



Subject card

Subject name and code	, PG_00070058						
Field of study	Production Technology						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish -		
Semester of study	2		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Division of Applied Mechanics and Biomechanics -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marek Chodnicki				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	20.0	0.0	50
	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	50		0.0		100.0	150
Subject objectives	The aim of the <i>Production Technology</i> course is to provide structured knowledge of basic and advanced manufacturing processes for machine parts, including machining, forming, joining and additive techniques, as well as the principles of selecting appropriate technologies and process parameters, and designing simple technological processes with respect to product quality, cost efficiency and occupational safety.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W81] has knowledge of complex grammatical structures and diverse lexical resources needed to communicate in foreign language in terms of general and specialist language related to field of study	After completing the course, students will have knowledge of complex grammatical structures and general and specialized vocabulary in the field of production technology and mechanics, necessary for fluent communication in English in academic and professional environments.	[SW1] Ocena wiedzy faktograficznej
	[K7_U81] is able to communicate with ease in foreign language at B2+ level of the Common European Framework of Reference for Languages (CEFR) in everyday life, in academic and professional environments	Upon completion of the course, students will be able to communicate fluently in English at a level of at least B2+ in typical academic and professional situations, including when discussing issues related to production technology, presenting analysis results, and collaborating in an international engineering team.	[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU2] Ocena umiejętności analizy informacji [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania
	[K7_W101] is able to make an in-depth identification of key objects and phenomena related to the field of study, as well as theories that describe them and applicable analytical and design methods	After completing the course, students will have in-depth knowledge enabling them to identify key objects and phenomena related to manufacturing technology, know the theories describing them, and select appropriate analytical and design methods to solve typical engineering problems in the field of mechanics and machine construction.	[SW1] Ocena wiedzy faktograficznej
	[K7_U82] is able to proficiently obtain and process information related to field of study and academic environment in foreign language at B2+ level of the Common European Framework of Reference for Languages (CEFR)	After completing the course, students will be able to efficiently search for, analyze, and process information in English at a level of at least B2+ concerning production technologies, their field of study, and the functioning of the academic environment.	[SU4] Ocena umiejętności korzystania z metod i narzędzi
Subject contents	Course content – lecture Podstawowe pojęcia i klasyfikacja procesów technologicznych wytwarzania części maszyn. Charakterystyka procesów skrawania (toczenie, frezowanie, wiercenie, szlifowanie) parametry obróbki, narzędzia, materiały obrabiane. Podstawy obróbki plastycznej (kucie, walcowanie, tłoczenie, gięcie) oraz ich zastosowanie w przemyśle. Techniki łączenia materiałów (spawanie, lutowanie, klejenie, połączenia mechaniczne) dobór technologii do zastosowania. Wprowadzenie do technik przyrostowych (druk 3D) i ich miejsce w systemie wytwarzania. Projektowanie prostego procesu technologicznego: dobór bazy, kolejności operacji, parametrów i narzędzi. Jakość wyrobu i dokładność wykonania tolerancje, chropowatość, podstawy kontroli jakości w procesie wytwarzania. Aspekty ekonomiczne i organizacyjne technologii produkcji wydajność, koszty, bezpieczeństwo i zrównoważony rozwój.		
	Course content – project Basic concepts and classification of technological processes for manufacturing machine parts. Characteristics of cutting processes (turning, milling, drilling, grinding) machining parameters, tools, machined materials. Basics of plastic working (forging, rolling, stamping, bending) and their application in industry. Material joining techniques (welding, soldering, gluing, mechanical connections) selection of technology for application. Introduction to additive techniques (3D printing) and their place in the manufacturing system. Designing a simple technological process: selection of the base, sequence of operations, parameters, and tools. Product quality and accuracy of workmanship tolerances, roughness, basics of quality control in the manufacturing process. Economic and organizational aspects of production technology efficiency, costs, safety, and sustainable development.		

Prerequisites and co-requisites	Prerequisites: basic knowledge of mathematics, physics, technical mechanics, materials science, and a general understanding of machine construction and basic manufacturing processes.		
	Additional requirements: knowledge of English at a level sufficient to use technical literature and willingness to work with technical documentation and standards.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	tasks	60.0%	100.0%
Recommended reading	Basic literature	Agrawal, Pratibha, Pramod Belkhode, and Samuel Lalthazuala Rokhum. <i>Sustainability in Biofuel Production Technology / Pratibha Agrawal, Pramod Belkhode, Samuel Lalthazuala Rokhum</i> . Chichester, England: John Wiley & Sons, Inc., 2023. Print.	
		Brecher, Christian. <i>Advances in Production Technology / Edited by Christian Brecher</i> . Ed. by Christian. Brecher. First edition 2015. Cham: Springer Nature, 2015. Web.	
	Supplementary literature	Schmitt, Robert., and Günther. Schuh, eds. <i>Advances in Production Research: Proceedings of the 8th Congress of the German Academic Association for Production Technology (WGP), Aachen, November 19-20, 2018 / Edited by Robert Schmitt, Günther Schuh</i> . 1st ed. 2019. Cham: Springer International Publishing, 2019. Web.	
		Technology Operation Management. Berlin: Springer, 2011. Print.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Select the appropriate manufacturing technology (sequence of operations) for a given part, taking into account the material, accuracy, and production series. Propose cutting parameters (vc, f, ap) for the selected turning/milling operation and justify the values selected. Compare two alternative technologies for manufacturing the component (e.g., machining vs. plastic working/ 3D printing) in terms of cost, quality, and lead time. Develop a technological process diagram for the part: selection of the machining base, sequence of operations, machine tools, and tools. Analyze the cause of selected non-conformities (e.g., dimensional deviations, excessive roughness) and propose corrective actions in the process. Read an excerpt from the technological documentation/standard and discuss its significance for the production process.		
Practical activities within the subject	Not applicable		

Document generated electronically. Does not require a seal or signature.