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FOR WEB PROGRAMMING USING ARTICULATE STORYLINE

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**TECHNOLOGY FOR CREATING AN E-LEARNING PROGRAM
FOR WEB PROGRAMMING USING ARTICULATE STORYLINE**

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***Abstract.** The purpose of this dissertation is the creation and implementation of an electronic textbook on the subject of "Web Programming and Design". In the article Articulate Storyline, for teaching the use of the Python programming language in teaching web programming and design. Increase efficiency and develop appropriate pedagogical recommendations. The novelty of the study is that Articulate Storyline they used in teaching web programming and design, and the Python programming language they used in this e-learning guide. Because of the study, the effectiveness of teaching students by a modern teacher can be achieved mainly through the creation of e-learning resources with the correct use of pedagogical organizers on the example of the subject "Web Programming and Design". The differences between PHP and Python in web programming they explained in detail. Today, it is argued that the using of the Python programming language in web programming can be more efficient.*

***Keywords:** E-learning, Python, web programming, client-server technology, Articulate Storyline.*

The state of development of modern technologies depends, first of all, on the intellectual potential of society, including the development of education. The content and quality of education are considered a priority in society. In developed and developing countries of the world, education is given special attention. In this regard, methods of improving education, increasing its efficiency, and introducing new information technologies into education are gaining popularity. Today, distance learning using information and communication technologies based on web technologies, education and the provision of various services are rapidly developing and entering the lives of people. That is, it is difficult to imagine an active worker without the global Internet and an intellectual without a computer in the workplace. While the global coronavirus (COVID-19) pandemic, which began in early 2020, has led to an unprecedented crisis in other areas, information technology-based industries continue to thrive. During the quarantine period, the education system in Uzbekistan, as in all developed countries, is carried out remotely. This poses challenges such as the rapid development of web technologies and distance learning platforms and e-applications, and their immediate access to the public. In addition, the student has a number of problems in identifying students in order to objectively assess their knowledge. Much attention is now paid to the automation of the educational process to avoid duplication of documents and reports and ensure efficient distribution of time. One of the easiest ways to automate the learning process is to use web technologies. The widespread use of these technologies allows teachers to overcome difficulties in preparing teaching aids, automate the process and provide distance learning. Having a variety of electronic teaching aids and teaching aids on your computer offers several advantages. This article is about an e-learning course on web programming and design using Articulate Storyline. Training aids and stages of the formation of industrial practice will be developed following modern requirements. It is therefore important to note that the eLearning guide is based on Articulate Storyline using modern web programming languages. At the same time, the practical significance of the developed course in the educational process lies in the fact that it is aimed at an easy and simplified interpretation of the information provided to the audience, its perception and significantly improve the quality of education. Learning Web Programming emphasizes that not only experts in the field, but also the average user can learn on their own using this e-manual.

The level of study of the subject: programs, content, teaching methods, textbooks, electronic teaching materials and the use of computer science and information technologies in the educational process in higher educational institutions, secondary schools. A.T. Kenjabayev, M.M. Ikromov, A.Sh. Allanazarov, F. Zakirova, U. Muxamedxanov, Sh. Sharipov, M. Aripov, B. Begalov, U. Begimqulov, M. Mamarajabov, S.Q. Tursunov, L.M. Nabiulina, N.N. Azizxo'jayeva and other scientists conducted research.

Subject of research: methods, forms and techniques of teaching the subject "Web programming and design" in higher educational institutions on the basis of textbooks created in the Articulate storyline program.

Object of research: the process of teaching the subject "Web programming and design" in higher education.

Scientific novelty of the research:

- Development of a methodology for teaching the subject "Web programming and design" using the Articulate Storyline program;
- The relationship between traditional and modern electronic technologies based on Articulate Storyline, ways of their effective use in the educational process;
- The Python programming language was used as a web programming language.
- Experimental work on the study was carried out, its effectiveness was determined and methodological recommendations were developed.

The scientific hypothesis of the study is that if the teaching of the subject "Web programming and design" in higher educational institutions, as a result of qualitative improvement and implementation of e-learning tools created using the Articulate Storyline program, will allow students to gain knowledge about modern web technologies, further building skills and competencies and increasing the effectiveness of training.

Modern websites are mostly based on client-server technology, and developers must design the site as a system that can meet the security requirements of the client (Front End) and server (Back end). With this in mind, the higher education system also requires co-teaching multiple programming languages when teaching in this area. Learning each programming language is important for students to spend a lot of time and mental activity effectively. The front end of the website uses mostly markup languages such as HTML and CSS, as well as JavaScript programming languages. Its server-side currently uses the PHP and Python programming languages.

In the field of global and local web programming, web applications are created mainly for the client-side using JavaScript, for the server-side using the PHP and Python programming languages, therefore, teaching web programming languages in higher educational institutions are mainly carried out using these languages. If we look at the statistics of programmers in the developed countries of the world, there will be a growing need for more Python programming languages than PHP in the server-side.

When writing a PHP program, we must start by entering double-sided parentheses and a question mark, which serves as a combination between the PHP list and dictionary data types. However, the downside of this language is that it does not provide a high-quality implementation of object-oriented data types. If you want to do something that doesn't fit into an array, you will need to write your data type using PHP.

Python has many different libraries and data, but the processing speed is faster than PHP. Treatment planning with Python is all about knowing which tool to use for a particular job. It's still difficult, but easier to solve. The Python programming language has the same incompatibility issues that are present in Python 2 and Python 3. But Python 3 is used in all areas today. With the Python programming language, we can enable robotics, computer programs, web applications, artificial intelligence systems, mathematical models, and other applications to run in a production environment.

Nowadays Articulate Storyline 3 discusses techniques for creating and using eLearning resources in Web Programming and Design, and the benefits of the Python programming language in web programming. In the current era of development, a new education system is being created, aimed at Uzbekistan's entry into the world educational arena. Simultaneously with this process, significant changes are taking place in the theory and practice of the pedagogical educational process. With these positive developments, the Python eLearning the tutorial was developed as an experiment in web programming and design. It is scientifically and practically proven that Python is in demand in the world of programming. If we look at the practice of foreign countries, then various web projects are created not only by programmers but also by teachers of natural sciences and even students. Therefore, in building a digital Uzbekistan, on the way to creating its first foundation, in the educational process using digital technologies – web technologies, creating their national applications and their application in the classroom, each teacher of natural sciences participates in this work. It is one of the requirements of modern life for us, our students and our students – to move forward in the era of the digital revolution.

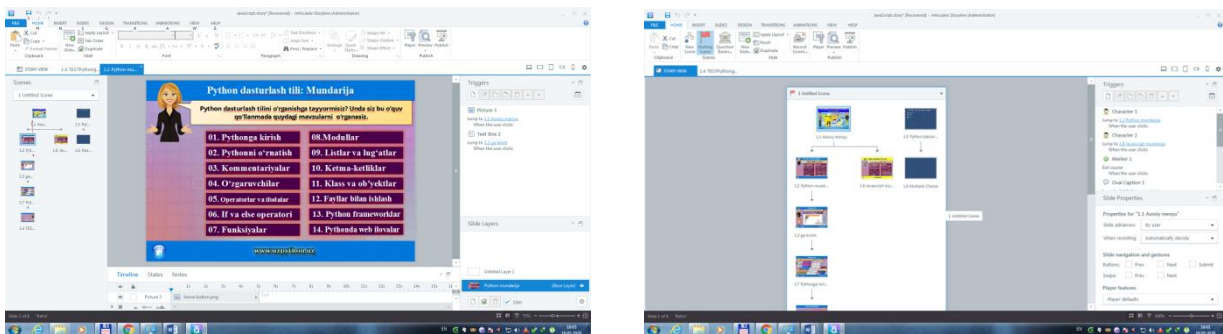


Figure 1. Electronic resource structure in Articulate Storyline 3

The pedagogical organization of the student's educational process is an independent, active, purposeful study of educational material based on the use of methods and techniques of student self-government, self-control.

The effectiveness of modern pedagogical education of students can be achieved mainly through the creation of e-learning resources with the correct use of pedagogical organizers, which is illustrated by the example of the subject "Web programming and design". The problems of choosing the pedagogical and software part of electronic textbooks and teaching aids in the field of web programming are analyzed, taking into account the requirements of today. The pedagogical, psychological, theoretical and scientific-methodical literature, foreign textbooks and dissertations on the problems of using electronic textbooks in the educational process are analyzed and the relevance of the dissertation topic is theoretically studied. The need to further improve the subject by analyzing all regulatory documents on web programming and design in the bachelor's program in computer graphics and design of higher educational institutions following the requirements of modern web application technologies. It's safe to say that starting to learn new technology-based web programming in this thesis will create a unique, engaging and engaging educational experience for students.

Experimental Results Creation of e-learning resources on the subject "Web programming and design" in Articulate Storyline 3 and organization of lessons with its help allows students not only to master the subject but also to develop knowledge, skills and abilities, new knowledge showed a positive increase in the desire to receive. Web programming and design increased the activity of students in organizing lessons using e-learning resources and increased the quality of their learning.

Many practitioners and experts believe that in the future, distance education will become a new standard in the field of education and become a trend. Teaching new high-level programming languages as part of the Web Programming and Design course allows you to modernize and accelerate the creation of software applications in several areas. Web applications also not only simplify the learning process but also simplify organizational matters. It is impossible not to take advantage of these opportunities if we can effectively organize theory, practice and continuous repetition using web technologies at different stages of the educational process. Given the ever-growing power and potential of web technologies, we believe that they will be widely used as a teaching and learning tool and play a central role in formal and non-formal education. This is because today's educators live in a digital world, where they compare their web technologies to air and water and consider them to be one of the most important elements of everyday life. Undoubtedly, the use of the Articulate Storyline programming language and Python in teaching web programming and design allows students and teachers to achieve more results with less mental and physical costs. This is since the Python programming language is widely used by programmers around the world in computer programming, web programming, artificial intelligence, large software projects, mobile programming and robotics. Given these capabilities of the Python programming language, the current requirement is to consider it as a requirement for the language of the future and, if necessary, include it in the higher education system as a separate discipline. In short, this dissertation can be used as an additional guide to learning web programming languages.

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ТЕХНОЛОГИЯ СОЗДАНИЯ ПРОГРАММЫ ЭЛЕКТРОННОГО ОБУЧЕНИЯ ВЕБ-ПРОГРАММИРОВАНИЮ С ИСПОЛЬЗОВАНИЕМ ARTICULATE STORYLINE

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***Аннотация.** Целью данной диссертации является создание и реализация электронного учебника по дисциплине "веб-программирование и дизайн". В статье артикулируется сюжетная линия, предназначенная для обучения использованию языка программирования Python при обучении веб-программированию и дизайну. Говорится о повышении эффективности и разработке соответствующих педагогических рекомендаций. Повышение эффективности и разработка соответствующих педагогических рекомендаций. Новизна исследования заключается в том, что четкая сюжетная линия, которую использовали в обучении веб-программированию и дизайну, и язык программирования Python, используемый в этом электронном учебном пособии. В силу проведенного исследования, эффективность обучения студентов современным преподавателем может быть достигнута, в основном, за счет создания электронных учебных ресурсов с корректным использованием педагогических способностей на примере предмета "веб-программирование и дизайн". Различия между PHP и Python в веб-программировании подробно описаны. На сегодняшний день, утверждается, что использование языка программирования Python в веб-программировании может быть более эффективным.*

***Ключевые слова:** Электронное обучение, Python, веб-программирование, клиент-серверные технологии, Articulate Storyline.*

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