



Subject card

Subject name and code	Modern Computational Tools II, PG_00047693						
Field of study	Automatic Control, Cybernetics and Robotics						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Optional subject group 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	6		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Decision Systems and Robotics -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Michał Czubenko				
	Teachers		dr inż. Michał Czubenko				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		2.0		18.0	50
Subject objectives	Mastering the skills of programming in languages: MATLAB and Python, and tools associated with them.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study		can implement appropriate algorithms in a high-level programming language		[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment		is able to implement advanced IT systems to control the manipulator		[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		
Subject contents	Subject treats about advanced usage of MATLAB, Simulink, Python scripting language in scientific projects.						
Prerequisites and co-requisites	<ul style="list-style-type: none">has a basic knowledge of mathematics, including calculus, algebra, geometry, probability and numerical methods, necessary to the description, analysis and synthesis of automatics and robotics systems, and the fundamental processes taking place in themknows the problems associated with the implementation of the numerical methods, has knowledge of genetic algorithms and optimizationknows the principles of object-oriented programming						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	65.0%
	Lab exercise	60.0%	35.0%
Recommended reading	Basic literature	http://www.mathworks.co.uk/help/index.html http://www.python.org/doc/	
	Supplementary literature	http://www.mathworks.co.uk/help/index.html http://www.python.org/doc/	
	eResources addresses	Adresy na platformie eNauczanie: Współczesne narzędzia obliczeniowe II [lato 2024] - Moodle ID: 36411 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=36411	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		