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## IMPROVING THE STRUCTURE AND CONTENT OF THE COURSE THEORY AND METHODS OF TRAINING AND EDUCATION IN COMPUTER SCIENCE IN ACCORDANCE WITH THE STATE STANDARDS OF EDUCATION OF UZBEKISTAN

**Abstract:** The article defines the main directions for improving the methodological training of future computer science teachers in the modern information and educational environment, taking into account the requirements of the State standard of education of the Republic of Uzbekistan.

An example of the course program "Theory and methods of teaching and education in computer science" for bachelors in the field of training "Pedagogical education", profile "computer Science" is presented.

**Key words:** Federal state educational standard, methods of teaching computer science, methodological training of future teachers of computer science.

**Language:** English

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### Introduction

The need to review the content and organization of methodological training of future teachers of computer science is due to the introduction of state standards of general education, state standards of higher education, professional standards of the State program for the development of education in Uzbekistan. The implementation of new priorities in the education system, aimed at improving its quality, imposes new requirements on teaching staff, changing the functions and content of their activities.

The analysis of the practice of professional activity of teachers shows that even a high level of subject-methodical training of teachers does not provide the quality of training of students at school expected by society. Currently, to ensure a qualitatively new level of education, a special role is played by the teacher's activity in the conditions of modern information and educational environment, his readiness for innovation, creative solutions to

emerging problems, and a creative approach to the implementation of his professional functions. To achieve new educational results, the State standards of Education of the Republic of Uzbekistan for General Education and the State standards of Education of the Republic of Uzbekistan for Higher Education, teachers must be prepared to work in the new information educational environment.

The essence of such training is to teach the future computer science teacher, based on the analysis of the impact of this environment on changing the goals and content of professional activity of the teacher:

find and effectively use the information needed for educational purposes;

create and adapt educational information resources using technologies for processing numerical, text, graphic, audio and video information;

design and organize a training process that provides new quality educational results (define educational goals in the form of requirements for

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educational results: personal, subject, select the content of training, select methods, organizational forms of training and learning tools based on ICT);

determine the types of educational activities of students;

organize project and research activities of students in the field of computer science;

organize individual educational routes for teachers based on the use of information technology tools;

organize network interaction of participants in the educational process;

organize extracurricular and extracurricular activities of students in the new information and educational environment;

carry out expert activities, determining the possibility and necessity of using ICT tools for a specific pedagogical task;

perform evaluation and reflexive activities to monitor the achievement of planned educational results in computer science.

A special role in the professional activity of a modern teacher is played by the ability to design the educational process in a new educational environment based on ICT. It should be emphasized that with the introduction of state standards of General education education, schools face challenges related to the analysis of educational goals, the selection of teaching content, building the main content lines of the subject, the choice of educational and methodological support, educational technologies for the educational programs implemented by them [2].

As a mandatory basis for the formation of educational programs of an educational institution, state standards of general education education do not determine the content of education, but set requirements for personal, metasubject and subject results of students' development of basic educational programs of General education, requirements for the structure of the OOP and requirements for the conditions of implementation of the OOP. Thus, all normative documentation, in particular the curriculum and educational program, is developed by the school, and teachers are responsible for creating all the components of the PLO in accordance with the requirements of the state standards of education. All this once again proves the importance of forming the ability of future teachers to independently design, develop and implement work programs on academic subjects in an educational institution.

As real practice shows, currently computer science teachers are experiencing some difficulties in preparing thematic planning, since now it is built on a fundamentally different scheme than before the introduction of state standards of education.

Previously, the design of the educational process was carried out from a certain content of education to the resulting learning results (knowledge, skills and abilities). Now thematic planning is based on a

scheme: from the planned results of education to the content of training.

The computer science teacher has the following tasks:

analyze the requirements for the results of mastering the General education program, set state standards OF General education;

select from the state standards of education of the Republic of Uzbekistan for the general requirements for personal, metasubject and subject educational results formed in the process of studying computer science;

to clarify the planned educational results taking into account the teacher's methodological positions in the specific conditions of the educational process organization;

describe the types of training activities that correspond to each planned result;

The new standard in high school provides for the implementation of training in five profiles: natural science, Humanities, socio-economic, technological and universal. Recall that specialized education - a means of differentiating instruction when the targeted change in structure, content and organization of the educational process creates conditions for the effective implementation of individualized learning, more fully take into account the interests, aptitudes and abilities of students, new opportunities for the education of pupils in accordance with their professional aspirations and intentions in relation to further education and choice of life.

Note that differentiation of training can be carried out in two main forms: level and profile. Level differentiation can be defined as the organization of learning, in which students have the opportunity and right to learn the content of learning at different levels. An example of level differentiation is the in-depth study of individual subjects. Profile differentiation consists in the directed specialization of the content of education, taking into account the interests, aptitudes, abilities of students, their subsequent professional intentions. Currently, due to objective reasons, the standard provides for level differentiation. At the same time, the profile of training is achieved by the possibility of studying various courses at the basic or advanced levels.

The analysis of state standards of secondary (full) General education shows that computer science is not included in the list of compulsory subjects. There are two reasons for this. First, the new school curriculum significantly increases the amount of computer science study in the main school. This will allow students already at this stage of school to significantly receive the necessary amount of educational content in this subject, which will ensure their formation of functional literacy, socialization and other tasks of General education. Secondly, the specificity of computer science as a science of human activity is that it provides its methods, tools, and

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technologies to other areas of knowledge, cognitive and practical human activity. Therefore, it makes no sense to study a basic (invariant for all profiles) computer science course at the senior level of school. It is more appropriate to study the profile, focused on the requests of a specific profile. However, the state education standards do not reject the possibility of studying computer science at the basic, minimum level and its inclusion in the content of a particular profile. Thus, the new educational standard assumes the study of computer science in high school at two levels: basic and advanced.

The basic level is intended primarily for schools and classes of humanitarian, socio-economic specialization, or for classes of a universal profile. For students of these profiles, it is important to learn how to create information models of objects and processes studied in the Humanities, to be able to develop and calculate economic models, and to process data from sociological research. The task of independent development is set in the natural science or technology profiles of software tools for information processing. Accordingly, the content of the advanced level standard is the basics of programming, numerical methods, etc.

The study of subjects (courses) chosen by students at the senior level of education is aimed at developing students' personality, their cognitive interests, intellectual and value-semantic sphere, self-education skills, as well as at deepening, expanding and systematizing knowledge in the chosen field of scientific knowledge or type of educational activity.

In addition, the new standard provides for the study of elective courses as part of extracurricular activities, such activities become a mandatory component of the main educational program of the senior level of education. All these changes in the concept and content of the computer science course should also be reflected in the course program on computer science teaching methods for future teachers.

New requirements for educational results, in particular, the need for the formation and development of communicative competencies, require a computer science teacher in an information and educational environment to ensure communication between teacher-student, student-student (including with peers from other schools, cities, countries), teacher

- teacher (colleagues from other schools, cities), teacher

- parents and others. A special place in the teacher's activity is occupied by the ability to use Web 2.0 services. with their help, you can solve many professional tasks:

- access to free digital educational resources;
- creating your own electronic methodological developments with publication on the web;
- organization of students' project activities;

attracting students to participate in research activities.

Given the importance of this type of teacher activity, it is necessary to provide practical and laboratory classes for bachelors, future teachers of computer science on the use of this service in the educational process when designing lessons.

Among the new types of professional activity of teachers in the information and educational environment is expert activity. Due to the increase in the number of textbooks and training programs in computer science, the teacher should be able to navigate in educational standards, analyze textbooks in terms of their compliance with the standards and content of the discipline, scientific, accessibility and logical presentation of the material. The widespread use of ICT tools in teaching requires the teacher to assess the feasibility of their use for solving specific pedagogical tasks in accordance with their typology and methodological purpose.

In accordance with the above, the program "Theory and methods of teaching and educating Informatics" should reflect the main methods and methods of expert and analytical activity of the teacher and provide practical classes using active teaching methods (case technologies, round tables, discussions) for the development of students' cognitive activity.

A modern teacher should carry out control and evaluation activities: analyze the results of training (personal, meta-subject and subject), perform reflection on their own activities, and make necessary adjustments to the teaching methodology. The introduction of new educational standards makes it necessary to allocate, along with accounting and control, control and correction, teaching, educational, another function of checking and evaluating learning results-certification. This function is related to the characteristic of the school's level of training and is an important component of the certification of the work of teachers and educational institutions.

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To achieve the main goal of the development of discipline - the formation of a system of concepts, knowledge and skills in the field of theory and methodology of training and education in Informatics at school in the context of implementation of the state educational standards of the Republic of Uzbekistan

for General education - the following course objectives:

- familiarize students with the modern concept of teaching computer science in General education schools in accordance with the requirements of the state standards of General education education;

- to develop students' ability to analyze and distinguish from the state standards of education of the Republic of Uzbekistan for General education requirements for personal, metasubject and subject results formed in the process of teaching computer science in primary, primary and high schools;

- develop the ability to design computer science course programs for primary, primary and high schools according to the scheme "from planned educational results to the content of education»;

- develop the ability to design a lesson using modern organizational forms of learning (network interaction, telecommunications project, case technology, mixed and "inverted learning", etc.);

- teach students to use information technology tools in the implementation of computer science courses for primary, primary and high schools in accordance with the requirements of the state standards of education;

- teach students how to evaluate the results of teaching students computer science by various means.

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