



## Subject card

Subject name and code	Fundamentals of machinery construction II, PG_00055065						
Field of study	Management and Production Engineering						
Date of commencement of studies	October 2025	Academic year of realisation of subject			2027/2028		
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			Polish		
Semester of study	5	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute Of Mechanics And Machine Design -> Faculty Of Mechanical Engineering And Ship Technology -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Szymon Grymek					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	0.0	30
	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	30		4.0		16.0	50
Subject objectives	Familiarization with phenomena in technical systems, especially in machine elements or sub-assemblies. Familiarization with calculation models for construction of machines, especially with calculation models for stress in material of elements under continuous or fatigue loading. Familiarization with elements and assemblies commonly used in machines - with structure and operation principles of bearings, clutches, brakes, connections journal-hub, shafts, axles, welded connections, screw connections, spring elements and mechanical gearings.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U04] is able to develop documentation in the area of preparation, implementation and control of production processes in Polish and in a foreign language considered basic for scientific fields, is able to identify and formulate the basic objectives of quality management in the product life cycle, is able to use information and communication techniques appropriate to the implementation of tasks typical in engineering activities including preparation, production and supervision of the manufacturing process	Student is able to develop a complete technical documentation of a simple technical device.	[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	[K6_U01] can find the necessary information in professional literature, databases and other sources, knows basic scientific and technical journals in the field of production management, quality and operation management, can integrate the obtained information, formulate conclusions and justify opinions	Student is able to find the necessary information in professional literature, databases and other sources, also in foreign languages.	[SU2] Assessment of ability to analyse information
	[K6_K01] feels the need for self-realization by learning throughout life, is looking for modern and innovative solutions in their actions, is able to think creatively and act in an entrepreneurial way	Student analyses phenomena in technical systems, especially in machine elements or sub-assemblies. Student explains basics of project methodology.	[SK5] Assessment of ability to solve problems that arise in practice
[K6_U09] can use analytical techniques as well as computer simulation and numerical analysis methods in solving specific problems in the field of production engineering, is able to carry out simple engineering tasks related to the production of typical machine parts using widely understood techniques and computer tools, is able to select and apply appropriate methods of project planning and control courses with the use of computer aided means	Student uses analytical techniques and CAD methods to solve technical tasks in the field of production engineering.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools	
Subject contents	The design and construction exercise covers the design of a simple mechanical device, with particular emphasis on the holistic approach to the design process. The task consists in developing several concepts of the device, specifying the evaluation criteria, selecting the optimal concept, and then carrying out the necessary engineering calculations (also with the use of CAD) and preparation of technical documentation.		
Prerequisites and co-requisites	Basic knowledge of technical drawing, materials science, mechanics, strength of materials and manufacturing technology. COMPLETION OF THE COURSE Fundamentals of machinery construction I		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Activity	50.0%	20.0%
	Project	100.0%	80.0%

Recommended reading	Basic literature	<p>Kochanowski M.: Podstawy konstrukcji maszyn. Wybrane zagadnienia. Gdańsk: P. Gdańska 2002. Przykłady obliczeń z podstaw konstrukcji maszyn (pod. red. Mazanek E.). Warszawa: Wyd N-T 2008. Tarnowski W.: Podstawy projektowania technicznego. WNT 1997. Osiński Z., Bajon W., Szucki T.: Podstawy konstrukcji maszyn. Wyd. PWN. Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Praca zbiorowa. (Zbiór skryptów opracowanych w Katedrze Konstrukcji i Eksploatacji Maszyn PG) Wyd. Politechniki Gdańskiej. Podstawy Konstrukcji Maszyn. Cykl monografii wydawanych przez PWN. Kurmaz L. W., Kurmaz O. L.: Projektowanie węzłów i części maszyn. Kielce: Wydawnictwo Politechniki Świętokrzyskiej. Beitz G. P. W.: Nauka konstruowania. W-wa: Wyd. N-T 1984</p>
	Supplementary literature	<p>Polskie normy</p> <p>Katalog Łożysk Toczących</p> <p>Niezdodziński M.E., Niezdodziński T.: Wzory, wykresy i tablice wytrzymałościowe</p>
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	Design of a car lift for a selected passenger car	
Work placement	Not applicable	

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