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- 13.00.00 Pedagogika fanlari
- 13.00.01 Pedagogika nazariyasi. Pedagogik ta'limotlar tarixi
- 13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
- 13.00.03 Maxsus pedagogika
- 13.00.04 Jismoniy tarbiya va sport mashg'ulotlari nazariyasi va metodikasi
- 13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
- 13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohaları va bosqichlari bo'yicha)
- 13.00.07 Ta'limda menejment
- 13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
- 13.00.09 Ijtimoiy pedagogika
- 07.00.00 Tarix fanlari
- 19.00.00 Psixologiya fanlari
- 01.00.00 Fizika-matematika fanlari
- 02.00.00 Kimyo fanlari
- 03.00.00 Biologiya fanlari
- 09.00.00 Falsafa fanlari
- 10.00.00 Filologiya fanlari
- 11.00.00 Geografiya fanlari

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MODERN REQUIREMENTS FOR A TEACHER'S PEDAGOGICAL SKILLS IN THE CONTEXT OF DIGITAL TRANSFORMATION IN EDUCATION

Abira Bakhramova

Senior Lecturer at the Department of Applied Psychology at SamSU

Abstract: The article examines contemporary requirements for teachers' pedagogical skills within the context of digital transformation in education, drawing on the example of general secondary schools in Uzbekistan. The study identifies the key components of digital pedagogical skills, including digital literacy, methodological competence in the effective use of digital educational tools, and essential personal and professional qualities of teachers. Based on an analysis of current educational trends and the specific features of the digitalization process in Uzbekistan, the main challenges and future prospects for the development of teachers' professional competencies are determined. Furthermore, the article proposes practical recommendations aimed at improving teacher training and professional development systems in the context of the digital transformation of education.

Key words: digital transformation of education, pedagogical skills, digital literacy, teacher professional development, digital educational technologies, schools in Uzbekistan, ICT competence, blended learning.

Annotatsiya: Maqolada ta'lim tizimida raqamli transformatsiya jarayonlari sharoitida pedagoglarning kasbiy-pedagogik mahoratiga qo'yilayotgan zamonaviy talablar O'zbekiston umumta'lim maktablari misolida tahlil qilinadi. Tadqiqotda pedagoglarning raqamli pedagogik ko'nikmalarining asosiy tarkibiy qismlari, jumladan raqamli savodxonlik, raqamli ta'lim vositalaridan foydalanish bo'yicha metodik kompetensiya hamda pedagog shaxsining muhim kasbiy va shaxsiy sifatlari aniqlab berilgan. Ta'lim sohasidagi dolzarb tendensiyalar va O'zbekistonda raqamlashtirish jarayonining o'ziga xos jihatlari tahlili asosida pedagoglarning kasbiy kompetensiyalarini rivojlantirishdagi muammolar va istiqbollar belgilangan. Shuningdek, ta'limni raqamli transformatsiya qilish sharoitida pedagoglarni tayyorlash va ularning malakasini oshirish tizimini takomillashtirishga qaratilgan amaliy tavsiyalar ishlab chiqilgan.

Kalit so'zlar: ta'limning raqamli transformatsiyasi, pedagogik mahorat, raqamli savodxonlik, pedagoglarning kasbiy rivoji, raqamli ta'lim texnologiyalari, O'zbekiston maktablari, AKT kompetensiyasi, aralash ta'lim.

Аннотация: В статье рассматриваются современные требования к педагогическому мастерству учителей в условиях цифровой трансформации образования на примере общеобразовательных школ Узбекистана. В ходе исследования выделяются ключевые компоненты цифровых педагогических навыков, включая цифровую грамотность, методическую компетентность в использовании цифровых образовательных средств, а также профессионально-личностные качества педагога. На основе анализа актуальных образовательных тенденций и специфики процессов цифровизации в Узбекистане определены основные проблемы и перспективы развития профессиональных компетенций учителей. Кроме того, предложены практические рекомендации по совершенствованию системы подготовки и повышения квалификации педагогических кадров в условиях цифровой трансформации образования.

Ключевые слова: цифровая трансформация образования, педагогическое мастерство, цифровая грамотность, профессиональное развитие учителей, цифровые образовательные технологии, школы Узбекистана, ИКТ-компетентность, смешанное обучение.

INTRODUCTION

Digital transformation of education is a global trend that is radically changing traditional approaches to teaching and the requirements for teachers' professional competencies. In Uzbekistan, this process is being intensified through government programs such as Digital Uzbekistan 2030 and educational reforms, which necessitates a redefinition of the concept of "teaching excellence" in the new era.

The relevance of the study is due to:

1. The strategic importance of digitalization for the competitiveness of the national education system;
2. The need to bridge the gap between the technical equipment of schools and the readiness of teachers to use digital technologies effectively;
3. The increasing requirements for the quality of digital educational resources and their application methods.

The purpose of this study is to identify and systematize the current requirements for teachers' pedagogical skills in the context of digital transformation of education, using the example of schools in Uzbekistan.

Research objectives:

- to analyze the components of pedagogical skills in the context of digital transformation;
- to study the current state of digitalization in schools in Uzbekistan;
- to identify the main problems and barriers in the development of digital pedagogical skills;
- to develop recommendations for improving the system of developing teachers' professional competencies.

The object of the study is the professional activities of teachers in secondary schools in Uzbekistan.

The subject of the study is the components and conditions for developing pedagogical skills in the context of digital transformation of education.

RESEARCH METHODOLOGY

The study used a range of methods, including the analysis of regulatory documents and scientific literature, observation of teaching practices, a questionnaire survey of teachers (n = 150), and a comparative analysis of international and national experiences in digitalization of education.

The main part.

1. Theoretical aspects of digital pedagogical skills.

Pedagogical excellence in the context of digital transformation is a synthesis of traditional professional competencies and new digital skills. Key components include:

- Digital literacy: mastery of basic and advanced digital tools;
- Methodological competence: ability to integrate digital technologies into the learning process;
- Didactic transformation: reworking of the educational content taking into account the possibilities of digital technologies;
- Digital communication: effective interaction with the participants of the educational process through digital channels.

2. The current state of digital transformation in schools in Uzbekistan.

Analysis of the current situation shows:

- Technical equipment: active implementation of interactive whiteboards, computers, "Kundalik" and "E-darslik" platforms;
- Human resources: an increase in the number of teachers who have completed digital literacy courses;
- Infrastructure limitations: uneven equipment in urban and rural schools;
- Methodological shortcomings: insufficient integration of digital technologies into pedagogical practice.

3. Barriers and challenges of digital transformation.

The study identified the main problems:

- Technical: insufficient internet speed, outdated equipment;
- Personnel: resistance to change, lack of motivation;
- Methodological: lack of systematic solutions for integrating digital technologies;
- Organizational: high academic workload, limited time for mastering new technologies.



ANALYSIS OF THE RESULTS AND THEIR DISCUSSION.

Table 1: Components of Digital Pedagogical Mastery and Their Characteristics

Skill level	Key competencies	Specific manifestations in professional activity
Basic level (Digital Literacy)	<ul style="list-style-type: none"> - Proficiency in office programs - Skills in working with educational platforms ("Kundalik", "E-darslik") - Basic knowledge of cybersecurity 	<ul style="list-style-type: none"> - Creating electronic materials for lessons - Assigning grades in the electronic journal - Using digital textbooks
Methodological level (Digital integration)	<ul style="list-style-type: none"> - The ability to select digital resources for educational tasks - The ability to create interactive assignments - The ability to use blended learning technologies 	<ul style="list-style-type: none"> - Using interactive tests (Quizlet, LearningApps) - Organizing project activities using digital tools - Conducting online consultations
Creative Level (Digital Transformation)	<ul style="list-style-type: none"> - Development of author's digital educational resources - Creation of a digital educational environment - Analysis of educational data 	<ul style="list-style-type: none"> - Creating your own video lessons and interactive materials - Creating a personal teacher's website/blog - Analyzing student performance statistics to personalize learning

Table 2: Analysis of teachers' readiness for digital transformation (based on the results of the questionnaire)

Evaluation parameter	Readiness level	Quantitative indicators	The main problems
Technical equipment	Average	<ul style="list-style-type: none"> - 85% have access to a computer - 70% use the Internet in the educational process - 45% have interactive whiteboards 	<ul style="list-style-type: none"> - Unstable internet in the regions - Outdated equipment in rural schools
Digital competencies	Basic-Medium	<ul style="list-style-type: none"> - 65% have basic skills - 35% use digital technologies systematically - 15% create their own content 	<ul style="list-style-type: none"> - Lack of in-depth knowledge - Lack of practice in creating digital content
Motivation for development	High	<ul style="list-style-type: none"> - 80% are ready for additional training - 60% actively participate in webinars - 40% share their experience with colleagues 	<ul style="list-style-type: none"> - Lack of time due to high workload - Lack of a reward system

Table 3: Recommendations for Developing Digital Pedagogical Skills

The direction of development	Events	Expected results
Regulatory and legal support	<ul style="list-style-type: none"> - Development of the professional standard "Digital Teacher" - Introduction of a system of incentives for the use of digital technologies 	<ul style="list-style-type: none"> - Forming unified requirements for digital competencies - Increasing teachers' motivation
Material and technical equipment	<ul style="list-style-type: none"> - Equipping schools with modern equipment - Providing stable internet access - Creating digital laboratories 	<ul style="list-style-type: none"> - Equal opportunities for urban and rural schools - Access to modern educational resources
Professional development	<ul style="list-style-type: none"> - Advanced training courses in digital pedagogy - Creation of methodological communities - Internships at leading schools 	<ul style="list-style-type: none"> - Building a pool of digital education leaders - Dissemination of best practices
Scientific and methodological support	<ul style="list-style-type: none"> - Development of methodological recommendations - Creation of a bank of digital educational resources - Conducting research on the effectiveness of digital technologies 	<ul style="list-style-type: none"> - Systematization and dissemination of successful experience - Creation of high-quality national digital content

Table 4: Comparative analysis of digital transformation barriers and their overcoming

Type of barriers	Specific manifestations	Ways to overcome
Technical	- Insufficient internet speed - Outdated computer equipment - Lack of technical support	- State infrastructure modernization programs - Creation of school IT services - Development of mobile educational solutions
Personnel	- Lack of digital competencies - Resistance to change - High workload	- Continuous professional development system - Creation of communities of practitioners - Methodological support and tutoring
Organizational	- Lack of a clear digitalization strategy - Lack of time to master new technologies - Weak coordination among the participants in the process	- Development of school digital transformation programs - Reduction of bureaucratic burden - Creation of horizontal connections between schools
Motivational	- Lack of a reward system - Underestimation of digital achievements - Fear of new technologies	- Introduction of a digital teacher portfolio - System of grants and awards - Creation of a positive image of a "digital teacher"

Table 5. Indicators of the effectiveness of digital transformation of pedagogical activity

Evaluation criteria	Performance indicators	Assessment methods
Digital literacy	- Confident use of digital tools - Compliance with digital hygiene and security - Ability for digital creativity	- Testing of digital competencies - Analysis of a digital portfolio - Observation of practice
Methodical effectiveness	- The quality of digital technology integration - The variety of digital formats used - The effectiveness of learning using digital tools	- Analysis of video lessons - Expert assessment of methodological developments - Monitoring of educational achievements
Innovative activity	- Participation in digital projects - Creation of author's digital content - Distribution of digital experience	- Accounting for publications and presentations - Analysis of participation in professional communities - Number of digital resources developed

The conducted study yielded the following results:

1. The structure of digital pedagogical skills includes three main levels:

- Basic (digital literacy);
- Methodological (integration of technologies into the educational process);
- Creative (development of original digital solutions).

2. A survey of teachers showed:

- 65% of respondents have basic digital skills;
- 35% actively use digital technologies in their lessons;
- 15% create their own digital educational resources.

3. Key success factors for digital transformation:

- Systemic support at the state level;
- Continuous professional development;
- Creation of professional communities;
- Motivational mechanisms.

The discussion of the results allows us to state that successful digital transformation requires a comprehensive approach that combines:

1. Modernization of infrastructure;
2. Development of human resources;



3. Creation of high-quality digital content;
4. Changing the organizational culture of schools.

The table data systematizes the main aspects of the study and can be used to develop programs for developing digital teaching skills in schools in Uzbekistan.

CONCLUSION

The conducted research confirmed that the digital transformation of education imposes new, complex requirements on pedagogical skills. In Uzbekistan, the successful development of teachers' digital competencies requires:

1. A systematic approach to the professional development of teachers;
2. Creating conditions for methodological creativity and the exchange of experience;
3. Developing infrastructure and ensuring equal access to digital resources;
4. Forming a new educational culture focused on innovation.

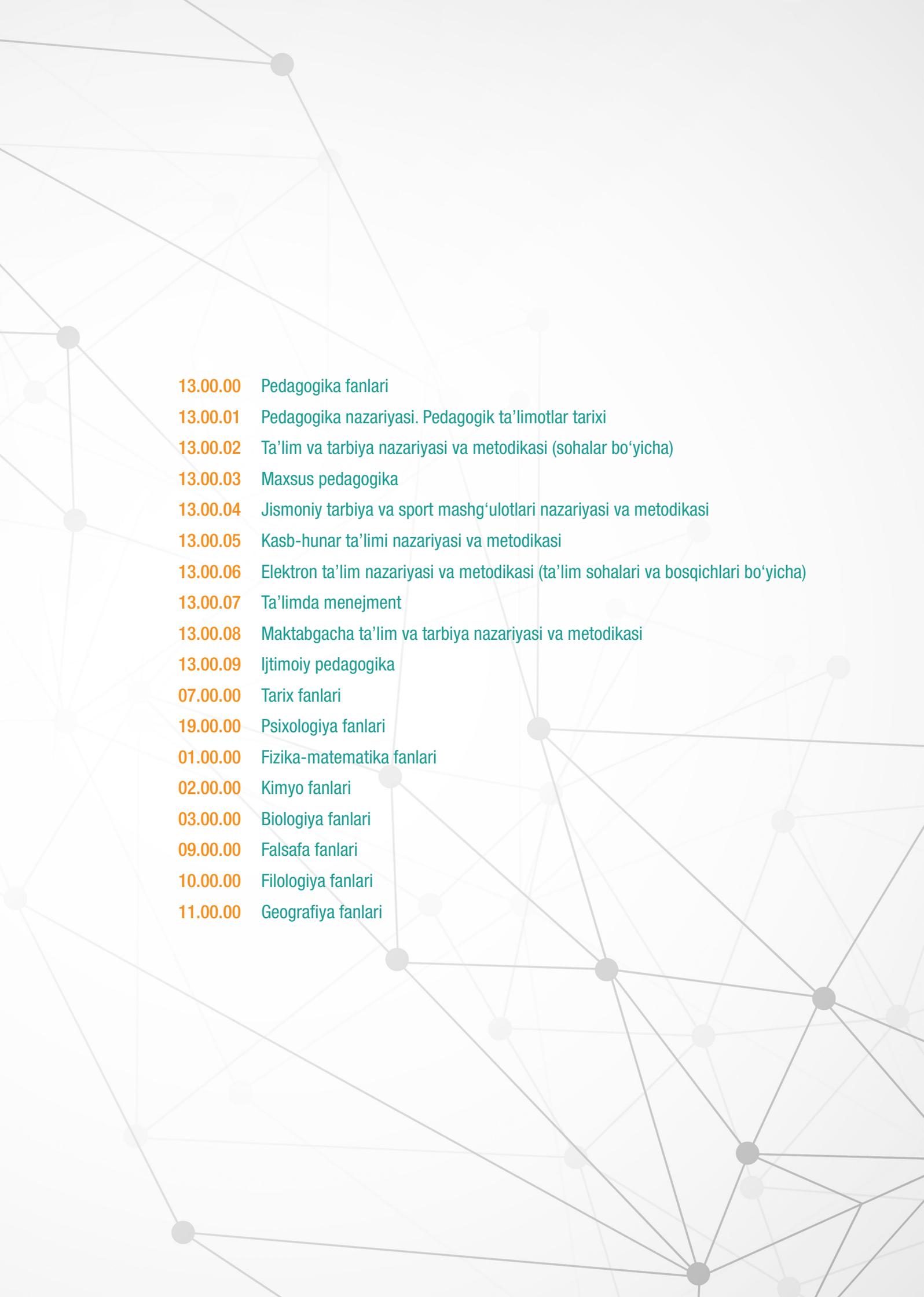
The prospects for further research are seen in the development of:

1. The National system of assessment of digital competencies of teachers;
2. The model of methodological support of digital transformation;
3. The programs of development of the digital educational environment of schools of Uzbekistan.

The implementation of the proposed measures will not only contribute to the development of teachers' professional skills, but also to improving the quality of education in general, which is in line with the strategic development goals of the Republic of Uzbekistan.

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- 13.00.00 Pedagogika fanlari
 - 13.00.01 Pedagogika nazariyasi. Pedagogik ta'limotlar tarixi
 - 13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
 - 13.00.03 Maxsus pedagogika
 - 13.00.04 Jismoniy tarbiya va sport mashg'ulotlari nazariyasi va metodikasi
 - 13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
 - 13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohaları va bosqichlari bo'yicha)
 - 13.00.07 Ta'limda menejment
 - 13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
 - 13.00.09 Ijtimoiy pedagogika
 - 07.00.00 Tarix fanlari
 - 19.00.00 Psixologiya fanlari
 - 01.00.00 Fizika-matematika fanlari
 - 02.00.00 Kimyo fanlari
 - 03.00.00 Biologiya fanlari
 - 09.00.00 Falsafa fanlari
 - 10.00.00 Filologiya fanlari
 - 11.00.00 Geografiya fanlari



MAKTABGACHA VA MAKTAB TA'LIMI

Mas'ul muharrir: Ramzidin Ashurov

Ingliz tili muharriri: Murod Xoliyorov

Musahhih: Alibek Zokirov

Sahifalovchi va dizayner: Iskandar Islomov

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