



Subject card

Subject name and code	Compatibility of Radio Communication Systems, PG_00047453						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2022/2023		
Education level	second-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	1		Language of instruction		English		
Semester of study	2		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 hab. inż. Jarosław Sadowski				
	Teachers		dr hab. inż. Jarosław Sadowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	15.0	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		2.0		8.0	25
Subject objectives	Presentation and training of rules of intra- and intersystem electromagnetic compatibility analysis for radiocommunication.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W03] Knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum.	Student knows the rules of electromagnetic compatibility analysis important for the modern radio communication networks design.	[SW3] Assessment of knowledge contained in written work and projects
	[K7_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of advanced technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	Student can explain the relation between parameters of real radio communication equipment and its behaviour in electromagnetic environment.	[SU1] Assessment of task fulfilment
	[K7_U06] can analyse the operation of components, circuits and systems related to the field of study; measure their parameters; examine technical specifications; interpret obtained results and draw conclusions	Student is able to evaluate the conditions of radio communication equipment functioning taking into account parameters from equipment data sheets and standards.	[SU1] Assessment of task fulfilment
	[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Student can analyse the impact of interferences on radio communication range in cellular network.	[SU1] Assessment of task fulfilment

Subject contents	1. Radio system range limitations design principles for radio station 2. Design principles for radio network 3. Compatibility analysis of a radio transmitter 4. Compatibility analysis of a radio receiver 5. Compatibility analysis of an antenna equipment 6. Radio wave propagation aspects in the compatibility analysis 7. Compatibility statistical analysis by use ITU-R Recommendation 8. Design analysis of a single cellular network, compatibility aspects 9. Design analysis of a multi cellular network, compatibility aspects 10. Propagation - range analysis of a single cellular network project 11. Propagation - range analysis of a multi cellular network project 12. Radio equipments properties analysis 13. Radio accessories properties analysis 14. Formal documentation of the design proposals 15. Summary of the design works		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	100.0%
Recommended reading	Basic literature	Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf). Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2023) - Moodle ID: 29746 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29746	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		