GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Technology of medical products, PG_00055740		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2021/2022
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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Manufacturing and Production Engineering -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Stefan Dzionk	
	Teachers	Piotr Taube dr hab. inż. Daniel Chuchała dr inż. Wojciech Blacharski dr inż. Sławomir Szymański prof. dr hab. inż. Kazimierz Orłowski dr hab. inż. Stefan Dzionk	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	0.0	0.0	45
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie:						

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	45	5.0	50.0	100

Subject objectives	To familiarize students with the basic techniques of producing construction elements and quality assurance requirements of different manufacturing systems. Basics of selection of processing method to fit the application requirements for components being assembled in medical devices.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W10] he/she has knowledge in the field of machine part manufacturing and metrology	The student knows basic manufacturing techniques. The student knows basic elements of the technological process in production of parts.	[SW1] Assessment of factual knowledge
	[K6_U07] he/she is able to identify the problem and list simple engineering tasks to solve this problem in practice, he/she is able to critically analyze the proposed technical solutions and conclude whether these solutions can be implemented to solve problems related to design of mechanical devices and mechanical-medical devices	Student zna podstawowe techniki wytwarzania. Student zna podstawowe elementy procesu technologicznego w wytwarzaniu części.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K6_U09] he/she is able to select proper constructive materials to design the device	The student is able to select a manufacturing method appropriate to the application requirements in terms of: accuracy of execution, surface condition, type of material and others.	[SU4] Assessment of ability to use methods and tools

Subject contents

LECTURES: Aspects of accuracy in manufacturing, methods of measurement and determination of quality performance due to machining accuracy, machining base, base manufacturing systems, the basics of planning processes, computer aided manufacturing. Tools uses in different part processes. Finishing, abrasive machining technologies, non subtractive techniques. Use of technology for polishing and burnishing parts of different classes. Basis of design of technological process for elements using in medical devices.

LABORATORY: Fundamentals of design elements in systems CAD3D, basic manufacturing systems including production system turning, milling system for producing, processing, finishing, production of gears, measurement workshop in various aspects and quality control requirements.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Coloquium	60.0%	60.0%
Raports	60.0%	40.0%

Recommended reading

Basic literature

1. Feld M.: *Technologia budowy maszyn*, PWN, Warszawa 2000.
2. Feld M.: *Podstawy projektowania procesów technologicznych typowych części maszyn,* WNT, Warszawa, 2000.
3. Poradnik inżyniera. *Obróbka skrawaniem,* T. I-III, WNT, Warszawa 1993.
4. M. P. Groover: *Fundamentals of modern Manufacturing*, JOHN WILEY&SONS, INC.
5. S. Kalpakjian, S. R. Schmid: *Manufacturing Engineering and Technology*, Pearson Prentience Hall.

Supplementary literature

1. Meyer Kutz: *Mechanical Engineers' Manufacturing and management*, JOHN WILEY&SONS, INC.

eResources addresses

Example issues/ example questions/ tasks being completed

1. Characterize the materials for cutting blades.
2. Discuss the geometry of the cutting edge
3. Discuss the basic types of finishing.
4. Datum in the manufacturing process,
5. The relationship between class of the accuracy of the components and the structure of the surface
6. What is the technological base?,
7. Operation in the manufacturing process,
8. Characterize the machining process,
9. Characterize the grinding process,
10. Abrasive grains and micrograns.

Work placement

Not applicable

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