GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Fundamentals of Machine Design III, PG_00040190		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
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 None
Semester of study	5	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Machine Design and Vehicles -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Grzegorz Rotta	
	Teachers	dr inż. Grzegorz Rotta	

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	6.0	39.0	75

Subject objectives

Learning the methodology of designing simple mechanical devices

Extending the knowledge and skills to use basic calculation methods for typical machine elements and the methods of selecting catalog parts for the designed technical device

Learning how to effectively create technical documentation using theoretical knowledge and CAD software

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W04	Has knowledge of mechanics, including the process of modeling mechanical systems, statics, kinematics and dynamics of rigid bodies as well as basic knowledge in the field of vibrations	[SW3] Assessment of knowledge contained in written work and projects
K6_W08	Has basic knowledge of the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, including their life cycle	[SW3] Assessment of knowledge contained in written work and projects
K6_U11	Is able to analyze the operation of devices and compare design solutions using safety, environmental, economic and legal criteria	[SU1] Assessment of task fulfilment
K6_U07	Is able to design a simple structure, mechanical device, subassembly or test rig using appropriate methods and tools, taking into account the given design criteria	[SU1] Assessment of task fulfilment
[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	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	[SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment

Subject contents

Mai aim is to design a simple machine that performs one simple operation. The designed machine may include such elements as: screw connections, welded connections, shafts and axles, couplings, gears, brakes, bearings, flexible elements.

The project will require basic engineering calculations for typical machine elements

As part of the project, it will also be necessary to prepare drawing documentation, i.e. assembly drawing and 3-5 working drawings

Everything is to be documented in a single report

Prerequisites and co-requisites

The content of lectures, computational and computer exercises as well as a structural design in Fundamentals of Machine Design I and Fundamentals of Machine Design II subjects

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Weekly assessment of current work progress	50.0%	60.0%
Final report submitted	50.0%	40.0%

Recommended reading

Basic literature	A set of scripts from the Fundamentals of Machine Design published by the Gdańsk University of Technology The content of lectures, computational and computer exercises as well as a structural design in Fundamentals of Machine Design I and Fundamentals of Machine Design II subjects
Supplementary literature	- A set of books "Fundamentals of Machine Design" published by PWN, Warsaw-PKM, edited by M. Dietrich, PWN, Warsaw - Any works on Fundamentals of Machine Design in Polish and in English
eResources addresses	Adresy na platformie eNauczanie: Fundamentals of Machine Design III - Moodle ID: 34225 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34225

Example issues/ example questions/ tasks being completed	- Development of various device concepts - Choosing the best concept - Design and verification calculations - Preparation of drawing documentation - assembly drawing and executive drawings
Work placement	Not applicable