MODERN METHODS FOR MATERIAL ANALYSIS

(course title)

COURSE SYLLABUS ABSTRACT

6-05-0714-02 Mechanical engineering technology, metal-cutting machines and tools

(speciality code and name)

Equipment and technologies for highly efficient material processing processes. Technological equipment for mechanical engineering production.

(concentration)

	STUDY MODE
	full-time
Year	4
Semester	7
Lectures, hours	16
Laboratory classes, hours	16
Pass/fail, semester	7
Contact hours	32
Independent work, hours	76
Total course duration in hours / credit units	108/3

1. Course outline

The course "Modern Methods of Materials Analysis" provides a general understanding of methods for studying electrical characteristics, optical methods for measuring parameters, magnetic spectroscopy, and surface research methods.

2. Course learning outcomes

Upon completion of the course, students will be expected to **know:**

– the principles of optical spectroscopy, spectral analysis, surface research, NMR, and EPR;

– the operating principles of equipment;

be able to:

– select the most informative research method;

– analyze the obtained experimental data;

to possess a skill:

– the basic techniques for processing experimental data.

3. Competencies:

Mastery of this course should ensure the development of the following competencies: Knowledge of the properties, modern methods of physical analysis, and technology for obtaining and processing nanomaterials, and the ability to apply this knowledge to product quality management.

4. Requirements and forms of midcourse evaluation and summative assessment

Current and interim assessment are conducted in written and oral-written forms through laboratory reports with oral defense, a written assessment.