



## Subject card

Subject name and code	INFORMATICS II, PG_00056042						
Field of study	Automation, Robotics and Control Systems						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group				
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		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Robert Smyk				
	Teachers		dr inż. Daniel Wachowiak  dr inż. Paweł Kowalski  dr inż. Robert Smyk				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	0.0	60
	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	60		5.0		60.0	125
Subject objectives	Developing the ability to independently design and object-oriented programming in the basic scope.  Use of C / C ++ construct. Installing and using additional libraries in programming.  Creating multi-file programs. Getting to know the basic paradigms, using graphic objects, the basics of GUI creation, the basics of computer vision.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] has the ability to self-educate, among other things, in order to improve professional qualifications		Is able to complete larger programming tasks spread over the duration of the semester.		[SU4] Assessment of ability to use methods and tools		
	[K6_W06] knows the structure of computers and microprocessors and the tasks of operating systems, has basic knowledge of the basics of computer software, drivers, microprocessor technology, design of simple algorithms and the operation of information networks		Is able to implement programming procedures in a selected programming language.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	C and C ++ language: pointers, dynamic memory allocation, passing parameters by reference. Functions for operating on strings. Arguments of the invocation line. Structures. Basic file operations. Pointers to functions. Encapsulation, objects, constructors and destructors, classes, inheritance and virtual functions, overloading, polymorphism, patterns. Handling exceptions. Complex data structures. Event programming, user interface, selected elements of the graphic interface, human-machine interface. Visual programming. Programming environments. The concept of a programming interface (API). File system support. Programmatic support for 2D / 3D accelerated graphics. Elements of computer vision.		
Prerequisites and co-requisites	Knowledge of C syntax and C instructions on the level of Informatyka, sem.2 course		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Introductory tests	60.0%	20.0%
	Project work	60.0%	40.0%
	Examination test	60.0%	40.0%
Recommended reading	Basic literature	1. B. Kernighan, D.Ritchie, Język ANSI C, WNT, Warszawa 2003. 2. A. Silberschatz, P. Galvin, G. Gagne, Podstawy systemów operacyjnych, WNT 2006. 3. M. Lis, Ćwiczenia praktyczne. MySQL. Darmowa baza danych. Helion. 2006. 4. L. Rutkowski, Metody i techniki sztucznej inteligencji, PWN, 2005. 5. A.Opaliński, course web portal, URL <a href="http://moodle..elypg.gda.pl">http://moodle..elypg.gda.pl</a>	
	Supplementary literature	1. J. Grębosz, Symfonia C++ , T.1-3, Oficyna Kallimach, 1999. 2. J. Hollingworth ,C++ Builder 5 : vademecum profesjonalisty. T.1-2, Helion, 2001.	
	eResources addresses	Adresy na platformie eNauczanie: INFORMATYKA II [ARiSS][2023/24] - Moodle ID: 32124 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32124">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32124</a>	
Example issues/ example questions/ tasks being completed	Describe programming environment Describe the issues of distributed processing Describe the process of code compilation and interpretation		
Work placement	Not applicable		