GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Wireless Systems Design I, PG_00048116		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
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	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	No requirements
Work placement	Not applicable