BUNIN YELETS STATE UNIVERSITY

THE WORK PROGRAMME OF THE DISCIPLINE
B1.C.06.02 Mathematics

Direction of training: *44.03.01 Pedagogical Education*
Profile: *Primary education*

Qualification (degree): *bachelor*
Mode of study: *full-time*

Institute *of Psychology and Pedagogy*
Department*: Mathematical Modeling, Computer Technology and Information Security*

	full-time form	full-time and part-time form	part-time form
Study course	**1,2**		
Term	**1,2,3,4**		
Lectures	**72**		
laboratory work			
Seminars	**126**		
Including practical training	**8**		
Form of control	**Credit test with grade**		
Control			
Other forms of work			
Independent work	**270**		

Total number of academic hours: <u>468</u>
Labour intensity: <u>13 credits</u>

Developer of the work programme: *Lecturer   Parshina A.N.*

I. ORGANIZATIONAL AND METHODOLOGICAL SECTION

The purpose of studying the discipline: the formation of a system of knowledge, skills and abilities necessary for students studying in the primary education profile for the successful teaching and education of primary school students, for further work on deepening and expanding mathematical knowledge as a basis for the development of universal competencies and a basis for the development of professional competencies.

Objectives of studying the discipline:
- mastering the necessary mathematical knowledge on the basis of which the basic mathematics course is built, developing the skills necessary for a deep mastery of its content;
- development of the ability to use mathematical apparatus to solve typical problems for the primary school mathematics course;
- development of the ability to meaningfully interpret the results obtained;
- revealing the ideological significance of mathematics, deepening their understanding of the role and place of mathematics in the study of the world around us;
- development of thinking and speech;
- development of the ability to work independently with textbooks and other mathematical literature.

The place of the discipline in the structure of the BPEP:
is implemented within the framework of the compulsory part of Block 1. Disciplines (modules).

Planned learning outcomes for the course:

Code of competence	Indicators of competence achievement	Planned learning outcomes for the discipline
GPC-8	**To know:** - special, including subject and methodological scientific knowledge; - the basics of pedagogical activity of a subject teacher (according to the profile of the educational program)	**Knows** mathematical terms and concepts of system and activity approaches, is familiar with the main mathematical patterns and methods as applied to professional activities.
	To be able to: - use modern technologies and methods of organizing class and extracurricular activities; - use traditional and modern forms and methods of educational work, including in the subject area	**Is able to:** Can search for a solution to a mathematical problem: identify the stages of the solution, perform actions to solve it; find rational ways to solve mathematical problems

		To possess:	Possesses:
		- skills in organizing various types and forms of classes taking into account the specifics of the subject area; - actions in organizing various types of extracurricular activities: play, educational and research, artistic and productive, cultural and leisure	-skills to organize various types and forms of classes taking into account the specifics of the subject area (mathematics); skills to evaluate the results of solving a mathematical problem; skills to formulate reasoned, logical judgments
PCS-2		**To know:** - patterns, principles and levels of formation and implementation of educational content in the subject area; - structure, composition and didactic units of the content of a school subject in the subject area; - subject content in the subject area; - skills in selecting variable content taking into account the relationship between class and extracurricular forms of training in the subject area	**Knows:** Knows the patterns, principles and levels of formation and implementation of the educational content in primary school mathematics; the structure, composition and didactic units of the content of primary school mathematics.
		To be able to: - select educational content for implementation in various forms of training in the subject area in accordance with the didactic goals, age characteristics of students and the requirements of the Federal State Educational Standard of General Education	**Is able to:** how to select educational content for implementation in various forms of teaching primary school mathematics in accordance with the didactic goals, age characteristics of students and the requirements of the Federal State Educational Standard of General Education.
		To possess: - skills in applying a systematic approach to solving mathematical problems and developing algorithms, which allows for the effective organization of the process of teaching and research in the field of mathematics; - skills in working in a team with other mathematicians and specialists to jointly solve complex problems and implement projects that require an interdisciplinary approach; - methods of analyzing and inter-	**Possesses:** Has knowledge of the subject content of primary school mathematics; the skills of selecting variable content taking into account the relationship between the classroom and extracurricular forms of teaching primary school mathematics.

preting data, including the use of statistical methods and probability theory to substantiate conclusions and make decisions based on quantitative data;
- skills in mathematical modeling of various processes and phenomena, which allows for the creation of models for analysis and forecasting in various fields of science and technology;
- ability to apply modern information technologies to solve mathematical problems, including the use of specialized software for calculations and data visualization.

II. CONTENT AND SCOPE OF THE DISCIPLINE
indicating the number of hours allocated for contact work of students with the teacher (by type of classes) and for independent work

Full-time education

№ p/p	Name of sections and topics	Total	Classroom lessons			independent work
			Lec.	Sem.	Lab.wo rk	
1st semester						
1.	**Section 1.** **Elements of set theory and mathematical logic**	**114**	**9**	**36**		**69**
2.	Topic 1. "Elements of Set Theory and Mathematical Logic"	38	3	12		23
3.	Topic 2. "Relationship"	38	3	12		23
4.	Topic 3. "Mathematical Propositions and Proofs"	38	3	12		23
5.	**Section 2.** **Theoretical justification of natural numbers**	**102**	**9**	**36**		**57**
6.	Topic 4. "Algorithms and number systems"	27	2	10		15
7.	Topic 5. "Axiomatic construction of the set of non-negative integers"	24	3	8		14
8.	Topic 6. "A set-theoretic approach to constructing the set of non-negative integers"	27	2	9		15
9.	Topic 7. "Natural number as a measure of quantity"	24	2	9		13
10.	*Reporting form*	*credit test with grade*				
11.	***Total for 1 semester***	**216**	**18**	**72**		**126**
12.	Including practical training	2				
2nd semester						

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13.	**Section 3.** Expanding the concept of number	**34**	**9**	**9**		**16**
14.	Topic 8. "Divisibility Theory"	18	5	5		8
15.	Topic 9. "Expanding the concept of number"	16	4	4		8
16.	**Section 4.** Functions	**38**	**9**	**9**		**20**
17.	Topic 10. "Numerical expressions. Identities"	20	4	5		11
18.	Topic 11. "Numerical functions"	18	5	4		9
19.	*Reporting form*		*credit test with grade*			
20.	*Total for 2nd semester*	**72**	**18**	**18**		**36**
21.	Including practical training	2				
	3rd semester					
22.	**Section 5.** Equations and Inequalities	**72**	**18**	**18**		**36**
23.	Topic 12. " Equations and Inequalities"	72	18	18		36
24.	*Reporting form*					
25.	*Total for 3 semester*	**72**	**18**	**18**		**36**
26.	Including practical training	2				
	4th semester					
27.	**Section 6.** Text problems	**49**	**5**	**8**		**36**
28.	Topic 13. " Text problems "	49	5	8		36
29.	**Section 7.** Quantities and their measurement	**59**	**13**	**10**		**36**
30.	Topic 14. "The concept of quantity. Basic properties of scalar quantities. Measurement of quantities. Equal-sized and equicomposed figures. Units of measurement of quantities, relationships between them"	59	13	10		36
31.	*Reporting form*		*credit test with grade*			
32.	*Total for 4th semester*	**108**	18	18		**72**
33.	Including practical training	**2**				
34.	**TOTAL:**	**468**	**72**	**126**		**270**

Full-time and part-time education (not available)

Part-time education (not available)

III. EVALUATION MATERIALS FOR CONDUCTING CURRENT AND INTERIM CERTIFICATION OF STUDENTS IN THE DISCIPLINE

Current certification is carried out in the form of tests.

Standard version of the test

Test № 1

1. Which of the following sentences are statements:
   a) Some people have blue eyes;
   b) The Moon is the Earth's satellite;
   c) $-17 < 0$;
   d) 15 is a multiple of 3 if and only if the sum of the digits of 15 is a multiple of 3;
   e) Bring me the book, please!
   f) $x - 1 > 0$.
2. Write truth tables for the statements:
$\overline{A} \wedge B$; $A \wedge B \wedge C$; $C \Rightarrow A \wedge B$; $\overline{A \wedge B}$; $\overline{A} \wedge B \Rightarrow C$; $\overline{A \vee B} \Rightarrow C$.
3. Prove the equivalence of the formulas:
$A \Rightarrow B$ and $\overline{A} \vee B$; $A \Leftrightarrow B$ and $(A \Rightarrow B) \wedge (B \Rightarrow A)$.
4. Prove that the formulas are tautologies:
$(\overline{A} \Rightarrow A) \Rightarrow A$; $(A \Rightarrow B) \Leftrightarrow \overline{A} \vee B$.
5. Draw a set on the number line A= $\{x \mid x \in N, x \le 5\}$.

Test № 2

1. Find $A \times B$, if: a) $A = \{x / x \in R, 2 \le x \le 5\}$, $B = \{y / y \in R, 3 \le y \le 6\}$;

b) $A = \{a, в\}$; $B = \{1, 2, 3, 4, 5, 6\}$.

2. Construct a graph of the relationship x=y+2 detween the elements of the set $\{-3; -1; 1; 2; 3; 4\}$.

3. Is the relation ρ reflexive on the set M? If $M = \{3, 4, 5\}$, ρ – equality relation.

4. Is the given relation in X an equivalence relation? $X = R$, $x - y = 2$.

5. $X = \{3, 4, 5, 8\}$, $Y = \{6, 7\}$. $x \rho y \Leftrightarrow x \in X$, $y \in Y$ and $x < y$. Build a graph and a correspondence graph ρ.

6. Divide a set of quadrilaterals into classes according to some single property.

Test № 3

1. Prove that for any natural numbers a, b and c the statement is true: $a = b \Leftrightarrow a + c = b + c$.

2. Prove, using the method of mathematical induction, that for any natural number n the following equality is true:

a) $1^2 + 3^2 + 5^2 + ... + (2n-1)^2 = \dfrac{n(2n-1)(2n+1)}{3}$;

b) $\dfrac{1}{2} + \dfrac{3}{2^2} + \dfrac{5}{2^3} + ... + \dfrac{2n-1}{2^n} = 3 - \dfrac{2n+3}{2^n}$.

3. Are the following sets a model of the Peano axiom system:

a) $0, 1, 2, 3, ...$;

b) $3, 6, 9, 12, ...$?

4. When dividing the number 100 by a natural number with a remainder, the remainder obtained was 6. Find the number b.

5. It is known that a=bq+17. One of the numbers a, b or q is equal to 13. Which one?

Test № 4

1. It is known that *n(A)=a, n(B)=b, n(C)=c, C⊂B, A∩B=∅.* Find:

    a) *n(A∪B);*   b) *n(B×C);*   c) *n(C$_B'$).*

2. Using the set-theoretic interpretation of the definitions of the sum, difference, product and quotient of non-negative integers, justify, respectively, that:

    a) 7+1=8;   b) 10-3-5=2; c) 0×4=0;   d) 15 : 5=3.

3. When measuring various quantities, we got 8 m, 8 cm2, 8 kg, 8 min. What quantities were measured? What does the number 8 show in each case?

4. Justify the choice of action when solving the problem:

The house was 7 m 20 cm high. Then it was built up to 4 m 90 cm. How tall did the house become?

5. Solve the problem:

You can go from a village to a city by highway or by country road. The highway is 3 times longer than the county road. What is the distance along the highway from the village to the city if the distance along the country road is 6 km shorter than the distance along the highway?

Test №5

1. Select a unit of length and construct a segment whose length is expressed as a fraction $\dfrac{17}{5}$.

2. Compare the numbers: $\dfrac{13}{214}$ and $\dfrac{17}{306}$.

3. Find X from the proportion: $\dfrac{15\frac{1}{5}\cdot\frac{1}{4}-48\frac{51}{100}:14\frac{7}{10}}{X}=\dfrac{(\frac{13}{44}-\frac{2}{11}-\frac{5}{66}:2\frac{1}{2})\cdot1\frac{1}{5}}{3\frac{1}{5}+\frac{4}{5}(5\frac{1}{2}-3\frac{1}{4})}$.

4. Convert the number into a common fraction: 8,0(36).

5. Find the value of the expression: $\left(\dfrac{1}{2}+0{,}125-\dfrac{1}{6}\right)\cdot\left(6{,}4:\dfrac{80}{3}\right)+\dfrac{1}{8}$

Test № 6

1. Represent numbers as irreducible common fractions:

    a) 3,016;

    b)1,(2415);

    c) 5,10 (516).

2. Is it possible to write fractions $\dfrac{19}{320}$ and $\dfrac{7}{66}$ as finite decimal fractions? Why?

3. Calculate: $(0{,}12(3):0{,}(0925))+12{,}5\times0{,}64+\dfrac{2}{30}-0{,}555...$

4. Prove that there is no rational number *q* such that $q^2 = 5$.

5. Find the first three signs of the sum and difference, quotient and product of a and b, if $a = \sqrt{2}$,

$в = \sqrt{3}$.

Test № 7

1. Find the value of the expression:

$$(0.8 - \frac{3}{5}) : 2\frac{2}{5} - (\frac{7}{8} - 0.25) : 2\frac{3}{4}$$

2. Write the following statements as an equality: a) 7 is 3 more than 4; b) 3 is 6 less than 9.

3. Plot the graph of the function $y = 9-x^2$, $x \in R$, and indicate the set of those values of x for which $y \geq 0$.

4. Plot the graphs of the functions: *a)* $y = -\dfrac{5}{|x|}$; *b)* $y = \dfrac{1}{x+8}$.

5. Does composition of functions exist: $y=x^2+4$ and $x=t^3$?

6. Find the inverse functions of the following functions: *a)* $y=2x+6$, $x \in R$; *b)* $y=-x$, $-4 \leq x \leq 6$.

Test № 8

1. Find the set of solutions to the equation $2x^2-7x+3=0$, if: a) $x \in R$; b) $x \in Z$; c) $x \in N$.

2. Solve the equations:

    a) $-x+1=-x+4$;   b) $x^2-13=7-2x^2$;   c) $3x^4-2x^2-8=0$.

3. Find the set of real roots of the equation:

    a) $\dfrac{3x-2}{x-3}+\dfrac{x-4}{x+3}=\dfrac{15x-3}{x^2-9}$;   b) $|x-1|=3$;   c) $\sqrt{x+2}=3x+1$.

4. Solve the systems of equations:

    a) $\begin{cases} 3x+y=2, \\ 6x+2y=3 \end{cases}$ b) $\begin{cases} 2x^2-y=-2, \\ 3x+y=1 \end{cases}$

Test №9

    1. Analyze the problem and write down the solution in the form of questions and corresponding actions: "A student bought 3 times more squared notebooks than lined notebooks, and there were 18 more of them than lined notebooks. How many notebooks did the student buy in total?"

    2. Solve the problem by constructing an auxiliary model; write down the solution step by step with an explanation: "Mom gave three girls 12 candies and suggested dividing them so that the youngest would get 3 times as much, and the middle one twice as much as the eldest. How many candies will each get?"

    3. Solve the problem algebraically and check it by solving the problem arithmetically: "The distance between tourist centers A and B is 40 km. A group of tourists left tourist center A in the direction of B at a speed of 5 km/h. An hour later, another group of tourists left tourist center B to meet the first group at the same speed. How many hours after leaving will the second group meet the first?"

Test №10

    1. The height of the cylinder is 6 cm, the radius of the base is 5 cm. Find the area of the cross-section drawn parallel to the axis of the cylinder at a distance of 4 cm from it.

    2. The diagonal of a regular quadrangular prism is 3.5 cm, and the diagonal of the lateral face is 2.5 cm. Find the volume of the prism.

3. The cyclist rode from the state farm to the repair shop at a speed of 12 km/h, and returned at a speed of 15 km /h, so he spent 18 minutes less on the return trip. How many kilometers is it from the state farm to the repair shop?

4. The perimeter of parallelogram ABCD is 10 cm. Find the lengh of diagonal BD, knowing that the perimeter of triangle ABD is 8 cm.

5. Three tractors can plow a state farm field in 60 hours. How long will it take 12 tractors to plow the same field?

Interim assessment of students is carried out in the form of a test with an assessment using the following assessment materials.

Questions for the test with assessment
(1 semester, full-time education)

1. The concept of a statement. Simple and compound statements. Operations on statements.
2. Formulas of propositional logic. Laws of logic.
3. Set. Methods of defining sets. Subset. Equality of sets. Universal set. Euler circles.
4. Intersection of sets and its properties.
5. Union of sets and its properties.
6. Difference of sets. Complement and its properties.
7. The relationship between the operations of union and intersection of sets.
8. Cartesian product of sets: definition, properties, representation on the coordinate plane.
9. Predicates. Domain of definition and domain of truth of a predicate. Operations on predicates.
10. Quantifiers. Writing statements in the language of quantifiers. Determining the truth of statements with a quantifier.
11. The concept of binary correspondence. Methods of specifying binary correspondence. Types and kinds of binary correspondences.
12. Binary relation on a set. Methods of definition. Basic properties of binary relations.
13. Mapping of sets. Types of mappings.
14. The concept of the power of a set. Countable and uncountable sets.
15. Partitioning a set into classes.
16. Partitioning a set into classes using the equivalence relation.
17. Complete and incomplete induction.
18. Positional and non-positional number systems (basic concepts).
19. Positional and non-positional number systems (ancient Greek and Slavic numeration, Roman numeral system).
20. Positional and non-positional number systems (local numbering systems of Babylon and India).
21. Writing numbers in the decimal number system.
22. Using decimal notation of numbers to compare them.
23. Digits and classes in decimal notation of a number. Naming of numbers in the decimal number system.
24. Positional number systems other than decimal. Conversion of numbers from one number system to another.
25. The concept of an algorithm and its properties. Methods for specifying algorithms.
26. Algorithm for adding multi-digit numbers in the decimal system.
27. Algorithm for subtracting multi-digit numbers in the decimal system.
28. Algorithm for multiplying multi-digit numbers in the decimal number system.
29. Algorithm for dividing multi-digit numbers in the decimal number system.
30. Algorithms for arithmetic operations in number systems other than decimal.

Questions for the test with assessment
(2nd semester, full-time education)

1. The concept of the axiomatic method of constructing a theory. Peano's axioms.

2. The simplest consequences of Peano's axioms.

3. Method of mathematical induction.

4. Addition of natural numbers from axiomatic positions. Theorem of existence and uniqueness. Addition table.

5. Multiplication of natural numbers from axiomatic positions. Theorem of existence and uniqueness. Multiplication table.

6. Laws of addition from an axiomatic position.

7. Laws of multiplication from an axiomatic position.

8. Axiomatic definition of subtraction of natural numbers.

9. Axiomatic definition of division of natural numbers.

10. The set-theoretical meaning of a natural number, zero and the relation "less than".

11. Set-theoretical definition of a sum, its existence and uniqueness.

12. Laws of addition.

13. Set-theoretical definition of difference, its existence and uniqueness.

14. The set-theoretical meaning of the rules for subtracting a number from a sum and a sum from a number.

15. Set-theoretical definition of a product, its existence and uniqueness. Laws of multiplication. Definition of a product through a sum.

16. Set-theoretical definition of a quotient of a non-negative integer and a natural number, its existence and uniqueness. Set-theoretical meaning of the rules for dividing a sum and product by a number.

17. Natural number as a measure of quantity.

Questions for the test with assessment
(4th semester, full-time education)

1. The need to expand the concept of natural number.

2. The concept of a fraction. A fraction as a result of measuring the length of a segment.

3. The concept of a fraction. Equality of fractions.

4. The concept of a fraction. The relationship of equality of two fractions.

5. The concept of a positive rational number.

6.Positive rational numbers.

7. Addition of positive rational numbers.

8. Ordering of the set of positive rational numbers.

9. Subtraction of positive rational numbers.

10. Multiplication of positive rational numbers.

11. Division of positive rational numbers.

12. Properties of the set of positive rational numbers.

13. Writing positive rational numbers as decimal fractions.

14. Conversion of common fractions to decimals.

15. Operations with decimal fractions.

16. Infinite decimal periodic fractions.

17. Inversion of infinite decimal periodic fractions.

18. The set of real numbers as an extension of the set of rational numbers.

19.Properties of irrational numbers.

20. Axiomatic construction of the set of real numbers. Properties I – III.

21. Axiomatic construction of the set of real numbers. Properties IV – VI.

22. The principle of nested segments.

23. Representation of real numbers as decimal fractions.

24. Geometric representation of the set of real numbers.

25. The modulus of a real number and its properties.

26. Arithmetic operations on real numbers. Sum of positive real numbers.

27. Arithmetic operations on real numbers. Product of positive real numbers.

28. Alphabet of mathematical language.

29. Numerical equalities and inequalities: definitions and properties.
30. Expression with variable. Identity. Identical transformations of expressions.
31. Numerical functions: domain and range of values, methods of assignment.
32. Numerical functions: graph, monotonicity, evenness and oddness.
33. Linear function.
34. Direct proportionality and its properties.
35. Inverse proportionality and its properties.
36. Quadratic function.
37. The concept of inverse function.
38. Equations. Theorems on the equivalence of equations.
39. Linear, quadratic and biquadratic equations.
40. Rational and irrational algebraic equations. Equations with modulus.
41. Equations with two variables. Systems of equations.
42. The concept of a text problem. The structure of the problem. Classification of text problems.
43. Various methods of solving text problems: arithmetic, algebraic, graphic, logical, practical.
44. Stages of solving text problems. Techniques for analyzing the content of a problem, finding a plan for solving the problem and its implementation.
45. Basic methods for checking solutions to text problems.
46. Quantities and their measurement. Basic properties of scalar quantities. Units of measurement of quantities.
47. Quantities and their measurement. Units of measurement of quantities.
48. Geometric quantities. Length of a segment, its basic properties. Measuring the length of a segment. Units of length, relationships between them.
48. Geometric quantities. The size of an angle and its measurement.
49. Area of a figure and its properties.
50. Measuring the areas of figures. Units of area, relationships between them.
51. Areas of equidecomposable figures.
52. The area of a curvilinear figure and its measurement.
53. Geometric quantities. Volume of a body and its measurement.
54. Body mass and its measurement.
55. Time intervals and their measurement.
56. Dependencies between quantities.

IV. LIST OF REFERENCES REQUIRED FOR MASTERING THE DISCIPLINE

4.1. Main literature

1. Bavrin, I. I. Higher Mathematics for Pedagogical Areas: Textbook for Universities / I. I. Bavrin. - 2nd ed., revised and enlarged. - Moscow: Yurait Publishing House, 2024. - 568 p. - (Higher Education). - ISBN 978-5-534-12889-5. - Text: electronic // Yurait Educational Platform [website]. - URL: https://urait.ru/bcode/535918 (accessed: 02.09.2024).
2. Bogomolov, N. V. Mathematics: a textbook for secondary vocational education / N. V. Bogomolov, P. I. Samoylenko. - 5th ed., revised. and additional. - Moscow: Publishing house Yurait, 2024. - 401 p. - (Vocational education). - ISBN 978-5-534-07878-7. - Text: electronic // Educational platform Yurait [website]. - URL: https://urait.ru/bcode/536607 (date of access: 02.09.2024).

4.2. Additional literature
1. Stoilova, L.P. Mathematics [Text]: Textbook for universities (UMO stamp). - M .: Academy, 2007. - 432 p. - (Higher professional education).

V. LIST OF RESOURCES OF THE INFORMATION AND TELECOMMUNICATION NETWORK "INTERNET" REQUIRED FOR MASTERING THE DISCIPLINE

№ p/p	Link to information resource	Name of the development in electronic form	Availability
1.	https://infourok.ru/	**Infourok:** educational internet project of Russia. Includes: lesson plans, presentations, tests, video lessons and other materials on school curriculum subjects.	Free access
2.	http://edu.ru/	**Russian Education:** Federal Portal. Includes links to portals and websites of educational institutions; state educational standards; regulatory documents; a catalog of excursions and educational programs.	Free access

VI. MODERN PROFESSIONAL DATABASES AND INFORMATION REFERENCE SYSTEMS

1.	http://www.biblioclub.ru	Electronic library system (ELS)University library online	Registration via any university computer. Further, unlimited individual access is provided from any point where there is access to the Internet.
2.	www.garant.ru	Information and legal portal	Free access
3.	www.elibrary.ru	Russian information portal in the field of science, technology, medicine and education	Free access
4.	www.consultant.ru	Russian computer reference and legal system	Free access
5.	www.school.edu.ru	Russian general education portal	Free access

VII. LICENSED AND FREELY DISTRIBUTED SOFTWARE

The following licensed and freely distributed software is used in the implementation of the academic discipline:

− Microsoft Windows;
− Microsoft Office;
− LibreOffice и др.

VIII. EQUIPMENT AND TECHNICAL TEACHING AIDS REQUIRED FOR THE IMPLEMENTATION OF THE EDUCATIONAL PROCESS IN THE DISCIPLINE (MODULE)

Classes are held in classrooms equipped with specialized furniture, including stationary or portable technical teaching aids (projector, screen, computer/laptop).

Independent work is carried out in rooms equipped with computers with the ability to connect to the Internet and provide access to the electronic information and educational environment of the university.