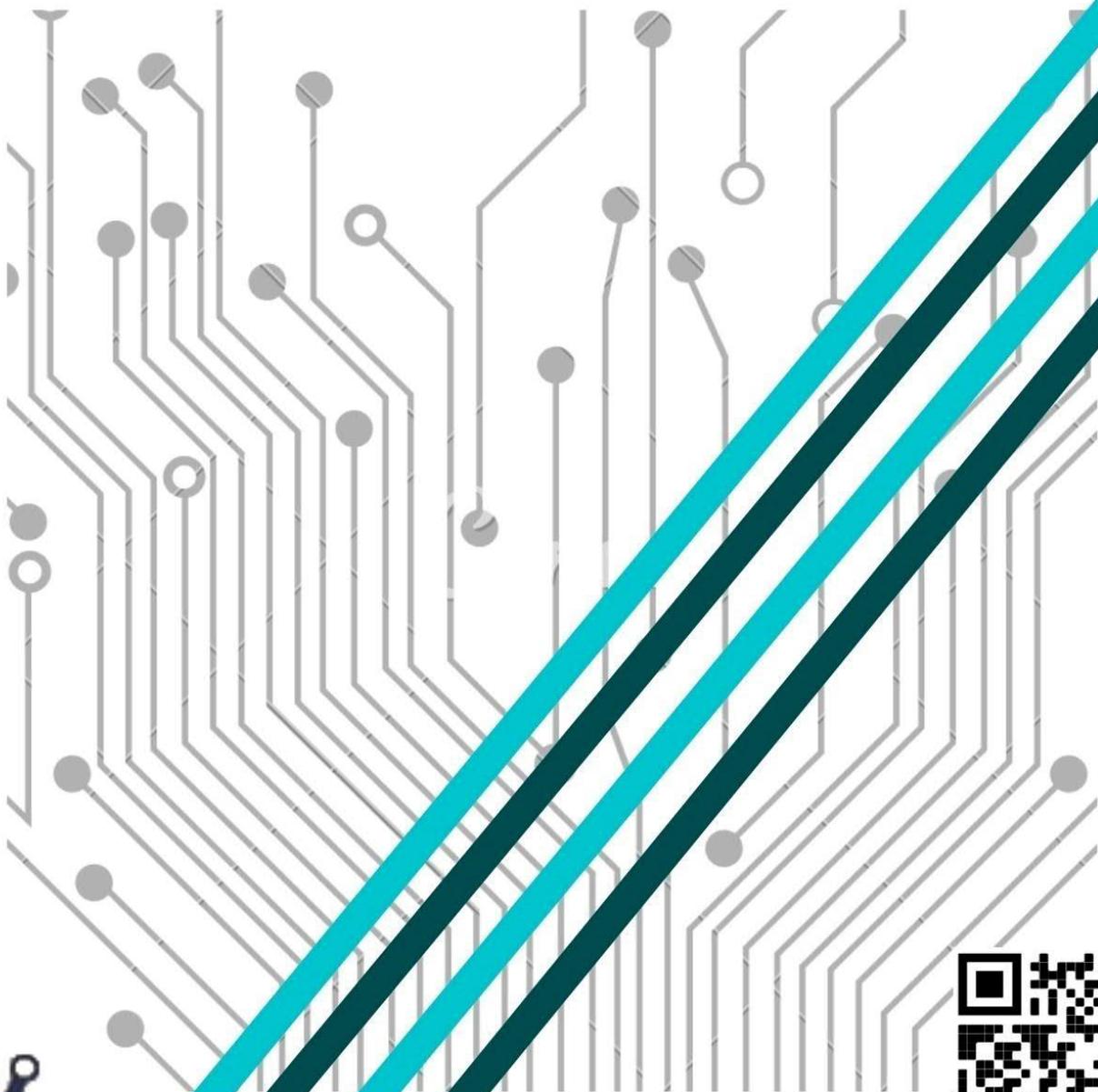


ISSN 2181-3213

# CAJECS

CENTRAL ASIAN JOURNAL OF  
EDUCATION AND COMPUTER  
SCIENCES



VOLUME 2, ISSUE 2

2023



[cajecs.com](http://cajecs.com)

## CONTENTS

TECHNICAL SCIENCES .....	6
A NEURO-FUZZY MODEL FOR PREDICTING SUCCESSFUL PASSING OF ENTRANCE EXAMS OF APPLICANTS TO HIGHER EDUCATION. ....	6
<i>B.Mo'minov, E.Egamberdiyev</i>	
DIGITAL TRANSFORMATION HIGHER EDUCATION IN THE CONDITIONS OF THE FORMATION OF THE DIGITAL ECONOMY IN THE REPUBLIC OF UZBEKISTAN.....	14
<i>Sh.U. Pulatov, J.D. Isroilov, M.M. Abdullaev, O.N. Urinkulov</i>	
IRON DEFICIENCY ANEMIA MED ANDROID APP OPERATING TECHNOLOGY .....	25
<i>E.Sh. Raxmonov, V.G. Maxsudov, E.Ya. Ermetov, R.E. Yakhshiboyev</i>	
ALGORITHM FOR USING THE IRON DEFICIENCY ANEMIA MED ANDROID APP .....	29
<i>E.Sh. Raxmonov, V.G. Maxsudov, E.Ya. Ermetov</i>	
METHODS OF GEOMETRIC MODELING OF ARCHITECTURAL OBJECTS IN COMPUTER GRAPHICS.....	34
<i>B. Kulnazarov</i>	
ORGANIZATION OF DISTANCE EDUCATION BASED ON MODULES OF MODERN PEDAGOGICAL TECHNOLOGIES .....	38
<i>V.G.Maxsudov, E.Ya.Ermetov, M.K.Norbutaeva, P.E.Otakhonov, M.N.Ibragimova</i>	
TECHNOLOGIES FOR ORGANIZING ELECTRONIC EDUCATION BASED ON INFORMATION TECHNOLOGIES .....	43
<i>E.Ya. Ermetov, A.Z. Sobirjonov, V.G. Maxsudov, J.T. Abdurazzoqov, P.E. Otaxonov</i>	
PEDAGOGICAL SCIENCES.....	48
SIGNIFICANCE AND CONTENT OF PEDAGOGICAL DIAGNOSTIC METHODS .....	48
<i>N.A. Kayumova, S.E. Berdiyeva</i>	
ZAMONAVIY TA'LIM PLATFORMALARINING TAHLILI .....	51
<i>B.B. Mo'minov, G.G'. Ro'ziyeva</i>	

## ORGANIZATION OF DISTANCE EDUCATION BASED ON MODULES OF MODERN PEDAGOGICAL TECHNOLOGIES

V.G.Maxsudov<sup>1</sup>, E.Ya.Ermetov<sup>1</sup>, M.K.Norbutaeva<sup>1</sup>, P.E.Otakhonov<sup>1</sup>, M.N.Ibragimova<sup>1</sup>

<sup>1</sup>Tashkent Medical Academy

E-mail: [eyaermatov@gmail.com](mailto:eyaermatov@gmail.com)

**Abstract.** This article contains information about technology, pedagogical technology, teaching technology, modern pedagogical technology, modern pedagogical technologies, pedagogical technologies used in practice, didactic materials, innovation, interactive method, problem teaching, distance teaching.

**Key words:** terminology, didactic materials, innovation, interactive method, problem-based learning, distance learning, medical field, profession, pharmacy, clinical terminology.

Algorithmization is the process of determining the mutual location of the structural parts (modules) of modern pedagogical technology and the order (rule) of the sequence of implementation of pedagogical technology processes. Modular education technology is based on modules. "Module" is a Latin word meaning "part" or "piece" ("block"). So, a module is a concept that organizes pedagogical technology and represents structural parts. These constituent parts, ie modules, consist of the smallest parts and their various collections. In this case, the smallest component is called the smallest module, and the others are called modules of the corresponding level, depending on how many modules it contains.

**Analysis of recent studies and publications.** Distance learning was investigated by many domestic and foreign researchers such as A. A. Andreyev, V. Y. Bykov, I. Gorokhovskiy, R. S. Gurevych, V. V. Ilyin, G. O. Kozlakova, A. P. Kudin, B. M. Kuharenko, N. V. Morze, V. V. Oliynik, Y. S. Polat, Y. M. Smyrnova-Trybulska, O .D. Sotnykova, P. V. Stefanenko, A. V. Khutorskiy, D. V. Chernilevskiy, J . Bartram, T. Bates, M. Beaudoin, B. Locke, S. Catherine, F. Willits, M. Cornelia, S. Feldman, G. Randy, N. Hara, R. Jones, B. Locke, A. Mishra, T. Nunan, F. Saba, M. Soby, C. Wedemeyer, R. Widdison et al.

Pedagogical technologies used in practice can be divided into 12 types:

1. According to the level of application (general pedagogical; special subject; local, modular, narrow pedagogical).

2. According to the philosophical basis (materialism, idealism, dialectical, metaphysical, humanitarian, non-humanitarian, anthroposophy, theosophy, pragmatism, existentialism, Zionism).

3. Leading factors of mental development (biogenic, sociogenic, psychogenic, idealistic).

4. According to the concept of mastering (associative-reflective, developmental, behavioristic, gestalt technology, suggestive, neurolinguistic).

5. According to the orientation of the personality structure (informational, operational, emotional-moral, self-developing, heuristic and practical).

6. According to the content and nature of the structure (educational and educational, secular and religious, general education and career-oriented, humanitarian and technocratic, various field technologies, private subjects and monotecnologies and polytechnologies).

7. According to organizational forms (class-lesson, alternative, academic, individual, group, group study methods, differentiated education).

8. By the type of organization and management of cognitive activities (classical teaching with lectures; reading with the help of audiovisual technical means; "Advisory system"; teaching with the help of books; "Tutor" system; "Programmed education" V.P. Bepalko).

9. Approach to the child (authoritarian, didactocentric, person-oriented technologies, cooperation technology, free education technology, esoteric technologies).

10. By priority methods (reproductive, explanatory, developmental education, problem-based education, creative; program education, dialogue, game education, self-learning education, informational education).

11. On the directions of renewal of existing traditional systems (on the basis of humanizing and democratization of relations; on the basis of activation and acceleration of children's activities; on the basis of the efficiency of organization and management; on the basis of methodical and

didactic reconstruction of educational materials; on the basis of monadism, alternative technologies; the unique technology of the author's school).

12. According to the category of students (mass technology, advanced education, supplementary; technologies for working with non-assimilators, technologies for working with talented people) [1-4]. Currently, in the most developed countries of the world, such as the USA, England, Japan, Germany, Turkey, and Korea, as a result of the above new systematic approach to education, students' mastery of subjects is at a high level. For example, 75% of the 50,000 students who were trained as an experiment in pedagogical technologies in South Korea had a positive mastery. Usually, only the best students can achieve such an indicator. The use of effective innovative pedagogical technologies in the educational institutions of our republic leads to further improvement of educational processes, bringing the quality of education to world standards, and training personnel in accordance with the requirements of the unified State educational standards. In the future, pedagogical technology will become richer in theory and practice. Strong bases of technology will be created in accordance with the national characteristics of the Uzbek people, pedagogy, and the ideas of the national independence ideology [5-8].

Considering these characteristics, it becomes clear that most of them can be easily applicable in the terms of distance education. In support of this, the known distance learning principles are indicated below. The list of the principles is sorted according to their importance for the features and characteristics of net generation. These principles are consistent of:

1. Interactivity principle.

The peculiarity of this principle (in terms of distance learning) is the fact that it reflects regularity of not only student-teacher communication, but also student-student communication (due to the distant learning technologies).

2. Principle of the training openness and flexibility.

Conducting of training process is characterized by the time, place and rate that should be convenient for the student.

3. Humanistic principle.

The essence of the principle is a focus of teaching and learning process on a person in general, creating of favorable conditions for gaining of the social experience and mastering of the chosen profession for the development and demonstration of the creative individuation and civil moralities, etc.

4. Training mobility principle.

The principle consists in creation of networks, knowledge bases and databases for distance learning, which enables the students to correct or complement their educational program (as needed) in the absence of appropriate services in high school where they are receiving education. The students get an opportunity of the change-over from one university to another for studying with a specialization in related or other fields.

5. Security principle.

According to this principle, it is necessary to provide organizational and technical means for secure and confidential storage, transferring and using of training materials.

6. Identification principle.

It consists in tighten control/monitoring of students' self-dependence; because there are more opportunities for falsification of education under conditions of distance learning (e.g., in comparison with full-time attendance).

7. Principle of learning process intensification.

The intensification is getting of greater scope of knowledge and skills by students without the training time increasing and education quality changing.

8. Principle of student cognitive activity intensification.

Intensification of scientific and educational activities in terms of distance learning is achieved through increased students' motivation; enhanced cognitive interest in learning activities; taking into account the individual characteristics of the student; dynamic visualization (illustration); diversity of training materials and working form; the presence of feedback, etc.

9. Principle of creative nature of students' cognitive activity.

Creativity is ability to produce fundamentally new ideas.

10. Individual educational path principle.

According to this principle, students have a choice at all stages of the learning process: while

setting of personal educational goals and during choosing of the main areas, forms and rates of studying.

11. Modular approach principle to elaborate content and organization of the educational process.

All training materials (in terms of distance learning) are divided into modules. The modules are logically complete information blocks that are individualized (personalized) in accordance with content, teaching methods, complexity level, degree of self-dependence, and rate of students' scientific and educational activity. Learning of the modules is performed according to the learning objective.

12. Principle of using state-of-the-art information technologies.

13. Starting knowledge principle.

For the purpose of effective learning (in terms of distance education), it is necessary to have some initial competence level of potential trainees.

14. Principle of learning scheduling.

It is widely thought that the learning time (in terms of distance education) is not strictly scheduled, and it is unreasonable to introduce an independent work schedule for students. However, the experience shows that, conversely, in this case it is necessary to realize strict control and careful scheduling of educational process (for juniors in particular).

15. Principle of pedagogical usefulness of new information technologies.

This principle is one of the leading educational principles, and it requires teaching evaluation of all steps of planning, preparing and training in terms of distance education.

16. Principle of education content selection.

The content must meet the regulatory requirements of State Educational Standard and current market requirements.

17. A non-antagonism principle of distance learning in relation to existing educational forms.

The effectiveness of distance learning depends on its non-strangeness (natural integration) in traditional higher education system [9-12].

The emergence and development of the technological approach to the educational process, including teaching, has its own history. It is known from the history of our schools and the researches of our scientists that the development of this approach to the educational process can be

conditionally divided into 3 stages. At the first stage, the teaching process was conducted only by the teacher, the experiences and knowledge accumulated by mankind were given to the student only through the teacher. In the second stage, textbooks and manuals were published. Didactic materials have been created to help the teacher. In the third stage, teaching technology became richer in terms of content: technical tools for teachers and students, teaching machines were added, and the concept of programmed education appeared. New approaches that help to increase the effectiveness of education began to appear [8].

The smallest modules of modern pedagogical technologies are the main concept, and they are of primary importance as they act as "bricks" that make up the pedagogical technology.

Modules of modern pedagogical technologies can be divided into the following levels:

1. Modules that make up the technology of conducting one educational session.

2. Modules that make up one topic, one section, one part or all of the constituent parts of the educational science and teaching technology. They are also called blocks.

3. Modules (blocks) that make up the structural parts of several related educational subjects and the technology of teaching certain subjects.

4. Modules that make up the components of the state educational standard and the technologies for ensuring their implementation.

5. Modules that make up the structural parts of educational plans and programs and the technology of ensuring their implementation.

6. Modules that make up educational tools.

7. Modules that organize the methods used in the process of modern pedagogical technologies [9].

Among these modules, the modules that make up the technology of conducting an educational session are also important because they constitute the main link of the process of modern pedagogical technologies. They are divided into the following types:

- basic concepts that make up the training content;

- components of the process of explaining these concepts to students;

- educational tools and methods used in each of these components;

- modules that organize the activity of the teacher during the training;
- modules that organize the activities of teachers from the beginning to the end of the training;
- modules for monitoring students' mastery, etc.

As can be seen from the above, the modules in the process of modern pedagogical technologies constitute structural elements related to each of the educational content, tools and methods. In this case, the educational content modules are the units that make up the content of the taught information; modules of educational tools - units of these tools; modules of educational methods represent units that organize actions performed during the implementation of these methods.

The module should not be considered as something immutable, fixed. In fact, each module represents its own sub-goal. In the implementation of this goal, it is envisaged to use the ways, methods, and tools that are considered the most suitable for the relevant conditions. Therefore, different ways, methods, and tools can be used that ensure full implementation of the goal set in the module without changing it [13-17].

According to the content and essence of the module programs:

- module programs designed for individual work of students;
- module programs designed for two students to work together;
- module programs intended for students to work in small groups;
- module programs designed for students to work individually, each student's talent, interest, learning, independent and creative work on the textbook, development of self-assessment skills;
- module programs designed for cooperation between two pupils-students, in addition to those mentioned above, pupils-students can teach each other, perform educational tasks and solve problems in cooperation, perform mutual supervision;
- module programs designed to determine the level of students in small groups, the level of mastery and work in cooperation, in addition to the above, provide communication, educational debate and discussion, mutual cooperation and support between students.

Before these module programs, the teacher uses individual module programs and makes sure that students have developed the skills of independent and creative mastering of educational materials. should be used.

## REFERENCES

1. Камолдинов М., Вахобжонов Б. Инновацион педагогик технология асослари, саволлар, жавоблар. – Тошкент: Талқин, 2010., - Б. 8-12.
2. Mariia Umryk. Organization of distance learning for meeting the needs of modern students. – Kyiv: ISSN Online: 2076-8184. Information Technologies and Learning Tools, 2015, Том 45, №1.
3. Maxsudov V.G. Improving the methodology of teaching physics-Mechanical Vibrations in higher education. Monograph. 2021. 144 pp.
4. Maxsudov V.G. The use of distance learning technologies in the creation of e-learning courses in higher education by professors and teachers of higher education institutions. Study guide. – Tashkent. 2021. -264 pp.
5. Remizov A.N. Tibbiy va biologik fizika. – Toshkent: O‘zbekiston milliy ensiklopediyasi.- 2015. -588 b.
6. Maxsudov V.G. The use of distance learning technologies in the creation of e-learning courses in higher education by professors and teachers of higher education institutions. Study guide. – Tashkent: UzSNMU, 2021. – pp. 256.
7. Maxsudov V.G. Types of physical education and the technologies of organization of matters in the modern education system. – Portugal: Integration of science, education and practice. scientific-methodical journal., 2022., №4, -pp.29-34.
8. Maxsudov V.G. Technology of organization of modern lecture classes in higher education institutions. England: Modern views and research–2021. 160-166 pp.
9. Maxsudov V.G. Technology of lecture organization in modern education. - Washington, USA, Colletions of scientific works, Innovation in the modern education system.2021. – Pp.160-166.

10. Тухтаходжаева Ф.Ш. Махсудов В.Г., Эрметов Э.Я. Значение информационных систем в здравоохранении. Журнал медицина и инновации (Jurnal of Medicine and innovations). 2022/2/25. С. 177-181
11. Maxsudov Valijon Gafurjonovich, Ermetov Erkinbay Yaxshibayevich. TIBBIY XIZMAT KO'RSATISHDA AXBOROT TIZIMINING AHAMIYATI. 2023/1/5
12. N.U. Abdullayeva V.G. Maxsudov, E.Ya. Ermetov, K.D. Latipova. Problem solving methodology in Physics. CAJECS. Cental Asian journal of education and computer sciences. 2023/2. -P. 6-14
13. Zparov I.B. Ermetov E.Ya., Sobirjonov A.Z., Bobajanov B.O. Problem solving method in physics in general secondary schools. Modern journal of social sciences and humanities ISSN: 2795-4846. 2022. 562-566
14. Эрметова С.И. Эрметов Э.Я., Икрамов У., Каримов Х.А., Мاستибеков Н. Прикладные программы, обеспечивающие обучение на расстоянии. Масофадан ўқитиш техника ва технологияси. Халқаро илмий-амалий конференция. 2002/5/13. 183
15. Эрметова С.И. Икрамов У., Каримов Х.А., Эрметов Э.Я., Мастибеков Н. Информатика ва компьютер технологияси фани бўйича масофадан ўқитиш учун қўлланиладиган дастурий тўплам. Масофадан ўқитиш техника ва технологияси. Халқаро илмий-амалий конференция. 2002/5/13. 182-183
16. Yakhshiboyev R. E., Kudratillayev M. B., Siddikov B. N. FORSCHUNG VON INNOVATIVER AUSRÜSTUNG FÜR DIE DIAGNOSE VON MAGEN-DARM-ERKRANKUNGEN //International Bulletin of Applied Science and Technology. – 2023. – Т. 3. – №. 3. – С. 100-105.
17. Kudratillaev MB, Yakhshiboev R. E. (2023). ANALYSIS OF INNOVATIVE EQUIPMENT FOR THE DIAGNOSIS OF GASTROENTEROLOGICAL DISEASES. Innovative Technologica: Methodical Research Journal, 4(03), 13–23. <https://doi.org/10.17605/OSF.IO/6MP8B>