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Methodological and didactic problems of computer teaching methods in the study of electrotechnical disciplines

Abstract. *Problematic questions of methodology and didactics, which arise while using computer teaching technologies in the study of electrotechnical disciplines are considered.*

Keywords: computer teaching technologies, methodology, didactics, lecture, practical workshop.
Słowa kluczowe: komputerowy technologii edukacii, metodologia, wyklad, zajecie praktychne.

Introduction

The key purpose in teaching electrotechnical disciplines is constructing of educational and methodical goal, which identifies the knowledge, list of skills and abilities, which remain in the long term memory of the student. To realize this goal, certain methods of teaching are used – cooperation of teacher and student in different ways, which provides learning purpose.

Traditional high school education recommends implementing the method of teaching in the following forms: lectures, practical laboratory workshops, each of which performs a specific function. Nowadays active use of computer teaching methods (CTM) cause a number of didactic problems related to methods of notification, learning and control knowledge, which have no solution at this time.

Proposed implementation

Each form of submission and processing of educational material must meet certain criteria and include a number of blocks, namely:

Lecture – value, educational function, scholarship availability, accessibility, systematic, intensity, and the role of the teacher.

Practical workshop – deep understanding of theoretical material, development of logical engineering thinking, develops skills using the system units and reference materials.

Laboratory workshop – constructing skills solving experimental problems, skills of using electrical equipment and instrumentation, skills analysis of experiments.

Let us assess the impact of CTM criteria for the learning process. Certainly CTM have significant didactic properties whose use causes changes in the structure of presentation of teaching material. We can single out: clarity, dynamics and a sense of temporal reality. So thoughtless use of CTM can lead to deterioration of educational effect. On this stage the role of the teacher is realized that defines the scenario of education – the formation of training modules that are left to self-processing and determine student interest in using the textbook, which is very important. So methodical skills of teacher actually determines the effectiveness of using CTM.

Let us consider issues regarding the use of CTM in each block of study.

Lecture form. There are several approaches to using CTM. First – the teacher uses some fragments of CTM in line with multimedia features to enhance the process of understanding of time dependencies, constructing complex space shapes, the dynamics of vector quantities. Second – lecturer acts as a guide of that educational material, which is incorporated into the structure CTM. Third – the teacher supplements with traditional methods the information a computer screen, actually breaks everything "on the shelf", that is uses a combined form of teaching. Fourth – there is possibility of not using the traditional form of lectures, explanatory material is submitted in conjunction with practical lessons. Fifth – significantly change the structure of presentation of information; provide only a review and final lecture, which actually stands out major parts of educational material.

The choice of approach of using CTM depends on many factors: the structure of the electrotechnical discipline, computer literacy of students and their psychological adjustment to obtain knowledge.

Practical workshop. It should be noted that there is none effective CTM that would provide requirements for practical training. Sometimes there is a substitution of solving test problem, but it does not produce logical electrotechnical thinking in students. Actually there are some software packages with a set of tasks of different levels, but once again emphasize that it is not efficient.

Laboratory workshop. In terms of learning electrotechnical disciplines this part of the educational process is essentially important. Currently, a broad range of CTM is used for simulating laboratory works of electrical or radio profile of varying degrees of integration. Availability of user-friendly interface provides a high level of simulation experiment and obtaining abstract information.

However, it should be noted that such CTM also did not provide the basic requirements of laboratory practical work on obtaining practical skills. In this regard, you must select the approach to the implementation of laboratory studies, where the parallel of a physical experiment and its computer simulation is provided.

Results and conclusions

Analysis of computer training methods showed that at present there are many methodological and didactic problems, especially when using CTM to study electrotechnical disciplines. Their solution requires a high methodological and pedagogical qualification of teachers who have to be a teacher-writer. Therefore cannot be clearly stated that the use of CTM leads to the improvement of the educational process.

REFERENCES

[1] Y.O. Varetskyj, G.M. Lysiak, V.I. Korud. The structure and foundations of didactics of electrjtechnical education. – Lviv: "Lviv Polytechnic", 2008. - 144 p.

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