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# PROBLEMS AND SOLUTIONS IN TEACHING ICT AT MEDICAL UNIVERSITIES

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**Abstract:** The widespread implementation of information and communication technologies (ICT) has become a key aspect of the modernization of education, particularly in the field of medical sciences. This article examines the critical problems faced in the process of teaching ICT at medical universities. The study identifies several major challenges, including outdated technical infrastructure, the shortage of specialized teaching personnel with sufficient ICT competencies, the limited integration of digital tools into the curriculum, and the insufficient digital literacy skills of both students and faculty members. Special attention is given to organizational and methodological barriers that hinder the effective use of ICT in the educational process. In response to these challenges, the article proposes a set of practical solutions aimed at improving the quality of ICT education in medical universities. These include the modernization of technical resources, the development of targeted training programs for educators, the inclusion of ICT-focused modules into the medical curriculum, and the promotion of interdisciplinary approaches that combine medical knowledge with digital skills. Furthermore, the study highlights the need for continuous professional development and the creation of institutional strategies that foster a digital learning environment.The findings suggest that addressing these issues is essential for ensuring the quality and competitiveness of medical education in the context of global digital transformation. By adopting comprehensive modernization strategies, medical universities can better prepare future healthcare professionals for the challenges of the information society.
**Key words**: information and communication technologies, medical universities, teaching, educational process, modernization of education, solutions, ICT in medical education.

Professional activity of a doctor of any specialty currently implies the mandatory use of information and communication technologies in application to solving problems of medicine and health care. Training of a modern doctor is unthinkable without training in relevant knowledge and skills. For this purpose, the discipline "Information Technologies in Medicine" was included in the curricula of all specialties of higher medical educational institutions.

The purpose of teaching science is to create an information technology module in medicine, which today occupies a special place in solving medical issues, as well as in the high-quality management of medical and scientific-practical activities, training of personnel capable of correctly using information technologies.

It is necessary that bachelors could process, analyze, automate the workflow and make the right decisions on medical and biological information obtained using modern computer technologies.

In particular, it is necessary to know the methods of mathematical modeling, work on the Internet, with modern computer technologies. The task of science is to master theoretical and practical knowledge about the use of computer technology in the field of medicine, the acquisition of modern theoretical knowledge about physical and mathematical models used in

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medicine, the ability to correctly predict medical statistics, determine methods of prevention or treatment of diseases. based on the predicted results, it is necessary to have basic practical knowledge in the field of using information technology, Internet skills, know the basics of organizing databases, expert systems and information security. The program states that the course is an independent discipline, designed for 120 hours (12 hours of lectures, 48 hours of practical classes and 60 hours of independent work) - 4 credits. All practical classes involve individual work of students with a computer.

Presentation and electronic didactic technologies with the use of modern computer technologies are used in practical classes. Practical and laboratory classes are held in computer classes with multimedia devices, computers and the necessary software in each academy. in a group goes separately. Classes are held using active and interactive methods, using advanced pedagogical technologies. In this case, visual materials, video materials and means of information multimedia devices are used. Independent work on the module of information technologies in medicine is carried out outside the classroom. Students prepare essays, annotations, presentations and graphic organizers on the proposed topics and present them to the teacher during extracurricular classes. The submitted work should contain a detailed description of the topic with an emphasis on the importance of this topic in medicine. The completed work should be relevant, contain new scientific information, be enriched with animation and video.

According to the current modular program, training should be carried out over 1-2 semesters, since its mastering will be necessary not only when teaching fundamental sciences, but also when teaching clinical sciences. The course at the Tashkent Medical Academy is equipped with computing equipment: in most cases, work is carried out in the mode of 1 computer per 1 student.

From the educational and methodological literature on "Information Technologies in Medicine" the most frequently used are:

1. Bazarbaev M.I. et al. Information technology in medicine. Textbook, Tashkent 2018.
2. Bazarbaev M.I. et al. Information technology in education. Textbook, Tashkent 2021.

One of the most difficult problems associated with teaching the discipline "Information technology in medicine" is equipping the course with special software. In general, the course is devoted to mastering the most common information technologies in the work of senior medical specialists, preparing texts (MS Word), processing data and preparing reports (MS Excel), working with databases (MS Access), preparing presentations (MS PowerPoint), working on the Internet.

The need to solve this issue in a standard version for all medical universities in the country was felt from our own experience. The problem is that applicants prepare for admission to a medical university mainly in the subjects of biology, chemistry and native language.

**In conclusion**, we would like to draw the following conclusions: In order to prepare healthcare professionals who are able to effectively work with artificial intelligence (AI), think freely and implement digitalization in medicine, and provide high-quality services to patients, it is necessary to implement a set of measures:

**Updating curricula**: Integrate training in working with AI, digital technologies, and analytical thinking into the curricula of medical universities. Provide students with access to modern technological resources.

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**Practical courses and internships**: Create practical training programs that include working with real AI systems in medicine. Organize internships in modern medical institutions with an emphasis on digital processes.
**Interdisciplinary interaction**: Facilitate cooperation between medical professionals and IT specialists to develop technological solutions that improve the quality of healthcare. Continuous knowledge renewal: Provide healthcare professionals with access to training and updating their skills in the field of digitalization and working with AI throughout their careers.
**Ethical and legal aspects:** Educate future medical professionals on the ethical and legal aspects of using AI in medicine, including data privacy and patient safety.
**Research:** Promote research in the field of medical informatics and AI by encouraging students and medical professionals to actively participate in scientific activities. Creating an innovative environment: Support the creation of innovative medical centers and laboratories where specialists can test and implement new technologies. These measures will help create a high-quality foundation for training medical professionals who can effectively work in a digital environment using AI and provide a high level of healthcare to patients.

**Literature**

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