

**Course Syllabus****I. General Information**

Course name	Introduction to computer science
Programme	Mathematics
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	BA
Form of studies (full-time, part-time)	Full-time
Discipline	Mathematics
Language of instruction	English

Course coordinator	Dorota Pylak, PhD
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Type of class ( <i>use only the types mentioned below</i> )	Number of teaching hours	Semester	ECTS Points
lecture	30	I	5
tutorial			
classes			
laboratory classes	30	I	
workshops			
seminar			
introductory seminar			
foreign language classes			
practical placement			
field work			
diploma laboratory			
translation classes			
study visit			

Course pre-requisites	Basic computer skills. Searching for information on the Internet.
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**II. Course Objectives**

Familiarize the students with the basics of structural programming in C++.
Presentation of the basic control statements

### III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
<b>KNOWLEDGE</b>		
W_01	The student formulates the scheme of the number conversion between different numerical systems. He knows how to construct the block diagram for a given problem.	K_W01, K_W04
W_02	The student knows the syntax of C ++: the conditional statement and the loop instructions. He can design different elements of the application.	K_W01, K_W04
W_03	The student is able to present the syntax of the function, he knows the methods of passing parameters to the functions and knows how to present examples of their use.	K_W01, K_W04
W_04	The student can present the definition of the array and the basic functions operating on the arrays	K_W01, K_W04
<b>SKILLS</b>		
U_01	The student knows how to convert numbers between the different numerical systems.	K_U25
U_02	The student can write a program which solves the given problem. He can test the solution and rule out possible errors in his reasoning.	K_U25, K_U26, K_U27
U_03	The student can use variables of the different simple types, conditional statements, loops and arrays. He can improve the program by finding more efficient solution.	K_U25, K_U26, K_U27
U_04	The student can create a function, select appropriate parameters and determine the result of the function	K_U25, K_U26, K_U27
<b>SOCIAL COMPETENCIES</b>		
K_01	The student is able to express his opinion and formulate a solution to the given problem. He is open to the new solutions. It cares about the readability of the application.	K_K01
K_02	The student solves the given problems individually and while working in a group.	K_K01

### IV. Course Content

<p>Numerical systems.  Block diagrams.  Simple variable types.  Data loading.  Conditional statement if.  Switch statement.  For, while and do...while loops.  Functions. Syntax and the use of a function, returning a result by the function, passing arguments to the function by value, and by reference.  Arrays and operations on arrays.</p>
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### V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods (choose from the list)	Forms of assessment (choose from the list)	Documentation type (choose from the list)
<b>KNOWLEDGE</b>			
W_01	Conventional lecture / Guided practice	Exam/Written test	Examination card / written test
W_02	Conventional lecture / Guided practice	Exam/Written test	Examination card / written test
W_03	Conventional lecture / Guided practice	Exam/Written test	Examination card / written test
W_04	Conventional lecture / Guided practice	Exam/Written test	Examination card / written test
<b>SKILLS</b>			
U_01	Practical classes	Exam/Written test	Examination card / written test
U_02	Practical classes	Exam/Written test	Examination card / written test
U_03	Practical classes	Exam/Written test	Examination card / written test
U_04	Practical classes	Exam/Written test	Examination card / written test
<b>SOCIAL COMPETENCIES</b>			
K_01	Discussion, PBL (ProblemBased Learning)	Exam/Written test	Examination card / written test
K_02	Discussion, PBL (ProblemBased Learning)	Exam/Written test	Examination card / written test

## VI. Grading criteria, weighting factors.....

To pass a course, the student has to attend a classes and has to pass the tests and the final exam.

- passing classes - colloquia (numerical systems, conditional statements, loops and functions) - 90% of the final grade, student's activity and work during classes
- 10% of the final grade.

- written exam - for people who have passed the classes. The student may be discharged from the written part of the exam based on the result obtained on the exercises. Detailed conditions of exemption are given to students with each course edition.

Detailed assessment rules are given to the students with each edition of the course.

**VII. Student workload**

Form of activity	Number of hours
Number of contact hours (with the teacher)	<b>90</b>
Number of hours of individual student work	<b>60</b>

**VIII. Literature**

Basic literature
B. Eckel, Thinking in C++, Prentice Hall; 2nd edition 2000 N. Dale, Ch. Weems, M. Headington, Programming in C++, 2nd ed., Jones and Bartlett Publishers, Sudbury 2000. N. Dale, Ch. Weems, M. Headington, Programming and Problem Solving with C++, 2nd ed., Jones and Bartlett Publishers, Sudbury 1999.
Additional literature
N. Wirth, Algorithms + Data Structures = Programs, Prentice-Hall 1976