

ABSTRACT

The thesis is presented in 50 pages. It contains 1 appendix and bibliography of 9 references. 6 figures and 6 tables are given in the thesis.

Mathematical modeling of various phenomena and processes makes possible obtaining new knowledge about the functioning of our environment. The theory of optimization allows to find the optimal solution. In optimization theory there are many methods that solve the problem with same conditions.

In the process of solving tasks there is necessity of choosing mathematical method which can reach the final results with the lowest cost in the calculation.

This paper proposes a package of applications helping to deal with the problem using the most effective method.

This paper describes the main classes of problems of nonlinear conditional and unconditional optimization, describes methods that solve the optimization problem of each considered classes, chooses the criterion for determining the most effective method, implements testing a package of applications with different sets of problems. The application tries to find the most effective method for solving the task.