

MATHEMATICAL MODELING OF PHYSICAL PROCESSES

(name of the discipline)

ANNOTATION TO THE CURRICULUM OF THE INSTITUTION OF HIGHER EDUCATION

Speciality 1-54 01 02 Methods and instruments for quality control and diagnostics object states

Direction of speciality _____

Specialization 1-54 01 02 02 - Non-destructive testing of materials and products

	Form of higher education
	Full-time (daytime)
Well	2
Semester	4
Lectures, hours	15
Practical (seminar) lessons	16
Laboratory classes, hours	34
Exam, semester	6
Classroom hours per academic discipline	66
Independent work, hours	42
Total hours per academic discipline / credit units	108/3

1. Brief content of the discipline

The purpose of the discipline is to teach students the general issues of modeling physical processes and the use of these skills in the construction of mathematical models in the design of devices.

2. As a result of mastering the academic discipline, the student must

know: methods of mathematical modeling of physical processes of interaction of fields and radiations with objects and environments; methods of mathematical modeling of physical and information processes; mathematical methods for solving real control problems and their possibilities; methods for formalizing the semantic formulation of the problem, selecting analytical methods, compiling a mathematical model and computational algorithms; conditions for the interaction of waves and radiation beams with interfaces between media and with local objects;

be able to: use standard modeling approaches to obtain mathematical models of physical processes; analyze and optimize the obtained models;

own: the ability to rationally choose the methods of mathematical modeling and optimization and their solution.

3. Formed competencies

BOD-14. To be able to develop mathematical models of measuring transducers of non-destructive testing devices.

4. Requirements and forms of current and intermediate certification.

To assess knowledge, intermediate certification in the form of defense of laboratory work and current certification - in the form of an exam are used.