



Subject card

Subject name and code	Object-oriented programming, PG_00070259						
Field of study	PROGRAMOWANIE OBIEKTOWE						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
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		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Control Engineering -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Paweł Kowalski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	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		5.0		25.0	75
Subject objectives	Understanding the basic concepts of object-oriented programming. Acquiring skills in object modeling and solving problems using objects and the relationships between them. Gaining the ability to build and run programs in Java, Python, and Kotlin, with particular emphasis on object-oriented programming methods. Developing skills in designing and constructing graphical user interfaces.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U07] is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks and simple research problems in the field of automation and robotics		Uses analytical, simulation-based, and experimental methods to formulate and solve engineering tasks.		[SU2] Ocena umiejętności analizy informacji		
	[K7_W02] has a structured knowledge of the application of information systems to improve the reliability, efficiency, speed and mobility of control and management systems		Designs applications that support the automation of a selected problem.		[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym		
	[K7_U04] has the ability for self-directed learning in order to improve his/her professional qualifications, and is able to identify directions for further learning		The student works independently, searching for solutions to encountered problems in documentation and online forums. They identify and remove the causes of program malfunction. They gather the information necessary to carry out the project.		[SU1] Ocena realizacji zadania		

Subject contents	Course content – lecture		
	• Introduction to object-oriented programming using the Java language as an example. • Development of graphical user interfaces and event handling in Java. • Integration with external systems using Python scripts. • Similarities and differences between mobile applications and PC applications, illustrated with applications for the Android operating system.		
	Course content – laboratory Fundamentals of object-oriented programming. Application of lecture knowledge to solve practical tasks in Java. Development of console applications and their extension with a graphical user interface.		
	Course content – project As part of the project classes, three mini-projects are carried out in teams. The first involves creating a GUI on a PC. The second is a Python script that imports data from a selected external service. The third is a mobile application. The project structure allows for integration of the projects, enabling teams to expand their portfolio with an integrated system that combines data from external services with three applications developed in different programming languages.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		50.0%	40.0%
		50.0%	45.0%
		50.0%	15.0%
Recommended reading	Basic literature	• S. Ludwiczak, M. Kunert: Kurs Programowania Java od Podstaw. • JavaStart, https://javastart.pl/baza-wiedzy, 2021. • Java Documentation, https://docs.oracle.com/en/java/ • Python Tutorial, https://docs.python.org/pl/3.8/tutorial/index.html • Kotlin Documentation, https://kotlinlang.org/docs/home.html	
	Supplementary literature	• B. Eckel, Thinking in Java, Helion. • Java Programming Language, Decodejava , https://www.decodejava.com.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	• Develop a GUI for a program in Java. • Develop a Python script integrated with a Java application. • Develop a mobile application that works with a PC-based system.		
Practical activities within the subject	Not applicable		

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