

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Programming languages, PG_00045303								
Field of study	Data Engineering								
Date of commencement of studies	October 2025		Academic year of realisation of subject			2026/2027			
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	2		Language of instruction			English			
Semester of study	3		ECTS credits			2.0			
Learning profile	general academic profile		Assessment form			assess	assessment		
Conducting unit	Department Of Algorithms And Systems Modelling -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej								
Name and surname	Subject supervisor		dr hab. inż. Piotr Mironowicz						
of lecturer (lecturers)	Teachers		dr hab. inż. Piotr Mironowicz						
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
of instruction	Number of study hours	15.0	0.0	15.0	0.0		0.0	30	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation ir classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	30		4.0		16.0		50	
Subject objectives	The aim of the course is an introduction to popular programming paradigms and getting the skill of their practical implementations.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_K03] demonstrates the ability to think critically and analytically and integrates knowledge from many disciplines in order to make effective decisions		Recognizes programming paradigms, is able to select a methodology for a programming problem			[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice			
	[K6_U04] formulates logical solutions to complex or unstructured problems		Is able to program a solution to a given problem using a given programming language from different paradigms			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information			
	[K6_W81] has knowledge of grammatical structures and lexical resources needed to communicate in foreign language in terms of general and specialist language related to field of study		Knows the basic concepts related to programming paradigms, can name the most important construction elements in individual languages			[SW3] Assessment of knowledge contained in written work and projects			

Subject contents	1. Procedural programming.					
	2. Linear syntax. FORTRAN					
	3. Activation records and subroutines					
	4. Recursive procedure call.					
	5. Block syntax. Control flow abstraction.					
	6. Binding of the names with objects. Range bonds.					
	7. The parameters of the procedure call.					
	8. Activation records for languages with recursion.					
	9. Static and dynamic calls. ALGOL. PASCAL.					
	10. Restrictions of block languages.					
	11. Abstraction of data and access protection.					
	12. Modularization. Modula-2. ADA83, ADA95					
	13. Exceptions. Exception handling models.					
	14. Concurrent procedures. Rendezvous.					
	15. Object-oriented programming. Objects, classes, hierarchies.					
	16. Dynamic types. Polymorphism. Smalltalk. C + +.					
	17. Recursive interpreted commands.					
	18. Symbolic transformation. Tail recursion.					
	19. Functional programming paradigm.					
	20. Haskell. Basic constructions and operations, module creation, performance.					
	21. Tacit programming.					
	22. LISP. General outline.					
	23. Prolog as an example of programming in logic.					
	24. Defining languages. Chomsky's classification, compilers.					
	25. Monads.					

Prerequisites and co-requisites						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade			
and criteria	project	50.0%	60.0%			
	tests	50.0%	40.0%			
Recommended reading	Basic literature	1. S. Mangano: XSLT receptury, wyd.2, Helion 2007				
		2. Cincom Smalltalk Downloads, http://www.cincomsmalltalk.com/				
		3. SAXON - The XSLT and XQuery Processor, http:// saxon.sourceforge.net/				
		4. W.F. Clocksin, W.F., Mellish, C.S.: Prolog Programowanie. Helion 2003				
		5. Ada Programming, http://en.wikibooks.org/wiki/Ada				
		6. SWI-Prolog downloads, www.swi-prolog.org/download.html				
		7. ADA Core, the GNAT Pro Company, http://www.adacore.com/home, https://libre.adacore.com/				
		8. D. S. Touretzky: Common Lisp: A Gentle Introduction to Symbolic Computation,				
		http://www.cs.cmu.edu/~dst/LispBook/				
		9. Z. Huzar, Z. Fryźlewicz, I. Dubielewicz, B. Hnatk: Ada 95, Helion 1998				
		10. Polski serwis języka Smalltalk, http://www.objectspace.net/				
	Supplementary literature	http://en.wikipedia.org/wiki/Programming_paradigm				
	eResources addresses	Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed						
Work placement	Not applicable					

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