



## Subject card

Subject name and code	Object-Oriented Programming, PG_00047644						
Field of study	Informatics						
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			4.0		
Learning profile	general academic profile	Assessment form			assessment		
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 dr hab. inż. Emilia Lubecka dr hab. Marcin Ciecholewski mgr inż. Tomasz Bieliński					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	10.0	30.0	0.0	55
	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	55	10.0		35.0	100	
Subject objectives	Theory and practice on object oriented programming						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study	The student acquires practical skills by performing laboratory tasks in specific object-oriented programming languages			[SU1] Assessment of task fulfilment		
	[K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	The student gets acquainted with the basics of object-oriented programming on the example of four object-oriented programming languages			[SW1] Assessment of factual knowledge		

Subject contents	1. Software programming paradigms including object oriented approach  2. Encapsulation, inheritance, abstraction and polymorphism in C++ language  3. Specific features of C++ object-orientation  4. Java language and its comparison to C++ language  5. C# language as sucesor of C++ and Java languages  6. Python as a scripting object oriented language														
Prerequisites and co-requisites	Knowledge on non-object oriented language i.e. C language.														
Assessment methods and criteria	<table border="1" data-bbox="451 622 1487 757"> <thead> <tr> <th data-bbox="451 622 794 656">Subject passing criteria</th> <th data-bbox="794 622 1137 656">Passing threshold</th> <th data-bbox="1137 622 1487 656">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 656 794 689">lecture</td> <td data-bbox="794 656 1137 689">60.0%</td> <td data-bbox="1137 656 1487 689">34.0%</td> </tr> <tr> <td data-bbox="451 689 794 723">project</td> <td data-bbox="794 689 1137 723">60.0%</td> <td data-bbox="1137 689 1487 723">33.0%</td> </tr> <tr> <td data-bbox="451 723 794 757">laboratory</td> <td data-bbox="794 723 1137 757">60.0%</td> <td data-bbox="1137 723 1487 757">33.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	lecture	60.0%	34.0%	project	60.0%	33.0%	laboratory	60.0%	33.0%
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Recommended reading	Basic literature	Bjarne Stroustrup - The C++ programming language  Bruce Eckel - Thinking in Java  Andy Harris - Microsoft C# for absolute beginner  Mark Lutz - Programming Python													
	Supplementary literature	John Hunt - Smalltalk and Object Orientation													
	eResources addresses	Adresy na platformie eNauczanie:													
Example issues/ example questions/ tasks being completed	Sample question: What are the trends of C++ evolution?  Sample task: implementation of simple object oriented software module using object oriented paradigms in different languages														
Work placement	Not applicable														

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