



Subject card

Subject name and code	Design of Functio nal Blocks for Digital Channels, PG_00048361						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	February 2023		Academic year of realisation of subject		2023/2024		
Education level	second-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	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	0.0	15.0	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	Familiarize students with the practice of design of selected functional blocks of digital channels						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W03] Knows and understands, to an increased 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.		In the scope of the selected project task, the student knows and understands the structure of selected functional blocks of the digital channel and the relationship between their parameters and their characteristics and functioning.		[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		
	[K7_U06] can analyse the operation of components, circuits and systems related to the field of study; measure their parameters; examine technical specifications; interpret obtained results and draw conclusions		Based on the selected project task, the student designs and implements selected functional blocks of the digital channel, examines their parameters and characteristics, interprets the results and draws conclusions.		[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
	[K7_W05] Knows and understands, to an increased extent, methods of process and function support, specific to the field of study.		In the scope of the selected project task, the student knows and understands the principles of designing and testing selected functional blocks of a digital channel.		[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<ol style="list-style-type: none">1. Single-parameter modulator.2. Shaping and receiving filters.3. Synchronization in single-parameter receiver.4. Sample rate conversion.5. Multicarrier modulator.6. Multicarrier demodulator.7. Speech parameterizations.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	100.0%
Recommended reading	Basic literature	1. Fuqin Xiong: Digital Modulation Techniques, Artech House, 2000	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie: Projektowanie bloków funkcjonalnych kanałów cyfrowych - 2023/2024 - Moodle ID: 36863 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36863	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		