of research project
Social and cultural activities	Knowledge and skills of citizen knowledge society	Solving Competence general tasks	Submission of Portfolios

5. Knowledge and skills for levels of ICT competence

Each of specified levels of ICT competency of masters characteristic certain knowledge and skills, a detailed description of which is given in Table 3-5.

Table 3.

Knowledge and ability for basic level

Business Aspects of Masters	Knowledge and understanding, skills, judgments
1	2
Exploring ICT	Knowledge of and ability to use the apparatus of computers and computer networks Knowledge, understanding and ability to use computer programs (different OS, working with files, start the program, the reference system of the OS and other programs to work with files, word processor, image editor, means preparing presentations, training facilities publications tabular processor, anti-virus software, archiving and other programs) Knowledge and ability to use basic services throughout the Internet (e-mail, information retrieval systems, teleconferencing) Knowledge and ability to use the services and technologies of Web 2.0, Web 3.0 for solving learning tasks Knowledge and understanding of the concepts of information , mathematical and computer modulation

1	2
Educational Activities	Understanding the role of ICT in education and related sciences The ability to search for relevant data on the Internet The use of other electronic sources, electronic encyclopedias, electronic aids, LAP educational purposes, electronic directories, etc. The use of ICT for solving of subject tasks The ability to select and use predefined software (software packages) for character-formula, graphical, numerical analysis information (mathematical) models of real objects Ability to communicate effectively via email and via other communication programs Utilization and Web 2.0 technologies to fulfill educational projects and tasks Creating, printing, copying and use in the educational process of teaching materials using ICT (word processor, means preparing presentations and publications, graphic and multimedia applications and Web 2.0 services) The ability to use electronic information and educational environment The use of teaching tools created by ICT The ability to distinguish between tasks for which ICT is an effective tool
Research activities	The ability to learn from the experience of leading countries in the field of informatization education, building the Information Society The ability to collect, analyze, systematize scientific and technical data, summarize best national and international experience in developing computer -based teaching of learning by research and educational activities through hardware and software, using modern methods of research The ability to use the tools of scientific communication to find the desired information: institutional repositories, digital libraries, e-journals, e-conferences, specialized search engines Ability to process source research: organize information, create a database, make excerpts, abstracts Ability to organize and categorize obtained during the study data and evaluate their probability The ability to use the electronic catalog UDC classifier
Social and cultural activities	Understanding of information activities, including its negative effects Awareness of trends in the process of informatization of society and change the image of life in it Awareness of problems associated with the use of computer technology and physical preservation of human health Awareness of information security issues identity and information ecology Awareness of the problems of crime information Characteristics of information culture and use of telecommunication basics of etiquette Ability to carry out discussion, comment and correct reuse of materials placed in the public domain, including social networks The ability to use communication tools to select and uploads to social projects and activities Involvement in social projects, administer, design and coverage of global corporate networks and communities It has a picture of the legal provisions relating to the protection of information resources as intellectual property

Knowledge and skills inherent to Masters on the second level, advanced, formed on the basic level (Table 4).

Table 4.

Knowledge and skills for the advanced level

Business Aspects of Masters	Knowledge and understanding, skills, judgments
Exploring ICT	Characteristics principles of operation of the computer and computer devices Ability to organize access to information resources of a global network Ability to independently learn LAP training and professional orientation Knowledge and understanding and use of cloud technologies The ability to establish, build and test applications on PC
Educational Activities	Ability to carry out simple statistical analysis using ICT Ability to apply visual methods numerical data in the form of charts and graphs using ICT and to "read" the relevant charts and graphs Ability to analyze and describe the learning problem (in their own teaching activities) associated with the use of ICT Participation in distance training courses in Ukraine Using Internet resources for informal learning
Research activities	Presentation of results at scientific seminars, training and research activities based on the use of ICT Participation in e-conferences (on-line and of-line) and Webinars The ability to carry out a statistical study of the results of studies using information technology Ability to present research results in reports, articles, essays, reports, etc. The ability to use the scientific work of charts, diagrams, tables, charts, histograms Ability to apply business tools of computer graphics to interpret the survey results Ability to present analysis results of the study, to prepare their presentation
Social and cultural activities	Presentation information about own activities (educational, scientific) in open information resources, including blogs, social networks, etc. The ability to use ICT to organize practices and representation of its results The use of ICT tools for designing, planning, highlighting the implementation of social projects It has a picture of the legal provisions relating to the protection of information resources as intellectual property

Based on the advanced level forms knowledge and skills inherent to the third Masters level, professional level (Table 5).

Table 5.

Knowledge and skills of the professional level

Business Aspects of Masters	Knowledge and understanding, skills, judgments
1	2
Exploring ICT	Needs analysis in educational computer programs for use in teaching various subjects Characteristics professional software packages Characteristics possibility of applying information technology in management schools (implementation workflow, scheduling classes, accounting student achievement, allocation of faculty teaching assignments, etc.) Knowledge of the organization and conduct tele-and video conferencing, webinars

1	2
Educational Activities	Participation in international distance course
	The ability to use the Internet to find professional courses in education to implement informal training
	Advice on the use of ICT in professional activities
	Characteristics method of designing and creating e-courses, websites, educational purpose
Research activities	The ability to use the techniques and technologies of organizing and conducting educational research
	Ability to adopt materials from research topic and save the results obtained on the web
	The ability to create a scientific publication and place it in an electronic journal
	Ability to present results of Masters research in university E-environment
	Ability to present a portfolio of master-graduate
Social and cultural activities	Conducting seminars on the integration of ICT in professional activities
	Develop and conduct training courses in basic computer skills and ICT for colleagues
	Discussions with colleagues from other schools and countries of methodological and organizational issues of using ICT

6. Monitoring Tools of ICT competence formation

For the measurement of the formation of knowledge and skills of each level requires specialized tools that will assess the ability of students to work with information in the data specifically tailored for solving problems.

As a monitoring tool formed of ICT competence may be:
− Test of general purpose software;
− Tests after studying Microsoft IT-Academy courses, obtaining appropriate certifications from Microsoft (including international standard);
− The content of personal electronic learning environment of master and its compliance with the criteria;
− A set of competency objectives, system and evaluation instruments for solving them;
− Master Portfolio and its compliance with the developed requirements;
− Master's thesis and its relevance to the developed requirements for registration and submission.

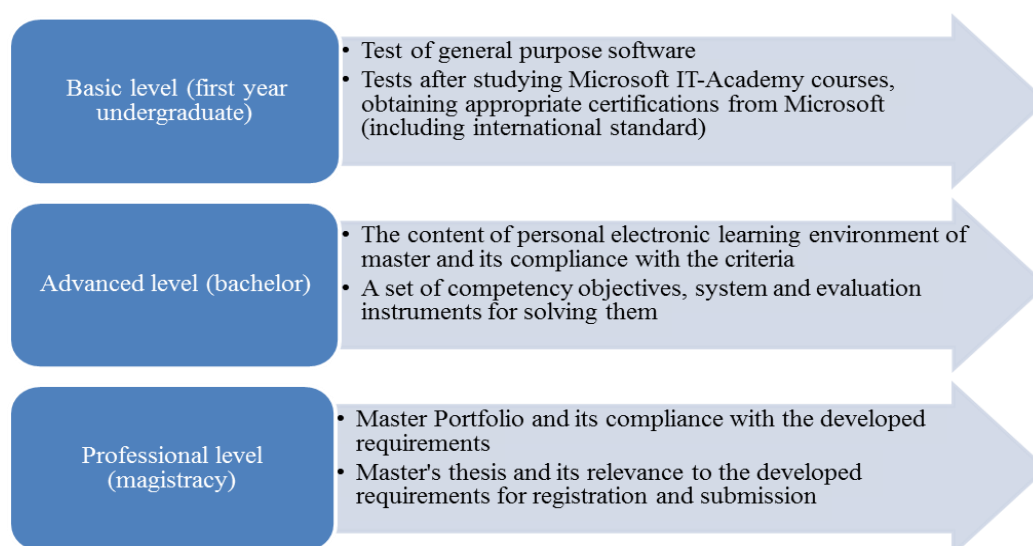According to the levels, the division of monitoring tools is presented in Figure 1

Fig. 1. Monitoring Tools of formation of ICT competence of masters

Particular attention should be paid to the development of a competency tasks. It is expedient to divide into three types:

- Training (general) purpose (developed by General Chair of Informatics);
- Research (academic and research) purposes (developed by all departments);
- Professional purposes (developed by graduating departments).

Each of these types of tasks is determined by a certain level of student skills for working with information technology tools such as word processor, spreadsheet, presentation editor, multimedia resources, databases, networking and Web 2.0 technologies and more. The first type of competence tasks includes tasks for the definition, access and management. The second level is aimed at determining the integration and evaluation. The third is the most difficult in determining the skills to create and share.

Competence Assessment tasks by using the developed evaluation form (Table 6) [6].

Table 6.

Form of evaluation results for solving competence tasks

Definition (identification)	The ability to accurately interpret the question
	The ability to refine the question
	Finding problems in the text information and data set, which are explicitly or implicitly
	Identification of terms, concepts
Access (search)	The choice of search terms, taking into account the level of detail
	Matching search results to the term query (assessment method)
	Formation of the search strategy
Management	Creating a classification scheme for structuring data
	Using the proposed classification schemes for structuring information
Integration	The ability to compare and correlate information from multiple sources
	The ability to exclude irrelevant and immaterial information
	The ability to put summary data concisely and logically
Evaluation	Formulation of criteria for the selection of data in accordance with the ne
	Selection of resources under the proposed or formulated criteria
	The ability to stop searching
Creation	Ability to articulate advice on solving specific problems or tasks based on the data, including the controversial
	The ability to draw conclusions about the direction of current information on solving a particular problem
	The ability to justify own conclusions
	Structuring of created message to enhance the credibility of the findings
Message (transmission)	The ability to tailor messages to specific audiences (by selecting the appropriate tools, language or visual range)
	The ability to correctly cite sources (substance and in compliance with copyrights)
	Message securing
	Ability to relate tolerant to culture, race, ethnicity or gender
	Knowledge of communication rules that belong to a specific communication (e.g. online)

The main criteria in assessing the competency objectives are:
- Student understand the condition of the problem;
- Student formed a strategy for solving the problem;
- The student is able to formulate criteria for the selection of data to find solutions;
- Student matches the results of search with purpose;
- The student is able to assess the relevance and modernity of Internet resources;
- Student compares and correlates information from multiple sources, is able to stop search on time;
- The student is able to properly search for the required information found on the internet sites;
- The student is able to justify the selection of the presentation of results;
- Student formulates tips for solving a given task;
- Student chooses the correct model representation of data;
- The student is able to structure the data to find the solutions;
- Student searches for intermediate results;
- Student submits the data in graphic form for making comparisons;
- Student selects resources under the proposed or formulated criteria;
- Student explains the criteria for selection of results;
- The student is able to concisely, logically and correctly put conclusions on the results;
- The student is able to justify their conclusions;
- Student structures created document in order to increase the credibility of the findings;
- Final papers are neat and presentable;
- Student takes into account the outcome of the final document;
- The student is able to back up data;
- The student is able to plan their work at the task;
- The level of the task implementation.

Here are some examples of each type of task.

Competency training tasks like: While on vacation in the university you with his girlfriend (boyfriend) are going to visit Lviv. Identify options for how to get there from Kyiv to Lviv by train or bus. To do this, find the necessary information about the schedule of direct (* and transit) trains / buses, ticket prices, taking into account the period of preferential discounts for student tickets. For each option calculate the cost of the trip and its duration. Offer the most successful, in your opinion a variant of the trip. Results of the study give in a presentation or text document using tables and charts for presenting data found. Justify your choice of which option for you is the most appropriate. In addition to the cost of travel, consider other features (duration, convenience, departure and arrival times, etc.).

Competency objectives of the research (teaching and research) type: In preparation for the seminars one of the objectives was to analyze and compare the representation of foreign and domestic scholars define the term "pedagogical design", considering only those definitions that are published in scientific journals, located in the world's scientific and metric bases. Results of the study give in a presentation or text document using tables and links to information found. A list of publications that you use to place an analysis and comparisons with the requirements of Higher Attestation Commission as a bibliography. Justify the choice of scholars whose definition you choose which journals and scientific bases metric preferred and why. Annotated analysis of each article submits to wiki page of the University. The algorithm of the task display using intelligence maps (maps of knowledge).

Competence for tasks such as professional masters in "Social Pedagogy": Develop a draft application form which will include the establishment and operation of shelters for children in Kyiv and Kyiv region "Schools good habits" and will consist of a series of classes for boys and girls of different age groups (11 to 18) on the formation of values, life skills and healthy future life and habits. Classes will be conducted by a group of volunteer professionals: lawyers, psychologists, doctors, hairdressers, beauticians, cooks, etc., to help children learn the necessary knowledge base

and skills to further the effective organization of their lives. Before working directly with children, volunteers and professionals will cycle training organized jointly with Ukrainian community center "Volunteer" (an organization that works with children in shelters during 2002) to obtain during the training sessions skills categories of children who are in shelters. Before creating the Application Form analyze several donor application forms on which develop their form. The form may be submitted in narrative, tabular or combined form.

Teachers develop professional competency tasks from graduating departments appropriate fields they should include a component and professional competence except information and communication component.

7. Conditions for the formation of ICT competence of masters

Formation of ICT competence of masters occurs as during the learning process, so in extracurricular and requires both necessary and sufficient conditions for this process.

The necessary conditions for the formation of the ICT competency of masters advisable to include:

- The creation of the university educational space (http://kubg.edu.ua/2012-08-15-10-06-19.html);
- The use of teachers certified e-learning courses that are placed in the electronic environment, education university, social networking and Web 2.0 services;
- monitoring the quality of electronic educational courses (http://kubg.edu.ua/images/stories/Departaments/ndl.io/Вимоги_до_проведення_експерти зи_ЕНК.pdf), that are developed by teachers and the effectiveness of their use (questionnaire evaluating the quality of electronic educational course https://docs.google.com/a/kubg.edu.ua/forms/d/12FAVyYp7WG5Ttf-EFGcFXuURMYg02wUGYlM4uIcUb1U/viewform);
- Creating personalized space for master e-education;
- Create an master e-Portfolio and it's analysis (http://wiki.kubg.edu.ua/Варченко-Троценко_Лілія_Олександрівна);
- Requirements for the master's professional competence, which includes ICT competence;
- New requirements for the registration of master works and their representation in educational electronic environment of the university.

Sufficient conditions for the formation of a corporate standard of master's ICT competence are:

- Training and exams in the Microsoft IT-Academy: obtaining certificates, including international standard (system of e-learning university http://e-learning.kubg.edu.ua/, IT-Academy http://kubg.edu.ua/struktura/pidrozdili/ndl-informatizatsiji-osviti/microsoft-it-academy.html);
- Solving competency problems (academic, research and professional nature);
- The introduction of a special course for Masters "Presentation of scientific activity of masters with ICT", main task is to introduce Master of technologies and resources for education and research training, and opportunities to master the effective presentation of the results of research (http://wiki.kubg.edu.ua/ Навчання_магістрів)

8. Pilot monitoring of base level formation of ICT competence of masters

In order to test developed tools among undergraduate and graduate students (4, 5 courses) in different specialties were conducted testing to determine basic level ICT competence.

All students have the same time to complete the test tasks. All tasks were made as a test of the system of e-learning university located on the platform LMS Moodle, divided into categories, namely basic knowledge of information technology, operating system, computer, text editor and spreadsheet, database, presentation, graphics, software, computer networks. Breakdown of tasks for each category are shown in Figure 2.
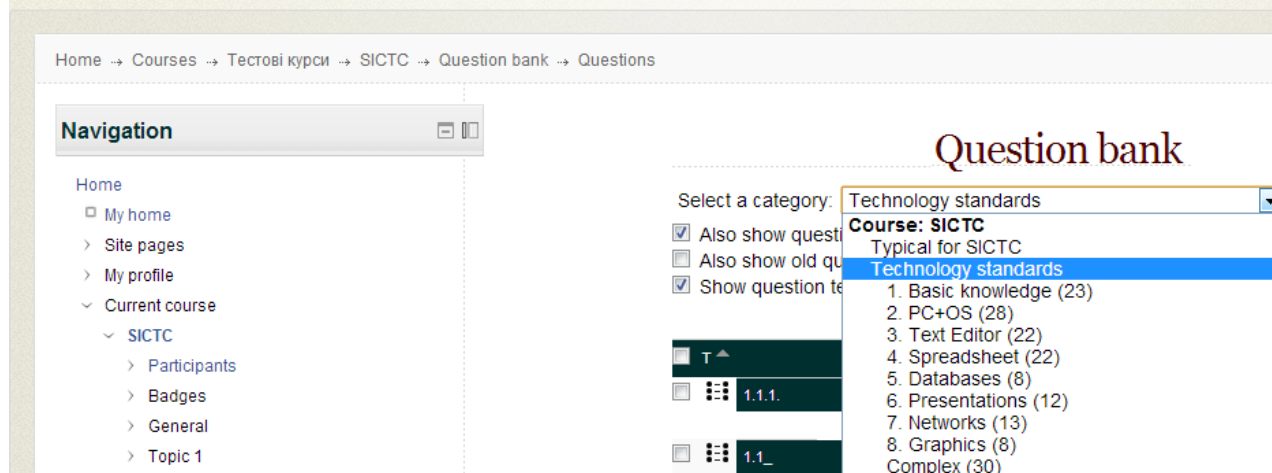
Fig. 2. Breakdown of tasks into categories to determine base level of ICT competence

Here are some examples of tasks for each category.

Type 1. Choose the correct answer. Email shall be necessarily composed of: a) the address of the mail server, user name and password; b) the address of the mail server; c) the name of the user; d) e-mail server and username.

Type 2. Choose the correct answer. What key or combination allows us to copy the active window? a) Alt+Prt Scr; b) Ctrl+V; c) Prt Scr; d) Ctrl+A.

Type 3. Choose the correct answer. The area at the top or bottom margin of each page of the document that shows one and the same information on each page is called...? a) header; b) footnote; c) field; d) AutoText.

Type 4. Choose the correct answer. Which MS Excel formulas contain absolute cell reference P12? a) A1*P$12; b) A1*$P$12; c) A1*$P12; d) A1*P12.

Type 5. Choose the correct answer. What types of databases are there? a) text; b) graphics; c) Table; g) network; e) hierarchical.

Type 6. Choose the correct answer. MS PowerPoint program is part of a) web page editor; b) the package MS Office; c) Operating System Windows XP; d) file manager.

Type 7. Choose the correct answer. What are the synonyms of the term is "web"? a) World Wide Web; b) Wiki; c) WWW; d) Blog; e) messenger.

Type 8. Choose the correct answer. A vector image is made up of: a) pixels; b) cells; c) primitives; d) voxels.

The test results of students were completely unpredictable. The test questions were quite simple. They were developed for students of 1st year undergraduate. As a result, students who complete the training at the bachelor and master not own up to the mark even basic ICT competence. Therefore it is necessary to pay attention to the quality of teaching of ICT and use them during the learning process.
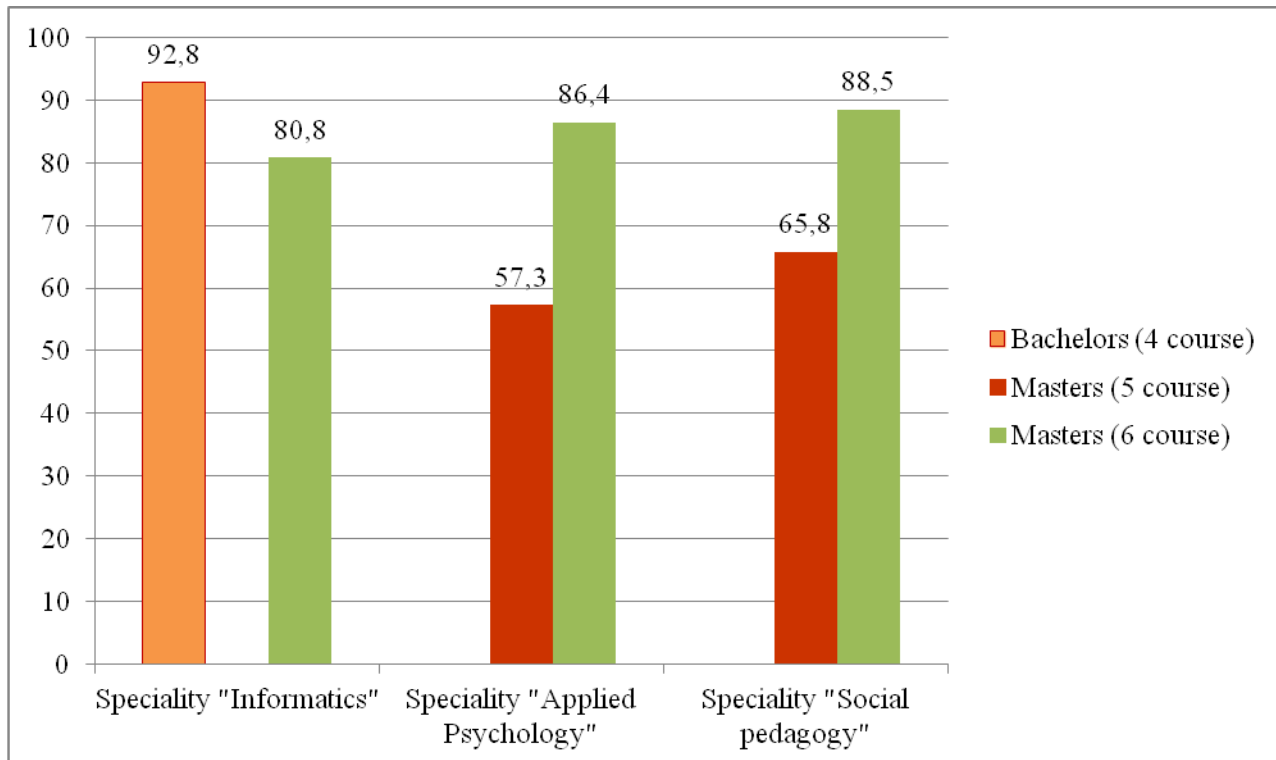
Fig. 3. Basic level of ICT competence of masters

The results of the pilot monitoring of formation of ICT competence confirm the need to develop ICT competency standards for masters in the university. Their adoption will contribute to the educational process, activation of all participants in the educational process and training of highly qualified professionals who meet the requirements of the modern labor market.

9. Conclusions

Constituent part of professional competence of master of any type must be ICT competence. Due to the lack of approved standards in the ICT competence in Ukraine for all members of the educational process of the university the task is to develop a corporate standard of ICT competence, based on the recommendations of UNESCO.

Model of ICT competence of Masters presented as a matrix showing the main activities and aspects related to the knowledge and skills to use ICT in solving professional and practical tasks and ICT proficiency for each of the key missions of the future specialist.

Formation of ICT competence of Masters conventionally divided into three levels: basic (1st year undergraduate), advanced (undergraduate) and professional (master), each of which has certain knowledge and skills. With the formation of the ICT competence is advisable to devote the necessary and sufficient conditions.

To determine the quality of formation of knowledge and skills of each level are used special tools.

The results of the pilot monitoring tools developed for determining the baseline of ICT competence confirmed the need to develop and implement corporate standard of ICT competence of masters.

In the future it is planned to develop corporate standards for all members of the educational process of the university.

Implementation of corporate standard of ICT competence will improve the quality of the learning process, training of highly qualified professionals who meet the requirements of the modern labor market.

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КОРПОРАТИВНИЙ СТАНДАРТ ІКТ КОМПЕТЕНТНОСТІ МАГІСТРІВ

Поточний попит на ринку праці визначає модифікацію системи вищої освіти, в тому числі, передачу акцентів на освітній процес в його остаточному якісному результаті, парадигми від утворення знань до компетентності. Студент повинен володіти компетенцією у сфері ІКТ, що сьогодні стало частиною професійної компетентності фахівців будь-якого типу. Мета дослідження полягає у розробці стандартів ІКТ-компетентності всіх членів освітнього процесу для забезпечення якості університетської освіти та створення та подальшого здійснення освітньої політики університету. У статті підкреслюється необхідність розробки корпоративного стандарту ІКТ компетентності магістрів на основі наукових підходів ЮНЕСКО. Описується модель, рівень компетентності та інструментів ІКТ для моніторингу її формування в майбутньому для сучасних професіоналів. Для кожного з обраних трьох рівнів компетенції у сфері ІКТ (базовий, просунутий і професійний) визначаються необхідні знання та навички, таланти і ідеї в освоєнні. Визначаються необхідні і достатні умови для формування ІКТ-компетентності магістрів в сучасному університеті, запропоновано приклади завдань і вимог до компетентності для персонального освітнього електронного простору для студента і навчального електронного простору університету. Розроблений і затверджений корпоративний стандарт забезпечує відповідну експертизу сучасного фахівця, який відповідає вимогам ринку праці і дозволить випускнику бути успішним у сучасному інформаційному суспільстві.

Ключові слова: компетентність у сфері ІКТ, стандарт, ІКТ компетентності модель, моніторинг, приватне електронне освітній простір для магістра, електронне портфоліо.

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КОРПОРАТИВНЫЙ СТАНДАРТ ИКТ КОМПЕТЕНТНОСТИ МАГИСТРОВ

Текущий спрос на рынке труда определяет модификацию системы высшего образования, в том числе передачу акцентов на образовательный процесс в его окончательном качественном результате, парадигмы от образования знаний к компетентности. Студент должен обладать компетенцией в области ИКТ, что сегодня стало частью профессиональной компетентности профессионалов любого типа. Цель исследования заключается в разработке стандартов ИКТ-компетентности всех членов образовательного процесса для обеспечения качества университетского образования и создания и последующего осуществления образовательной политики университета. В статье подчеркивается необходимость разработки корпоративного стандарта ИКТ компетентности магистров на основе научных подходов ЮНЕСКО. Описывается модель, уровень компетентности и инструментов ИКТ для мониторинга ее формирования в будущем для современных профессионалов. Для каждого из выбранных трех уровней компетенции в области ИКТ (базовый, продвинутый и профессиональный) определяются необходимые знания и навыки, таланты и идеи в освоении. Определяются необходимые и достаточные условия для формирования ИКТ-компетентности магистров в современном университете, предложено примеры задач и требований к компетентности для персонального образовательного электронного пространства для студента и учебного электронного пространства университета. Разработанный и утвержденный корпоративный стандарт обеспечивает соответствующую экспертизу современного специалиста, который отвечает требованиям рынка труда и позволит выпускнику быть успешным в современном информационном обществе.

Ключевые слова: компетентность в области ИКТ, стандарт, ИКТ компетентности модель, мониторинг, личное электронное образовательное пространство для магистра, электронное портфолио.