



Subject card

Subject name and code	Advanced Processing of Telecommunications Signals - Laboratory, PG_00048360						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	February 2025	Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies	Subject group			Optional subject group Specialty 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	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Teleinformation Networks -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	mgr inż. Jacek Litka					
	Teachers	mgr inż. Jacek Litka					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	0.0	15
	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	15	1.0		9.0		25
Subject objectives	Practical familiarization with selected advanced digital signal processing techniques encountered in digital telecommunications.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U12] is able, to an increased extent, to analyze the operation of components and systems related to the field of study, as well as to measure their parameters and study their technical characteristics, and to plan and carry out experiments related to the field of study, including computer simulations, interpret the obtained results and draw conclusions	In the scope of laboratory tasks, the student plans and carries out measurements and on the basis of obtained results modifies computer implementations of digital signal processing algorithms.			[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
	[K7_K02] is ready to provide critical evaluation of received content and to acknowledge the importance of knowledge in solving cognitive and practical problems	In the scope of the subject of laboratory exercises, student analyzes advanced signal processing algorithms and examines the obtained signals, interprets them and based on them draws conclusions about algorithm's correctness, its properties and accuracy.			[SK1] Assessment of group work skills [SK2] Assessment of progress of work [SK4] Assessment of communication skills, including language correctness		

Subject contents	<ol style="list-style-type: none"> 1. Classic sample rate conversion - interpolation and decimation filters design. 2. Interpolation and decimation filters - polyphase decomposition. 3. Multistage sample rate conversion. 4. Incommensurate sample rate conversion. 5. I-FIR filters and their applications. 6. Multichannel modulator and demodulator. 7. Spectrum spreading techniques – FHSS and DSSS. 														
Prerequisites and co-requisites	Advanced processing of telecommunication signals (E:37037W0)														
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Subject passing criteria</th> <th style="width: 30%;">Passing threshold</th> <th style="width: 30%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Activity</td> <td>0.0%</td> <td>10.0%</td> </tr> <tr> <td>Written reports from laboratory tasks</td> <td>50.0%</td> <td>70.0%</td> </tr> <tr> <td>Presentation of results of completed laboratory tasks</td> <td>50.0%</td> <td>20.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Activity	0.0%	10.0%	Written reports from laboratory tasks	50.0%	70.0%	Presentation of results of completed laboratory tasks	50.0%	20.0%
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Example issues/ example questions/ tasks being completed															
Work placement	Not applicable														

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