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MODERNIZATION OF IT EDUCATION IN UKRAINE: PROBLEMS AND PERSPECTIVES IN SOCIAL – CULTURAL SPHERE

The purpose of the article is to take into account the process of integration of Ukraine's education into the international educational space, it is necessary to pay attention to the projects of the national standard classification of education that relate to the directions and specialties of training of IT specialists and outline the expediency of these areas of professional training in higher educational institutions of culture. **Methodology of investigation** consists in the analysis of existing projects of the national standard classification of IT education made conclusions about their compliance with international standards and recommendations. On the basis of the analysis of open statistical data, the importance of the development of the socio – cultural sphere as a promising branch of the economy and the need for IT specialists with knowledge in this subject field.

The analysis of existing projects of the national standard classification of IT education made conclusions about their compliance with international standards and recommendations. On the basis of the analysis of open statistical data, the importance of the development of the socio – cultural sphere as a promising branch of the economy and the need for IT specialists with knowledge in this subject field. Scientific novelty consists in considering the problem of IT education in non – core higher educational institutions, in particular, in higher educational institutions of the socio – cultural sphere. **Conclusions**. The article analyzes the proposed projects of the national standard classification of education related to the directions and

specialties of preparation of IT specialists. Proposed projects of the national standard classification in education related to the directions and specialties of preparation of IT specialists have been analyzed in the article. The emphasis is placed on the need to harmonize educational IT-programs and professional IT qualifications. It has been emphasized on the expediency of training specialists in information technology in universities of culture in connection with the need to master the subject field for which the software product is being created or implemented.

Key words: IT-education, national standard classification of education, IT-specialists, socio – cultural sphere.

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Модернізація ІТ-освіти в Україні: проблеми й перспективи соціокультурної сфери

Мета роботи. Зважаючи на процес інтеграції освіти України до міжнародного освітнього простору, необхідно звернути увагу на проекти національної стандартної класифікації освіти, які стосуються напрямів та спеціальностей підготовки ІТ-спеціалістів та окреслити доцільність цих напрямів професійної підготовки у вищих навчальних закладах культури. **Методи дослідження**. За допомогою аналізу існуючих проектів національної стандартної класифікації ІТ-освіти зроблено висновки щодо їх відповідності міжнародним стандартам та рекомендаціям. На основі аналізу відкритих статистичних даних наголошено на важливості розвитку соціокультурної сфери як перспективної галузі економіки та необхідності підготовки ІТ-фахівців, що володіють знаннями в даній галузі. **Наукова новизна**. Розглянуто проблему ІТ-освіти в непрофільних вищих навчальних закладах, зокрема у ВНЗ соціокультурної сфери. **Висновки**. У статті проаналізовано запропоновані проекти національної стандартної класифікації освіти, які стосуються напрямів та спеціальностей підготовки ІТ-спеціалістів. Акцентовано увагу на необхідності гармонізації освітніх ІТ-програм і професійних ІТ-кваліфікацій. Наголошено на доцільності підготовки фахівців з інформаційних технологій у ВНЗ культури у зв'язку з необхідністю оволодіння предметною галуззю, для якої створюється або впроваджується програмний продукт.

Ключові слова: ІТ-освіта, національна стандартна класифікація освіти, ІТ-фахівці, соціокультурна сфера.

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Модернизация IT-образования в Украине: проблемы и перспективы социокультурной сферы

Цель работы. Учитывая процесс интеграции образования Украины в международную образовательную среду, необходимо обратить внимание на проекты национальной стандартной классификации образования, касающихся направлений и специальностей подготовки IT-специалистов и подчеркнуть целесообразность этих направлений профессиональной подготовки в высших учебных заведениях культуры. **Методы исследования**. С помощью анализа существующих проектов национальной стандартной классификации IT-образования сделано выводы об их соответствии международным стандартам и рекомендациям. На основе анализа открытых статистических данных подчеркнуто важность развития социокультурной сферы как перспективного направления развития экономики, а также необходимости подготовки IT-специалистов, которые обладают знаниями в данной предметной области. **Научная новизна**. Рассмотрена проблема IT-образования в непрофильных высших учебных заведения, в частности в вузах социокультурной сферы. **Выводы**. В статье проанализированы проекты национальной стандартной классификации образования, касающиеся направлений и специальностей подготовки IT-специалистов. Акцентировано внимание на необходимости гармонизации образовательных IT-программ и профессиональных IT-стандартов. Отмечено целесообразность подготовки IT-специалистов в вузах культуры в связи с необходимостью знания предметной области, для которой создается или внедряется программный продукт.

Ключевые слова: IT-образование, национальная стандартная классификация образования, IT-специалисты, социокультурная сфера.

Problem statement consists in Ukraine’s integration into the European educational and economic space requires the reform of the domestic system of higher IT education, provided that it is harmonized with the European system of training IT specialists, understandable for the IT industry, open to the implementation of training and advanced training in the programs of double diplomas, academic mobility of students, graduate students and teachers.

Numerous discussions are the process of changes in the list of specialties and knowledge sectors in accordance with the International Standard Classification of Education (ISCED – 2013), and the problem of non – core specialties in higher education institutions has recently been at the center of attention.

Experts point out that today IT companies experience a sharp shortage of highly skilled specialists, and it has been noted that the educational field in Ukraine today has been characterized by the presence of contradictions between a fairly

significant amount of training of IT specialists of the general profile of so – called "profile" for the IT sphere of educational institutions without taking into account the specifics of the future subject area of activity, and the availability of specific, and often fundamental, features in the content, forms and objectives of the activity in specific subject fields [2].

In the proposed article we aim to draw attention to the proposed projects of the national standard classification of education, which relate to the directions and specialties of training IT specialists, and outline the relevance of these areas of professional training in higher education institutions of culture.

Unfortunately, the new list of most projects' specialties and branches of knowledge do not correspond to contemporary ideas about the strategy of development in IT education, which should correspond to the prospective state of development of the IT industry in the world, as well as recommendations of international documents. In some projects, the field of knowledge "Information and communication technologies" is generally absent, that in today's conditions of the information society's development, where the role of information and communication technologies becomes dominant, it is getting unacceptable. As a result of the elimination of existing IT directions and specialties, Ukraine will receive graduates with a level of qualification only as an information technology user. Such low quality of bachelor's training will exclude the possibility of preparing engineer – researchers and scientists necessary for the effective performance of tasks of an innovative nature, the production of new ideas, the solution of complex problems in the field of professional and / or research and innovation activities, mastering the methodology of scientific and pedagogical activity, and as well as conducting own scientific researches, the results of which will have scientific novelty, theoretical and practical significance. In accordance with the International Standard Classification of Education (ISCED – 2013) and the International Computing Curricula 2001/2013, developed by the International Association for Computing Machinery (ACM), IEEE – Computer Society, Association for Information Systems (AIS), The Scientific and Methodological Commission on Knowledge "Informatics and Computer Science" of the Scientific and Methodological Council of the Ministry of Education and Science of Ukraine, it was proposed to carry out IT training in Ukraine in such specialties:

***Table 1**. IT Education Specialties*

Knowledge Area	**Specialty code**	**Specialty name**
12 Information Technology	121	Software Engineering
	122	Computer Science
	123	Computer Engineering
	124	System analysis
	125	Cybersecurity
	126	Information Systems and Technology

In our opinion, it is this project that meets the requirements of the ISCED – 2013 as much as possible, retains the existing education structure under the new names, and preserves scientific schools created for many years in higher educational institutions in Ukraine.

The educational system is directly related to the state and development of the labor market. The IT industry is the largest in terms of developed segment' volume of the innovative economy in Ukraine; the IT industry in Ukraine is constantly moving forward and, apparently, it is one of the most advanced spheres in the economy that does not require subsidies or grant – in – aid from the state. In today's conditions, harmonization of educational IT programs and professional IT qualifications is important. In the world, this harmonization is realized through the European framework of ICT competencies. For 23 professions competencies are submitted, for each competence the levels of qualifications have been defined [7].

It also carries out the harmonization of interaction between the IT industry and IT education in Ukraine. According to the project of the concept of the development of Ukraine's education for the period 2015 – 2025 until 2018 it was intended to harmonize the content of vocational education with new professional standards that will be developed with the participation of professional communities and employers' organizations. Today, professional standards for the five professions in information technology have been developed, namely, in Ukraine [4]:

- specialist in information systems;
- specialist in software development;
- project manager in information technology;
- information technology product manager;
- specialist in information resources.

These standards are based on international information technology standards ISO / IEC 15288: 2008, ISO / IEC 12207: 2008, European Framework of Competences (e – CF) [8], [10], [11].

IT professions for which professional standards are developed in Ukraine correspond to nomenclature of professional profiles of European e – CF, namely: Information Systems Specialist, Software Developer, IT Project Manager, IT Product Manager, and Information Resources Specialist.

Representatives of such IT companies as Epam Systems, Global Logic, Skyline Software have participated in the professional standards' development. There is all – Ukrainian public organization "The Council for Competitiveness of the Information and Communication Technologies in Ukraine", as well as universities, in particular the National Technical University of Ukraine "Kyiv Polytechnic Institute". Unfortunately, today's standards have not yet been adopted.

Today, 148 universities, including national technical, national, classical, pedagogical, humanitarian, etc., carry out the training of specialists in the field of knowledge "Informatics and Computing" in Ukraine. For a long time in the national scientific discourse the attitude towards non – core specialties in higher educational institutions had a negative shade. Today, the provision of a real status of autonomy

for higher education institutions, increasing the level of academic mobility, the modernization of the content of higher education in accordance with the new Law of Ukraine "On Higher Education" and the draft Concept for the Development of Ukraine's Education for the period 2015 – 2025, the needs of the modern economy and integration of Ukraine into the European educational – economic space, actualizing the issues above all, about the quality of education, and not about its profile [2].

In January 2018, the Government approved the Concept of the Development of the Digital Economy and Society of Ukraine, which envisages implementation of measures to implement appropriate incentives for the digitization of the economy, social and social spheres, awareness of existing challenges and tools for the development of digital infrastructures, acquisition of digital competences by citizens, and identifies critical spheres and projects of digitalization, stimulation of the domestic market of production, use and consumption of digital technologies. The main purpose of digitization is to achieve the digital transformation of existing and create new industries, as well as the transformation of spheres of life into new, more efficient and modern [3]. Therefore, it is important to provide a differentiated approach to the training of IT specialists, taking into account the subject areas of their future professional activities.

The prospect of the socio – cultural sphere and creative industries as one of the driving forces of economic development is evidenced by the fact that, according to Eurostat, in 2015 the cultural sector was 2.9% of the total labor force in Europe [6]. The entire sector of creative cultural industries accounts for around 4% of European GDP and provides jobs for 8 million people (European Commission, 2017). This industry is one of the most stable in times of crisis and can more easily adapt to change. Europe is the second largest market in culture and creativity (CCI or Cultural and Creative Sector, CCS) in the world after Asia. The European Union creates 32% of the world's CCI revenues and 26% of all jobs in the world.

In accordance with modern information and technology requirements and conditions, under the influence of radical changes in the structure of information resources, channels of access **to them**, the rapid pace of development of computer and telecommunication technologies, electronic convergence of documentary subsystems of society, enterprises, institutions, organizations and administrations of *socio – cultural areas* require highly skilled specialists capable of solving interdisciplinary problems.

The socio – cultural sphere is characterized by a wide range of activities: museum, library and archives, audiovisual industry, publishing business, digital culture and network art industry, hospitality industry, including tourist and hotel and restaurant business.

Researchers O. Matviyenko and M. Tsivin point out that the practice of work of socio – cultural institutions shows that the complication of technological procedures of their activities, as well as in the conditions of the globalization of the information environment, is essentially necessary knowledge of the *subject field* for which the software is created (or adapted or implemented) product [2, 21].

Thus, thoroughly evaluating all aspects of graduates' benefit with a profile IT education, for example, in libraries, researchers recognize that the main problem in the way of their effective demand is *the lack of knowledge that defines the content of the subject industry is library production.* Researchers also admit that "non – core" in the IT field of the university has the ability to avoid massive and "conveyer" learning, while focusing on the subject area for which future specialists are trained [2, 23].

Thus, modernization and integration of IT education of Ukraine into the international and European educational space are being carried out today. That is why the new list of specialties and branches of knowledge must be developed in accordance with the International Computing Curricula recommendations and in accordance with the International Standard Classification of Education (ISCED – 2013).

Harmonization of the interaction of the IT industry and IT education is through the development of professional IT standards and should be based on the implementation of effective mechanisms of social partnership and have a long – term perspective. The purpose of the interaction of the IT industry and IT education – improving the quality of IT graduates training.

The realization of tasks facing cultural institutions in modern conditions, actualizes the need for training specialists in the field of the introduction and use of information systems, tools and technologies in cultural institutions and requires a flexible system for determining the qualifications of future specialists.

The methodological basis of IT education in cultural institutions should be the concept according to which IT – activity is effective under the condition of fundamental knowledge and ideas about a reliable model of the subject area for which a software product is being developed or an information system is implemented.

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