



## Subject card

Subject name and code	Wireless Systems Design I, PG_00048116						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
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	5	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 inż. Piotr Rajchowski				
	Teachers		dr inż. Piotr Rajchowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	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	Knowledge to formulate the energy balance of the radio link design applications.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W06] Knows and understands the basic processes occurring in the life cycle of devices, facilities and systems specific to a given field of study.		The student learned the basics of the main issues related to the methodology of designing contemporary wireless systems, including radio link energy balancing		[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		Student learned to analyze the operation of elements, systems and systems related to the field of study and measure their parameters and examine technical characteristics		[SU4] Assessment of ability to use methods and tools		
Subject contents	1 Basic concepts and classification of wireless systems and networks 2 Open and closed wireless networks, applications 3 Traffic theory for radio communications 4 Circuit and packet switching in cellular networks 5 Principles of radio networks reliability 6 Connectivity and network delay analysis 7 Topology optimization of cellular network 8 Basic algorithms for the optimization procedures 9 Propagation and working - range analysis 10 Equipment specification for radio communications 11 Stages of a network planning 12 Selected problems of a network implementation 13 Network project as a formal document 14 Practical verification of design assumptions 15 Credit for a course						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Midterm colloquium		50.0%		100.0%		
Recommended reading	Basic literature		Katulski R.J.: Propagacja fal radiowych w telekomunikacji bezprzewodowej, WKŁ, 2009 Bem D.J.: Anteny i rozchodzenie się fal radiowych, WNT, 1973				
	Supplementary literature		No requirements				
	eResources addresses						
Example issues/ example questions/ tasks being completed	No requirements						

Work placement	Not applicable
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