

Subject card

Subject name and code	Advanced Programming Languages, PG_00203607						
Field of study	Informatics						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
Education level	Master's 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	1	ECTS credits			5.0		
Learning profile	academic	Assessment form			exam		
Conducting unit	Institute of Informatics -> Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Wiesław Pawłowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		0.0		65.0	125
Subject objectives	The purpose of the course is to familiarize the student with the advanced mechanisms found in modern programming languages and their correct and effective use.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[[INFMU2_U05] can apply known algorithms in specific situations, can effectively select the type of algorithm depending on the problem at hand						
	[[INFMU2_W03] has in-depth knowledge of programming paradigms and architectures and advanced programming constructs; knows current trends in programming languages						
	[[INFMU2_U03] can design and analyze for correctness and computational complexity, and build algorithms using advanced programming techniques		knows how to solve programming problems using learned programming methods, tools and paradigms			[SU4] test/exam - oral or written	
Subject contents	<ul style="list-style-type: none"> Application development using hybrid programming methods based on the object-functional approach. Creating parallel and distributed systems based on the actor model. 						

Prerequisites and co-requisites	<ul style="list-style-type: none"> • Familiarity with basic programming concepts and constructs of object-oriented languages, such as methods, classes, inheritance. • Familiarity with the Java virtual machine environment (JRE/JDK) and related tools. • Ability to proficiently navigate Windows and Linux operating system environments. 		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	oral exam	51.0%	20.0%
	programming colloquia	51.0%	80.0%
Recommended reading	Basic literature	<ul style="list-style-type: none"> • M. Odersky, L. Spoon, B. Venners, F. Sommers, Programming in Scala, Fifth Edition, Artima Press, 2021. • F. Lopez-Sancho, Akka in Action, Second Edition, Manning 2023 	
	Supplementary literature	<ul style="list-style-type: none"> • M. Pilquist, R. Bjarnason, P. Chiusano, Functional Programming in Scala, Second Edition, Manning 2023 	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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