IMPROVING THE METHODOLOGY OF TEACHING "INFORMATION AND INFORMATION TECHNOLOGIES" USING MOBILE EDUCATIONAL TECHNOLOGIES

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ABSTRACT

It is possible to improve the general article on the topic "Methods of teaching informatics and information technologies using mobile educational technologies". Here are some general guidelines for writing a methodology:

1. Purpose and Introduction:
  - At the beginning of the article, emphasize the purpose of the methodology and the requirements on the basis of which the alternative was developed.
  - Specify what topics are covered in the article.

2. Strengthening Technology-Enabled Teaching:
  - Students are required to use technical means when creating a teaching methodology using a mobile educational tool.
  - Describe the use of interactive textbooks, online assignments, and video lessons in the educational process.

3. Initial Assessment:
  - It is important that initial tests, assignments, or projects related to other subjects are described to assess students' initial knowledge and skills.

4. Practicum and classes:
  - Describe activities and practical exercises to apply students' theoretical knowledge in practice.
  - Encourage students to practice, counsel, and work in groups to solve problems.

5. Display of References:
  - Don't forget to include the resources you use to make it easy for educators. These can be articles, digital libraries, or online resources for learning.

6. Providing Students with Independent Work:
  - Encourage students to prepare tips and tricks for independent work and research.
  - Provide ways to develop students' acquired skills through projects and enrichment activities.

7. Evaluation and Feedback:
  - Enable subject-based assessment to assess students at each stage and see their mastery.
  - Value feedback between teachers and students when working with students.

8. Attention to the news:
  - Pay attention to news in the field of computer science and information technology and inform students about the latest technologies.

9. Student Communication:
  - To listen to the opinion of students, to create an opportunity for the ideological development of students through dialogue and independent thinking.

10. Program, Videos and Settings:
    - A list of software and tools, tutorials, video tutorials and setup guides, guides, and content descriptions.

Supported by these recommendations and other important points, it is possible to create a methodology for teaching computer science and information technology through mobile learning in a form that ensures the success and motivation of students.

LAB

Simulation of electrical problems using the example of the Electronics Workbench software package (an example of a logical problem).

 Objective: To familiarize students with the operation of the Electronics Workbench software package. Example: Checking the truth table of basic logical operators.

Equipment: Electronics Workbench.

Task: Creation (verification) of truth tables of basic
logical elements with the help of a software package
Electronics Workbench.

A Brief Theory

1. Conjunction — Λ (logical multiplication), "And".
2. Disjunction – V (logical addition), "OR".
3. Negation – ⌐, "NOT".
4. Logical exclusive OR. XOR
5. Implication. "AND-NOT" is conjunction (logical multiplication) with negation, NAND
6. EITHER-NOT" - disjunction (logical addition) with negation, NOR
6. Double implication or equivalence. XNOR

Symbol:
• Λ, X, ·, & , «and», and — conjunction.
• V, +, «or», or — disjunction.
• ⌐, −, not — negation.
• ⊗.∀ is the logical exclusive OR. XOR
• → - implication. NAND

↔ • ,≈ is a double implication or equivalence. XNOR

Truth Tables:

Relevant Operators

A	B	A Λ B
0	0	0
0	1	0
1	0	0
1	1	1

A	B	A V B
0	0	0
0	1	1
1	0	1
1	1	1

A	$\overline{A}$
0	1
1	0

A	B	A → B
0	0	1
0	1	1
1	0	0
1	1	1

A	B	A ∀ B
0	0	0
0	1	1
1	0	1
1	1	0

A	B	A ↔ B
0	0	1
0	1	0
1	0	0
1	1	1

Logical exclusive OR, implication, and equivalence can be
express through three basic logical operations: conjunction, disjunction, negation.

$$A \lor B = A \land \overline{B} \lor B \land \overline{A}$$

$$A \to B = \overline{A} \lor B$$

$$A \leftrightarrow B = (A \to B) \land (B \to A) = (\overline{A} \lor B) \land (\overline{B} \lor A).$$

Now, to solve the problems proposed above, let's use the Electronics Workbench electronic laboratory program. To build logic diagrams, you can select logic elements in the Logic Gates library.
 Fig. Figure 1 is a list of possible logic elements.
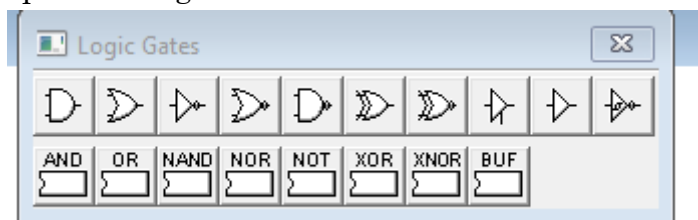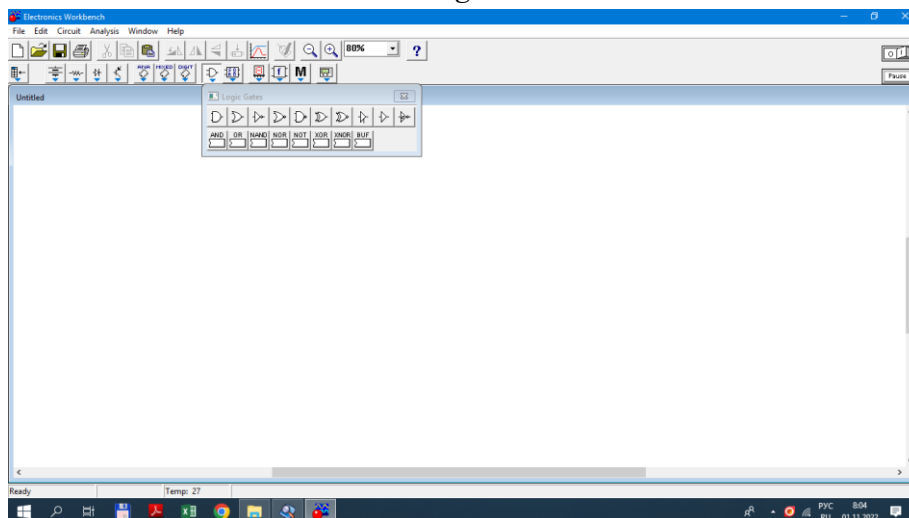

Fig. 1

Fig2. Dialog box and edit window.

It is necessary to use the mouse to select the appropriate elements and
Assemble the diagram in Figure 3 below on the virtual mounting table.
Then, press the space bar and 1 to connect the corresponding
Indicator light. At the output of the logic element, whether or not
The 3rd indicator light is illuminated. This figure shows the logical
the "AND" element. Logging switching on and ignition of the corresponding
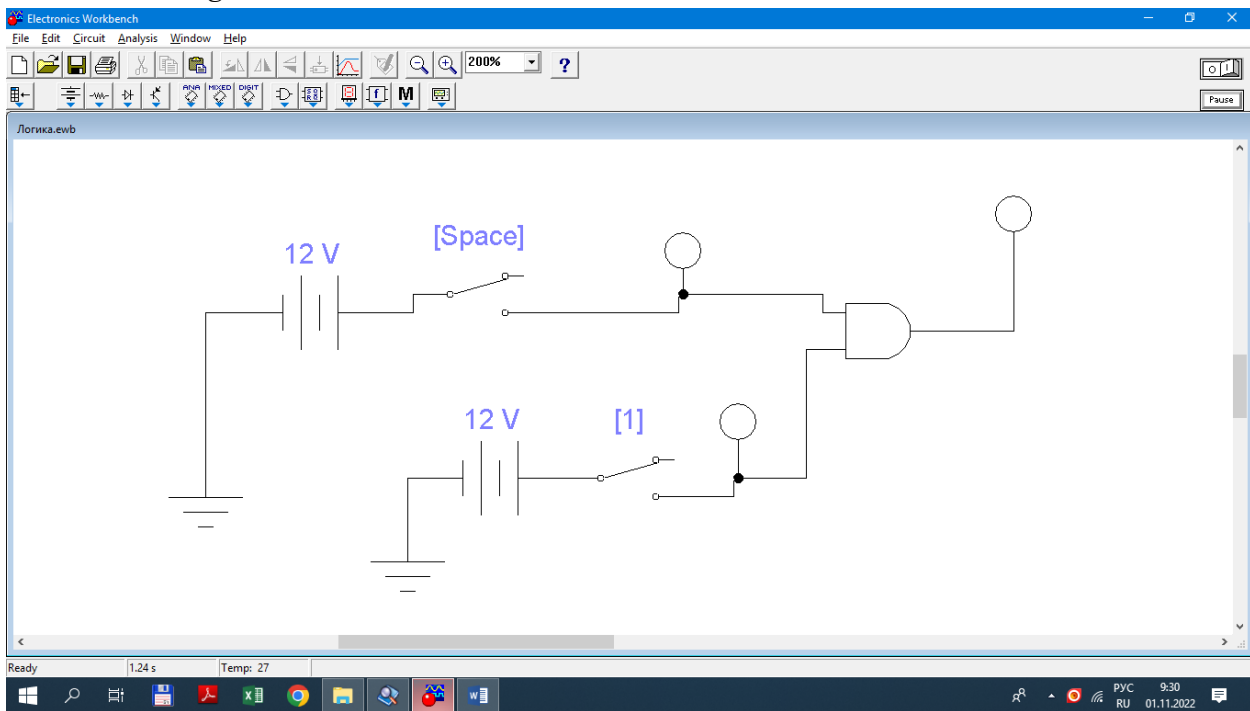indicators fill in the appropriate truth table for the logical
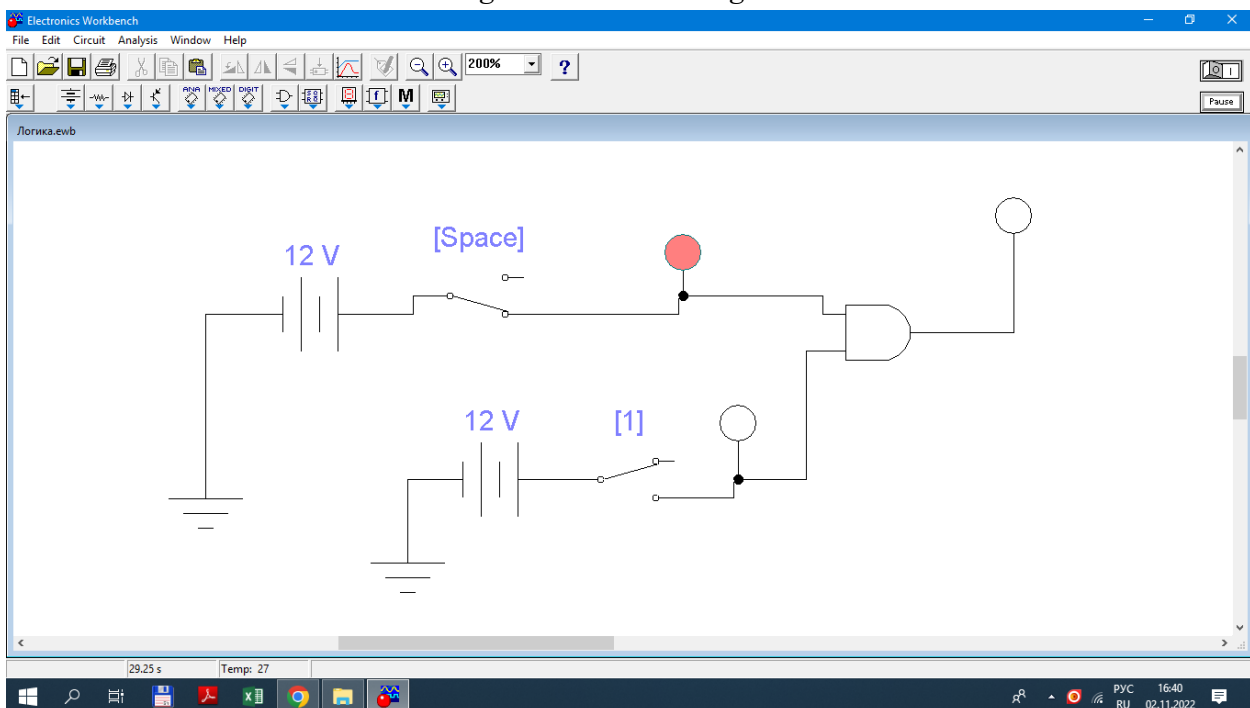element "AND". Fig.4.

Fig.3 Electrical diagram.

Fig. 4

By replacing in the above diagram with the following logic from theelement libraries can get the corresponding table truth for each logical element.

Security Questions:
1. What basic logic elements are known?
2. What is a truth table?
3. What logic elements are available in the Electronics Workbench?
4. How to Express "Exclusive OR" in Terms of Other
logic elements?

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