GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Radio Sensor Networks and Internet of Things - Project, PG_00059194		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	October 2022	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	2	Language of instruction	English
Semester of study	4	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	1.0	9.0	25

Subject objectives

Verification of radio network design skills based on wireless sensor network project.

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 design radio sensor network according to defined guidelines.	[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 analyse radio network taking into account both the services provided by network and the maintenance, and select network elements for defined application.	[SU1] Assessment of task fulfilment

Subject contents

- Requirements specification for radio sensor network
- Communication range and measurement range
- Calculation of required number of nodes
- Physical layer design
- Data link layer
- Network layer issues
- Energy consumption and power supply
- Radio network traffic analysis
- Presentation of designed network

Prerequisites and co-requisites

Need to participate in radio sensor networks lecture (2nd semester)

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Radio sensor network project</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Zhao, Gibas: Wireless Sensor Networks – An Information Processing Approach, Elsevier 2004
2. Karl, Willig: Protocols and Architectures for Wireless Sensor Networks, Wiley 2005
3. Callaway: Wireless Sensor Networks – Architectures and Protocols, Auerbach Publications 2004</td></tr>
<tr><td>Supplementary literature</td><td>Cayirci, Rong: Security In Wireless Ad Hoc and Sensor Networks, Wiley 2009</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
Radiowe sieci sensorowe i Internet Rzeczy (2023) - Moodle ID: 32745
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32745</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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