

Subject card

Subject name and code	Programming Languages, PG_00155315						
Field of study	Mathematical Modeling and Data Analysis						
Date of commencement of studies	October 2025		Academic year of realisation of subject			2025/2026	
Education level	Bachelor's studies		Subject group			Obligatory subject group 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			2.0	
Learning profile	academic		Assessment form			credit	
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Piotr Szuca				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	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	30		5.0		15.0	50
Subject objectives	To familiarize students with the various mechanisms offered by modern programming languages.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MMiADL3_U09] is able to use the learned software package or the learned programming language to solve selected problems from the known fields, in particular from mathematical analysis, linear algebra and statistics	uses several programming languages and can use them to visualize and solve mathematical problems	[SU2] presentation/project/paper/report
	[MMiADL3_U10] is able to recognise problems, including practical issues, that can be solved algorithmically; can make a specification of such a problem	is able to implement an algorithm in the programming languages discussed during classes	[SU4] test/exam - oral or written
	[MMiADL3_U12] can compile, run and test a self-written computer programme	is able to compile, run and test a program written in the programming languages discussed during classes	[SU2] presentation/project/paper/report
	[MMiADL3_K03] is ready to work in a team; understands the need for systematic work on all projects that have a long-term character	is ready to work in a team; understands the need for systematic work on all projects that are of a long-term nature	[SK8] observation of student's independent or team work
	[MMiADL3_W09] knows and understands the basics of computational and programming techniques supporting mathematician's work and understands their limitations	knows the basic programming paradigms - structural, object-oriented and functional	[SW4] test/exam - oral or written
	[MMiADL3_U11] knows how to arrange and analyse an algorithm in accordance with the specification and save it in the selected programming language	is able to implement an algorithm in the programming languages discussed during classes	[SU4] test/exam - oral or written
Subject contents	The course covers selected programming paradigms. Structured programming, object-oriented programming, functional and declarative programming, and elements of concurrent programming will be discussed.		
Prerequisites and co-requisites	Knowledge of basic structured programming principles: Understand basic programming constructs such as conditionals, loops, functions, and recursion.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	51.0%	50.0%
	homework	51.0%	50.0%
	observation of the student's attitude	100.0%	0.0%
Recommended reading	Basic literature	1. B. Kernighan, D. Ritchie "Język ANSI C" 2. K. Barteczko "JAVA. Uniwersalne techniki programowania" 3. B. Eckel "Thinking in Java"	
	Supplementary literature	I. Bratko "Prolog programming for artificial intelligence" D. Wampler "Programming Scala"	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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