

## 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 2023		Academic year of realisation of subject		2023/2024			
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		Assessme	ssessment 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	Projec	t	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 tra radiocommunication		intra- and inte	rsystem electro	omagnet	ic com	oatibility anal	ysis for

Data wydruku: 19.05.2024 11:56 Strona 1 z 3

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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_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_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_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

Data wydruku: 19.05.2024 11:56 Strona 2 z 3

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 multi 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 16. Subject passing ortenia Passing threshold Percentage of the final grade Project So 0% 100 0%  Recommended reading  Recommended reading  Basic literature Sadowski J. Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkewicz W.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkewicz W.: Kompatybilność elektromagnetyczna w radiotechnice Kompatybilność systemów radiokomunikacyjnych (2024) - Moodie ID: https://enauczanie.kompatybilność systemów radiokomunikacyjnych (2024) - Moodie ID: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32825  Example issues/ example guestions/	Subject contents	Radio system range limitations design principles for radio station						
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  Perequisites  and co-requisites  Assessment methods and criteria  Subject passing criteria  Passing threshold Percentage of the final grade Project So.0% 100.0%  Recommended reading  Basic literature Sadowski J: Kompatybilność systemów radiokomunikacyjnych - script for fedure (pd).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature Resources addresses Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 38265 https://enauczanie.pg.edu.pl/moodle/course/view.php?rid=32625		Design principles for radio network						
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%   Passic literature  Sadowski J. Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Resources addresses Adresy na platformie eNauczanie. Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 3/82/S https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625		3. Compatibility analysis of a radio transmitter						
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 Subject passing criteria Passing threshold Percentage of the final grade Project South S		4. Compatibility analysis of a radio receiver						
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  Recommended reading  Basic literature  Subject passing criteria  Passing threshold  Percentage of the final grade    Project   50.0%   100.0%		5. Compatibility analysis of an antenna equipment						
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 multi 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  Project  Subject passing criteria Passing threshold Percentage of the final grade Project  Sadowski J.: Kompatybliność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybliność systemów radiokomunikacyjnych - script Feesources addresses Adresy na platformie eNauczanie: Kompatybliność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625		6. Radio wave propagation aspects in the compatibility analysis						
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  Assessment methods and cor-requisites  Assessment methods and criteria  Recommended reading  Basic literature  Subject passing criteria  Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature  Resources addresses  Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?rid=32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?rid=32625		Design analysis of a single 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 and co-requisites Assessment methods and criteria  Project  Subject passing criteria  Project  Project  Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature  Resources addresses  Adresy na platformie eNauczanie:  Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 3/2625  https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/								
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 Project  Solo%  Project  Project  Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature  Resources addresses  Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625								
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  Recommended reading  Basic literature  Basic literature  Subject passing criteria  Passing threshold  Percentage of the final grade  Project  50.0%  100.0%  Radowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature  No requirements  Adresy na platformie eNauczanie:  Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625  Intps://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/		<ul><li>11. Propagation - range analysis of a multi cellular network project</li><li>12. Radio equipments properties analysis</li></ul>						
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 Project Pro								
14. Formal documentation of the design proposals  15. Summary of the design works  Prerequisites and co-requisites  Assessment methods and criteria  Recommended reading  Basic literature  Basic literature  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 Resources addresses  Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/								
Prerequisites and co-requisites  Assessment methods and criteria  Recommended reading  Basic literature  Basic literature  Supplementary literature  Resources addresses  Adresy na platformie eNauczanie:  Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625  https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/								
Prerequisites and co-requisites  Assessment methods and criteria  Recommended reading  Basic literature  Basic literature  Subject passing criteria Passing threshold Percentage of the final grade Project  Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature  Resources addresses  Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/		14. Formal documentation of the design proposals						
Assessment methods and criteria  Recommended reading  Basic literature  Basic litera		15. Summary of the design works						
Assessment methods and criteria  Recommended reading  Basic literature  Borequirements  Adresy na platformie eNauczanie:  Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625  https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/								
and criteria    Project   50.0%   100.0%	•	Subject passing criteria	Passing threshold	Percentage of the final grade				
Recommended reading  Basic literature  Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).  Rotkiewicz W.: Kompatybilność elektromagnetyczna w radiotechnice  Supplementary literature  eResources addresses  Adresy na platformie eNauczanie:  Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625  https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/		<u> </u>						
Supplementary literature PResources addresses Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/	Recommended reading	Basic literature	Sadowski J.: Kompatybilność systemów radiokomunikacyjnych - script for lecture (pdf).					
eResources addresses  Adresy na platformie eNauczanie: Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/		Totalewicz vv Norripatybilitosc elektromagnetyczna w radiotechnice						
Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32625  Example issues/ example questions/		Supplementary literature	No requirements					
Example issues/ example questions/		eResources addresses	Kompatybilność systemów radiokomunikacyjnych (2024) - Moodle ID: 32625					
lasks being completed	Example issues/ example questions/ tasks being completed		1	, ,				
Work placement Not applicable		Not applicable						

Data wydruku: 19.05.2024 11:56 Strona 3 z 3