

## **Abstract**

Master's thesis of the 2nd-year student, group PK-11mp, Faculty of Instrument-Making, Yuliia Nyzhnyk, on the topic: "Acoustic-emission system for automated control of liquid leakage in the pipeline".

The master's thesis consists of 97 pages, 40 figures, 27 literary sources.

The master's thesis represents the formulation and solution of the problem of designing an acoustic-emission system for detecting cracks in a long, metal object of control. The task of this project is to calculate the piezo transducer and the electroacoustic paths of the sensor to control the leakage of liquids in the pipeline. The master's thesis contains calculations of: geometric dimensions of the control unit (piezoelectric transducer, location of sensors on the control object) taking into account control features, control probability and electrical elements. The graphic part of the master's thesis, the structural diagram of the sensor, made on a sheet of A3, a functional diagram – on a sheet of A2, a component drawing of the sensor - on a sheet of A1, an electrical schematic diagram - on a sheet of A0, and specifications for an electrical schematic diagram and a component drawing of the sensor.

**Key words:** acoustic emission, main pipeline, liquid leakage, acoustic images.

**Purpose:** to design an automated system that will be able to effectively monitor underground main pipelines for finding developing leakages.

**Subject of research:** methods and means of acoustic-emission control of the integrity of the main pipeline.

**Object of research:** pipeline monitoring.