GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Machining, PG_00055056		
Field of study	Management and Production Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Daniel Chuchała	
	Teachers	dr hab. inż. Daniel Chuchała dr inż. Aleksandra Suchta prof. dr hab. inż. Kazimierz Orłowski	

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	4.0	16.0	50

Subject objectives	Preparation to recognition of cutting processes and machine tools.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_K02] is able to interact and work in a group, assuming different roles, can inspire and organize the learning process of others, properly identifies priorities for realization of a task specified by themselves or others	The student is able to determine the sequence of machining processes performed in order to produce a element with the expected dimensional accuracy and surface quality	[SK1] Assessment of group work skills
	[K6_W13] has detailed knowledge of the production and operation of machines and devices, diagnosing their technical conditions and selection of regeneration techniques	The student is able to choose the correct machining process and the type of cutting tools for a given type of the manufactured element.	[SW1] Assessment of factual knowledge
	[K6_U09] can use analytical techniques as well as computer simulation and numerical analysis methods in solving specific problems in the field of production engineering, is able to carry out simple engineering tasks related to the production of typical machine parts using widely understood techniques and computer tools, is able to select and apply appropriate methods of project planning and control courses with the use of computer aided means	The student is able to select the correct parameters of the cutting process with the use of tool catalogs, also in on-line versions, for a given set of workpiece material and cutting edge material.	[SU4] Assessment of ability to use methods and tools
	[K6_W06] has knowledge of the life cycle of products and mechanical devices and systems, in the field of machine parts manufacturing techniques, as well as the possibilities and trends in the development of machines and production devices and process control	Student knows the basic types of tool materials, their application and basic wear mechanisms in machining processes.	[SW1] Assessment of factual knowledge
	[K6_U08] can assess the usefulness of routine methods and tools for solving practical production tasks in measuring in order to supervise processes and analyze the functioning of production systems	The student is able to choose the correct machining process and the type of cutting tools for a given type of the manufactured element.	[SU4] Assessment of ability to use methods and tools
	[K6_W09] knows the general principles of creating and developing forms of individual entrepreneurship and stimulating employee creativity, using knowledge in the field of design, production and operation of machinery and technical devices	The student is able to appropriately select the form and dimensions of semi-finished products needed to produce a component with the lowest possible cost for a given batch size	[SW1] Assessment of factual knowledge

Subject contents

LECTURE Geometric and kinematic parameters of cutting. Tool and workpiece movements. The geometryof the blades in the tool and working system, the geometry of the cut layer. The phenomenon of formationchips and types of chips. Heat and temperature in the cutting zone. Cooling and lubricating agents. Wearcutting tools. Cutting force and power. Tool materials and rules for their selection. Basic methods of machining: turning, milling, drilling, countersinking, reaming.LABORATORY Cutting materials and cutting-off machines. Machining on lathes. Machining on drills.Machining on milling machines. Machining of gears. Machining on grinders. Machining on planers andslotters.

Prerequisites and co-requisites

Ability to produce and read executive technical drawings.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Lecture	60.0%	70.0%
Laboratory	100.0%	30.0%

Recommended reading	Basic literature	1. Olszak W. Obróbka skrawaniem. WNT Warszawa 2008. 2. Podręcznik szkoleniowy. Obróbka metali skrawaniem . Sandvik Coromant 2017. 3. Storch B.: Podstawy obróbki skrawaniem. Wyd. Politechniki Koszalińskiej, Koszalin 2001 4. Cichosz P.: Narzędzia skrawające. WNT, Warszawa 2006. 5. Bartosiewicz J.: Obróbka skrawaniem i elementy obrabiarek. Wyd. Poilt. Gda. Gdańsk 1997
	Supplementary literature	1. Jemielniak K.: Obróbka skrawaniem. Ofic. Wyd. Polit. Warsz. Warszawa1998. 2. Grzesik W.: Podstawy skrawania materiałów metalowych. WNT warszawa 1998. 3. Materiały pomocnicze dostępne na stronach producentów narzędzi np. Seco Tools i in
	eResources addresses	Adresy na platformie eNauczanie: Obróbka skrawaniem, W/L, ZiIP, I stop., 3 sem., zima 2023/24 (PG_00055056) - Moodle ID: 33477 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33477
Example issues/ example questions/ tasks being completed	The final test contains many questions relating to the topics of the entire subject.	
Work placement	Not applicable	

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