



Subject card

Subject name and code	Application of Wireless Technologies, PG_00048669						
Field of study	Electronics and Telecommunications, Biomedical Engineering						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group		Optional subject group Specialty 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		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Microwave And Antenna Engineering -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Łukasz Kulas				
	Teachers		dr hab. inż. Łukasz Kulas				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	15.0	30
	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	30		2.0		18.0	50
Subject objectives	The aim of this course is introduction to development of wireless embedded systems relying on wireless technologies for communication of environment monitoring.						
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		Knowledge of embedded system development relying on wireless technologies for communication of environment monitoring.		[SW2] Assessment of knowledge contained in presentation		
	[K7_W04] knows and understands, to an increased extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or other elements or programmable devices specific to the field of study, and organization of work of systems using computers or such devices		Knowledge of embedded software development in Embedded Linux environment.		[SW1] Assessment of factual knowledge		

Subject contents	Introduction to Linux OS for embedded devices		
	Communication with peripheral devices via UART interphase		
	Development of network applications		
	HTTP server deployment		
	A single device or network of devices control via WWW		
	Development of own wireless embedded system		
Prerequisites and co-requisites	Knowledge of C/C++ programming languages.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Tasks during laboratory class	50.0%	50.0%
	Project realized during seminar classes	50.0%	50.0%
Recommended reading	Basic literature	Karim Yaghmour, Jon Masters, Gilad Ben-Yossef, Philippe Gerum "Building Embedded Linux Systems: Concepts, Techniques, Tricks, and Traps"	
	Supplementary literature	Christopher Hallinan "Embedded Linux Primer"	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Wireless system for lighting control		
	Indoor localization system		
	System for plants monitoring		
Work placement	Not applicable		

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