



Subject card

Subject name and code	Tooling of Manufacturing Systems, PG_00050175						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish Polish		
Semester of study	6		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Zaklad Technologii Maszyn i Automatykacji Produkcji -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Piotr Sender				
	Teachers		dr inż. Piotr Sender prof. dr hab. inż. Adam Barylski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		8.0		62.0	100
Subject objectives	Rules for using of universal jig and fixtures. Design of special fixtures..						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U05] is able to plant an experiment within the range of measuring the basic operating parameters of mechanical devices using a specialized equipment, interpret the results and reach the correct conclusions		Rules for using handles universal.		[SU1] Assessment of task fulfilment		
	[K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle		Principles of calculating forces fastening the item processed in the fixture.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>LECTURE: The role of instrumentation in the machine parts manufacturing system. Errors affecting accuracy of workmanship in machining holders. Fixing the workpiece in the holder. Fixing manufacturing items in handle. Determining and mounting the holder on the machine tool. Principles of handle design: handles lathes, drill chucks, milling chucks, modular chucks, tool holders. Assembly equipment. Transport equipment, manipulators and robots. Rules of computer-aided design and management of workshop aids. Rules for using universal handles. Costs of using jig and fixture. Calculation of fastening forces.</p> <p>LABORATORY (computer): Acquiring the ability to practically apply the principles of basing and mounting objects (workpieces) in holders and preparing a design of a machining holder for the indicated onesurgery.</p>		
Prerequisites and co-requisites	Knowledge in the preparation of documentation of machine design and technology.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	60.0%	50.0%
	lecture	60.0%	50.0%
Recommended reading	Basic literature	<p>Feld M.: Machining holders. WNT, Warsaw, 2002.</p> <p>Dobrzański T.:Machining holders. Designer's guide, WNT, Warsaw, 1987.</p> <p>Subject standards</p>	
	Supplementary literature	<p>Feld M.: Machining holders. WNT, Warsaw,</p> <p>Engineer's guide. Machining. Vol. I-III, WNT, Warsaw,1993.</p> <p>Catalogs of instrumentation manufacturers.Studying studies (books, presentations, lectures) from universitiestechnical Polish and foreign. 2002.Dobrzański T.:Machining holders. Designer's guide, WNT, Warsaw,1987. Subject standards</p>	
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Oprzyrządowanie technologicznych systemów wytwarzania (PG_00050175) - Moodle ID: 37084</p> <p>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37084</p>	

<p>Example issues/ example questions/ tasks being completed</p>	<p>Describe the tooling used on lathes and milling machines.</p> <p>Describe how to calculate fastening forces.</p> <p>List the principles of construction of turning and milling equipment.</p>
<p>Work placement</p>	<p>Not applicable</p>