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Methodology of Creating an Electronic Textbook for The Course of Measurement and Standardization Methods and Tools

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Abstract: The use of information technologies to implement the most complex topics of the course "Measurement methods and tools", as well as topics that cannot be explained with words or pictures, and can be better mastered and understood only by seeing them with the eyes. allows to increase. For example, it is presented visually on a computer or using a multimedia projector. Various multimedia programs are used in the development of electronic textbooks. Computer programs Macromedia flash, Delphy, Visual basic, 3DS max, Microsoft Excel, Adobe Photoshop, Corel draw are widely used in the creation of electronic textbooks.

Key words: e-textbook, fundamentals of "Metrology basics", HTML, Corel Draw, Adobe Photoshop, Adobe flash, multimedia effect, animation, training simulators, hyperlinks, interactive methods

Introduction

In modern conditions, in the era of rapid development of information technologies, the task of automating the entire educational process, from searching for necessary information to automatically monitoring student knowledge, is becoming urgent. Saving time gives more effective results, teachers learn science teaching methodology, organization of independent work, more time for consultations, and students can conduct self-control at any time convenient and quality for themselves. Currently, electronic educational tools are of great importance in the teaching of general professional subjects. An electronic textbook is a tool that works with the use of computer and telecommunication technologies, is used directly in teaching, contains systematized material related to the relevant subject of the educational standard, and ensures the continuity and completeness of the didactic educational cycle. Therefore, in our work, we are considering creating a textbook on the subject "Basics of Metrology".

Method solution: The role of measurements is constantly growing in all fields of science and technology, including measurement. Reliability of measurements is also of great importance. With the help of an electronic study guide, a student can get information about devices, visually measure and strengthen practical knowledge. Microsoft office programs - Microsoft word, Microsoft Power point, Microsoft Excel programs can be used to create such electronic educational tools. Special purpose software can be especially useful for graphics, sound, animation, and image processing. The higher the quality of the information, the better it is perceived visually. These programs allow each student, regardless of their level of preparation, to actively participate in the learning process,

individualize their learning process, self-monitor, not be a passive observer, but actively learn and allows you to assess your capabilities. We have studied the advantages and disadvantages of a number of e-learning materials, based on which we have our method, which is discussed below. First of all, programs for group use should be clearly separated from programs for individual work. The first should be a convenient tool for the teacher, and the second should improve the teacher's qualifications. The electronic textbook methodology developed by us is mainly intended for the computerization of the teacher and the educational process. E-learning programs are not an electronic version of a text-based textbook, but have interesting multimedia and tactile effects, interesting tasks in the form of games, tests for self-assessment, saving and continuing the learning phase. should be able to. The developed E-learning programs have multimedia effects, animations and training simulators for performing and evaluating practical tasks. However, it cannot be said that E-learning programs can completely replace a teacher or a textbook. Many E-learning programs are fundamentally different from curricula. In our opinion, E-learning programs should be developed strictly in accordance with approved educational programs and ultimately provide the necessary theoretical knowledge and practical skills. Naturally, the quality of education will increase in this way. Therefore, Electronic training programs are developed based on the requirements of approved training programs, for which 36 hours of classroom training are allocated for practical training. The entire set of practical training is divided into four modules. Therefore, in order to create such conditions for the user, the division of electronic training programs into components is provided. Teachers can choose the necessary component according to their wishes. Currently, in the conditions of the active penetration of information and communication technologies into the educational system and the accumulation of educational resources on the Internet, the task of revising the theory of the organization of the educational process and the process as educational management is being set. There is a need to transfer systematized knowledge, skills and qualifications from generation to generation, to create new methods and technologies of teaching. Due to the complex of various multimedia functions (videos, animation, sound, hundreds of interactive tasks), the educational process becomes more effective and interesting. Existing problems: We provide information on the number of textbooks on the subject "Measuring methods and tools" . Accordingly, "Metrology, interchangeability, standardization"

There is a shortage of 9 books of R. Fayziyev. "Fundamentals of Metrology" P. Ismatullayev, Sh. Kadirova - 9, and in this there is a shortage.The total number of students at Jizzakh Polytechnic Institute is 5334. The total number of students studying in the field of "Metrology, standardization and product quality management" is 213. In the first year - 50 people, in the second year - 75 people, in the third year - 53 people, in the fourth year – 35 is forming a person. The next existing issue is the difficulties in learning science. Sometimes students are slow in mastering science. In order to make all students equally interested in science, it is effective to use "Brainstorming" and similar interesting game methods that ensure the participation of all students. It is recommended to use the following methods: The interactive method is to create a creative atmosphere in the lesson based on the cooperation of the teacher and students, to increase the efficiency of the lesson, to conduct independent thinking and reflection in students, and to form the skills of expressing their own attitudes. "BBB" method - (I know, I learned, I want to know). Applying this method to students also gives its results. Students write "I know" if they know all the information on a new topic, "I learned" or "I want to learn" after the teacher has completed the lesson. Results: Many phenomena are studied in a simplified form, and their computer models show experiments that fully confirm the theory. It should be noted that the ideal option is the real and

will be a reasonable combination of computer experience. In this regard, a virtual stand has been developed that simplifies the method of determining the division values of the instrument scale

for practical training on measurement methods and metrological characteristics of measuring instruments. The following advantages have been identified in the use of the developed electronic educational programs in the field of "Fundamentals of Metrology" in practical training, and this will allow you to:

- Conducting lessons in the form of independent work on the computer;
- To determine the complexity of the tasks, the students' knowledge quickly and efficiently control;
- Use computer support to solve more problems, analyze the obtained solutions and interpret them graphically;
- Lectures and practical trainings according to their wishes, in terms of volume bring smaller, but the most important materials in terms of content;
- Everyone in the group to work independently with electronic educational programs helping students.

Conclusion: When creating animation and virtual stands, mainly Adobe flash and Microsoft Excel programs are used. Text version of electronic educational programs It is created using a Microsoft word text editor, then using the HTML language, translated into web format. E-learning on "Fundamentals of Metrology and Standardization".The introduction of programs to improve the educational process of students creates a great opportunity.

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