

INFORMATION COMPETENCE OF FUTURE RADIOENGINEERS IN THE PROCESS OF PROFESSIONAL TRAINING

The problem of information competence of a future radiotricians in a technical university is considered. The basic elements of informative jurisdiction are described as experience of working with information, but not with its means, as ability to perceive means of information critically, to discover information, to estimate, to do a choice and to process it independently. As a result key jurisdictions which are included in the information competence must be formed during an educational process.

Keywords: higher education, information competence, technical universities, information technologies.

Raising of a problem. Socio-economic changes in Ukraine, processes of globalization and integration of world community, intentions of Ukraine to join European educational space stipulated the necessity to modernize the system of professional training of future specialists. During the last decade technical formation of our state has tested considerable changes that are related to emerging enterprises of new patterns of ownership, development of market relations, processes of Euro integration. One of the major changes is the informatization of society.

Appearance of new software products, technologies of operating with information, development of telecommunications, creating of electronic business had led to that the information technologies became inalienable part of life and professional activity of radioengineering specialists. In this connection professional was transformed substantially tested by the functions of activity of engineer that stipulated the necessity of considerable modernization of professional preparation of future radioengineering specialists.

There is a number of contradictions in practical activity of higher technical educational establishments, in particular: between the increase of requirements for professional preparation of radioengineering specialists in the sphere of the use of modern information technologies and the absence of the system of the scientifically-methodical providing at every stage of professional preparation of future radioengineering specialists; between dynamic changes in professional activity of future specialists and insufficient taking into account of this specific nature in subject matter of professional preparation; between the present and the necessary volume of knowledge, abilities and practical skills of students of information technologies specialties; between the present and the necessary level of possessing skills of working with modern information.

The professional competence of a specialist shows the aggregate of requirements to solve the professional tasks, the set of professional knowledge, abilities and capabilities to apply them to realize professional activity.

Entering the information society produces fundamentally new requirements as for education system, level of preparation of graduating students, their professional competences, major one among them is an informative competence. Interpretation of term «competence» in a great deal depends on what language it is translated from. For example, in French [1] the term «competence» has two meanings: competence and awareness; in English [2] – three meanings: ability, skill, competence.

New approach is needed in reformation of technical education in our country. In intercommunicating between an employer and a graduating student of technical universities disparity between the factors of demand and supply at the market of labor appears. Under an employer we mean not only the state, but plenty of independent enterprises, firms, corporations which can be called organizations. As they show solvent demand at the market of labor resources, then in the future they only will determine maintenance and orientation of professional preparation by means of demand for competitive jurisdictions of graduating student of higher technical educational establishment.

Analysis of the last researches and publications. The analysis conducted shows that the most of authors single out the information competence as the key one which is necessary for both the successful studies of student and his professional activity and life in modern society.

The information competence is the integration quality of a person who is characterized by cognitive, valued-motivational, technical, communicative, reflex structural components; by cognitive, communicative, adaptive, normative evaluation; by interactive functions and properties: relativity, dualism, structural features, selectivity, accumulative polyfunctioning [13].

Majors of computer cycle are considered to be an important factor which provides readiness of a person to continue his education and self-education in different areas of human activity. It stimulates motivation and steps up cognitive activity of students, provides interrelation, mastering and systematization of knowledge gained before, teaches how to apply knowledge in a new situation and allows solving professional tasks. So it contributes to forming information competence of students.

In the process of work a student learns to analyze, to compare obtained information with those studied before, and information technologies allow to find the optimum and various methods of decision. It serves him as preparation for a future professional activity, when the decision of problem situation is not limited by one area of knowledge, but it assumes integration, competent use and presentation of information, in a new kind.

Unsolved parts of general issue. Today employers pull out certain requirements not only to direction and level of education, but foremost to concrete skills and work experience of applicants for employment. Presently in Ukraine there is certain contradiction between the requirements of modern society to the specialist and real level of his preparation in higher technical educational establishments.

Researching of trends of education progress in the world certifies wide introduction of competence-oriented education, the key concept of which is a competence. Plenty of works are devoted to the concept of jurisdiction and competence. In some works these concepts are differentiated, in others they are considered as synonyms. Under jurisdictions we will understand the beforehand set social requirement (norm) to preparation of a man, which is necessary for his productive activity in a certain sphere. A competence is an integrative description of a person, which represents a willingness and ability of the person to mobilize the knowledge gained, abilities, experience and methods of activity and behavior for the effective solving the tasks which appear in the process of activity. In pedagogical researches professional, key, object and other competencies are highlighted.

The competence in industry of informatics, computer technique, and informatively communication technologies is connected with information culture, information competence, information communicative, information computer, information technological competence. For today the problem of competence in industry of informatics hasn't been duly developed: clear determination of this phenomenon is absent, its structure is ambiguously examined, there are divergences in the selection of key jurisdictions in industry of informatics, all those complicate searching the system of adequate ways and methods of forming and developing information competence of students.

As results of theoretical analysis testify, a problem of preparation of future radiotricians on computer cycle disciplines in modern terms has not been investigated enough in pedagogical theory and pedagogical practice yet. Maintenance of educational disciplines doesn't conform to the modern rates of information technologies development to the full degree; insufficient attention is given to independent work of students in studying disciplines of computer cycle; in addition, students don't always have skills of working with all kinds of information. These all reduce the level of information competence development of a future specialist on radio engineering.

Purpose of the article. In modern terms of development of scientific capacious technologies forming the information competence of a future radiotrician acquires special significance. In fact a specialist on the radio engineering must be able to use possibilities of modern telecommunication and network technologies in his professional activity. It is possible to attain it only under condition of formed information competence of the future radio engineering specialist.

Presentation of basic material. Forming the information world view is closely related to the ethics side of informative culture. It is realized in creative activity of specialist, in ability to solve technical, organizational, administrative and other sorts of tasks, taking into account possible consequences for professional activity. Forming the ethics component of informative culture means education of the personal responsibility for character of information, principles and persuasions which hinder the distribution of socialdestructive information and disinformation and the manipulation of people consciousness [13, p.156]. At psychological level informative style of thoughts of a specialist is formed. He foresees making of optimum reaction on the information got, ability to operate in conditions of surplus of information, to seize the methods of analitico-synthetic treatment of information.

Thus it is important to teach a specialist to estimate the high-quality side of information, to select reliable news among a huge amount of information, to correlate them with already gained knowledge, to grasp them critically, to interpret right and to use obtained information for making different sorts of decisions. Informative style of thought in the terms of enormous bits of information will allow to produce skills for the perception of information [13, p. 156].

At social level the system of concepts of a future specialist is developed. It serves as obligatory condition of socialization of the personality by implementation of various functions in society [13, p. 157]. On the basis of information necessities and settings the system of abilities and capabilities is developed, that creates the technological level of informative culture, which will be realized in informative activity. [13, p. 157].

Emotionally esthetic level of informative culture is the system of feelings and emotions which determines the process of satisfaction of a personality's requirements for information and his behavior in an informative environment. This system will be realized in emotional activity of the personality and related to the emotional reaction upon influence of information in the process of information activity [14, p. 28].

An informative culture is the ability of an individual to adequately use present information resources, to combine them skillfully, achieving new high-quality results of the activity, feeling if it is necessary a requirement for replacement or expansion of their components [17, p. 3].

It should be noted that maintenance of the concept «information competence» is much wider than other adopted concepts, it removes more precisely co-operating of an individual with informative environments and informative space.

Information culture is mainly associated either with technical and technological aspects of informatization, mastering of work skills with personal computer, or with learning the rules of the use of certificate bibliographic system of the library, the algorithms of searching in traditional, rarely electronic catalogues.

The importance of each of these directions does not cause doubts. However insulation, noninteraction of these approaches, does not allow to provide achievement of the primary objective – the forming of information competence of a personality [15].

Information jurisdiction is not considered to be only the simple qualification which takes into account the actual requirements of economic patterns, it is something greater. In this context the experience of working with information becomes more significant than working with its facilities, as it is certain in computer capacity. In society of the knowledge it is more important to be able to perceive critically information means, to look for information, to estimate, to select it and to process it independently [16].

The forming of information competence of a future radiotrician is determined firstly, by knowledge about information, information processes, models and technologies; secondly, by abilities and skills of application of ways and methods of treatment and analysis of information in different types of activity; thirdly, by ability to use modern information technologies in professional activity; fourthly, by world view vision of outward things as an open information system.

The construction of a model of forming the information competence of a future radiotrician will be carried out on basis of:

1. Structure and maintenance of information competence of a future radiotrician;
2. List of professional tasks which are determined in maintenance of professional activity of a future radiotrician;
3. Maintenance of information activity of a future radiotrician.

But the cornerstone of forming the information competence of a radiotrician is the content of education and pedagogical facilities which influence the results of educational process.

Presently in education system basic directions of application of information technologies have been created in the educational process, among them there are: using of CASS and complexes in the process of study; using of consulting models and systems of support of making decisions; mastering of information technologies for the purpose of their application in professional activity; utilizing of information technologies like didactic means for the design of different objects and processes; increasing of a creative constituent part of educational and researching activities.

Introduction of new information and computer technologies changes the nature of professional activity: the methods of organization of labor and cooperation of the computing engineering with people and manufacturing equipment change, associated with social, economic and cultural problems emerged. Professional activity becomes multifaceted.

Technical activity develops in environment, which strengthens human relationships, makes it necessary to adhere to such criteria, as management, exactness, quality, and causes critical behavior and creative activity. An important factor is the necessity of teaching a future specialist to cope with situations which change.

In modern professional activity it is necessary to learn how to operate in the conditions of introduction of new information and computer technologies and to seize new areas for their application, to deepen and extend studying for the purpose of gaining new knowledge. For determination of maintenance of educational

disciplines it is necessary to analyze features of professional activity in the conditions of informatization of society as a whole and influence of information and computer technologies on the organization of educational process, on maintenance of education and terms which facilitate forming of certain psychological qualities of a personality. Forming of information competence is not only a result of studying in higher educational establishment. It is ongoing process which takes place during whole professional activity of a specialist. But while studying, the main jurisdictions included in the information competence of a future radiotrician are formed. There are information, computer and law jurisdictions. After finishing study these jurisdictions are added by new knowledge and abilities, but their structure does not change. Thus, while studying in educational establishment all the jurisdictions included in information competence of a future radiotrician must be formed.

Forming of informative competence of a future radiotrician will be realized during informatively computer preparations of a specialist.

The result of preparation of a specialist in relation to application of information and computer technologies is a process and result of forming of information competence, connected with an expedient choice and use of information technologies and computer facilities, necessary for a contemporary competitive specialist, and of forming of capabilities of their application during solving professional tasks.

Conclusions and research prospects. Thus, the structure of information competence of a future radiotrician can be presented in the form of two components. First of them is a personal one which determines individual qualities of a specialist, needed for successful professional activity and application of information technologies. The second component is professionally informative one that is an aggregate of jurisdictions which determine the ability of a specialist to use information and computer technologies for solving various tasks. Having analysed the filling of a professionally informative component, we have concluded, that a professionally functional constituent part of the informative component is a set of jurisdictions of two types, one of them is general, variable, which contains computer, informative and applicable constituent, and the second one is a special, invariable jurisdictions, related to the specialized program software.

Список літератури

1. Балакірова С. Ю., Павленко В. В. Інформаційна компетентність управлінця в контексті «культури реальної віртуальності» / Ю. С. Балакірова, В. В. Павленко // Вісник НТУУ «КПІ». Філософія. Психологія. Педагогіка. – 2012. – Вип. 1. – С. 7–10.
2. Баловсяк Н. В. Формування інформаційної компетентності майбутнього економіста в процесі професійної підготовки : дис. канд. пед. наук : 13.00.04 / Баловсяк Надія Василівна / Інститут педагогіки і психології професійної освіти АПН України. – К., 2006. – 334 с.
3. Бойцова О. М. Структура інформаційної компетентності та її аналіз для процесу професійної підготовки [Електронний ресурс] / О. М. Бойцова. – Режим доступу: http://archive.nbuv.gov.ua/portal/soc_gum/Npdntu_pps/2011_9/boytsova.pdf. – Заголовок з екрану.
4. Зимняя И. А. Ключевые компетенции – новая парадигма результата образования / И. А. Зимняя // Высшее образование сегодня. – 2003. – № 5. – С. 34–42.
5. Кисла І. Г. Підходи до формування інформаційної компетентності вчителя загальноосвітнього навчального закладу / І. Г. Кисла // Інформаційні технології в освіті. – 2008. – № 2. – С. 110–113.
6. Клімушин П. С. Кваліфікаційні вимоги інформаційної компетентності державних службовців / П. С. Клімушин // Теорія та практика державного управління. – 2011. – Вип. 2 (33). – С. 1–6.
7. Культурология. XX век. Энциклопедия. Т.1. – СПб. : Университетская книга, 1998. – С. 135.
8. Матвієнко О. В. Основи менеджменту інформаційних систем : навч. посіб. / О. В. Матвієнко, Н. М. Цивін. – [вид. 2-ге, перероб. та доп.]. – К. : Центр навч. літ., 2005. – 176 с.
9. Миронова О. І. Формування інформаційної компетентності студентів як умова ефективного здійснення інформаційної діяльності / О. І. Миронова // Вісник ЛНУ ім. Тараса Шевченка. – 2010. – № 17 (204). – С. 165–175.
10. Тришина С. В. Информационная компетентность специалиста в системе дополнительного профессионального образования [Електронний ресурс] / С. В. Тришина, А. В. Хуторской // Интернет-журнал «Эйдос». – 2004. – Режим доступу: <http://www.eidos.ru/journal/2004/0622-09.htm>. – Заголовок з екрану.
11. Хуторский А. Ключевые компетенции как компонент личностно ориентированной парадигмы образования / А. Хуторский // Народное образование. – 2003. – № 2. – С. 58–64.
12. Ткаченко А. Л., Нестерова Л. Н. Информационная культура будущих инженеров // Высшее образование в России. – 2003. – № 1 – С. 153–158.

13. *Красниченко А. М., Ермолович Е. В.* Информационно-коммуникационные технологии в управлении самостоятельной учебной деятельностью студентов // Информатика и образование. – 2005. – № 2. – С. 102–105.

14. *Назаренко М. М.* Формирование информационной культуры – необходимая составляющая профессиональной подготовки педагогов-психологов - [Электронный ресурс] - Электрон. дан. – Материалы конференции «Информационные технологии в образовании-2003» – Режим доступа: <http://ito.edu.ru/2003/II/3/II-3-2517.html>. – Загол. з екрану. – Мова рос.

15. *Недбай В. В.* Проектная методика как фактор развития информационной компетентности школьника на уроке иностранного языка в средней школе - [Электронный ресурс] - Электрон. дан. – Всероссийский августовский педсовет, 2001. – Режим доступа: <http://2001.pedsocvet.alledu.ru/news.php?n=311&c=42>. – Загол. з екрану. – Мова рос.

16. *Жилкин В. В.* Проблемы освоения современной информационной культуры // Педагогическая информатика. – 2003. – № 3. – С. 3–8.

О. Жарова

Інформаційна компетентність майбутніх радіоінженерів у процесі професійної підготовки

Розглянуто проблему інформаційної компетентності майбутніх радіотехніків у технічному університеті. Охарактеризовано основні елементи інформаційної компетенції, як досвід роботи із самою інформацією, а не з її засобами, вмінням критично сприймати засоби інформації, вишукувати саму інформацію, диференційовано оцінювати, робити вибір і самостійно її обробляти. В результаті в навчальному процесі повинні бути сформовані ключові компетенції, що входять до складу інформаційної компетентності майбутнього радіотехніка.

Ключові слова: вища освіта, інформаційна компетентність, технічні університети, інформаційні технології.

Е. Жарова

Информационная компетентность будущих радиоинженеров в процессе профессиональной подготовки

Рассмотрена проблема информационной компетентности будущих радиотехников в техническом университете. Охарактеризованы основные элементы информационной компетенции, как опыт работы с самой информацией, а не с ее средствами, умением критически воспринимать средства информации, выискивать саму информацию, дифференцировано оценивать, делать выбор и самостоятельно ее обрабатывать. В результате в учебном процессе должны быть сформированы ключевые компетенции, которые входят в состав информационной компетентности будущего радиотехника.

Ключевые слова: высшее образование, информационная компетентность, технические университеты, информационные технологии.