GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Wireless Systems Design II, PG_00048126		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
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	2.0
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. Agnieszka Czapiewska	
	Teachers	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	0.0	15.0	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	2.0	18.0	50

Subject objectives

The main goal of this course is to present some practical aspects of wireless radio network design including implementation problems which may occur during construction, launch and operation stage.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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 knows typical components used in base stations of radiocommunication networks, including design rules, tests during launch stage and methods of maitenance during operation.	[SW1] Assessment of factual knowledge
[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 can design base stations for cellular networks taking into account initial assumptions and limitations caused by availability of base station components.	[SU1] Assessment of task fulfilment

Subject contents

- Elements of antenna feeding circuits
- Outdoor base stations
- Indoor base stations
- Fixed part of cellular networks (fixed links, commutation)
- Collocation of radiocommunication objects (technical and compatybility issues)
- Detailed projects of radio installations
- Test network, test and optimization phase, final network
- Law and legal requirements
- Environment protection law
- Legal procedures before, during and after radio object construction phase
- Radio services evolution and it's impact to network topology
- Network topology in different cellular systems generations
- Virtual networks - design aspects
- Radio objects supervision during operation
- Measurements of emission and quality of service in radiocommunication networks

Prerequisites and co-requisites

Need to participate in first part of lecture (5th semester).

<table>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Lecture</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>Project</td><td>50.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Czapiewska A.: Wireless systems design - script for lecture.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">No requirements</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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