



Subject card

Subject name and code	GPS and Galileo Satellite Navigation Systems, PG_00047977						
Field of study	Informatics						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2027/2028		
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	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Jerzy Demkowicz					
	Teachers	dr inż. Jerzy Demkowicz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		5.0		60.0	125
Subject objectives	GNSS acquaintance & information systems						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U12] is able, to an advanced degree, to analyze the operation of components and systems related to the field of study, and to measure their parameters and study their technical characteristics, as well as to plan and carry out experiments related to the field of study, including measurements and computer simulations, and to interpret the obtained results and draw conclusions	Possesses skills in planning GNSS measurements using campaign planning programs and is able to optimize their time based on DOP.	[SU2] Assessment of ability to analyse information
	[K6_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	Is able to determine areas of engineering application of GNSS systems and adapt measurement methods to them.	[SU2] Assessment of ability to analyse information
	[K6_W03] knows and understands, to an advanced extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	Knowledge of GNSS algorithms, produces GNSS applications	[SW1] Assessment of factual knowledge
[K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	Knowledge of the GNSS position calculation process	[SW1] Assessment of factual knowledge	
Subject contents	<ol style="list-style-type: none"> 1. GNSS system 2. GNSS Segments 3. Kalman Filtering 4. Pseudoranges 5. GNSS Receiver 6. GPS, GLONASS i GALILEO 7. SG EUPOS 8. System Loran C 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lab	51.0%	50.0%
	Lecture	51.0%	50.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Elliott D. Kaplan Understanding GPS Principles and Applications (Artech House Mobile Communications) , 1996, ISBN-10: 0890067937 2. Specht C., System GPS, Biblioteka Nawigacji nr 1, Wydawnictwo Bernardinum, Pelplin, 2007. 	
	Supplementary literature	Systemy satelitarne GPS Galileo i inne Jacek Januszewski, 2010 , Naukowe PWN	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	GNSS Positioning Process		
Work placement	Not applicable		

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