

THE CONCEPT OF E-TEACHING AND METHODOLOGICAL COMPLEX FOR GENERAL SCIENTIFIC DISCIPLINES

M.A. Sviryaeva, N.V. Molotkova, I.A. Ankudimova

Tambov State Technical University, Tambov

*Represented by Doctor of Pedagogical Sciences,
Professor A.L. Denisova*

Key words and phrases: distance learning; electronic educational-methodical complex; vocational education.

Abstract: The paper reviews the new information technology educational process; analyze approaches to creating and developing the methodological principles of design of electronic educational-methodical complex.

Modern trends in education call for new educational technologies and learning tools. An important place is occupied by information technology. New electronic books, developed automated training systems, virtual universities are organized to discuss distance learning.

Using Internet technology opens up new opportunities for lifelong learning professionals for the second education makes learning more accessible. The main task of the educational process is to provide trainee with the possibility to obtain high-quality professional knowledge in his chosen field. In the process of distance learning student independently develops online training and methodological material through testing. Distance learning is interactive through specially prepared programs, electronic textbooks, electronic teaching methods, etc.

Active implementation of modern information and communication technologies in educational process is an important factor in creating the educational system that meets the requirements of information society and the process of reforming the traditional educational system in light of the demands of modern industrial society. The use of communication technologies in education has led to the emergence of a new generation of educational information technologies that have improved the quality of education.

Information and communication technologies have a significant influence on the learning process, changing the pattern of knowledge and teaching methods. The introduction of information technology not only affects the

Свириева М.А. – кандидат педагогических наук, старший инспектор института дистанционного образования, e-mail: svmarina_a@mail.ru; Молоткова Н.В. – доктор педагогических наук, профессор, заведующая кафедрой «Технология и организация коммерческой деятельности», проректор по довузовскому образованию; Анкудимова И.А. – кандидат химических наук, доцент кафедры «Химия», ТамбГТУ, г. Тамбов.

education system and educational technology, but also allows you to enter a process of formation of special equipment, software and hardware. It also involves the creation of new training facilities and storage of knowledge, which include electronic training and mentoring systems, electronic books, digital libraries, global and local educational networks, information retrieval systems, etc.

In our view, the most promising application of modern information and communication technologies in educational process is the use of electronic teaching methods, the use of telecommunications, etc.

From this perspective, it is expedient to analyze the approaches to creating and using electronic educational resources and the development of methodological principles for the development of electronic educational-methodical complex (**EUMC**) for general scientific disciplines [4].

Research and experience show that EUMC discipline should contain the following elements:

- Electronic books, which include theoretical material, a glossary, as well as subjects of laboratory and practical work;
- Plans to lecture and practical exercises;
- Virtual laboratory complexes;
- Abstracts of presentations of lectures;
- Tasks for laboratory work;
- School assignments for independent work and requirements to them;
- Questions and tasks for the final certification;
- Descriptions of information resources and technologies required to complete school assignments;
- Guidelines for use of the complex;
- Electronic test bank;
- Links to Internet resources and additional training materials for in-depth study of discipline (textbooks, manuals, magazines, etc.).

EUMC freely distributed on the local Intra-university network and the Internet. EUMC allows a higher methodological, theoretical, technological and methodological level to organize and implement training in terms of integrity of the educational process and the organic incorporation of innovative learning technologies in the professional formation of engineers.

The main advantages of e-learning courses compared to the block are:

- The inclusion of multimedia pieces and animation;
- Easy of replicate;
- Easy to update the material or its adaptation to the needs of individual categories of users;
- Easy hypertext navigation [2].

Practice shows that the real embodiment of modern information technologies in educational process is a system of developing learning tools, built on a modular form of training. The content of education in the technology is represented in the complete self-information blocks. EUMC in this context that ensures the continuity and completeness of the instructional cycle of the learning process by providing a theoretical material, contributing to the organization of training and educational activities to control the level of knowledge, information and research activities, mathematical modeling and simulation with computer visualization, and service functions [3]. The textbook

should have some excess of theoretical material, as it will build a variant trajectory study of sections of the course, providing some freedom of choice subject to the requirements of educational programs.

Electronic textbook focuses on the maximum level of perception and awareness of educational information, activating all aspects of training and learning activities and learning. It provides systematic data on relevant scientific and practical knowledge, providing a creative and active mastery of students' knowledge, skills and abilities in this area. This EUMC must be of high level of performance and visual quality, completeness, quality methodological tools, technical implementation, clarity, logic and consistency of presentation, reliability and ease of access to information, the organization quickly find and work with interesting material.

The technology to develop an electronic educational-methodical complex as an integrated component of the educational environment based on the following key principles:

1. Principle of modularity: EUMC made in formats that allow you to compose logical, meaningful units in electronic systems, expanded and updated to include new sections and topics, as well as create digital libraries in specific subject areas or personal electronic library of the student, teacher or researcher.

2. The principle of free access to educational materials: realized through the use of the navigation system and «pop-up» in the structure of logical-semantic system of hypertext links throughout the tutorial and a separate module.

3. The principle of clarity: each module of the electronic textbook consists of a collection of frames with a minimum of text and visualization to facilitate understanding and remembering new concepts and methods, which involves the use of a rhythmic combination of various types of information from a position of compliance with the type of educational material, and especially its perception.

4. The principle of regulation: the student self-managed change in personnel, has an opportunity to bring to the screen any number of examples (the concept of «example» has a broad meaning: it is, and examples that illustrate the concepts under study and approval, and specific tasks): the number of tasks required to solve a certain level of complexity to ask them themselves or a teacher, check yourself (answers to test questions or tests, deciding quiz). Electronic manual allows adaptation to specific user needs in the learning process, allowing you to vary the depth and complexity of the material under study and its applied focus, depending on the direction of specialization and training of the trainee, in relation to the needs of the user to generate an additional illustrative material, to provide interpretations of the studied concepts and derive a solution [1].

5. The principle of software and technology support: at any time of the trainee gets computer support, releasing him from the routine work and concentrate on the substance being studied in the present material, to consider a greater number of examples and solve more problems. And the software that performs these functions, focus not only on the transformation and a variety of calculations and graphical representations, but also check the results at any stage of working with information, not just at the final answer. Using EUMC application it is possible to organize the whole process of studying general

scientific disciplines focusing on the implementation of the competency approach and the active involvement of educational opportunities for distance learning technologies.

References

1. Зимина, О.В. Печатные и электронные учебные издания в современном высшем образовании: теория, методика, практика / О.В. Зимина. – М. : Изд-во МЭИ, 2003. – 336 с.

2. Краевский, И.Г. О структуре учебных курсов для дистанционного образования / И.Г. Краевский // Новые информационные технологии обучения в региональной инфраструктуре : тез. докл. II межрегион. науч.-метод. конф., г. Пенза, 24–25 марта 1999 г. / Пенз. технол. ин-т. – Пенза, 1999. – С. 73–74.

3. Осина, С.В. Методика формирования готовности магистров техники и технологии к инновационной деятельности : дис. ... канд. пед. наук : 13.00.08 : защищена 29.03.2007 : утв. 15.06.2007 / Осина Светлана Валериевна. – Тамбов, 2007. – 222 с.

4. Свиряева, М.А. Организация лабораторного практикума по химии на основе электронного учебно-методического комплекса : метод. указания / М.А. Свиряева, Н.В. Молоткова, И.А. Анкудинова. – Тамбов : Изд-во Тамб. гос. техн. ун-та, 2009. – 16 с.

5. Свиряева, М.А. Совершенствование организационно-методического управления образовательным процессом в вузе в условиях дистанционного обучения / М.А. Свиряева // Педагогическая инноватика в современных условиях : сб. ст. Всерос. науч.-практ. конф., г. Волгоград, 2 нояб. 2009 г. / Центр прикладных науч. исслед. – Волгоград, 2009. – С. 196–201.

Концепция создания электронного учебно-методического комплекса по общенаучным дисциплинам

М.А. Свиряева, Н.В. Молоткова, И.А. Анкудинова

ГОУ ВПО «Тамбовский государственный технический университет», г. Тамбов

Ключевые слова и фразы: дистанционное обучение; профессиональное образование; электронный учебно-методический комплекс.

Аннотация: Рассмотрены новые информационные технологии образовательного процесса, проанализированы подходы создания и разработки методической основы проектирования электронного учебно-методического комплекса.

© М.А. Свиряева, Н.В. Молоткова, И.А. Анкудинова, 2010