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Features of Teaching Methods "Banks and Databases" in Formation professional Competence of Future IT Professionals

Annotation: *The article describes the features of the teaching method of "Banks and database" to guide the preparation of Bachelor "Computer science and information technologies" with regard to the formation of professional competencies in students. We present a phased course of the planning process, as well as the use of modern educational technologies for the organization of the course.*

INTRODUCTION

Currently, there are cardinal transformation of the entire system of education Uzbekistan. The modern system of education and all educational areas included in it, one way or another, are aimed at developing trainees' skills to work independently with the information. Therefore, in most public education programs that define the priority areas of education development in Uzbekistan, a special attention is paid to formation of professional competencies for the students with the information and means of processing it, it becomes the mainstay of professional activity of graduates in the information society. Therefore, for the development and wide dissemination of information technologies, especially in the field of education, as well as in the training of IT specialists in our country attaches great importance and pays particular attention to the preparation of professionally competent staff. Normative-legal basis for this is the decree of the President of the Republic of Uzbekistan No. PP-1942 from March 26, 2013 "On measures for further improvement information and communication technology training system".

The target orientation of a high education at the preparation of competitive specialists need to define the formation of the professional competence system for the future personnel to the disciplines of the state educational standards in the course of studying, including a course which is called "Banks and databases."

The course "Banks and the database" is a basic cycle in scientific curriculum areas of training Bachelor "Computer science and information technologies" of some type. Some information system is based on a kind of databases and comprises, as a component of the database management system bath (DBMS). Thus, the future professional work of the students is bound to be linked to the database, and therefore, the quality of training depends on the completeness of the development in this particular course.

This academic discipline taught in several directions and the amount of training that is different and has a difference in names. But although this, even the discipline is the difference in the names of the theoretical basis for all one and the same.

In particular, the curriculum areas of "Computer science and information technologies", which are being prepared at the Tashkent University of Information Technology, the discipline is provided by 5 semesters and allocated 140 hours, including 72 hours to classroom, 68 hours to self-education (3, p. 1).

The pedagogical university's discipline covers the basis of the course "Databases and knowledge of control systems" in the direction of "Methods of teaching of computer science" consists of 284 hours, including 190 hours to classroom, 94 hours to self-education.

Based on this, even though such distinctions are not subjects undergoing huge changes, only some sections may contain more detailed disclosure for the non-core areas.

Note that in the curriculum, there are other items on the development of which are as necessary to any future specialist in the IT field. "Banks and databases" are different from them in that they are, in fact, it is the foundation of training in the field of computer science and information technology specialist (2, p. 53-54).

FEATURES TECHNIQUES

Of course, "Banks and databases" are studied in some areas of preparation of other faculties of the Tashkent University of Information Technologies, such as telecommunications, postal services, the economy. Therefore, the first question that we will try to answer - what is this course for the direction of "Computer Science and Information Technologies" differs on similar disciplines to other areas, which allows its, in this case serve as a basis for further education, and all of the other - just one of subjects of general IT literacy.

Traditionally, all areas of our university are divided into two groups: those that focus on the basic theoretical training, and those in which greater emphasis is placed on professional, practical, disciplines. The first group includes areas such as "Mathematics", "System Analysis", "Fundamentals of design and modeling systems." Lecture course on "Banks and database" in these areas tend to be concentrated in the theoretical foundations of the database: a description of the relational model, the study of relational algebra and relational calculus. It is difficult enough in scientific terms sections, so only the students' mathematical directions, it makes sense to teach a course in this way - others will experience simply an acute shortage of mathematical framework for understanding the theoretical foundations. In the second group are areas of "information technology", "Software Engineering". The students of these areas by the time of the study course "Banks and database" already have good programming skills, so they are able to go to the study database design methods and easily create applications to work with them. Mathematical foundations of his theory presents simply, only to the extent that is necessary the application programmer, artist, delivered some other job experts.

For students of the direction "Computer science and information technologies" and "Banks and database" course should be the basis for their future professional, so we can conclude that they must be thoroughly familiar with the bases of the discipline: be nice to know the theoretical foundations, must obtain database design skills data and application software for them and should be guided steadily in the most common design database or similar database management system. All this stems from the fact that the scope of the IT specialist is wide enough, almost always associated with the database, as we mentioned above, but it turns out that it is always necessary to possession of different aspects. And since it is impossible to predict exactly what the area will find the application of their knowledge graduates direction when planning a course is necessary, in fact, combine the two approaches described above.

Undoubtedly, the problem described is not the only solution, but below we describe how it is solved by the author in teaching this course for undergraduate students in TUIT.

When planning the course we have set the following goals:

1. To acquaint students with the theoretical basics of databases.
2. To teach students methods of database design and create applications for them.
3. To acquaint the students with examples of work-specific database.
4. Get skills formation of competence in solving specific tasks.

Many experienced teachers of special subjects would agree that the best and most logical way to achieve these objectives will be to work in the following order: first need to explain the theoretical basis, and then, based on them, go to the design and programming, and already as a finishing touch to arrange overview familiarity with some databases. Such an approach would reduce the time for completion of the second and third stage due to the fact that at the beginning of the second stage, students are already familiar with the theory, and the design becomes for them just an example of its application; and by the beginning of the third - the students have tried to develop their own database and management system for it, so be able to refer to various databases just as special cases of application of acquired skills.

The method of settling students direction "Computer science and information technology," the problem lies in the fact that the beginning of the third year (when the curriculum appear "Banks and databases"), students do not have sufficient mathematical basis for the development of theoretical bases, and at the same programming skills to go directly to the creation of custom applications for any domain. Accents specialist training more biased towards the use or design of IT products, and the establishment of the latter still remains the prerogative of other professionals. Of course, the general programming skills students receive in this direction, but it should be borne in mind that these skills are rather modest.

Future specialists to study this course must have at least the following knowledge:

• knowledge of mathematical logic, algorithms and data;

• literacy in information and communication technologies;

• software technologies;

• basis knowledge on programming in high-level languages.

As well as the initial basis for the formation of competence for working with databases is taken into account in the early stages of education, such as secondary special.

Thus, the above is absolutely logical approach is not applicable in our situation. Therefore, it seems optimal phased training program: almost every element of the course is studied thoroughly with a smooth transition to the next level, but at the different levels of complexity. Schematically, the development of the program is shown in the figure-1.
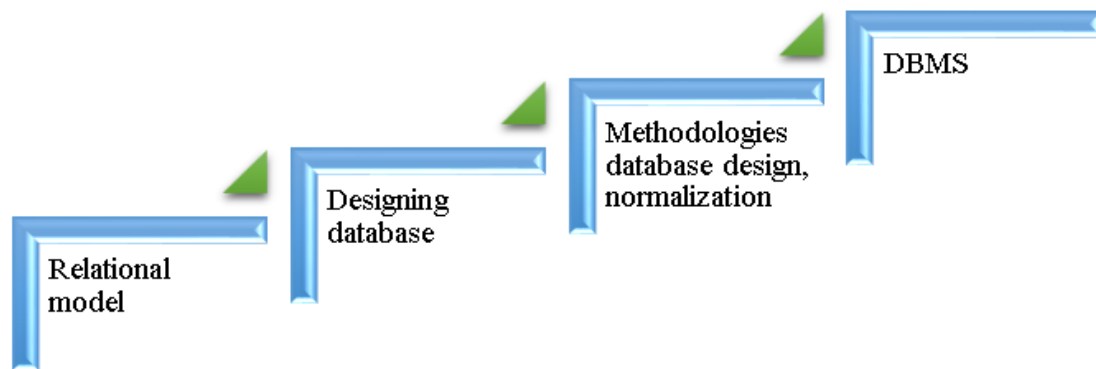
Figure 1. Levels of development of the program

We begin with a study of the general principles of the relational model. Learning the bases of formation and disclosure to the subject area. Then consider the general principles of database design and proceed to study the organization of the entity. After a fairly detailed acquaintance and organizing entities we move to the next stage of the methodology and the normalization of the relational model: students are now well aware of what will be discussed and it will compensate for some lack of the algebraic and logical calculations for the database. Then we have already concretized by examples describing the database and SQL. It is not only in theory but also in practice. Of course, the presentation of this material will still have to make some adjustments, taking into account the level of the students, but such a construction of the course will still allow to present the theoretical foundations very carefully, which will ensure the development of a deep subject.

Training in the IT sector alone is a slope on the development of mathematical logic and relational calculus, because on the one hand, a good knowledge of the basic tools of work with modern databases is absolutely necessary, and the other - the input level of the students does not allow to leave the query language subtleties for independent study, lecture is confined within a common representation.

It is easy to notice that the material of the last two stages are based not only on theoretical data but also on the practical. Therefore, the content of laboratory works at this time learning on the lecture course that enables us to give students the skills to develop their own applications for working with databases - to these subjects the teacher laboratory practical moves immediately after the organization of the entity and can choose the database and programming language without regard to content lectures.

In addition, also within the practical exercises must provide a picture of the database design tools, in particular using DBE ADO or methodology. However, there will be quite enough a general idea as to the curriculum of this trend there are specialized courses on information systems, which are more fully acquaint students with the tools of the field.

This course describes the structure can be completed, as has already been saying about making it possible to form an idea of the proposed model of learning.

MODERN EDUCATIONAL TECHNOLOGY

Next, we would like to stand on the issue of the use of modern pedagogical tools in the learning process. The latest generation of standard prescribes that is a class lecture type can't be more

than forty percent of the classroom, which implies that it is necessary to use actively in the learning process of active and interactive forms. Of course, role-playing and psychological training are irrelevant to the subject of the course, but some other proposed forms may well be used and, moreover, are used and always used in teaching discipline "Banks and databases." For the organization of quality control at the rate of "Banks and database" is necessary to use specific situational thematic tasks in small groups, the ability to analyze and identify the professional competence on the subjects covered on the basis of the responses and projects.

CONCLUSION

Based on the above material, we can draw the following conclusions: despite the specificity of the direction of "information technology", the teaching method of "Banks and databases", fully satisfying the requirements of the standard and meets the needs of future employers of our graduates, whatever the particular application that they chose, we have been implementing and highlighting features of the methods to teaching during the course on the basis of modern technology and organization design data with respect to the formation of professional competence. Nevertheless, there are still aspects to improve the forms of control of the acquired knowledge and skills through an appropriate specially developed software to identify professional competence on the basis of the course.

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