



Subject card

Subject name and code	Wireless Technology, PG_00047922						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	October 2023	Academic year of realisation of subject				2024/2025	
Education level	first-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	2	Language of instruction				Polish	
Semester of study	4	ECTS credits				3.0	
Learning profile	general academic profile	Assessment form				exam	
Conducting unit	Department of Radiocommunication Systems and Networks -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Cwalina					
	Teachers	mgr inż. Alicja Olejniczak mgr inż. Olga Błaszkiwicz dr inż. Krzysztof Cwalina dr inż. Agnieszka Czapiewska					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30		3.0		42.0	75
Subject objectives	Radio link structure and operation, typical applications						
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.		The student learned the basics of the construction and operation of the radio link, the main operational conditions in this area, important from the point of view of designing wireless communication systems.			[SW3] Assessment of knowledge contained in written work and projects	
[K6_U31] can identify telecommunications network architectures, differentiates their areas and functional elements, evaluates the quality of service delivery, calculates parameters of functional elements		The student learned the methods of analyzing systems and systems related to field of study			[SU4] Assessment of ability to use methods and tools		
Subject contents	1 Radio-link structure, transmitter and receiver parts, wireless part 2 Base phenomenas in wireless medium, radio communication equation 3 Antenna interface, base parameters 4 Transmitter technique principles, the transmitter technique 5 Receiver technique principles, the receiver technique 6 IF part of receiver 7 Transreive station 8 HF part of radio station 9 Analog and digital modulation methods 10 Radio modem technique, radio network structure 11 Radio access methods, FDMA, TDMA, CDMA, SDMA 12 Wireless telecommunication link, radio link, practical aspects 13 Cellular telephone concepts 14 Telecommunication satellite, global telecommunications 15 Wireless systems and techniques, development trends						
Prerequisites and co-requisites	No requirements						
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade	
	Written exam		50.0%			70.0%	
	Practical exercise		50.0%			30.0%	

Recommended reading	Basic literature	Katulski R.J.: Propagacja fal radiowych w telekomunikacji bezprzewodowej, WKŁ, 2009
	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie: Technika bezprzewodowa - 2024/2025 - Moodle ID: 42790 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42790
Example issues/ example questions/ tasks being completed	Structure and operation of transmitter and receiver equipments	
Work placement	Not applicable	

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