Cutting theory
(course title)

COURSE SYLLABUS ABSTRACT

1-36 01 01 – Manufacturing engineering

1-53 01 01 – Automation of technological processes and production (majors in)

(speciality code and name)

1-53 01 01-01 – Automation of technological processes and production (mechanical engineering and instrument making)

(specialisation code and name)

	STUDY MODE		
	full-time	part-time (1-36 01 01)	part-time (shortened program) (1-36 01 01)
Year	3	3	3
Semester	5	6	5
Lectures, hours	50	8	4
Laboratory classes, hours	16	4	4
In-class test (semester, hours)		6 semester (2 hours)	5 semester (2 hours)
Exam, semester	5	6	5
Contact hours	66	14	10
Independent study, hours	42	94	98
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.

possess**:** 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

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BPK-9.1 – Understand power and heat processes during cutting, be able to use them in the design of various cutting tools.

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SK-6.1 – 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, exam.