

## ANNOTATION

work program of the discipline "**Physical basis of diagnostics and therapy**"

Speciality	05/31/01 General medicine
Number of credits	In accordance with the RUP
Interim certification form	Exam

**1. The purpose of studying the discipline:** to form students' knowledge about physical processes occurring in biological objects and the human body; study the basics of diagnostic and therapeutic methods used in medicine.

## 2. Summary of the discipline

### Section 1: Physical basis of diagnostic methods

Medical equipment. Devices for collecting, transmitting and recording medical and biological information. Physical basis for measuring the mechanical characteristics of the body.

Spirometry Blood pressure measurement Ultrasound diagnostics.

Basics electrophysical diagnostic methods. Methods electrography, electrocardiography. Rheography.

### Section 2: Physical foundations of physiotherapeutic methods.

Physical foundations of physiotherapeutic methods. Ultrasound therapy. Therapy with low frequency currents. Pacemakers. Amplipulse therapy.

The effect of currents and high frequency fields on the human body. Active factor, indications and contraindications for use: darsonvalization, UHF therapy, microwave therapy.

### Section 3: Ionizing radiation. High medical technologies.

Application of ionizing radiation in diagnostics and therapy. X-ray tomography. Radionuclide diagnostics.

Properties and action of laser radiation. The use of lasers in ophthalmology, dentistry, surgery, therapy, oncology.

The phenomenon of electron paramagnetic resonance. Physical foundations of EPR spectroscopy. Application of EPR in biology and medicine.

The phenomenon of nuclear magnetic resonance. Physical foundations of NMR spectroscopy. Application of NMR in medicine.