



## Subject card

Subject name and code	Fundamentals of computing II, PG_00053182						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2022/2023		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study 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	3	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Control Engineering -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Kowalski					
	Teachers	Paweł Kowalski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	0.0	20.0	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	5.0		65.0	100	
Subject objectives	Acquire the skills to develop a complex programs in C and C++.  Acquire the skills to develop a mobile applications in Kotlin.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_U01	The student works independently looking for solutions to the problems encountered in the documentation and on internet forums. Identifies and removes the causes of incorrect program operation. Collecting information necessary for the implementation of the project.			[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task		
	K6_W07	The student designs graphic and console applications using the C / C ++ language. Applies advanced operations on character arrays, structures, and arrays of structures. Writes applications that use binary text files. Builds mobile applications using Kotlin.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	K6_K01	The student is aware of the need for continuous education in the field of computer science.			[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work [SK2] Assessment of progress of work		

Subject contents	Operations with the strings. User-defined structure data type in C/C++. Operations with the variables and arrays of structures. Variables and arrays of structures as function parameters. Designing the Graphical User Interface and event handling. File type. Operations on binary and text files using variables and arrays of a simple type. Writing, reading, and modifying the file using variables and arrays of the structures. Basics of the Kotlin language. Building mobile applications in Kotlin. Creating a GUI for a mobile application for the Android operating system. Handling events in Kotlin.		
Prerequisites and co-requisites	Informatyka I		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		50.0%	40.0%
		50.0%	20.0%
		50.0%	40.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. R. Smyk, M. Czyżak, A. Opaliński, Wybrane mechanizmy programowania w językach C i C++.</li> <li>2. Drozdek A., Simon D. L.: Struktury danych w języku C, WNT, Warszawa.</li> <li>3. Kernighan B., Richie D. - Język ANSI C, Helion, Gliwice.</li> <li>4. Kotlin language documentation, <a href="https://kotlinlang.org/docs/home.html">https://kotlinlang.org/docs/home.html</a>.</li> </ol>	
	Supplementary literature	<ol style="list-style-type: none"> <li>1. Wróblewski P. - Algorytmy, struktury danych i techniki programowania, Helion, Gliwice.</li> <li>2. Ganczarski J., Owczarek M.: C++ Wykorzystaj potęgę aplikacji graficznych, Helion, 2008.</li> </ol>	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> <li>• Building data structures representing the structure of the university: university, faculties, students.</li> <li>• Writing and reading data about employees or students from a file.</li> <li>• Creating an array of structures from text files and writing it to binary files.</li> <li>• Designing a graphical interface to an expert system.</li> <li>• Implementation of an expert system.</li> <li>• Designing and launching an expert system in the form of a mobile application for the Android operating system.</li> </ul>		
Work placement	Not applicable		