



Subject card

Subject name and code	Micromechanisms and microdrives , PG_00057029						
Field of study	Mechatronics						
Date of commencement of studies	February 2023		Academic year of realisation of subject		2023/2024		
Education level	second-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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Ryszard Jasiński				
	Teachers		dr hab. inż. Ryszard Jasiński				
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		4.0		16.0	50
Subject objectives	Acquainting students with micromechanisms and microdrives						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U06] is able to evaluate feasibility and possibility of application of new achievements (technical and technological) in terms of mechatronics		Student designs and builds simple devices. Student takes measurements.		[SU1] Assessment of task fulfilment		
	[K7_W03] has detailed, supported by the theory knowledge in terms of analytical mechanics, theory of mechanisms and machine dynamics, multibody systems, micromechanisms and microdrives		Student describes the structure and principle of operation of micromechanisms and microdrives, in particular: spring elements, gears, clutches, as well as pneumatic and hydraulic elements, direct current electromagnet drives, electric micro-machines and mechanical assemblies of electronic equipment. Student selects the basic elements for micromechanisms and micron drives. Student designs and builds simple devices. Student takes measurements.		[SW1] Assessment of factual knowledge		
	[K7_U07] has essential background for work in industrial environment and knows safety rules of such work		Student selects the basic elements for micromechanisms and micron drives. Student designs and builds simple devices.		[SU3] Assessment of ability to use knowledge gained from the subject		
Subject contents	The principles of constructing precision instruments. Means of bearing. Guides. Spring elements. Transmissions. Clutches, brakes and keepers. Lubrication units of precise devices. Pneumatic components. Hydraulic and electro-hydraulic components. Mechanical construction units of optical devices. DC electromagnets drives. Electrical micro-machines.						
Prerequisites and co-requisites	Hydraulics and pneumatics, Electrotechnics, Components of mechatronic systems, Theory of mechanisms and dynamics of machinery, Theory of mechanisms and machine dynamics II, Basics of machine constructions, Basics of machine constructions II, Manipulators and industrial robots						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Practical exercise	56.0%	50.0%
	Midterm colloquium	56.0%	50.0%
Recommended reading	Basic literature	Praca zbiorowa: Konstrukcja przyrządów i urządzeń precyzyjnych, Wydawnictwo Naukowo-Techniczne, Warszawa 2006 Andrzej Potyński, Wiesław Mościcki: Podstawy konstrukcji urządzeń precyzyjnych: Ćwiczenia laboratoryjne. Praca zbiorowa pod redakcją Wiesława Mościckiego. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2002. ISBN 83-7207-349-X Władysław Tryliński: Drobne mechanizmy i przyrządy precyzyjne. Wydawnictwa Naukowo-Techniczne, Warszawa 1978 Praca zbiorowa: Konstrukcja przyrządów i urządzeń precyzyjnych. Wydawnictwa Naukowo-Techniczne, Warszawa 1996. ISBN 83-204-1982-4	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie:	
	Example issues/ example questions/ tasks being completed	-	
Work placement	Not applicable		