Entrance test
09.06.01 Informatics and Computer Science

Entrance test for applicants to graduate school
09.06.01 Informatics and Computer Science

Krasnoyarsk, 2021
Module 05.13.11 "Mathematical and software support for computers, complexes and computer networks"

1. The concept of an algorithm. Turing machine, normal Markov algorithms, recursive functions. Equivalence of these formal models of algorithms. The concept of algorithmic undecidability.


6. Formal languages and ways of describing them. Classification of formal grammars. Their use in lexical and syntactic analysis.

Module 05.13.05 "Elements and devices of computer technology and control systems"


2. Classification of storage devices on the basis of defining characteristics. Random access memory. Static and dynamic memory. Elements of semiconductor read-only memory.

3. Electrically programmable ROM, PROM. Elements of reprogrammable ROM.

4. Elements of memory on CCD structures, cylindrical magnetic domains, flexible and hard magnetic disks. Memory on optical discs.

5. Programmable logic devices: programmable logic matrices, programmable matrix logic, programmable gate matrices, programmable logic sequence controllers,
6. Programmable logic elements, programmable macro logic, programmable logic integrated circuits (FPGA).

**Module 05.13.17 “Theoretical foundations of computer science”**

1. Object-oriented approach in programming.
2. Theoretical basis of creating software systems. The UML programming language.
3. Mathematical logic: propositional calculus; predicate calculus; logical models; formal systems; formal grammars; algorithm theory.
5. Multidimensional statistical analysis.