



## Subject card

Subject name and code	Telecommunication Signals - laboratory, PG_00048137						
Field of study	Electronics and Telecommunications						
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		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Radiocommunication Systems and Networks -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Jarosław Sadowski				
	Teachers		dr hab. inż. Jarosław Sadowski  mgr inż. Olga Błaszkiwicz  mgr inż. Alicja Olejniczak				
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 students acquaint with the characteristics of the signals that occur in the communication system.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W34] Knows the characteristics of telecommunications channels, methods of securing information, modulation systems, methods of access to the channel.		Student can explain basic parameters of communication links and their relation to theory of operation.		[SW1] Assessment of factual knowledge		
	[K6_W35] Knows the concepts of the technique of signal transmission, operation of telecommunications networks and multimedia services and the rules for providing them		Student can explain principles of operation of components which are tested in laboratory.		[SW1] Assessment of factual knowledge		
	[K6_U05] can plan and conduct experiments related to the field of study, including computer simulations and measurements; interpret obtained results and draw conclusions		Student performs measurements of parameters of selected components from telecommunication links.		[SU1] Assessment of task fulfilment		

Subject contents	1. Investigation of Delta Modulated Signals with Syllabic Adaptation  2. Measurement of Static Characteristics of PCM Encoding.  3. Measurement of Dynamic Characteristics of PCM Encoding  4. Investigation of DPCM Encoding  5. Investigation of PSK and DPSK Signals  6. Investigation of Single Side Band Modulated Signals  7. Investigation of Balanced Mixer		
Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Activity	0.0%	10.0%
	Practical exercise	50.0%	90.0%
Recommended reading	Basic literature	Haykin S.: Systemy telekomunikacyjne, tom 1 i 2. WKiŁ 2004 r. (lub wydania wcześniejsze)	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie: Sygnały telekomunikacyjne - Laboratorium (2024) - Moodle ID: 32626 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32626">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32626</a>	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		