

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Programming Communication Micromodules, PG_00048106								
Field of study	Electronics and Telecommunications								
Date of commencement of studies	October 2025		Academic year of realisation of subject			2028/2029			
Education level	first-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	4		Language of instruction			Polish			
Semester of study	7		ECTS credits			2.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department Of Microwave And Antenna Engineering -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej								
Name and surname	Subject supervisor		dr hab. inż. Łu	ıkasz Kulas					
of lecturer (lecturers)	Teachers		dr hab. inż. Łukasz Kulas						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	15.0	0.0	15.0	0.0		0.0	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 the subject is introduction to wireless embedded devices programming, getting familiar with the rules of embedded devices programming and basics of wireless embedded devices programming techniques.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U03] can design, according to required specifications, and make a simple 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			Ability to develop programs for simple wireless embedded system. Ability to present realized programming tasks with respect to IC programming for wireless communication.			fulfilment		

Subject contents	Lecture						
	 Introduction to wireless embedded devices programming Rules of embedded devices programming Basics of wireless embedded devices programming Exceptions and memory management in wireless embedded devices context Coding standards for the development of embedded devices Introduction to embedded devices programming using API Embedded devices programming using API - operations on peripherals Memory operations during the process of code development for embedded devices Advanced bit operations Introduction to embedded devices programming without API Embedded devices programming without API Embedded devices programming without API Embedded devices programming using API Development of wireless mesh network for embedded devices Embedded devices programming using API Development of wireless mesh network for embedded devices Embedded devices programming using API - operations on peripherals Development of embedded devices programming using API Development of embedded devices programming using API - operations on peripherals Development of embedded devices programming using API - operations on peripherals 						
Prerequisites and co-requisites	Basic knowledge of C/C++ programming. Student schould have knowledge of the course Wireless Devices Design, particulary in the field of ZigBee technology.						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Laboratory score	50.0%	50.0%				
	Final test	50.0%	50.0%				
Recommended reading	Basic literature 1. Herb Sutter, Andrei Alexandrescu, "C++ Coding Standards: 101 Rules, Guidelines, and Best Practices" 2. Http://microcontroller.com/ 3. Joe Pardue, "C Programming for Microcontrollers"						
	Supplementary literature 1. Joseph Yiu, "The Definitive guide to the ARM CORTEX-M 2. Krzysztof Paprocki, "Mikrokontrolery STM32 w praktyce" 3. Mats Henricson, Erik Nyquist, "Industrial Strength C++: Rules and Recommendations"						
	eResources addresses Adresy na platformie eNauczanie:						
Example issues/ example questions/ tasks being completed							
Work placement	Not applicable						

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