



Subject card

Subject name and code	Dedicated Systems Development, PG_00047753						
Field of study	Informatics						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Computer Architecture -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Dziubich					
	Teachers	dr inż. Tomasz Dziubich					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	12.0	0.0	0.0	15.0	0.0	27
	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	27		10.0		63.0	100
Subject objectives	Presentation of development methods for embedded and dedicated systems						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[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 knows the cost estimation methods			[SU1] Assessment of task fulfilment		
	[K7_W41] Knows and understands, to an increased extent, the standards, production methods, life cycle and development trends of software as well as information systems and applications.	Student describes basic communication protocols between device and application			[SW1] Assessment of factual knowledge		
	[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 uses the patterns in appropriate stages of system design.			[SU1] Assessment of task fulfilment		
	[K7_W06] Knows and understands, to an increased extent, the basic processes taking place in the life cycle of devices, facilities and technical systems.	Student enlists stages of design in embedded system development.			[SW1] Assessment of factual knowledge		

Subject contents	Mobile and context-aware systems. Mobile devices. Characteristics of communication infrastructure: Bluetooth, IrDA, GPRS, UMTS, 802.11, ZigBee. Sensors and actuators. Wireless smart sensor networks. Systems using RFID technology. Mobile and context-aware application development using .NET technology - Windows Mobile platform. Smart clients Communication and data synchronization (connection and connectionless modes) Cooperation with WebServices. Security, management and configuration problems Integration and service discovering. KVM virtual machine. HTTP connection and database access Global Positioning System (GPS). NMEA standard. GPS service integration within mobile applications Smart cards. Structure, classification and applications. Smart Card operating systems Cardlet and JavaCard OCF framework. Internet of Things, Intel Galileo as IoT platform											
Prerequisites and co-requisites	No requirements											
Assessment methods and criteria	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:33%;">Subject passing criteria</th> <th style="width:33%;">Passing threshold</th> <th style="width:33%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Oral exam</td> <td>30.0%</td> <td>50.0%</td> </tr> <tr> <td>Project</td> <td>30.0%</td> <td>50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Oral exam	30.0%	50.0%	Project	30.0%	50.0%
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Recommended reading	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Basic literature</td> <td colspan="2" data-bbox="799 472 1497 645">M. Barr, A. Massa, Programming Embedded Systems: With C and GNU Development Tools, 2nd Edition, O'Reilly, 2008 T. Noergaard, Embedded Systems Architecture: A Comprehensive Guide for Engineers and Programmers (Embedded Technology), Elsevier, 2005 P. Nazimek, Inżynieria programowania kart inteligentnych, Politechnika Warszawska, Wydział Elektroniki i Technik Informacyjnych, wersja on-line</td> </tr> <tr> <td>Supplementary literature</td> <td colspan="2">No requirements</td> </tr> <tr> <td>eResources addresses</td> <td colspan="2">Adresy na platformie eNauzanie:</td> </tr> </table>			Basic literature	M. Barr, A. Massa, Programming Embedded Systems: With C and GNU Development Tools, 2nd Edition, O'Reilly, 2008 T. Noergaard, Embedded Systems Architecture: A Comprehensive Guide for Engineers and Programmers (Embedded Technology), Elsevier, 2005 P. Nazimek, Inżynieria programowania kart inteligentnych, Politechnika Warszawska, Wydział Elektroniki i Technik Informacyjnych, wersja on-line		Supplementary literature	No requirements		eResources addresses	Adresy na platformie eNauzanie:	
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Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											