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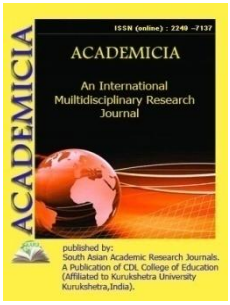

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TECHNOLOGIES OF TEACHING STUDENTS OF A MEDICAL UNIVERSITY IN THE PROCESS OF STUDYING PHYSICAL DISCIPLINES

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ABSTRACT

In the preparation of a physicist, it is of great importance to acquire basic theoretical knowledge in the main disciplines taught in the junior courses of a medical university. Among them, in terms of volume and importance, the complex of physical disciplines of the curriculum stands out: general physics, nuclear and atomic physics, radiation physics, radiology and biophysics, which medical (physics) students study in the first year. The main task is to prepare the basic physical literacy necessary for the subsequent study of biological physics and radiation physics with the aim of further successful mastering of professional disciplines.

KEYWORDS: *Medical Physicist, Diagnosis, Research, Radiation Physics, Training Of Highly Qualified Personnel, Diagnostic Devices, Teaching Methods, Professional Development, Educational Activities Of Students.*

INTRODUCTION

It is known that physical knowledge is necessary to understand the principle of operation of diagnostic devices widely used in medicine today, such as: ultrasound, ECG, echocardiography, MRT, PET research, X-ray examination, CT (computed tomography), etc., for concepts of the molecular foundations of life processes, the peculiarities of the participation of various chemical compounds in the metabolism and energy processes of a healthy organism, as well as for the diagnosis of metabolic disorders in pathological conditions.

A detailed analysis of the quality of training university graduates shows that the creation of high-tech work programs, optimal plans for lectures, practical classes, seminars, workshops and other types of educational activities of students does not always lead to the desired end result - obtaining a highly qualified young specialist. It depends on many social and economic factors, as well as on the level of basic training of applicants and the correctness of their choice of their future profession. The use of general test results as a criterion for enrollment in the first year does not allow solving many existing problems, and the high score obtained often does not coincide with the appropriate level of the applicant's training.

Main part

At the departments of physics of medical universities among first-year students, entrance control of the level of residual knowledge in physics is carried out annually within the framework of the school curriculum. The results of this test using simple and simple questions show that a certain trend is being traced: the level of knowledge in physics within the framework of the school curriculum is systematically decreasing. In such conditions, it becomes more and more difficult to train high-level specialists. On the other hand, the difficulties and difficulties in teaching chemical and physical disciplines are associated with the need to study complex program material during the period of adaptation of students to the university system of education, adaptation to new forms of the educational process, entering an unfamiliar team, which requires the mobilization of many resources to achieve the set goals. goals. Students still have insufficiently developed communication skills, many mechanisms of self-regulation and self-organization are reduced, which manifests itself in a significant part of the inability to outline lecture material, inability to express their thoughts aloud, and to deliver clear structured reports. These difficulties have increased markedly with the introduction of new state educational standards, according to which the classroom time for studying physical disciplines has been reduced by more than 3 times, with practically the same volume of curriculum requirements. Much attention in teaching is paid to lecture and seminar forms of training with obligatory intermediate certification.

However, all the same, the main ones are practical classes, in which the teacher has the opportunity to conduct individual work. From the first days of study at the Department of Biophysics, students, under the guidance of teachers, adapt to the conditions of work in the physical laboratory. Modern electronic teaching aids and areas such as information and communication technologies, multimedia technologies, and distance learning are gaining more and more importance in the educational sphere. Science is developing in this direction very intensively, because information technologies open up completely new dimensions of human consciousness, form a different way of thinking, create new opportunities for understanding the world around us.

MATERIAL METHOD

The basis of information technologies for teaching chemical disciplines is computer training, which allows you to simulate physical and chemical processes, technical devices, chemical reactions. More and more modern sets of didactic materials are being created for the course in general, atomic and nuclear physics, radiology, radiation medicine, biological and medical physics. These sets represent presentations, which are a sequence of slides related to a common theme, and multimedia fragments that show the dynamics of the corresponding physical processes and phenomena. Most often, these are difficult to understand sections: the mechanism of ray propagation, the mechanisms of the formation of chemical bonds, radiation hygiene and protection, the mechanisms of atomic and nuclear reactions. These didactic materials make it possible to replace obsolete visual teaching aids, such as tables, magnetic boards, filmstrips, films, and to consider complex physical processes and phenomena in stages and in dynamics. The mechanisms of many of them, when considered in this way, students understand and remember much better, since they cause a keen interest in the material, and therefore in physical disciplines, which significantly affects the quality and efficiency of the educational process.

The rapid development of computer technology has made it possible to develop and use in the learning process electronic textbooks, the possibilities of which are much wider in comparison with printed textbooks or conventional forms of education. Computer technologies are a modern source of information, a visual aid, an individual information space, a simulator, a control tool that can significantly improve the quality of education. In addition, the presence of a screen at lectures or seminars allows you to introduce elements of interactivity, conduct quizzes and testing on situational tasks, give assignments, etc. At the same time, the lack of funding and insufficient material and technical base do not always allow the implementation of this type of training in full.

The use of information computer technologies contributes to a significant increase in the level of knowledge among students, and for teachers it increases the time for individual creative work. It should be remembered that a teacher cannot only be a transmitter of knowledge, skills and information, he must be a teacher, a psychologist, and a psychotherapist.

The practical part is represented by a laboratory workshop and the development of methods for conducting physical experiments necessary for performing research work. At the same time, much attention is paid to the rules of safe work in a physical laboratory. In the course of training, students acquire the skills to work with modern biophysical equipment: photoelectrocolorimeter, spectrophotometer, chemiluminometer, refractometer. Such an educational process contributes to the acquisition of not only in-depth knowledge of physical disciplines, but also the acquisition of practical skills in working in a physics laboratory. This indicates that the main incentive in the study of physical disciplines is the formation of interest based on specific examples of the use of knowledge and methods in clinical practice.

CONCLUSION

It is especially necessary to emphasize that the educational process in this direction also allows you to effectively carry out research work. Subsequently, the research work of students (SRWS) is an important means of improving the quality of training of future medical physicists, it allows

directing the scientific and labor potential of students to solve the most important problems of modern health care.

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