**Belarusian state university**

**The Mechanics and mathematics faculty**

**Department of nonlinear analysis and analytical economics**

**Annotation for the graduate work**

 **«Information theory»**

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**2017**

The graduate work consists of

– 37 pages,

– 3 used sources,

Key words: ENTROPY, CODING, INFORMATION, MESSAGE, SOURCE, DISCRETE ENSEMBLE, UNIFORM CODING, NONUNIFORM CODING.

The basic concepts of information theory are studied in the the graduate work.

 The aim of the graduate work is to study the concept and properties of entropy, conditional entropy and entropy of the source. Consideration of the main theorems for uniform and nonuniform coding, as well as examples of the concepts studied and the Huffman algorithm.

 The following results were obtained:

1. describes the properties of entropy,
2. the theorems of uniform and nonuniform coding are proved,
3. the Huffman algorithm is considered as the most optimal uneven coding code,
4. a number of illustrative examples of the constructed theory are considered,
5. developed a program that works on the Huffman algorithm.

The graduate work is theoretical. The results can be used in further studies of information theory.

All results of the thesis are rigorously proved according to the rules of mathematics. Validity and reliability of the results is due to the strict mathematical proofs formulated in the lemmas and theorems and consistency with the results previously known for certain particular cases.

The graduate work was performed by author’s own account.