

## **Abstract**

This thesis is devoted to the analysis and design of an eddy current flaw detector for non-destructive testing of metal products. In Chapter 1, an analytical review of nondestructive testing methods, including magnetic, induction and magnetoresistive testing, is carried out. The main characteristics of the eddy current method of control and the classification of eddy current transducers are also considered. The processing of signals from eddy current transducers is investigated. The conclusion to Chapter 1 contains the results and conclusions obtained during the analysis of non-destructive testing methods.

Chapter 2 discusses the stages of designing an eddy current flaw detector. First, the problem statement for this section is formulated. Further design included the development of a functional diagram, the calculation of an eddy current converter, and the selection of a microcontroller for the control unit. The preamplifier was also selected and the noise was calculated, as well as the low-pass filter.

The abstract presents a compact overview of the main content of the thesis, including the analysis of nondestructive testing methods, the development of a functional circuit, and the calculation of an eddy current flaw detector. The work is aimed at improving and implementing an effective method of non-destructive testing for metal products.