GDAŃSK UNIVERSITY OF TECHNOLOGY

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 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	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		
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-assembles.Familiarization with calculation models for construction of machines, especially with calculation models forstress in material of elements under continuous or fatigue loading. Familiarization with elements andassembles commonly used in machines - with structure and operation principles of bearings, clutches,brakes, connections journal-hub, shafts, axies, welded connections, screw connections, spring elements andmechanical gearings.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[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-assembles. Student explains basics of project methodology.	[SK5] Assessment of ability to solve problems that arise in practice
[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_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.	[SU5] Assessment of ability to present the results of task [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 technnical drawing, materials science, mechanics, strength of materials andmanufacturing technology.COMPLETION OF THE COURSE Fundamentals of machinery construction I

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	100.0%	80.0%
Activity	50.0%	20.0%

Recommended reading	Basic literature	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
	Supplementary literature	Polskie normy Katalog Łożysk Tocznych Niezgodziński M.E., Niezgodziński T.: Wzory, wykresy i tablice wytrzymałościowe
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Design of a car lift for a selected passenger car	
Work placement	Not applicable	