



## Subject card

Subject name and code	Programming of Internet Applications, PG_00046079						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2022/2023		
Education level	second-cycle studies		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		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Electrical Engineering of Transport -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Andrzej Wilk				
	Teachers		dr hab. inż. Andrzej Wilk				
Lesson types and methods of instruction	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						
	Address on the e-learning platform: <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21035">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21035</a>						
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		5.0		25.0	50
Subject objectives	The aim of the course is to teach students the basics of programming desktop computer applications. The Windows Presentation Foundation as programming model is presented. The frontend programming language is C #. The backend programming language is Extensible Application Markup Language (XAML).The scope of the course includes: Basics of the C # language. Object-oriented programming. Classes, objects, encapsulation, inheritance and polymorphism. Frontend design - controls, transformations, styles, templates. Backend design - business logic, event handling, data binding.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_W01		The student has extended knowledge of the implementation of computational algorithms in a WPF application.		[SW3] Assessment of knowledge contained in written work and projects		
	K7_W02		The student has knowledge of the implementation of electrical engineering issues in the WPF computer application.		[SW3] Assessment of knowledge contained in written work and projects		
	K7_U02		The student is able to develop a computer program - a desktop application using the WPF model.		[SU1] Assessment of task fulfilment		
	K7_U03		The student is able to obtain information from literature - also in English. Student can define the directions of further learning and implement the process of self-education.		[SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	Lecture: C # programming language - basics. Basics of object-oriented programming. Classes, interfaces, objects, encapsulation, inheritance, polymorphism. Delegates, anonymous methods, lambda expressions. Selected collection classes. Extensible Application Markup Language (XAML) subsets. Content controls, item controls, and controls for image, text, etc. Control the position and size of controls. Business logic, data binding and event handling.Laboratory: Creating a WPF application in order to learn the principles of "frontend" (XAML) and "backend" (C #) development. Create a WPF application for the implementation of a passive RLC filter. Editing filter parameters, transmittance calculations and plotting the amplitude and phase spectrum		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	30% lecture, 70% laboratory	60.0%	100.0%
Recommended reading	Basic literature	1. John Sharp: Microsoft Visual C# 2013. Microsoft Press.  2. Adam Nathan: Podręcznik programisty WPF 4.5. Helion	
	Supplementary literature	Jacek Matulewski: Visual Studio 2017. Tworzenie aplikacji Windows w języku C# (ebook), Helion.	
	eResources addresses	Adresy na platformie eNauczanie: PROGRAMOWANIE APLIKACJI INTERNETOWYCH [Niestacjonarne] [2022/23] - Moodle ID: 28631 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28631">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28631</a>	
Example issues/ example questions/ tasks being completed	1. What is a class constructor?  2. The way of transforming controls in a WPF application.		
Work placement	Not applicable		