GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00062014		
Field of study	Technologia maszyn		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	8.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	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. Bogdan Ścibiorski	
	Teachers	dr inż. Bogdan Ścibiorski dr inż. Piotr Sender	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	36.0	0.0	9.0	18.0	0.0	63

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 1703 Technologia maszyn, sem. 05, MiBO, niestacj. 25/26 letni, (P000062013)
https://enauczanie.pg.edu.pl/2025/course/view.php?id=1703

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	63	0.0	0.0	63

Subject objectives

The objective of the course is to familiarize students with machine manufacturing technology, including technological processes of machining, designing technological operations for typical machine parts, and the use of computer-aided manufacturing tools. Students will acquire the ability to design technological processes, analyze machining accuracy, and select technological parameters

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U14] is able to analyse the operation of devices and compare the construction solutions applying usage, safety, environmental, economic and legal criteria	The student is able to critically analyze technological processes of machine manufacturing, taking into account safety, environmental, and economic criteria.	[SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania [SU4] Ocena umiejętności korzystania z metod i narzędzi [SU2] Ocena umiejętności analizy informacji [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU1] Ocena realizacji zadania
[K6_U03] is able to identify, formulate and develop the documentation of a simple design or technological task, including the description of the results of this task in Polish or in a foreign language and to present the results using computer software or other aiding tools	The student is able to prepare technological documentation and present the results of technological projects using computer tools	[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU2] Ocena umiejętności analizy informacji [SU1] Ocena realizacji zadania
[K6_W11] has knowledge of analysis, design, technology and manufacturing of selected technical systems, machinery and equipment, metrology and quality control, knows and understands methods of measurement and calculation of basic quantities describing the operation of technical systems, knows basic calculation methods used to analyse experimental results	The student is able to design and implement technological processes and use measurement methods and calculations in the analysis of technical systems	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym [SW1] Ocena wiedzy faktograficznej
[K6_W08] has a knowledge of the analysis and design of selected technical systems, machines and technical equipment, selection of construction materials, manufacturing and operation, including their life cycle	The student is able to analyze the life cycle of machines and devices, taking into account technical and material aspects during design and production	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym [SW1] Ocena wiedzy faktograficznej

Subject contents

The production process and its components. Data for the technological design process, documentation, and the technical time standard. Selection of machining allowances. Design of semi-finished products. Technological manufacturability of the design. Machining bases and principles for setting workpieces on machine tools, as well as machining accuracy. Technological methods of shaping the surface layer of machine parts and their impact on operational properties. Technological processes of typical machine parts for various types and degrees of automation of machining and assembly. Process standardization. Group machining. Flexible manufacturing systems. Computer- aided manufacturing. Programming numerically controlled machines and robots. **LABORATORY**Determination of the technical time standard. The impact of machining bases and the setting method of the lathe on the errors of shaft machining. Technological analysis of finishing processes for shafts by burnishing and grinding. The impact of hole machining technology on the accuracy of their axis spacing. Technology of cylindrical gears. Analysis of machine component assembly. Basics of programming and machining on CNC machine tools. **PROJECT**Design of technological processes for typical machine parts: shaft and lever. Preparation of documentation, selection of machining allowances, fixtures, tools, technological parameters, determination of the technical time standard

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratory	60.0%	20.0%
project	60.0%	20.0%
egzam	60.0%	60.0%

Recommended reading

Basic literature	1. Feld M.: Projektowanie i automatyzacja procesów technologicznych. PWN W-wa 2018. 3. Przybylski i in.: Technologia maszyn i automatyzacja produkcji. Laboratorium. Politechnika Gdańska, 4. Cichosz P.: Narzędzia skrawające. WNT,
Supplementary literature	1. Obróbka skrawaniem Poradnik inżyniera 1-3, Wydawnictwa Naukowo Techniczne WNT 2. Olszak W.: Obróbka skrawaniem. WNT
eResources addresses	

Example issues/ example questions/ tasks being completed	Process design as a fundamental element of engineering activities. The production process and its components. Data for the technological design process, documentation, and the technical time standard. Selection of machining allowances, design of semi-finished products, manufacturability of the design. Machining bases and principles for setting workpieces on machine tools, as well as machining accuracy. Technological methods of shaping the surface layer of machine parts and their impact on operational properties. Technological processes of typical machine parts for various types and degrees of automation of machining and assembly. Process standardization, group machining, and flexible manufacturing systems. Computer-aided manufacturing, programming of numerically controlled machine tools. Determination of the technical time standard. The impact of machining bases and the lathe setup on shaft machining errors. Technological analysis of the finishing process of shafts through burnishing and grinding. The use of industrial robots in technological processes. Basics of programming and machining on CNC machines (lathe and milling machine). The impact of hole machining technology on the accuracy of their axis spacing. Projects of technological processes for typical machine parts, e.g.: shaft, lever, gear. Preparation of documentation, selection of machining allowances, fixtures, tools, technological parameters, and the technical time standard for machining.
Practical activites within the subject	Not applicable