

PROFESSIONAL ASSIGNMENTS AS A MEANS OF TEACHING MATHEMATICS AS A DIRECTION FOR THE PROFESSION IN TECHNICAL HIGHER EDUCATION INSTITUTIONS

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Abstract: *This article is said on career-oriented assignments and career-oriented projects as a means of improving the quality and effectiveness of mathematics teaching in technical higher education institutions.*

Keywords: *professionally oriented assignment, professionally oriented task, professionally oriented project, mathematics.*

Today, the importance of mathematical knowledge in preparing future engineers for effective professional activity in technical higher education institutions is increasing day by day. It's no secret that mathematics is rapidly entering all areas of our lives today. Its increasing importance in the development of science and technology requires students, regardless of the profession they choose, to think logically, to have mathematical concepts and to be able to apply them in their professional field, that is, the mathematical preparation of students is important for the scientific and technical development of society and the social-determines readiness for economic development.

The technical direction is determined by the fact that the main importance of the mathematics course in higher educational institutions is the practical possibilities of this subject, in other words, the need to use mathematical methods in any activity. That's why teaching higher mathematics in higher education institutions is one of the main tasks of this subject, and it should be reflected in the content of the form and methods of teaching.

In addition to the unique application of pedagogical tools that ensure the mastery of knowledge, skills and qualifications provided by the State Educational Standards, the professional teaching of higher mathematics in technical higher educational institutions, an interest in the chosen profession, a respectful approach

to it, and the effective development of professional characteristics in the person of the future engineer allows to form.

Pedagogical research and teaching practice show that career orientation is one of the ways to improve professional training of students of higher education institutions. Teaching of higher mathematics subject to professional orientation implies the development of independent cognitive activities of students for conscious mastering of its content.

Vocational teaching of higher mathematics is one of the ways to improve students' level of mathematical preparation. This can be explained by the development of students' cognitive activity, the creation of conditions for the conscious and solid acquisition of the content of the higher mathematics course, as well as the study and strengthening of mathematical knowledge as necessary and important knowledge.

It is necessary to organize the teaching of higher mathematics in higher education institutions in such a way that as a result of it, students should develop personal characteristics such as striving to apply acquired skills in different situations, acting with initiative, achieving the set goal, and standing firm in their vision based on their knowledge and life experience.

One of the important means of vocationally oriented teaching of higher mathematics in technical higher education institutions is vocationally oriented issues. There are several definitions of career-oriented issues in pedagogical research [1,7]. R.M.Zaykin emphasized the understanding of textual problems whose solutions are sought using mathematical tools, and the fable is focused on a certain field of human professional activity. According to N.V. Skorobogatova, "a professionally oriented problem is a problem that represents an abstract model of the real situation that occurs in the professional activity of an engineer and is solved using mathematical tools, the content of which envisages the possibility of various conditions, procedures and results" [3].

Analyzing these definitions, we came to the conclusion that the common aspect that is characteristic for them is to define two directions of career-oriented issues,

that is, content and process. The first direction describes the content of the issue from the point of view of professional completion. It is carried out through the fable of a problem that arises as a result of a specific situation related to professional activity or models it. An example of such problems is solving the system of linear equations when solving problems on the subject of "Kirchhoff's law" in electrical engineering. The second direction is related to the methods used in solving the problem. In these definitions, it is noted that the problem is a model of the situation that arises in professional activity, but it is solved by mathematical methods. These directions help to form professional competences in students, but studying mathematics should form general competence in future professionals. Therefore, as stated in the definition given by R. M. Zaykin, it is appropriate to include the third direction, that is, development, in the approach to the definition of professionally oriented issues.

It can be done by increasing the motivation to study through the content of the problem and the methods of solving it, by developing the student's observation, memory, attention, and other personal qualities. So, as a professionally oriented problem - a problem that represents an abstract model of a real situation that occurs in professional activity, is solved by mathematical models or methods used in the professional activity of future specialists, and contributes to the development of the personality of a future specialist.

When dividing the professionally oriented problems into types, we were based on the classification proposed by I.G. Mikhaylova, which defines two main types: "The first type is a set of problems in which professional concepts and terms are used to give a special meaning to mathematical concepts. The second type is a set of problems that put the student in a specific professional situation that requires the use of mathematical methods. Problems of the first type are often used as motivational problems in constructing a mathematical model and presenting new material. The second type of problems allows to develop the student's professional thinking, to prepare him for the future professional activity with the help of mathematical tools, and to increase interest in activities directly related to mathematics [4].

Any professionally oriented problem has a practical character, because it allows solving problems that arise outside of mathematics with the help of mathematical models.

Specific features of vocationally oriented issues are as follows: for different categories of students, the same issue may be practical for some, and professionally oriented for others.

For example, for students of the "Construction of buildings and structures (by types)" direction, the problem of calculating the strength of a beam, which is solved using differential equations, is considered a professionally oriented problem, because its content is focused on the field of professional activity, "Energetics (by networks)", "Electrical energy (by networks and directions)", "Electrical engineering, electrical engineering and electrical technologies (by networks)" and other directions are only practical in nature, as it is not related to their professional activities.

Based on this, we understand the complex of professionally oriented issues as the issues of professional importance in the field of future professional activity, selected on a specific topic of some branch of mathematics. In order to include a complex of professionally oriented issues in the content of the mathematics course, the following steps should be taken: 1) selecting the necessary theoretical material from the subject area of mathematics; 2) to establish all kinds of interdisciplinary connections between the subject area of special and general professional sciences between mathematics and practical applications related to the field of future professional activity.

Solving various career-oriented problems helps to master basic mathematical concepts together with professional terms, and the technical direction is the main means of implementing the principle of professional orientation in teaching mathematics in higher education institutions. It is precisely the systematic use of a set of mathematical concepts together with professional terms that allows deepening vocationally oriented teaching in mathematics education.

It is important to note that students learn to apply both mathematics and knowledge to their future careers by solving career-oriented problems throughout the mathematics course. It corresponds to the State educational standard and qualification requirements in the process of professional training of future specialists. Therefore, introducing the content of career-oriented issues into the content of mathematics courses in all areas of technical higher education institutions is considered one of the most effective ways to improve the quality of professional training of future engineers.

In **conclusion**, it can be noted that the technical direction is aimed at expanding students' imaginations about mathematics in higher education institutions, the use of profession-oriented tasks of various forms and levels of complexity in teaching it, ensures the implementation of the principle of professional orientation in mathematics education.

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