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METHODS FOR ORGANIZING AND EVALUATING LABORATORY WORK FROM THE DISCIPLINES OF THE INFORMATICS CATEGORY

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ABSTRACT:

This article will give suggestions and recommendations on improving the methods of organizing and evaluating laboratory work from the disciplines of the Informatics category.

INTRODUCTION. The reforms envisaged in the higher education system Zamiri was tasked with "developing and implementing meticulous mechanisms of integration of Continuing Education with science and production". In the full implementation of the tasks set forward, the effective organization of laboratory training and the further improvement of its control facilities are one of the important tasks. The purpose of laboratory classes is to consolidate the knowledge gained in the lecture sessions, the imagination with the help of laboratory work, enrich, generate thinking skills in students, like a researcher [1].

In this regard, including the theory and methodology of the organization and management of laboratory work in higher educational institutions, the methodology for the use of Information Technology in the organization of laboratory work, m in our country and in the countries of the Commonwealth of Independent States H.Lutfillayev, P.M.Jalolova, A.A.Maleva, V.V.Malev, S.I.Sokolov, S.V.Scientists such as Sherbenko conducted research.

But in their work, they do not conduct research on improving the methods of organizing and assessing laboratory work in the disciplines of informatics.

Today, due to the improvement of modern technical and software tools in the field of informatics, there is a need to implement new approaches to organizing laboratory exercises and managing them.

Laboratory exercises are experiments conducted by students using technical devices and software tools according to the instructions of teachers, that is, studying and analyzing various processes and phenomena [2]. This, in turn, creates the following opportunities for students' educational activities: increasing interest in science; forming and developing a system of universal educational activities, such as analyzing and synthesizing the studied material, comparing it, and presenting the results of the work in various forms; conducting various observations, measurements and experiments; stating the educational task under the guidance of a teacher; systematizing and generalizing rational types of information; drawing up a plan for completing the educational task; providing an individual approach; using additional sources of information to complete the learning task; putting forward and formulating simple hypotheses.

Laboratory training should be planned in such a way as to reflect the process of shaping knowledge, that is, to discuss the results obtained in the process of experiment, observation, experiment. In the process of studying the subjects of the Informatics category, students are offered a variety of laboratory and practical work. Another part of the work involves participating in studies where students can receive or collect results so that they can later understand them. Sometimes, after experience and discussion, additional questions arise that require clarification. They allow students to conduct necessary research, analyze, compare, draw conclusions or summarize about different objects and processes. In the development of knowledge and skills of students in laboratory work, there is an introductory speech of the teacher, in which he identifies the problem and sets the goal. The teacher explains the course of the laboratory session, distributes assignments, points out, puts problematic questions for conclusions and generalizations.

This is characterized by the following features of the organization of Laboratory Training:

1) the lesson begins, as a rule, with the determination and formation of the topic and task of the work.

2) focuses on the content of the practical activities of students, the sequence of work that ensures the purposefulness of observations.

3) acquaintance with the methods of recording laboratory work is carried out, the need to record the results and record the conclusions is indicated [3].

The success of the lesson, including laboratory training, depends on: the statement of the task, its clarity; the disclosure of the sequence of work; following the instructions for all stages of work (regulates student activities).

It is very important to formulate the work of the laboratory from the point of view of the search of students. To do this, students need to have the basic knowledge necessary to determine the essence of the process during observation, experiment and practical work. When conducting a laboratory session on the topic of research and research, attention should be paid to the following: students familiarize themselves with the problem, a

contradiction is determined; the choice of the method of solving the issue, making a hypothesis and planning an experiment [2].

Laboratory work is carried out by students independently, but at the initial stages, as well as when conducting relatively new types of independent work (in sections), it is recommended to divide the work into parts. Before each of them begins, the teacher gives explanations. It is also recommended to actively develop educational tasks for all sections. Particular attention should be paid to the completion of laboratory work. A few minutes before the end of the work, students should be warned about the end of the allotted time. It should be taken into account that the work should be discussed and conclusions should be drawn.

A scoring system is provided for assessing student performance. Accordingly, for each completed laboratory work, the student receives points for the timeliness and quality of the work, its execution and its defense. The quality of the work is assessed according to several criteria, some of which are common to all laboratory work (these criteria are listed below), and some are specific to specific laboratory work (these criteria are listed in the description of each work).

Points for the timely execution and protection of laboratory work are based on the principle "the faster the work is submitted, the more accumulated". The teacher reception of each laboratory work consists of four stages (only in the prescribed manner):

1) display the program on the computer (the correct operation of the program is checked);

2) explain the content of the report (understand the logic of the program's work, know the theoretical material on which the program is written and check the compliance of the report with the established requirements);

3) protection of laboratory work (answers to control questions);

4) general requirements of the report.

S.I.Sokolov recommended the following requirements for conducting labaratory training in his research work [4]: title page; description and selection of the task for laboratory work; description of the developed software; results of research and all tasks; program code or practical projects written by students; testing the program.

According to the results of our scientific research, when conducting laboratory training, we were convinced that it is necessary to improve the evaluation criteria. The main reason for this is due to the emergence of modern technical and pedagogical software tools of the computer. Therefore, we recommend the general criteria for assessing the reports of laboratory work (presented in Table 1):

General criteria for evaluating submitted laboratory reports

Table 1.

General assessment requirements	**Report evaluation criteria**	
1. Depending on the fulfillment of reporting requirements:	1 point is scored if the report meets all the above requirements (displaying the program on a computer, explaining the content of the report, Protecting laboratory work).	The report is based on the above requirements if it does not respond (displaying the program on the computer, explaining the content of the report, Protecting laboratory work), 0 points are scored.
2. Errors:	1 point is awarded if all possible errors and non-standard situations (for example, an unsuccessful attempt to open a program or file) are absent, and the program's relevant messages and commands work.	All possible errors and non-standard situations (for example, an unsuccessful attempt to open a program or file) are given a score of 0.
3. Application of structural programming principles:	all repeating or logical integral parts of the program are separated as functions; the operation of each function, fully determined by its parameters (that is, global variables are not used, all the information necessary for the function to work is transmitted to it through parameters); the program, without recharging, allows you to change all parameters that depend on its operation;	otherwise (none of the above is correct) 0 points are scored.
4. The presence of comments in the text of the program:	reviews are enough to document the initial code. 1 point is scored.	0 points are scored if the reviews are not enough.
5. By the completeness of the material of the laboratory work:	1 point is scored if all questions are answered quickly and correctly.	0 points are scored if not all questions are answered correctly and quickly.

Based on this table, students are able to score 5 points when fully completed based on the general requirements of laboratory performance assessment.

In conclusion, we recommend using the boholash criteria presented above in the organization of laboratory work from the disciplines of the Informatics category. In doing so, it provides an opportunity to objectively assess the knowledge, skills and qualifications of students regarding the performance of laboratory work.

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