

Bachelor's thesis: 84 p., 41 fig., 8 tabl., 2 appendixes, 17 sources.

The topic of the research: "Gradient methods in problems of optimal design of engines for general industrial applications".

The object of research is optimal design of electrical engines.

The subject of the study are methods and algorithms of optimal design of engines for general industrial applications.

The aim of the study:

- 1) research numerical algorithms and methods for design electrical engines;
- 2) develop software that seek optimal parameters for design of single-phase asynchronous engine.

Theoretical and methodological basis of the study are works of domestic and foreign scholars in the field of math modeling, operations research, math programming and applied optimal design.

During the thesis created software to determine the parameters of single-phase asynchronous engine, by which the quality criteria of product reach its optimum and needed technical limitations become satisfied, using several numerical methods of nonlinear optimization.

The methodology is implemented on the basis of already known algorithms and using own development.

The software is implemented using the programming language C#. The recommendations for further research are given.

OPTIMAL DESIGN, SINGLE-PHASE ASYNCHRONOUS ENGINE,  
MATH PROGRAMMING, NONLINEAR OPTIMIZATION