



Subject card

Subject name and code		Basics of Machine Construction, PG_00039823						
Field of study		Materials Engineering, Materials Engineering, Materials 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		
Mode of study		Full-time studies	Mode of delivery			at the university		
Year of study		3	Language of instruction			Polish		
Semester of study		6	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 inż. Katarzyna Zasińska				
		Teachers		dr inż. Katarzyna Zasińska mgr inż. Marek Łubniewski mgr inż. Barbina Makurat-Kasprolewicz				
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	15.0	0.0	15.0	0.0	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	1.0		19.0	50	
Subject objectives		The aim of the subject is achieves for students basis of machine design, construction and maintenance.						
Learning outcomes		Course outcome		Subject outcome		Method of verification		
		K6_W05		A student analyzes phenomena in elements of machines. A student creates and applies relevant theoretical models which are necessary to design machines. A student achieves basis of machine design (criteria of judgment, concepts, judgment and choice of best solution etc.) A student gains skills of planing and supervising maintenance tasks to assure reliable maintenance of machines and devices.		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
		K6_K01		A student identifies phenomena occurring in the components of machines, obtains information from sources of literature, integrates them, draws appropriate conclusions, is able to carry out the selection of basic machine elements of machinery using engineering calculation models calculation models.		[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness		
		K6_U03		A student analyzes phenomena in elements of machines. A student creates and applies relevant theoretical models which are necessary to design machines. A student has general knowledge in fields of construction, work, application and design of elements and assemblies.		[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		

Subject contents	<p>LECTURE Designing of objects and processes as a basic element of engineering. Describing and analysing of the problem, searching of the best solution - methods and techniques. Designing of elements of machines with use of strength criteria - engineering calculations. Methods of judgments and solutions. Simulations and optimizations in designing. Methods of analyses of kinematic models. Algorithms of designing. Modern tools for designing machines - CAD 2D and 3D. Calculation of welded elements and fastener.</p> <p>LABORATORY Engineering calculations. Static calculations. Safety factor. Fasteners. Welded elements - calculations and optimization. Screw elements. Preloaded elements. Characteristics of elastic elements and springs. Springs, elastomers. Shafts and axes: modelling and optimization. Comparison of friction and shape fasteners.</p>											
Prerequisites and co-requisites	<ol style="list-style-type: none"> 1. Knowledge in field of Engineering drawing 2. Knowledge in field of Mechanics 3. Knowledge in field of Strength of materials 4. Knowledge in field of Metrology 5. Knowledge in field of Materials Science 											
Assessment methods and criteria	<table border="1" data-bbox="451 499 1487 600"> <thead> <tr> <th data-bbox="451 499 794 533">Subject passing criteria</th> <th data-bbox="794 499 1137 533">Passing threshold</th> <th data-bbox="1137 499 1487 533">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 533 794 566">Project</td> <td data-bbox="794 533 1137 566">56.0%</td> <td data-bbox="1137 533 1487 566">50.0%</td> </tr> <tr> <td data-bbox="451 566 794 600">Midterm colloquium</td> <td data-bbox="794 566 1137 600">56.0%</td> <td data-bbox="1137 566 1487 600">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Project	56.0%	50.0%	Midterm colloquium	56.0%	50.0%
Subject passing criteria	Passing threshold	Percentage of the final grade										
Project	56.0%	50.0%										
Midterm colloquium	56.0%	50.0%										
Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<ol style="list-style-type: none"> 1. Siwek B.: Połączenia spawane, zgrzewane, lutowane i klejone - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 2. Maciakowski R.: Połączenia śrubowe - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 3. Maciakowski R., Majewski W.: Połączenia wału z piastą - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 4. Kochanowski R.: Wały i osie - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 5. Maciakowski R., Majewski W.: Sprzęgła - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 6. Kochanowski M.: Podstawy konstrukcji maszyn z rysunkiem technicznym. Wyd. Politechniki Gdańskiej, Gdańsk 1998.7. <p>Druet K., Kochanowski M., Romanowski P.: Łożyska toczne. Wyd. Politechniki Gdańskiej.</p> <p>1. Podstawy Konstrukcji Maszyn. Cykl monografii wydawanych przez PWN.</p> <p>Adresy na platformie eNauczenie:</p>										
Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											

Document generated electronically. Does not require a seal or signature.