GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Compatibility of Radio Communication Systems, PG_00048367		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	February 2023	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	Polish
Semester of study	1	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_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
	[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

<table>
<tr><td>Subject contents</td><td>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</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Project</td><td>50.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).

Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice</td></tr>
<tr><td>Supplementary literature</td><td>No requirements</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
Kompatybilność systemów radiokomunikacyjnych (2023) - Moodle ID: 29746
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29746</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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