

## **Abstract**

The master's dissertation consists of an introduction, 3 chapters and has 92 pages, 49 images, 32 tables and 21 references. The first section contains a review of the literature, a description of the design of the vibrating density and the principle of operation. In the second section a mathematical model was developed, its research was conducted. In the third section a startup project was developed.

The urgency of the work is to improve the device for measuring the density with improved properties, which will work with increased pollution.

The object of the study is a system for monitoring the density of the liquid in the pipeline.

The subject of the study is the instruments for measuring the density of the substance.

The purpose of the work is to study the dynamic characteristics of the vibration density.

To achieve the goal set the following tasks:

1. Consider different types of densities and compare the specifications of already existing devices;
2. To develop a parametric structural scheme for the selected density;
3. Conduct calculation and analysis of the density;
4. Develop and explore a mathematical model.

**Keywords:** density meter, vibration, mathematical model, transient process.