



## Subject card

Subject name and code	Programming of Computer Applications, PG_00063597						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
Education level	second-cycle studies	Subject group			Specialty subject group		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Electrified Transportation -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Andrzej Wilk					
	Teachers	dr hab. inż. Andrzej Wilk					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	10.0	0.0	0.0	20
	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	20	10.0		45.0		75
Subject objectives	The main objective of the subject is to apply the principles of object-oriented programming in a desktop application using C# language. The sub-objectives that make up the main objective are: defining classes, defining properties, creating constructors, creating delegates, using lambda methods. Another group of sub-objectives is: using the mechanism of class inheritance, using encapsulation of class resources and using method polymorphism. The result of realizing all these objectives is the development of a desktop application of the Windows Presentation Foundation type on the passive RLC filter.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U12] is able to design and program computer applications using object-oriented programming, produce technical documentation technical documentation using CAD technology	Develops WPF applications and performs circuit simulations			[SU1] Assessment of task fulfilment		
Subject contents	Course content – lecture	Lecture: The concept of a class. Constructors and destructors. Data fields, properties, methods, delegates and interfaces. Inheritance, encapsulation and method polymorphism. Developing Windows Presentation Foundation desktop applications - C# and XAML. Modeling an RLC electrical filter in a WPF application.					
	Course content – laboratory	Laboratory: Development a front-end using Extensible Application Markup Language to define controls representing RLC passive filter parameters. Development of a backend (C# language) for event handling, transmittance calculation and drawing the amplitude and phase spectrum of a passive RLC filter.					
Prerequisites and co-requisites	Basics of computer science						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	WPF project - RLC filter implementation	60.0%			100.0%		

Recommended reading	Basic literature	John Sharp: Microsoft Visual C# 2022 Krok po kroku, APN Promise, Warszawa 2022.  Adam Nathan: WPF 4.5. Księga eksperta, Helion 2015.
	Supplementary literature	<a href="#">Mark J. Price</a> : C# 11 i .NET 7 dla programistów aplikacji wieloplatformowych. Twórz aplikacje, witryny WWW oraz serwisy sieciowe za pomocą ASP.NET Core 7, Blazor i EF Core 7, Helion, 2022.
	eResources addresses	
Example issues/ example questions/ tasks being completed	What is inheritance? What is class resource encapsulation? Example of using lambda methods.	
Practical activities within the subject	Not applicable	

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