GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Manufacturing Engineering, PG_00050286		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
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 -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Dominika Zakrzewska	
	Teachers	dr inż. Dominika Zakrzewska dr inż. Dawid Zieliński dr inż. Piotr Sender mgr inż. Karolina Chodnicka-Wszelak	

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 addresses:

Moodle ID: 8650 Manufacturing Engineering
https://enauczanie.pg.edu.pl/2025/course/view.php?id=8650

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_U09	.Student selects the process along with analysis of the obtained experimental results related to the obtained technological effects; selection of metrological devices	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K6_U04	Student develops technological process of typical parts of machines.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
K6_U08	Student analyses different variants of the technological process.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
K6_W11	Student selects the manufacturing process and appropriate machining parameters for parts with specific design and technological requirements, selection of technological equipment.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
K6_W06	Student knows the structure and principles of operation of machine tools used in the technology industry.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

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.

Course content – project

1. Technological stages and production costs.
2. Development of the technological process for typical machine parts.

Prerequisites and co-requisites

Machining, machine tools, machine technical drawing.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Activity	80.0%	10.0%
Exam (lecture)	60.0%	50.0%
Project	60.0%	20.0%
Laboratory	60.0%	20.0%

Recommended reading

Basic literature	1. 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 activites within the subject	Not applicable

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