

C++ Programming Language

Course description

Basic Information

Field of study : Analytical Computer Science

Path : -

Organizational unit : Faculty of Mathematics and Computer Science

Education level : first-cycle

Form of studies : full-time studies

Study profile : general academic

Required : optional

Education cycle : 2022/23

Course code : UJ.WMIIANS.140.03342.22

Languages : Polish

Disciplines : Computer Science

ISCED Classification : 0613 Software and applications development and analysis

USOS Code : WMI.TCS.JPC+.S

Course coordinator

Krzysztof Turowski

Course instructor

Krzysztof Turowski

	Form of verification of learning outcomes	
Period Semester 3	graded credit	ECTS credits 3.0
	Course format and hours	
	lecture: 15 laboratory classes: 15	

Learning outcomes for the course

Code	Outcomes in the area of:	Directional learning outcomes	Verification methods
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Code	Outcomes in the area of:	Directional learning outcomes	Verification methods
Knowledge – Student knows and understands:			
W1	- purpose of syntactic constructs of C++ language (in the C++14 standard) - object-oriented and generic programming techniques - basic functions of the standard library	IAN_K1_W04, IAN_K1_W05	graded credit
Skills – Student can:			
U1	- use appropriate syntactic constructs for the problem when writing code in C++ - find programming errors and optimize programs written in C++ - predict the behavior of programs written in C++ - use the standard library	IAN_K1_U03, IAN_K1_U05, IAN_K1_U08	graded credit

ECTS credit balance

Student's activity form	Average number of hours* allocated to completed activity types	
lecture	15	
laboratory classes	15	
preparation for exam	30	
preparation for classes	30	
Total student workload	Hours 90	ECTS 3.0

* hour (lesson) means 45 minutes

Course content

No.	Course content	Learning outcomes for the course
1.	1. Program compilation stages 2. Name lookup and visibility scopes 3. Types, references and object lifetime 4. Conversions - explicit, implicit and programmer-defined 5. Compile-time constant expressions 6. Metaprogramming and templates 7. Function overloading 8. Expression initialization 9. Expression evaluation 10. Standard library architecture	W1, U1

Extended information

Teaching methods:

multimedia lecture, discussion, case studies, problem solving, laboratory classes, consultations

Class type	Assessment forms	Course completion conditions
lecture	graded credit	Positive grade from the final test, preceded by admission based on attendance in classes
laboratory classes	graded credit	Positive grade from the final test, preceded by admission based on attendance in classes

Prerequisites and additional requirements

Programming Basics: - basic elements and syntax of C language - main functions from the standard C library - number representation in computer memory - simple algorithms using basic data structures - basic concepts of computational complexity

Literature

Required

1. Bjarne Stroustrup - A Tour of C++ (Second edition), Addison-Wesley, 2018