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METODOLOGY BASIS OF INFORMATION TECHNOLOGIES USAGE IN
PHYSICOTECHNICAL TRAINING OF FUTURE PHYSICS TEACHERS

During the physicotechnical studies students face various technical devices, circuits and processes, which are difficult to be shown with high visualization using traditional methods. Information technologies help greatly solve this problem.

I. Bogdanov, S. Volobuev, A. Kaspersky, A. Martyniuk, d. Panfilov, M. Shut and others worked upon the problem of information technologies usage in future physics teachers training.

The wide application of information technologies in technical subjects teaching requires pedagogically flexible rational combination of electronic computing facilities with traditional teaching technologies. The basic principle of information technology usage in technical subjects teaching at a pedagogical university - is focusing on those cases when the set pedagogical goal is difficult to achieve with classical methods. Only student supporting activities that are not directly part of the studies may be subject to automation.

Didactics principles which take place in traditional training are also applicable with ICT. They undergo certain changes to suit the branch and realization conditions, but the intentional part remains unchanged. The methodical basis for information technologies use in physicotechnical training of physics teachers is built upon these principles.

The scientific content and the unity of scientific and educational processes are implemented by involving students into new development of software shells for computer modeling of physical phenomena.

Visualization is implemented with the help of interactive models of the studied phenomena, software for the virtual demonstrational experiment, multimedia support of the lecture course, which combined allow to illustrate phenomena and processes which are not available for straight perception.

Interactivity is the base difference of information technologies from traditional hardware training aids. Visualization and interactivity of computer models of physical phenomena noticeably enrich and supplement each other, letting students to be more active while learning. Interactive computer models allow to organize a training when students gain knowledge while performing transforming activity with the models. Educational and cognitive activities gain more research-like, creative nature.

It can be noted that the usage of information technologies on certain principles remarkably expands the arsenal of didactic media, contributes to intensification and increase of the educational process quality, develops the ability to make independent decisions, and assigns a broad field for self-education.