



Subject card

Subject name and code	Modern Programming Languages, PG_00047847						
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2024/2025		
Education level	first-cycle studies		Subject group		Optional subject group 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	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Biomedical Engineering -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Magdalena Mazur-Milecka				
	Teachers		mgr inż. Natalia Szarwińska				
			dr inż. Magdalena Mazur-Milecka				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	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	45		3.0		27.0	75
Subject objectives	The aim of the course is to introduce students with selected modern high-level programming languages						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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		Student knows the principles and rules of object-oriented programming. Knows and understands the paradigms (OOP) and techniques used in object-oriented programming.		[SW1] Assessment of factual knowledge		
	[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		Student can write programs in Java and C#, implement algorithms, create and use class libraries, create a graphical interface for the program using dedicated programming tools.		[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task		
Subject contents	1. Introduction to High-Level Languages. 2. Java - Basics, Code Construction, 3. Java: Identifiers and Variables, Data Types, Operators 4. Introduction to Object-Oriented Modeling 5. Classes and Constructors 6. Inheritance 7. Encapsulation and Polymorphism 8. Exception Handling, Arrays and Collections 9. Abstract Classes and Interfaces 10. Introduction to Graphics 11. Graphics: Components and Containers 12. Event Handling 13. I/O Operations 14. C# Basics 15. C# Basics.						
Prerequisites and co-requisites	acquired knowledge and skills in programming in C and C + +						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	30.0%
	Practical exercise	50.0%	30.0%
	Tests	50.0%	40.0%
Recommended reading	Basic literature	Sierra Kathy, Bates, Bert Gee Trisha, Java. Head first!, Helion 2023 Herbert Schildt, Java: A Beginner's Guide, Ninth Edition Andrew Stellman, Jennifer Greene, C#. Head first!, Helion 2022	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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