



## Subject card

Subject name and code	Object programming, PG_00045295						
Field of study	Data Engineering						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-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			exam		
Conducting unit	Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Marek Moszyński				
	Teachers		dr hab. inż. Marek Moszyński				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	11.0	30.0	0.0	56
	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	56		6.0		13.0	75
Subject objectives	Theory and practice on object oriented programming						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
Subject contents	<ol style="list-style-type: none"><li>1. Software programming paradigms including object oriented approach</li><li>2. Encapsulation, inheritance, abstraction and polymorphism in C++ language</li><li>3. Specific features of C++ object-orientation</li><li>4. Java language and its comparison to C++ language</li><li>5. C# language as sucesor of C++ and Java languages</li><li>6. Python as a scripting object oriented language</li></ol>						
Prerequisites and co-requisites	Knowledge on non-object oriented language i.e. C language.						
Assessment methods and criteria	Subject passing criteria		Passing threshold			Percentage of the final grade	
	laboratory		60.0%			33.0%	
	project		60.0%			33.0%	
	lecture		60.0%			34.0%	

Recommended reading	Basic literature	<p>Bjarne Stroustrup - The C++ programming language</p> <p>Bruce Eckel - Thinking in Java</p> <p>Andy Harris - Microsoft C# for absolute beginner</p> <p>Mark Lutz - Programming Python</p>
	Supplementary literature	John Hunt - Smalltalk and Object Orientation
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	<p>Sample question: What are the trends of C++ evolution?</p> <p>Sample task: implementation of simple object oriented software module using object oriented paradigms in different languages</p>	
Work placement	Not applicable	

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