RADIATION CONTROL DEVICES AND METHODS

(course title)

COURSE SYLLABUS ABSTRACT

Specialty: 6-05-0716-03 Information and measuring devices and systems Information and measuring devices and systems
Profiling: Information systems and technologies for non-destructive testing and diagnostics

	STUDY MODE	
	full-time	part-time
Year	4	4
Semester	8	8
Lectures, hours	34	6
Practik classes, hours	14	4
Laboratory classes, hours	14	4
Project of course	8	8
Pass/fail, semester	8	8
Contact hours	62	14
Independent study, hours	38	86
Total course duration in hours/credit units	100/3	100/3

1. Course outline
Radiation inspection instruments and methods are widely used to detect defects in casting, welding, soldering, and other technological processes. They help determine the shape, nature, and size of defects. These advantages of radiation methods have led to their widespread use in industry.

2. Course learning outcomes
Upon completion of the course, students will be expected to
know:
- patterns of functioning of natural ecosystems and the biosphere;
- fundamental physical principles of X-ray and gamma radiation;
- characteristics and features of ionizing radiation detectors;
- design and operating principle of radiation monitoring equipment;
- methods for improving the metrological performance of X-ray and gamma flaw detectors;
- radiation monitoring technology for standard objects;
be able to:
- calculate protective equipment against ionizing radiation;
- configure X-ray and gamma flaw detectors;
- develop radiation testing technology for materials and products and metrological support for technical equipment;
- monitor and interpret X-ray images;
- create process charts for testing;
to possess a skill:
- rational selection of methods and means of radiation monitoring, universal technical means of radiation monitoring, methods of information processing during monitoring and diagnostics of industrial facilities.

3. Competencies: be able to select and apply radiation methods and equipment to monitor a specific object.

4. Requirements and forms of midcourse evaluation and summative assessment
The forms of monitoring current academic performance are tests and midterm assessments in the form of a written exam.