



## Subject card

Subject name and code	Radio Sensor Networks - Project, PG_00047506						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	February 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	2	Language of instruction			English		
Semester of study	3	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_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		
	[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		
Subject contents	<ul style="list-style-type: none"> <li>Requirements specification for radio sensor network</li> <li>Communication range and measurement range</li> <li>Calculation of required number of nodes</li> <li>Physical layer design</li> <li>Data link layer</li> <li>Network layer issues</li> <li>Energy consumption and power supply</li> <li>Radio network traffic analysis</li> <li>Presentation of designed network</li> </ul>						
Prerequisites and co-requisites	Need to participate in radio sensor networks lecture (2nd semester)						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Radio sensor network project		50.0%		100.0%		

Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Zhao, Gibas: Wireless Sensor Networks – An Information Processing Approach, Elsevier 2004</li> <li>2. Karl, Willig: Protocols and Architectures for Wireless Sensor Networks, Wiley 2005</li> <li>3. Callaway: Wireless Sensor Networks – Architectures and Protocols, Auerbach Publications 2004</li> </ol>
	Supplementary literature	Cayirci, Rong: Security In Wireless Ad Hoc and Sensor Networks, Wiley 2009
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	