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# EFFECTIVENESS OF TRAINING FUTURE ENGINEERING STUDENTS USING DIGITALIZED EDUCATIONAL TECHNOLOGIES

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**Annotation.** *This article analyzes the issues of increasing the effectiveness of training future engineering students based on digital educational technologies. In the modern higher education system, the use of digital platforms, virtual laboratories, distance learning systems, and artificial intelligence tools is considered an important factor in the formation of engineering competencies. The study pedagogically and methodologically substantiates the influence of the digital educational environment on the development of professional qualities of engineers - analytical thinking, problem-solving skills, project thinking, and digital competencies.*

**Keywords:** *Flexible education, digitalization, professional quality, engineer, pedagogical experience, self-improvement, innovative content, improvement, accessibility of the learning process.*

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**Аннотация**. *В данной статье анализируются вопросы повышения эффективности обучения будущих студентов-инженеров на основе цифровых образовательных технологий. В современной системе высшего образования использование цифровых платформ, виртуальных лабораторий, систем дистанционного обучения и инструментов искусственного интеллекта считается важным фактором формирования инженерных компетенций. В исследовании педагогически и методически обосновано влияние цифровой образовательной среды на развитие профессиональных качеств инженеров - аналитического мышления, навыков решения задач, проектного мышления и цифровых компетенций.*

**Ключевые слова:** *Гибкое образование, цифровизация, профессиональное качество, инженер, педагогический опыт, самосовершенствование, инновационное содержание, совершенствование, доступность учебного процесса.*

**INPUT**

Information technologies have emerged to disseminate general knowledge and are the main driving force of educational reforms. Educational technology enterprises are constantly trying to create new solutions to expand access to education for individuals who do not have appropriate educational institutions. Social media has come a long way as a learning tool. A large number of teachers and students use social networks as an important element of the overall e-learning experience. This is an important place for exchanging information on important topics today. Social media sites, in addition to the ability to exchange information anywhere, at any time, are an excellent source for creating network opportunities for social activity and possibly creating new jobs.

**Research objectives:** The main research objectives of this article are as follows:

- studying the need for digital technologies in education;
- give a brief overview of the importance of digitalization in education and determine the role of the application of digital technologies in education;
- Identify important problems of digital technologies in education.

**The need for digitalization technologies:** This global crisis emphasizes the need for integration into the education system at the international level. Digital technologies help students develop skills that require professional activity, such as problem-solving,

creating a structure of thinking, and understanding the process. They are also preparing for an unpredictable and changing future in which technology plays an important role. For the professional success of students, their acquired qualities and abilities are of great importance. Educational resources and digital tools help improve the classroom environment and make the learning process more attractive. In addition, they provide greater flexibility for each educational institution and adapt the curriculum based on the needs of each student.

If the technology is applied in the classroom, children can be more involved in learning. Since today's youth are very used to using electronic gadgets, including them in school education will undoubtedly stimulate their interest and help increase their level of activity. Integrating technology into education provides students with an engaging learning experience, allowing them to maintain greater interest in the topic without distraction. Using projectors, computers, and other modern technical equipment in the classroom can make learning interesting and engaging for students. By setting tasks in the classroom that include technology resources, oral presentations, and group participation, student learning can become more dynamic and engaging. Participation can extend beyond verbal communication.

**Application of digital technologies:** Digital technologies are a

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powerful tool that helps improve learning in various ways, for example, making it easier for teachers to produce learning materials and providing people with new ways to learn and collaborate. A new era has arrived with the worldwide spread of the internet and the multitude of smart devices connected to it. Thus, it will depend on teachers and educators to use the potential of advanced digital technologies to revolutionize education so that effective and efficient education is available to everyone and everywhere.

Technology continued to play an important role in teaching children outside the classroom. Digital learning develops creativity and gives students a sense of success, stimulating additional learning through thinking in addition to traditional methods. All countries were able to master distance learning technologies using a combination of television, radio, online, and mobile platforms, which is commendable. These ensure easy access to information, easy information retention, increased information retention, and improved information presentation; learning became more interactive, facilitated knowledge exchange, and increased the desire to learn Figure 1.
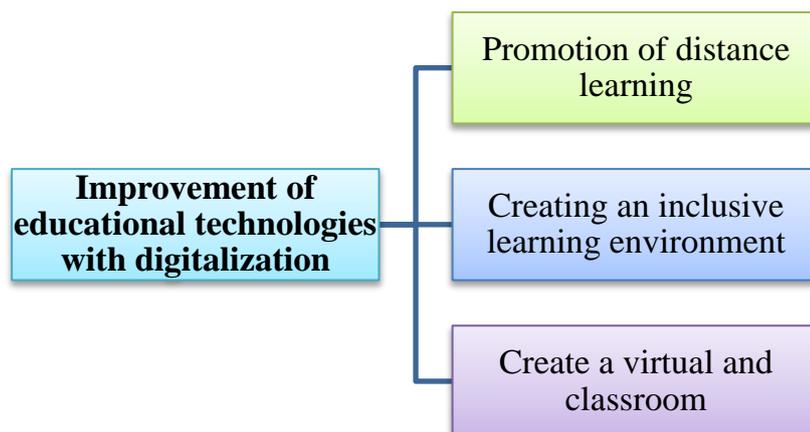


**Figure 1. Effective model of the digitalized educational process Promotion of distance learning:**

In reality, technological advancements have enhanced distance learning. They provide easy access to all educational resources and enable institutions to communicate conveniently with teachers. Teachers can quickly create and manage groups using learning tools and technologies such as social learning platforms.

**Create a virtual and classroom:** Digital technologies in education have given rise to a variety of educational management systems (LMS). These LSMs promoted virtual audiences where the teacher could communicate with students in real time, share their resources, lecture, assess students' learning, collect feedback, and respond to their inquiries.

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**Creation of an inclusive educational environment:** An inclusive educational environment creates equal opportunities for all students with different levels of abilities to learn in one place. Virtual classrooms, video, augmented reality, robots, and other technological tools make the classroom exciting and create an inclusive learning environment that fosters collaboration and interest, allowing teachers to gather information about student activities. Development of teamwork and communication skills. Teamwork and communication skills are two important qualities that help develop a successful specialist. Digital technologies play an important role in developing these skills.

**The future of technologies in education:** While technology plays an important role in shaping the future of education, ensuring the effective use of new teaching tools requires a new generation of teachers who understand the importance of human communication in the classroom. This can lead to a satisfying and interesting career in the field of education. Students will acquire

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the knowledge and skills necessary to use the new educational technology to maximize their present and future benefits. In the coming years, educational trends will follow the growing Internet capabilities and network capacity, which will facilitate the introduction of innovative technologies into the audience.

## CONCLUSION

Digitalization teaches students to use technology responsibly and strategically, which helps them make decisions and develop self-discipline. Technology in education helps prepare students for lifelong learning. These technologies provide students with the freedom to use the virtual world and digital knowledge according to their own learning methods. Thanks to digital content production tools that adapt teaching and learning, students can learn at their own pace. The digital classroom uses electronic devices and software to educate students and introduces technology into education. A traditional auditorium is transformed into a digital auditorium through computers and the Internet

## LIST OF LITERATURE:

1. Qulmamatov Romazon Juma o'g'li,/Bo'lajak muhandislarga ta'lim berishda ularni kasbiy sifatlarini oshirish metodikasi,//scientific approach to the modern education system,2023/12/6,108-111.,//https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=lk_jghaaaaaj&citation_for_view=lk_jghaaaaaj:qjmakfhdy7sc

2. Qulmamatov Romazon Juma o'g'li. Bo'lajak muhandislarga ta'lim berishda ularni kasbiy sifatlarini oshirish metodikasi. france international scientific-online

conference: "Scientific approach to the modern education system" part 20, 5th december// 115-119 bet.

3. Kulmamatov Ramazon Juma ugli. (2026). Formation of professional qualities of future engineers: scientific and analytical research based on foreign experience. The Latest News and Research in Education, 3(2), 103–107. Retrieved from https://incop.org/index.php/tn/article/view/3388Qulmamatov Romazon Juma o'g'li. Bo'lajak muhandislarning kasbiy sifatlarini raqamlashtirishni ta'lim muhitida rivojlantirish// Ilm sarchashmalari// Ilmiy-nazariy, metodik jurnal. 111-114 bet.

4. Qulmamatov R.J. Raqamlashtirish ta'lim muhitida bo'lajak muhandislarning kasbiy sifatlari// Вестник КГУ им. Бердаха. № 4(63) 2023., 118 bet.

5. Qulmamatov R.J. Ta'lim muhitida raqamlashtirish texnologiyalarining roli// Pedagogik mahorat. – Buxoro. 2024. 1-son. – B. 72-75.

6. Qulmamatov R.J. Raqamli texnologiyalar (autocad dasturi) dan foydalanib bo'lajak muhandislarni muhandislik grafikasini o'qitish metodikasini takomillashtirish// "Pedagogik akmeologiya" xalqaro ilmiy-metodik jurnali 2024. 8(16)-son. – B. 151-157.

7. Qulmamatov R.J. Bo'lajak muhandislarga ta'lim berishda ularni kasbiy sifatlarini oshirish metodikasi// France international scientific-online conference: "Scientific approach to the modern education system" part 20, 5th december France, Paris: "CESS", 2023. Part 115– 118 p

8. Qulmamatov R.J. Raqamlashtirish ta'lim muhitida bo'lajak muhandislarning kasbiy sifatlarini rivojlantirish modeli// Ilm-fan va texnologiyalar. 2025 №12(1)-son. B-325-329