

## **ABSTRACT**

### **Hlabets I.Y. Researching methods of multi-objective optimization in communication software quality requirements.**

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The thesis is devoted to research the methods of multi-objective optimization in communication quality requirements for software life cycle. The quality of software has an important role for a whole system, and is the value that reflects the level of compliance with requirements to software. Analyzed existing models of quality and defined a set of quality characteristics according to these models. Considered the proposed metrics to calculate the values of quality. Methods Saaty's, Kohher's and Yu's, with a simple algorithm selection and QFD were selected for research after analyzing quality requirements communication methods. The input data for the calculation of weight coefficients is evaluation of attributes, established by independent experts. The matrices of pairwise equations are constructed and calculated for solution the multi-objective optimization problem. The complexity of computing and the number of iterations depends on the amount of attributes and the chosen method. Algorithms for calculating of weight coefficients for characteristics of quality are based on the research of existing methods, routing requirements depends on those values. In this thesis the software which implements these algorithms and facilitates the communication quality requirements in the early stages of software life cycle is developed.

Keywords: attribute, weight coefficient, life cycle, method for determining the quality, metrics of quality, quality model, software, quality score, evaluation, quality function deployment, quality, QFD.