



## Subject card

Subject name and code	Programming of Computer Applications, PG_00018253						
Field of study	Electrical Engineering						
Date of commencement of studies	February 2024		Academic year of realisation of subject		2024/2025		
Education level	second-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		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Power Electronics and Electrical Machines -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Andrzej Wilk				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45		15.0		40.0	100
Subject objectives	<p>The main goal of this course is:</p> <ul style="list-style-type: none"><li>• guide of modern programing environment devoted to development of computer programs for Windows operating system;</li><li>• study of object oriented programming using managed C# language;</li><li>• developing of computer applications using Windows Forms type project.</li></ul>						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_U12		The student knows the principles of object-oriented programming: inheritance, encapsulation and polymorphism		[SU1] Assessment of task fulfilment		
	K7_W09		The student has large knowledge on object-oriented programming		[SW3] Assessment of knowledge contained in written work and projects		
	K7_K03		The student is able to create computer programs in teamwork		[SK3] Assessment of ability to organize work		
Subject contents	LECTURE: The C# language - managed code. Data types, instructions, and classes. Inheritance in C# language. The Frame windows and its main components. Representation and managing of Windows application by NET Framework classes. Relationship between frame window object, view object, and control objects. Event-driven programming. Messages and commands in the framework. Message categories and message handler functions. Mechanism of message processing. Processes and threads in multithreaded applications. Types of threads in NET Framework applications. Creating worker threads. LABORATORY: Generating a NET Framework application skeleton. Extending and developing frame window, and control objects adding. Appending of custom generic classes. Windows message and command message events programming to handle: mouse clicks, keystrokes, timer interval message, window movement and resizing, and control events. Writing a worker threads and associated objects to synchronize and terminate threads.						
Prerequisites and co-requisites	To know C# language						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Project		50.0%		70.0%		
	Midterm colloquium		50.0%		30.0%		
Recommended reading	Basic literature		1. Perry S.C.: C# i .NET. Helion 2006. 2. Boduch A.: Wstęp do programowania w języku C#. Helion 2006. 3. Templeman J., Vitter D.: Visual Studio .NET: .Net Framework. Helion 2003. 4. Wilk A.: Programowanie obiektowe. Instrukcje do ćwiczeń laboratoryjnych. Politechnika Gdańska, Gdańsk 2008.				

	Supplementary literature	1. Hejlsberg A., Torgersen M., Wiltamuth S., Golde P.: Język C#. Programowanie. Helion 2010.0.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. What are the principles of object oriented programming?  2. How is developed the Windows Presentation Foundation project type?	
Work placement	Not applicable	