University of Gdańsk

Subject card

Subject name and code	Programming Languages II, PG_00204161						
Field of study	Informatics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
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	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Jakub Neumann				
	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		40.0	100
Subject objectives	The aim of the course is to learn and improve programming techniques, with particular emphasis on functional and object-oriented programming techniques and working with asynchronous code.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[INFPL3_U04] is able to use the acquired knowledge when creating, running and testing programs using dedicated tools and design patterns	can write a program in JavaScript, test its correctness in an integrated development environment, can optimize the code using tools such as linter and the lodash library	[SU4] test/exam - oral or written
[INFPL3_K02] is ready to recognize the importance of knowledge in solving cognitive problems and practical and seeking opinions experts in case of difficulties with independent problem solving	can use a specialized language to take part in a discussion on programming (especially in JavaScript), present solutions to tasks during a code review	[SK4] test/exam - oral or written
[INFPL3_W04] knows and understands advanced issues in programming, algorithms and computational complexity, programming languages and paradigms, as well as the complex relationships between these areas	has knowledge of object-oriented and functional programming in JavaScript, understands the principles of reasoning and working with asynchronous code	[SW4] test/exam - oral or written
[INFPL3_U09] is able to - in accordance with the given specification - design and implement IT system	can write a program according to specifications given using a specialized language (concepts from the areas of functional and object-oriented programming in JavaScript and concepts related to asynchrony)	[SU4] test/exam - oral or written
[INFPL3_U08] is able to assess the usefulness of various paradigms and programming tools for solving various types of problems	in particular, understands the operations of reduce, map, filter, knows what function composition is and knows the concept of curry in relation to functions, is able to work with asynchronous code and use the Promise class	[SU4] test/exam - oral or written

Subject contents

Using JavaScript as an example:

- functional programming techniques: higher order functions, functions returning functions, lambda expressions, currying
- definitions of reduce, map, filter functions, function composition
- creating objects
- defining classes, inheritance
- asynchrony and data types related to asynchrony
- lodash libraries, axis
- tools like linter, babel

Prerequisites and co-requisites

passed course Wstęp do programowania

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
tests	51.0%	100.0%

Recommended reading

Basic literature	JavaScript. Przewodnik. Poznaj język mistrzów programowania. aut. David Flanagan, ISBN 9788383227580
Supplementary literature	Composing Software. An Exploration of Functional Programming and Object Composition in JavaScript, Eric Elliott
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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