

MACHINE PARTS AND DESIGN BASICS

(course title)

COURSE SYLLABUS ABSTRACT

Специальность 1-36 07 02 Production of products based on three-dimensional technologies
speciality code and name

	STUDY MODE	
	full-time	part-time
Year	3	3
Semester	5,6	6
Lectures, hours	68	6
Practical classes (seminars), hours	34	4
Laboratory classes, hours	16	-
Course project, semester	6	6
Exam, semester	5	6
Contact hours	118	10
Independent study, hours	62	170
Total course duration in hours / credit units	180/5	

1. Course outline

The discipline "Machine parts and design principles" studies the interaction of machine parts for general machine-building purposes and the physical processes accompanying their work, as well as the types and nature of the destruction of parts and, on this basis, determining the criteria for their calculation; fundamentals of engineering methods for designing machine parts that provide the required reliability indicators.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know: designs, type, materials of parts of general-purpose machines; the interaction of parts and the physical processes accompanying their work, taking into account the resistance to the impact of operational factors, types and nature of the destruction of parts and the definition of criteria for their performance and calculation; engineering methods for calculating parts and components of machines that ensure their required reliability; computer-aided design and construction methods using computer graphics;

be able to: perform engineering calculations of machine parts and assemblies that ensure their required reliability and durability; design parts, assemblies and drives for general engineering purposes; carry out design development of parts, assemblies and drives using design standards for standard projects, standards and other regulatory materials;

possess: methods for substantiating the designs of units and parts of machines; methods of computer-aided design and construction of typical machine parts; methods of engineering calculation of parts and components of machines, ensuring their required reliability; the basics of designing mechanisms; calculations of the main mechanical gears; information about typical designs and materials of machine parts and assemblies.

3. Competencies

CK-12 Own the basics of calculation and rational design of machines and structural elements to ensure a high level of their reliability and performance

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

- written form (test tasks; written exam; course project; assessment based on the module-rating system);
- oral-written form (report on an individual assignment with its oral defense; reports on laboratory work with their oral defense; course project with its oral defense).