



Theory and Methodology of Software Modeling Using the Web Platform

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ABSTRACT

This article analyzes the theory and methodology of software modeling using the web platform. Including the theoretical analysis of the processes of formation of algorithmic skills using an independently developed web platform.

Keywords:

Web platform, software modeling, ICT, algorithm, software and methodology, etc.

Introduction. Despite the presence in the world of a large amount of scientific and practical activities, publishing work on the use of ICT in the field of education, the idea that this process is still at its initial stage, what forms of ICT are used in education, and how justified they are is just being formed. The introduction of information communication technologies into the educational process is one of the aspects that really provide results in improving the quality of Education. The presence of interactivity and branching in the learning process – creates the opportunity to achieve results, creating the conditions for the educator to directly find the topic of interest to him and study it.

Reference literature analysis. Research of problems of informatization of education in general, introduction of information and communication technologies in educational practice and e-learning technologies from scientists of the CIS countries A.A.Andreyev, I.G.Zakharova, YE.S.Polat, I.V.Robert, A.V.Khutorskoy, and reflected in the work of other researchers.

To the problems of the methodology of teaching modeling M.L. Lapchik, N.V. Makarova, K.I. Pak and YE.K. Particular attention is paid to Henner's research work. V on the use of special programs such as Python, Java, C++ Builder, Delphi in the study of disciplines related to computer modeling. N. Govorukhin, V.P. Dyakonov, L.A. Mironovsky, and S.V. Porshnev's research work deserves attention.

Research Methodology. Our analysis shows that despite the large number of interests in relation to the problem with the topic, the process of developing and improving the methodology of using the web platform on the basis of computer modeling for future engineers in higher education has been little studied.

Within the framework of this research work, the main attention is paid to the software and methodological support of the educational process in technical disciplines.

Software and methodological support of the educational process-the following: software for educational (educational) purposes or software package for educational purposes; user manual software tool for educational

purposes - or a set of software tools for educational purposes; methodology for using software for educational purposes (methodological recommendations) or software package description for educational purposes consists of such [4].

A software methodological complex is a set of software and methodological tools that provide the process of teaching a particular academic subject (subjects) of a course or its subject[5].

The software methodological complex includes not only theoretical material, but also practical tasks, tests that allow you to carry out self-control. Of particular importance is the creation of a software methodological complex, due to which it lays the foundation for a complex approach to solving basic didactic issues.

Analysis and results. A modern software methodological complex is not just interactive textual or hypertext material, manifested in electronic form, supplemented by video and audiomaterials. The modern software methodological complex is a means of complex impact on the student by combining conceptual, illustrative, informative, training and control parts.

Every day, a large number of educators face not only the use of educational electronic publications, but also their developments. Undoubtedly, the creation of educational electronic publications, which are considered in high demand among many educators, should be dealt with by a whole community of their creators - educators, psychologists, programmers, artists and specialists of many other directions. At the moment, it is possible to engage in the independent development of computer modeling tools of Education, which are not so large, not always performed professionally, but are necessary for the educational process.

In this situation, it is advisable to familiarize yourself with some recommendations before proceeding to the development of a software methodological complex. The consideration of these recommendations in the development of electronic information educational resources

for the educational process can have a positive effect as a means of informatization of Education. Therefore, the specific features of the development of the software methodological complex are as follows: the types of the software methodological complex and the requirements for them, etc., are important, such as the consideration of the stages of development.

At present, in the process of education, software methodological complexes have been introduced into practice. But even today, "an established view of a clear instruction has not been developed: where and when to apply a computer in the educational process, practical experience in assessing the impact of a computer on the quality of Education has not been developed, there are no established regulatory requirements for the type and parameters, appearance of hardware-software tools intended for the educational process" [4]. If the application of software methodological complexes to practice is not methodically provided, or a methodological system of their use has not been developed, then even the best electronic means of education can remain inconspicuous in compilations.

It will be necessary to conduct a comparative assessment of similar developments and, relying on the information received, describe the approach to the creation of a software methodological complex and the methodology for its more effective use, taking into account the specificity of the disciplines being developed.

The software methodological complex will consist of a set of digitized resources that allow students to use them in practice in the necessary situations, in addition to the formation and development of theoretical knowledge, practical skills and abilities in the educational subject studied in teaching subjects in the field of Information Technology. In addition to arming them with theoretical knowledge, practical skills, skills and competencies related to this area, the software methodological complex created to teach programming in future engineers is a set of virtual data, resources, software tools that allow them to create various programs through various media

(computer, plnshet, mobile tools) in the necessary situations.

To see the general characteristics of the actions being mastered, we sometimes have to be distracted from the non-essential characteristics of the subject in this case, which means that it is necessary to move from this state to actions with models that are free from all other features. In the process of teaching, computer modeling and model Act not only as a means and method of cognition of objects and phenomena, but also as a way of mastering the main important properties and laws of real reality.

Teaching the method of computer modeling is an important and integral part of Education. Because, it is computer modeling that helps to determine the relationship of abstract concepts with reality. Computer modeling makes it possible to carry out the manifestation of tools and concepts by moving from a formal task to its interpretation. That is, with the help of each method model, it makes it possible to study various phenomena of the real world.

The computer modeling process is based on a trio in the form of "model → algorithm → program" [8]. At different times, the components of this triad had different weights. The emergence of electronic computing machines contributed to the development of the third component of the base triad – a program, yanayam, more precisely, a computer modeling program. Advances in this direction have shown that it is computing techniques that allow computer modeling to reach a new level.

It is natural that computer modeling is related to the programming language, since computing software is one of the forms of existence of the model. However, computer modeling cannot be done in conjunction with a programming language. Because, when performing specific actions to computer modeling, it is used, for example, to determine parameters, to study adequacy. In general, interpreting this concept in a broad sense, computer modeling is not only the process of creating a model, but also its research.

On the basis of the introduction of a software methodological complex of

educational disciplines related to the teaching of programming, it is advisable to reveal in general the model of methodology for improving teaching.

In general, the developed model of a methodological system consists of the sum of such interrelated components as: target, content, activity, implementation and regulation of control.

In the implementation of this teaching methodology, the following:

Comprehensive study and analysis of various approaches to the introduction of the use of information and communication technologies in practice and methods of improving teaching;

The use of computer modeling based on algorithmization and programming of training based on the use of the Web platform;

Improving the implementation of the python programming language in practice based on the use of the Web platform;

Formation of programming competence based on the use of the Web platform;

The developed methodology for improving teaching was tested for practice with the organization of pedagogical experience-testing in practice using the example of training future specialists in the technical direction in accordance with the requirements of the period.

The basis of the content component of the methodological system pursued in teaching programming is the following: the fact that the studied knowledge interacts with the basic concepts of systems and their matimatic science; the basic algorithm is the evolutionary, gradual implementation of the formation of concepts; inter-subject integration in the disclosure of the material; the concentration of knowledge based on observations and reasoning. In this case, it is advisable to approach the choice of models for study, taking into account the specialties and disciplines in which the software methodological complex will be mastered in the future.

The leading ideas on the basis of the content component of the methodological system proposed in our research work are as follows: the systematicity of the formed knowledge, and their basis is the

interconnection of natural concepts; the gradual formulation of basic concepts; integration with related disciplines in the perfect assimilation of educational material; the perfect assimilation of knowledge should consist mainly in

Conclusions and suggestions. The consideration of the recommendations presented in the chapter on the development of electronic information educational resources for the educational process can have a positive effect on the informatization of Education. At the same time, it is important to consider the peculiarities of the development of software methodological complexes: their types and requirements for them, stages of development.

If the methodology of using software educational complexes is not developed in the current period, then even the best electronic means of education can remain unnoticed in compilations. Hence, it will be necessary to describe the approach to the creation of software methodological complexes based on a comparative assessment of developments and the information received, and the methodology for its more effective use, taking into account the specificity of the science under development.

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