

Summary of discipline Devices and Systems for Energy Efficiency Measurement The program of the course "instruments and measurement systems energy conservation" made in accordance with the educational and vocational training programs and specialist degree specializations 8.05100302 7.05100302 and "Devices and systems for precision mechanics."

Academic discipline belongs to the series "Disciplines of independent choice of the institution."

The object of the course is

- Mastering future specialists in modern methods of measuring flow rate and volume of energy resources and water;
- Mastering object-oriented approach to engineering analysis and the choice of means of measurement;
- Assess the metrological characteristics of instruments and methods of metrological certification.

Academic discipline based on previously studied courses, namely theoretical mechanics, theory of machines and mechanisms, designing parts and mechanisms transformative devices appliances, mathematical analysis, probability theory, mathematical statistics, database programming, mathematical modeling, physics, systems CAE / CAD.

1. The purpose and objectives of the course

1.1. The purpose of discipline.

The aim of the course is to develop students' abilities:

- doskonalno possession basics of design and construction of devices and systems measure the flow of energy resources (FER) and water;
- The use of modern tools of computer engineering in instrument;
- Analysis of the problem within existing computer technologies for solving problems;
- Determination of the correct method of measuring the costs for specific tasks;
- preparation of specialists (engineers, metrologists, researchers, academics) that would thoroughly possessed the basics of information technology in the design, construction and operation of devices and systems for measuring mechanical quantities;
- Of the procedure according to the study of computer algorithms;
- Assess the metrological characteristics of measuring instruments and efficiency;

1.2. The main objectives of the course.

Requires educational and professional program students after mastering discipline must demonstrate the following learning outcomes:

knowledge:

- Basic requirements for equipment costs and registration number FER and water;
- Methods and tools for measuring volume and volume flow of liquids, gases and electrical energy;
- Methods for designing devices and systems of the energy and water;
- Basic principles of structure and assemblies, mechanisms and water meters converters, fuel, heat and gas;
- Methods of metrological certification test and measurement instruments and systems costs and the number of PER and water;
- Information technology in instrument;
- Modern advances in information technology;
- Ways of developing instrumentation combined with new information technologies skills: own design and construction techniques and instruments of measuring flow and quantity of FER and water; develop the structure of commercial and technical FER and water; processing of measurement results and determination of their validity; possess the tools of information technology in the design of instrumentation and systems; algorithmic approaches to solving typical problems of design, technology, processing and analysis of measurement results and transfer them to a distance.

Experience: should link these knowledge and skills within an integrated system approach to ensure a high level of scientific and technological development of devices. The systems approach provides optimal decision making, including structural and circuit design using modern tools of computer engineering.