PROFESSIONAL ORIENTATION OF MATHEMATICAL TRAINING FOR FUTURE OIL AND GAS ENGINEERS

The professional competence of an engineer largely depends on the fundamental mathematical training, which lays the foundation for the study of physics, chemistry and most general and special disciplines. The disciplines of the training cycle are the customers of those knowledge, skills and abilities that are formed with the help of mathematics and will be in demand in the future. Therefore, the main direction of implementation of the principle of professional orientation in the teaching of mathematics to engineers is the selection of the content of mathematical disciplines on the basis of interdisciplinary links with natural, general and special disciplines.

The analysis of curricula and work programs of the first (bachelor's) level of higher education on the use of mathematical knowledge in the teaching of natural, general and special disciplines on the example of "Oil and Gas Engineering and Technology" at Ivano-Frankivsk National Technical University of Oil and Gas.

Mathematical knowledge is used in the main natural and general technical disciplines (physics, chemistry, theoretical mechanics, materials support, computer science and programming, thermodynamics and heat transfer, electromechanics and power supply, etc.) and in most special.

A possible direction of implementation of the principle of professional orientation in the study of mathematics is the inclusion in the content of mathematical training professionally oriented tasks, which include the task of modeling a situation that arises in the professional activities of an engineer, and the study of this situation is carried out with mathematics.

Thus, the mathematical model of oil field development is described by a system that includes algebraic, differential, or integral equations or combinations thereof. To perform calculations based on the developed model, it is necessary to solve the corresponding mathematical problems. Many problems in the development of oil fields are reduced to solving the equations of mathematical physics. Among the methods that give accurate solutions to the problems of oil field development are the well-known Fourier method, methods of function of complex variable and operational calculus, methods of integral transformations and others.

Most research papers on the professional orientation of teaching mathematics in higher education institutions believe that students will be interested in

studying mathematics when there is a clear understanding of its need for further study and work. But in reality there are difficulties from the organizational point of view.

Firstly, there is currently a tendency to reduce the number of classroom hours allocated for teaching mathematics, with a constant amount of educational material, due to the right of the graduating department to determine the distribution of hours for the entire period of study.

Secondly, the study of mathematics is carried out in the first and second years, and special disciplines are taught, as a rule, in senior courses, when the student is not yet familiar with the research methods adopted in the discipline in which he intends to become.

Third, the leading motives for studying mathematics by students are, unfortunately, motives that are not aimed at professional development, but to obtain a positive assessment.

Prospects for further research are associated with the creation of a set of professionally-oriented problems in the disciplines of the mathematical cycle for students majoring in "Oil and Gas Engineering and Technology".