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IMPLEMENTATION OF BIM TECHNOLOGY IN THE EDUCATIONAL PROGRAM OF ARCHITECTURAL AND CIVIL ENGINEERING UNIVERSITIES

Associate professor **R.R. Yusupov**,
master's student **Kh. Akhmedov**
(Tashkent University of Architecture and Civil Engineering)
E-mail: Khikmat1999@gmail.com

ANNOTATION.

This article discusses the implementation of BIM (Building Information Modeling) technology in the educational programs of architectural and construction universities. Introducing BIM into courses provides students with the practical skills needed for a successful career in the construction industry. The article analyzes the advantages, challenges and prospects of this process.

Keywords: BIM, educational programs, universities of architecture and construction, innovation, training, cooperation, efficiency.

В данной статье рассматривается внедрение технологии BIM (Building Information Modeling) в образовательные программы архитектурно-строительных университетов. Введение BIM в учебные курсы предоставляет студентам практические навыки, необходимые для успешной карьеры в строительной индустрии. Статья анализирует преимущества, вызовы и перспективы данного процесса.

Ключевые слова: BIM, образовательные программы, архитектурно-строительные университеты, инновации, обучение, сотрудничество, эффективность.

INTRODUCTION. The implementation of BIM (Building Information Modeling) technology in the educational programs of architectural and civil engineering universities is a relevant and important task. BIM is an innovative approach to the design, construction and management of facilities based on the creation of a digital model of a building or infrastructure. This model combines geometric,

geodetic, time and cost data, which allows project participants to effectively interact and make informed decisions.

The purpose of this study is to identify the benefits and challenges associated with the implementation of BIM in the curricula of architectural and civil engineering universities. In this article, we will consider successful practices and discuss the prospects for the development of this area.

The importance of implementing BIM in educational programs. Modern labor market requirements: The construction industry is increasingly focused on the use of BIM. Employers are looking for specialists with skills in working with this technology [1,2].

Improving the quality of education: Using BIM enables students to acquire practical skills that will be in demand in the labour market. This improves the education and training of career-oriented specialists.

A new approach to learning, BIM allows students to work with real data and develop projects taking into account all aspects [3,4].

In this article, we will provide answers to the following questions:

What benefits can BIM implementation bring to the curriculum?

What challenges can students face when learning to use BIM?

What strategies and methods can help in teaching BIM in courses?

- In the following sections, we will look at each component of the study in detail.

Research Findings. In this part of the article we will consider the main results of the study regarding the introduction of BIM technology into the curriculum of architecture and civil engineering universities. To better understand, we will look at the following elements:

Teaching students using BIM.

- Implementing BIM in the curriculum requires that students learn how to use this technology. Specific courses that promote learning modeling, data analysis, and interaction with other types of projects are crucial [5,6].

Teachers should be prepared to teach BIM and have experience working with BIM.

Study projects must integrate BIM:

- Students can use BIM during coursework. This enables them to create realistic models of buildings, analyze their performance, and make intelligent decisions.
- Projects can include digital models of 2D and 3D representations, as well as analysis of structural, energy, and economic parameters [5].

Collaboration with industry. Universities can collaborate with construction companies and architectural firms through the implementation of BIM. Students can gain industry experience by participating in recreational projects. This has also contributed to the updating of curricula so that they can benefit the market.

Assessing how effective BIM implementation is Conducting an assessment of the effectiveness of BIM implementation in educational programs is crucial. This may include an analysis of student performance, their level of preparation, and satisfaction with the educational process [7,8].

The results of the study may help in developing better training programs or teaching methods.

Conclusion. The implementation of BIM technology in the curriculum of architectural and civil engineering universities is an important step in the development of a modern educational system. This article discusses the advantages and disadvantages of the process and provides optimization methods.

Benefits of BIM implementation:

- Improved quality of education: Students gain practical skills that can be applied in practice when they study BIM. This improves the education and training of career-oriented specialists.
- Cooperation with industry: Through the implementation of BIM, educational institutions can collaborate with firms and bureaus working in the construction industry. Students can gain experience in the industry by participating in entertainment projects.
- Innovative approach to teaching: BIM allows students to work with real data and develop projects taking into account all aspects.

Challenges with the implementation of the BIM process:

- Teacher training: Successful implementation of BIM requires training of teachers. They must have the skills to work with this software and be able to transfer their knowledge to their students.
- Technical support: BIM implementation requires technical support, which includes problem solving, staff training and software updates. [9].

Future Developments:

Increasing Research: Research into the implementation of BIM in educational programs should be continued. This will help improve student learning and outcomes.

Global Collaboration: Schools and businesses can collaborate with universities and companies in other countries to share experiences and transfer best practices [10].

In this way, the implementation of BIM technology is an important step in the modern educational system. It contributes to improving the quality of education, training qualified personnel, and developing innovative teaching methods.

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