



Subject card

Subject name and code	Mechatronics in Space Applications, PG_00050012						
Field of study	Space and Satellite Technologies						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2024/2025		
Education level	second-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	1		Language of instruction		Polish		
Semester of study	1		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 inż. Mariusz Dąbkowski				
	Teachers		dr inż. Mariusz Dąbkowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	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		5.0		15.0	50
Subject objectives	The aim of the course is to familiarize students with the concepts of mechatronics design of mechatronics and mechatronic products designed for space technologies, discussion of basic measurement systems and fuels for use in mechatronics, systematization of messages associated with the use of computer simulation and optimization of the design of mechatronic devices in space applications.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U06] Is able to estimate the costs of designing and implementing the engineering activities undertaken. Is able to propose improvements to existing engineering solutions in from the field of space and satellite technology.		The student is able to estimate the cost of making a mechatronic improvement		[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K7_W02] Has well-ordered and theoretically based knowledge of mechatronics in space applications, as well as mechanical technologies and the design of space mechanisms and structures.		The student has knowledge of mechatronics		[SW1] Assessment of factual knowledge		
	[K7_K03] Can analyse and implement assigned tasks while maintaining high technical standards. Is able to work and interact in a group, taking on different roles. Adheres to the principles of professional ethics and respects the diversity of views and cultures.		The student knows how to work in a group by solving the assigned tasks		[SK1] Assessment of group work skills		
Subject contents	-						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
			100.0%		60.0%		
			56.0%		40.0%		

Recommended reading	Basic literature	Literatura podstawowa 1. Heimann B., Gerth W., Popp K.: Mechatronika. Komponenty metody przykłady. Warszawa: Wyd. Nauk. PWN 2001. 2. Gawrysiak M.: Mechatronika i projektowanie mechatroniczne. Białystok: Wyd. Polit. Białostockiej 1997. 3. Projektowanie mechatroniczne. Zagadnienia wybrane. (Red. T. Uhl). Kraków: Kated. Robotyki i Mechatroniki AGH 2006, 2007, 2008, 2010, 2011.
	Supplementary literature	1. Schmidt D. (red.), Mechatronika, Warszawa 2002, REA 2. David G. Alciatore, Michael B. Hstand, Introduction to Mechatronics and Measurement Systems (Engineering), Mc Graw-Hill, New York 2003 3. Tarnowski W., Podstawy Projektowania Technicznego, Warszawa 1997, WNT 4. Niederliński A., Systemy i sterowanie, Warszawa 1983, PWN 5. Wybrane zagadnienia analizy modalnej konstrukcji mechanicznych. (Red. T. Uhl). Kraków: Kated. Robotyki i Mechatroniki AGH 2005, 2006, 2008, 2009, 2010
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	-	
Work placement	Not applicable	

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