" SCIENTIFIC FOUNDATIONS OF MECHANICAL ENGINEERING TECHNOLOGY "
(course title)

COURSE SYLLABUS ABSTRACT
7-06-0714-02 – "Innovative technologies in mechanical engineering"
(specislity code and name)
Innovative technologies sistems
(concentration)

	STUDY MODE	
	full-time	part-time
Year	1	1
Semester	1	2
Lectures, hours	34	8
Exam, semester	1	2
Contact hours	34	8
Independent study, hours	68	94
Total course duration in hourse / credit units	102 / 3	

1. Course outline
The purpose of the discipline is to present to students a range of issues related to the scientific foundations of machine-building technology, as well as the basics of scientific research used in modern mechanical engineering.

2. Course learning outcomes
Upon completion of the course, student will be expected to
know:
– the influence of various factors on the operational properties of machine parts;
– mechanisms of formation of parameters of accuracy and quality of surfaces of machine parts at various methods of their manufacture;
– modern methods of scientific research in mechanical engineering technology;
– methods of improving the technological processes of manufacturing machine parts, improving the quality of these parts;
be able to:
– evaluate the accuracy of machining machine parts that is necessary and achievable under these conditions;
– choose the requirements for the quality characteristics of the surfaces of machine parts, taking into account the conditions of their operation and technical conditions, as well as technological methods to ensure these requirements in production;
– to carry out theoretical and experimental research in the field of mechanical engineering, to process and analyze the results;
– to choose optimal methods for improving product quality and production efficiency, taking into account current trends in these areas and specific conditions of production and operation of machines;
to possess a skill:
- possession of computer tools for processing and analyzing research results.

3. Competencies

Solve research and innovation tasks based on the use of information and communication technologies
Provide communication, demonstrate leadership skills, be capable of team building and the development of strategic goals and objectives
Develop innovative receptivity and ability to innovate
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
Apply information about the theoretical principles, methods and means of research and testing of working machines when creating new and upgrading existing machines

4. Requirements and forms of midcourse evaluation and summative assessment
To assess the level of knowledge of students, the following diagnostic tools are used: reports on practical work with their oral defense; passing the exam.