

USING A PROBLEM-BASED APPROACH TO DEVELOP INFORMATION TECHNOLOGY COMPETENCE OF STUDENTS IN TECHNICAL HIGHER EDUCATION INSTITUTIONS

Abdullaeva Dildora Anvarovna,

Lecturer of the Navoi State Mining and Technological University

Annotation. This article provides suggestions and recommendations on utilizing a problem-based approach in developing information technology competence among students of technical higher education institutions.

Keywords: information technology, problem approach, intellectual activity, competence, software.

The problem-based approach assumes that the entire content of information technology disciplines is built on the basis of a specially developed system of problem tasks or situations that are interesting for students and, if possible, related to their future professional activity.

In this regard, that is, research on the theory and practice of using a problem-based approach in increasing the effectiveness of teaching information technology subjects and developing students' competence in the field of information technology was conducted by such scientists as U.M. Mirsanov [1], Y.Y. Gafuanov [2]. They emphasize that the essence of the problem approach consists in solving specific problem situations (tasks), that is, this approach is fully based on the practical component. Of course, in the process of developing professional software, a certain general goal is set, and to achieve it, several tasks are formed, which, in

turn, are divided into subtasks. Accordingly, the activity of a specialist developer is, in essence, the solution of these minor tasks.

Thus, we can conclude that "a problem-based approach allows students to be well-prepared for future professional activities in the field of digital technologies, but is this really the case? Indeed, it is impossible to comprehensively consider all types of tasks that a future specialist may encounter in a training course. Also, learning to perform similar tasks in a specific environment, where there is a risk of shortening the entire process with excessive focus on the practical component, completely loses motivation for further activities in the field of programming when encountering tasks of an unfamiliar type related to science, which can easily lead to confusion and in various situations in the future" [3].

Psychologists A. M. Matyushkin and A. A. Matyushkina distinguish the following components of the concept of a problem situation[4]:

- a method of knowledge or action, the achievability of which is unknown;
- cognitive need that motivates the individual to intellectual activity;
- intellectual capabilities of a person, including his creative abilities, life experience.

The problem-based approach corresponds to such teaching methods as problem presentation, research, and the heuristic method. Problem-based learning in information technology subjects emphasizes understanding the process of studying educational material from the point of view of students' knowledge and personal experience. In this regard, I.N.Skopin notes that when studying information technology subjects, including programming, based on a problem-based

approach,..."the study of the fundamentals of the course is motivated and is not presented to students as a dogmatically undeniable truth" [5].

The problem-based approach is practice-oriented and develops digital literacy as a means of solving specific problems. It is better to use each module in final lessons. After completing the specific logical stage of the course, students are asked to complete a practical task that is as close as possible to the tasks performed by practicing programmers during their professional activities. Therefore, within the framework of the study, it is proposed to use a problem-based approach in the development of information technology competence of students of technical universities.

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