MEASUREMENT INFORMATION PROCESSING

(corse title)

CORSE SYLLABUS ABSTRACT

Speciality *6-05-0716-03 –Information and measuring devices and systems*

Information systems and technologies for non-destructive testing and diagnostics

	STUDY MODE	
	Full-time	Part-time (shortened program)
Year	3	3
Semester	5	5
Lectures, hours	34	6
Practical (seminar) classes, hours	16	4
Laboratory classes, hours	16	4
In-class test (semester, hours)		5 (2 ч)
Exam, semester	5	5
Contact hours	66	16
Independent work, hours	150	200
Total hours per academic discipline /credit units	216/6	

1 Course outline

The discipline deals with the fundamentals of analysis of measurement information signals (mathematical models of signals, signal classification, fundamentals of spectral analysis of signals, fundamentals of correlation analysis), the principles of construction and analysis of analog and digital measurement information processing systems, as well as the principles of visualization of measurement information in non-destructive testing.

2 Course learning outcomes

Upon completion of the course, students will be expected to

- know: the basic models of deterministic and random signals, types of conversion of measuring signals, information transmission devices in quality control systems, elements of the theory of signal detection against the background of interference and noise, principles of digital image formation;
- be able to: use the principles of information exchange in data processing and transmission systems, determine the algorithm and functional diagram of digital filters, develop signal processing devices for quality control devices, use computer programs for constructing and analyzing digital images of objects in non-destructive testing;
- to possess a skill: information description of signals and systems; realization of optimal reception of measurement information signals; using measurement information conversion methods; works with digital images.

3 Formed competencies

Be able to use signal processing techniques for quality control instruments

4 Requirements and forms of current and intermediate certification.

To assess knowledge, intermediate certification is used in the form of a test and current certification is used in the form of an exam. To be admitted to the exam, the student must complete and defend all laboratory work on time.