



Subject card

Subject name and code	Wireless Systems Design II, PG_00048126						
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		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 maintenance 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	<ul style="list-style-type: none">• 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).						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture	50.0%	50.0%
	Project	50.0%	50.0%
Recommended reading	Basic literature	Czapiewska A.: Wireless systems design - script for lecture.	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie: Projektowanie Sieci Bezprzewodowych II 2023/2024 - Moodle ID: 35828 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35828	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		