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INFORMATION AND COMMUNICATION COMPETENCIES OF A FUTURE COMPUTER SCIENCE TEACHER

This article discusses the essential and substantive characteristics of subject competencies in the field of information technology of a future computer science teacher. The main subject competencies in the field of information technology are described, according to the functional responsibilities of computer science teachers in professional activities, such as user competence, programming competence, multimedia competence, network technology competence. Recommendations are given on the implementation of the main tasks for the effective formation of subject competencies in the field of information technology.
Key words: competence, information technology, education, computer science.

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БОЛОЧОКТОГУ ИНФОРМАТИКА МУГАЛИМИНИН МААЛЫМАТТЫК-КОММУНИКАТИВДИК КОМПЕТЕНЦИЯЛАРЫ

Макалада келечектеги информатика мугалиминин маалыматтык технологиялар жаатындагы предметтик компетенцияларынын маани-маңыздуу мүнөздөмөлөрү каралды. Информатика мугалимдеринин кесиптик иш-аракеттердеги функционалдык милдеттерине ылайык, маалыматтык технологиялар жаатындагы негизги предметтик компетенциялар сыпатталат, мисалы, колдонуучунун компетенциясы, программалоо компетенциясы, мультимедиа компетенциясы, тармактык технологиялар компетенциясы. Маалыматтык технологиялар чөйрөсүндө предметтик компетенцияларды натыйжалуу калыптандыруу үчүн негизги милдеттерди аткаруу боюнча сунуштар берилди.
Өзөктүү сөздөр: компетенттүүлүк, маалыматтык технологиялар, билим берүү, информатика.

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ИНФОРМАЦИОННО-КОММУНИКАТИВНЫЕ КОМПЕТЕНЦИИ БУДУЩЕГО УЧИТЕЛЯ ИНФОРМАТИКИ

В данной статье рассмотрены сущностно-содержательные характеристики предметных компетенций в области информационных технологий будущего учителя информатики. Описаны основные предметные компетенции в области информационных технологий, согласно функциональным обязанностям учителей информатики в

профессиональной деятельности, такие как пользовательская компетенция, компетенция в области программирования, компетенция в области мультимедиа, компетенция в области сетевых технологий. Даны рекомендации по выполнению основных задач для эффективного формирования предметных компетенций в сфере информационных технологий.

Ключевые слова: *компетенция, информационные технологии, образование, информатика.*

A future computer science teacher should deeply understand the importance of a school computer science course in education, its role in future professional training, the principles of selecting its content, the relationship with other school disciplines. He must master the technology of professional use of a PC and a local network, study pedagogical software tools (teaching staff) in the course of computer science, master various pedagogical technologies and methods of teaching computer science. In addition, due to the constantly changing picture of the technical equipment of schools with computers and IT tools, there is a wide variety of software in which a computer science teacher should easily navigate. Thus, during his studies at the university, the future computer science teacher needs to form subject competencies in the field of information technology, by which we will understand the ability to apply subject knowledge, skills in the field of information technology and personal qualities for successful work as a computer science teacher, able to create and use modern IT tools both in computer science lessons and and in extracurricular activities.

Based on the tasks facing a computer science teacher in professional activity, we will distinguish the following subject competencies in the field of IT: user competence, programming competence, multimedia competence, network technology competence.

Let's define each of these competencies.

User competence.

As it was already written above, the computer science teacher has a separate role, since this science is moving forward all the time. Today, a computer science teacher should perform the functions not only of teaching students the basics of computer science, but also of adapting the content of computer science education to continuously changing hardware and software. A computer science teacher should be able to work in several operating systems (OS), work with various types of information (text, graphics, video, audio, etc.), to do this, know the application software for several operating systems, as well as be able to work with word processing systems, numerical tables, graphics, databases, integrated environments, the Internet, etc.

Thus, it is necessary to equip the future computer science teacher with knowledge, skills and personal qualities in the field of information technology, allowing him to work in various conditions of technical and software and methodological support.

Therefore, by user competence we will understand the totality of knowledge, skills and abilities necessary for working with information, presenting it in a form convenient for processing using computers in any operating system, working with hardware and software, as well as the administration of personal computers.

In order to form a user competence, it is necessary to solve the following training tasks:

• training in working with operating systems;

• training in working with computer software;

• training in working with information and communication computer technologies, including word processing systems, numerical tables, graphs, databases, integrated environments, the Internet, etc.

Competence in the field of programming.

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Programming is one of the main components of computer science, so it should be given appropriate attention.

Both the science of "computer science" and its field of "programming" are developing rapidly. New technologies and paradigms are emerging in the field of programming. New integrated programming language environments are constantly being created. Therefore, much attention should be paid to this area of training of future computer science teachers.

A computer science teacher should have programming skills in several procedural and object-oriented languages, have skills in debugging and testing programs, master the basics of web programming, create software educational products, master the methodology of computer modeling and its subsequent implementation.

Therefore, by the competence in the field of programming of a future computer science teacher, we will understand the ability of a computer science teacher to apply knowledge, skills and personal qualities to solve educational problems in a specific programming language, choosing the right approach to algorithm development depending on the specifics of the problem being solved, as well as creating a ready-made educational software product.

In order to form a competence in the field of programming, it is necessary to solve the following training tasks:
• teaching the basics of algorithmization;
• training in procedural programming;
• object-oriented programming training;
• web programming training;
• training in the creation of software educational products (professional programming).
Competence in the field of multimedia

When creating training courses, high requirements are put forward for the reliability, representativeness and completeness of the material. If a subject teacher has the tools to create training courses, knows the specifics of this computer genre and the psychology of perception of information presented on a computer screen, he can develop a full-fledged product in accordance with the goals and objectives of the training course. That's why we emphasize the importance of teaching future computer science teachers how to develop multimedia products.

Under the competence in the field of multimedia of a future computer science teacher, we will understand the ability of a computer science teacher to apply knowledge, skills and personal qualities to work with a set of test, graphic, audio, video information, animation, as well as to create multimedia products.

In order to form competence in the field of multimedia, it is necessary to solve the following training tasks:
• teaching the basics of computer graphics;
• training in the basics of working with audio materials;
• training in the basics of working with video materials;
• learning the basics of working with animation;
• training in the creation of multimedia educational products.
Competence in the field of network technologies.

Currently, network technologies and WWW have firmly entered the life of society. The very existence of WWW has changed the nature of the educational process. Modern network technologies improve the ability of each person to communicate and provide people around

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the world with unprecedented access to information. Today they have become a necessary foundation of computer science, therefore it is impossible to imagine an information science training program in which this topic would not be given significant attention, today in curricula not only in the subject training of future computer science teachers, but also in other fields, network technologies have become an important pedagogical tool. Therefore, the formation of competence in the field of network technologies of a future computer science teacher, in our opinion, is a necessary condition for his professionalism.

Thus, by competence in the field of network technologies, we will understand the ability of a computer science teacher to apply knowledge, skills and personal qualities to carry out effective activities in the field of design, creation, configuration, maintenance and administration of educational computer networks, as well as to manage the process of using information network resources when teaching computer science.

In order to form a network competence, it is necessary to solve the following training tasks:

• training in the basics of network technologies and the basics of designing, configuring, maintaining and administering a learning computer environment, including hardware, software and information components;

• mastering network technologies for managing the development of the information and educational environment within an educational institution;

• mastering network technologies for managing the process of using information network resources in computer science education.

The formation of this competence will allow future computer science teachers to create and develop an information educational environment of an educational institution, the organization of which is based on modern IT, as well as to organize the educational process using network technologies.

It should be noted that subject competencies in the field of IT are formed through not one, but a certain cycle of disciplines. Therefore, within the framework of the competence approach, it is necessary to take into account one of its most important specifics - the intersubject nature of the formation and development of subject competencies in the field of IT. There is an obvious need to systematize the process of their formation and tracking. Therefore, the formation of subject competencies in the field of IT of future computer science teachers should be considered through a set of disciplines that form them.

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