

ABSTRACT

This thesis is performed at 72 pages, contains 2 appendices and a list of references to used sources of 16 items. The paper presents 43 figures and 2 tables.

The purpose of this thesis is the creation of mathematical software to determine the most optimum and safest from all possible routes of rescue groups through points of mining production during an emergency.

The paper presents a mathematical model of this problem and a comparative analysis of methods of its solution. Taking into account that for mining rescue workers it is important to act quickly during accidents, the main criteria for choice of the method were the accuracy of the obtained solutions for problems of small and large dimensions, and the running time of the algorithm of the method. To solve the problem the method of branch and bound is chosen in the work.

An automation system that implements the selected method is developed. The testing of the developed system was performed.

Keywords: optimum route, the travelling salesman problem, branch and bound method .