Cutting theory
(course title)

COURSE SYLLABUS ABSTRACT

6-05-0714-02 – Mechanical engineering technology, metal-cutting machines and tools
(speciality code and name)

Manufacturing engineering
Machine-building process equipment
Equipment and technologies for highly efficient material processing processes
(concentration)

6-05-0713-04 – Automation of technological processes and production
(speciality code and name

Automation of technological processes and productions in mechanical engineering
(concentration)

	STUDY MODE		
	full-time	part-time	part-time (shortened program)
Year	3	3	3
Semester	5	5	5
Lectures, hours	34	8	8
Laboratory classes, hours	16	4	4
Pass/fail, semester	5	5	5
Contact hours	50	12	12
Independent study, hours	58	96	96
Total course duration in hours / credit units	108/3		

1. Course outline

Types of cutting. Chip cutting process. Features of the process of plastic deformation of metal during cutting. General concepts of forces acting on the working surfaces of a cutting blade of a tool. Drilling. Milling. Stretching. Abrasive treatment.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know**:** basic processes during metal cutting; ways of intensifying and controlling the cutting process; features of various machining processes (turning, milling, grinding, etc.).

be able to**:** use cutting process regularities to calculate the cutting tool; assess the serviceability of the cutting tool; Optimize the cutting process.

to possess a skill**:** methodology of calculation of cutting modes for various processes of machine parts machining; skills of evaluation of the cutting tool operability under the specified part processing conditions, optimization of these conditions; methods of increasing intensification and regulation of cutting processes.

3. Competencies

6-05-0714-02: Take the initiative and adapt to changes in professional activities. Use knowledge of the main processes when cutting metals, the processes of forming surfaces on metal-cutting machines, the features of various types of machines for cutting tools cutting. Design various cutting tools using knowledge of power and thermal processes in cutting.

6-05-0713-04: Know the main processes when cutting metals, their impact on the design of cutting intools, the processes of forming surfaces on metal-cutting machines, the features of various types of machines, the basic principles of designing cutting tools. Understand power and heat processes during cutting, be able to use them in the design of various cutting tools.

4. Requirements and forms of midcourse evaluation and summative assessment

– verbal-written: laboratory protection, differentiated test.