



Subject card

Subject name and code	Space Applications of Advanced Information Technologies, PG_00050031						
Field of study	Space and Satellite Technologies						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
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			3.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Computer Architecture -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jerzy Proficz					
	Teachers	dr hab. inż. Jerzy Proficz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	0.0	45
	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	45	8.0		22.0		75
Subject objectives	The students are going to be introduced to practical skills related to the advances in Information Technologies including High Performance Computing						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_W12	The student gains knowledge related to using advanced IT solutions along with space and satellite technologies.			[SW1] Assessment of factual knowledge		
	K7_U09	The student can solve a practical problem related to satellite data analysis using advanced IT methods (Big Data or HPC).			[SU1] Assessment of task fulfilment		
	K7_U08	The student can identify and describe a practical problem related to satellite data analysis using advanced IT methods (Big Data or HPC).			[SU1] Assessment of task fulfilment		
	[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 can work in a team to analyse and solve a practical problem related to satellite data analysis using advanced IT methods (Big Data or HPC).			[SK5] Assessment of ability to solve problems that arise in practice		
K7_W07	The student gains knowledge related to a lifecycle of space and satellite software systems, including their maintenance.			[SW1] Assessment of factual knowledge			

Subject contents	<p>Lectures: There are going to be presented modern technologies related to High Performance Computing in cluster architecture in Big Data, Cloud and MPI environments.</p> <p>Project: Preparing an software application for one on presented technologies within context of the space/ satelite data.</p>											
Prerequisites and co-requisites	Skills in C or similar programming language											
Assessment methods and criteria	<table border="1" data-bbox="451 349 1487 383"> <thead> <tr> <th data-bbox="451 349 794 383">Subject passing criteria</th> <th data-bbox="794 349 1137 383">Passing threshold</th> <th data-bbox="1137 349 1487 383">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 383 794 416">Project</td> <td data-bbox="794 383 1137 416">70.0%</td> <td data-bbox="1137 383 1487 416">50.0%</td> </tr> <tr> <td data-bbox="451 416 794 450">Exam</td> <td data-bbox="794 416 1137 450">51.0%</td> <td data-bbox="1137 416 1487 450">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Project	70.0%	50.0%	Exam	51.0%	50.0%
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Recommended reading	Basic literature	<p>B. Wilder, Cloud Architecture Patterns, O'Reilly 2012 W. Gropp, E. Lusk, A. Skjellum, Using MPI: Portable Parallel Programming with the Message-Passing Interface (Scientific and Engineering Computation), The MIT Press 2014</p>										
	Supplementary literature	T. White, Hadoop, The Definitive Guide, O'Reilly 2012										
	eResources addresses	Adresy na platformie eNauzanie:										
Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											