

# THEORETICAL PRINCIPLES OF MACHINE TOOL STUDY AND TESTING

(course title)

## COURSE SYLLABUS ABSTRACT

7-06-0714-02 Innovative technologies in mechanical engineering

(speciality code and name)

Computer engineering of transport and technological machines

Mechanical engineering and machine science

Welding technologies

(concentration)

Advanced higher education

	STUDY MODE	
	full-time	part-time
Year	2	2
Semester	3	3
Lectures, hours	16	4
Laboratory classes, hours	16	4
Pass/fail, semester	3	3
Contact hours	32	8
Independent study, hours	76	100
Total course duration in hours / credit units	108/3	

### 1. Course outline

The purpose of the discipline is to form specialists who can reasonably and effectively apply existing and master new knowledge and skills (competencies) when conducting research and testing machines.

### 2. Course learning outcomes

Upon completion of the course, students will be expected to

#### **know:**

- classification of equipment tests;
- structure, purpose, principles of operation and requirements for measuring systems used in tests;
- test preparation methods;
- methods of preparation and processing of experimental data;
- standard methods of testing machines;
- test documentation;

#### **be able to:**

- analyze and predict the processes occurring in the mechanisms and systems of the machine during its tests;
- process experimental data;
- to make Programs-Methods of testing machines, mechanisms and systems;
- use regulatory documents regulating testing;
- organize machine tests;

#### **to possess a skill:**

- apply methods of analyzing consumer properties of equipment;
- apply methods for evaluating the quality of machines.

### 3. Competencies

- To solve research and innovation tasks based on the use of information and communication technologies
- To provide communication, demonstrate leadership skills, be capable of team building and the development of strategic goals and objectives
- To develop innovative sensitivity and ability to innovate
- To be able to predict the conditions for the implementation of professional activities and solve professional tasks in conditions of uncertainty
- To use knowledge about the physical foundations of nanotechnology and concentrated energy flows, new materials and prospects for their development in the design of highly efficient technological processes for the manufacture of machine parts
- To apply information on theoretical principles, methods and means of research and testing of working

### 4. Requirements and forms of midcourse evaluation and summative assessment

The technical form of intermediate certification is a test, the oral form of intermediate certification is an interview for the protection of laboratory work