



Subject card

Subject name and code	Manufacturing Engineering, PG_00050286						
Field of study	Manufacturing Engineering						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
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	3		Language of instruction		English		
Semester of study	5		ECTS credits		6.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Division of Manufacturing and Production Engineering -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Dominika Zakrzewska				
	Teachers		mgr inż. Karolina Chodnicka-Wszelak dr inż. Piotr Sender dr inż. Dominika Zakrzewska dr inż. Dawid Zieliński				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	15.0	0.0	60
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=2212 Moodle ID: 2212 Manufacturing Engineering https://enauczanie.pg.edu.pl/2025/course/view.php?id=2212						
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	60		6.0		84.0	150
Subject objectives	Familiarisation with basic manufacturing techniques in terms of technological effects and properties of the surface layer of a workpiece. Manufacturing analysis, technological process design.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_U04	Student develops technological process of typical parts of machines.	[SU1] Ocena realizacji zadania [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania [SU4] Ocena umiejętności korzystania z metod i narzędzi
	K6_W06	Student knows the structure and principles of operation of machine tools used in the technology industry.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym [SW2] Ocena wiedzy zawartej w prezentacji
	K6_W11	Student selects the manufacturing process and appropriate machining parameters for parts with specific design and technological requirements, selection of technological equipment.	[SW1] Ocena wiedzy faktograficznej [SW2] Ocena wiedzy zawartej w prezentacji [SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym
	K6_U08	Student analyses different variants of the technological process.	[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania [SU1] Ocena realizacji zadania
	K6_U09	Student selects the process along with analysis of the obtained experimental results related to the obtained technological effects; selection of metrological devices	[SU2] Ocena umiejętności analizy informacji [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU4] Ocena umiejętności korzystania z metod i narzędzi
Subject contents	Course content – lecture		
	1. Basic design and technological requirements. Manufacturing processes, basic machining. 2. Technological stages and production costs. 3. Sequence of operations for typical mechanical components. Abrasive machining and finishing operations. 4. Innovations in abrasive products for precision grinding. 5. Comparison of additive and subtractive technologies. 6. Quality control tools. 7. Measurement techniques.		
	Course content – laboratory		
	1. Advanced machine tools, CNC machining centers. 2. Electrical discharge machining. 3. Comparison of additive and subtractive technologies. 4. Sequence of operations for typical mechanical components. Abrasive machining and finishing operations. 5. Quality control tools.		
Prerequisites and co-requisites	Course content – project		
	1. Technological stages and production costs. 2. Development of the technological process for typical machine parts.		
Assessment methods and criteria	Machining, machine tools, machine technical drawing.		
	Subject passing criteria	Passing threshold	Percentage of the final grade
	Activity	80.0%	10.0%
	Project	60.0%	20.0%
	Lab	60.0%	20.0%
	Exam	60.0%	50.0%
Recommended reading	Basic literature	Rufe, Philip D. Fundamentals of manufacturing. Society of Manufacturing Engineers, 2013.2. Chryssolouris, G. (2013). Manufacturing systems: theory and practice. Springer Science & Business Media	
	Supplementary literature	Selected papers from the journals available on-line: 1. Journal of Manufacturing Processes. 2. Journal of Manufacturing Systems. 3. CIRP ANNALS - Manufacturing Technology.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	1. Selected production processes for a given part with specific design and technological requirements. 2. Basic principles of selecting technological parameters for milling operations. 3. Basic principles of selecting technological parameters for turning operations. 4. Construction of a grinding wheel. 5. The influence of manufacturing technique on the properties of the surface layer.
Practical activities within the subject	Not applicable

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