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USE OF TESTING IN HIGHER MATHEMATICS LEARNING
ИСПОЛЬЗОВАНИЕ ТЕСТИРОВАНИЯ ПРИ ИЗУЧЕНИИ ВЫСШЕЙ МАТЕМАТИКИ

Summary. *We have developed the method of students' knowledge control for "higher mathematics" discipline. The testing was conducted to control*

students' knowledge and gave a possibility to determine their practical knowledge and skills. The result of testing was compared to control work results considering this theme. In case of correct educational process organization testing helps student to assess his success critically and to get the objective assessment.

Key words: *testing, mathematics.*

Аннотация. *Нами разработана методика контроля знаний студентов по дисциплине «высшая математика». С целью контроля знаний студентов было проведено тестирование студентов, которое дало возможность определить их практические знания и навыки. Результаты тестирования сравнивались с результатами контрольной работы по данной теме. При правильной организации учебного процесса тестирование помогает студенту критически оценить свои успехи, получить объективную оценку своих знаний и умений.*

Ключевые слова: *тестирование, математика.*

Recently testing became an integral part of teacher's professional life. Teachers implement different tests to evaluate students' knowledge starting from primary school. Entering higher education institutions in Ukraine is guaranteed in case of successful passing of external independent examinations. Further in educational process university teachers also use testing to determine students' knowledge. Tests give a possibility to check theoretical knowledge fast and to identify practical skills of students. Testing as a control method (both interim and final) has advantages over all other methods. Main advantages are:

- scientific validity which allows to determine students' preparation level objectively;
- same control rules and interpretation of results for everyone;
- connectivity of testing technology with other common educational technologies.

Tests cannot be equaled to the examination. The base of test is specially prepared and experimentally proven set of tasks. The main goal of pedagogical tests is to define success level of students in different disciplines during the certain learning period and to evaluate efficiency of teaching methods and learning process organization.

Task in test is to be a short statement in of standardized form that would give a possibility to identify student's preparation level for solving creative production tasks. Test is built logically (from easy tasks to more difficult). During answering questions student is to define his own level of learning achievements in a limited period of time.

Tests have to:

- show scientific content of the discipline;
- evaluate same students' level steadily;
- have strictly defined form and content and have to be short.

Goal of the article is to show practical results of testing as a control of quality of students' studying higher mathematics.

Last years in the department of mathematical physics of NTUU «Igor Sikorsky Kyiv Polytechnic Institute» special attention is paid to the problem of students' knowledge control, because verification and evaluating is the integral part of learning process. The question is how to organize the educational process in such way, so that all higher math tasks could be done in time and each student could report on tasks completion. We have developed the method of students' knowledge control for "higher mathematics" discipline. Students that completed individual tasks by themselves (home control work, for example, or calculation and graphic work) and got satisfactory rating or higher are permitted to testing in accordance with the educational program considering the theme during practical classes under teacher's control. If students complete the task in time, the individual work is accepted (points, marks or credit).

We tested students from instrument - making faculty to identify their practical skills level in «Matrices and determinants» theme.

Before each task (or set of tasks) there is an instruction for it [1, p. 3]. For example, if there is written «Choose the correct answer», that means that student has to choose the only one correct answer after solving the task. If there is written «Choose all correct answers», that means that one, several or all answers may be correct. In case if there is written «Correlate» before the task, there are two (or three) columns with information. It is to correlate information from first one to information from the second one (or from both second and third). Usually there is odd information in second column (or in both second and third). If there is written «Set the correct order» before the task, that means that information must be sorted in a correct order. If there is written «Specify all necessary items», that means that algorithm may contain both odd and false information. Tasks of open type do not have any options to choose. There is written before such tasks «Supplement». Tested groups are PK-81 and PG-81. The result of testing was compared to control work results considering this theme. The research showed that 78,9% of PK-81 students and 70% of PG-81 students got satisfactory rating or higher, control work results are 47,3% and 75% of satisfactory rating or higher respectively. 47,3% of students from PK-81 and 35% students from PG-81 proved their knowledge. 52,6% of students from PK-81 and 25% of students from PG-81 got better marks for testing than for control work. Oral repeat surveys showed that after written work knowledge of students is better, they react on tasks fasted and make right conclusions.

On the basis of the results we can make a conclusion that it is more effectively to alternate testing with oral surveys and written work. In case of proper organization of educational process testing helps student to assess his success critically and (if needed) to adjust methods of research. The success of developed method of students' knowledge control is proven by students'

examinations rating and results of chancellor control of residual knowledge of NTUU «Igor Sikorsky Kyiv Politechnic Institute» students.

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