POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Program languages [S1IBio1>JP_1]

Course

Field of study
Biomedical Engineering

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
30

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

4,00

Coordinators

Lecturers

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Prerequisites

Basic knowledge of logic and computer science

Course objective

Transfer of knowledge allowing procedural and object-oriented programming

Course-related learning outcomes

Knowledge:
The student recognizes and knows the features of procedural, object-oriented and visual programming
The student knows the basic structures of selected programming languages
The student knows the concepts of classes, structures, objects, inheritance, polymorphism, encapsulation

Skills:
The student can create dedicated software

Social competences:

The student understands the role of computerization in the modern economy. Is able to participate creatively

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Test, 20 closed questions, passing the subject -50% of the maximum points
Laboratory: short tests, passing the subject- 50% of the maximum points

Programme content

Lecture: General principles of program construction. Compilers and interpreters. Programming in low and high level languages, overview and division of languages. Visual programming languages. Structural programming. Basics of programming in C / C ++. Variables, data types, pointers, operators, loops, conditional instruction, input and output functions. Object oriented programming. The concepts of encapsulation, classes, objects, inheritance, polymorphism. Basics of object-oriented programming in C ++. References, operator overloading, streams, exceptions, namespaces. Basics of Python language.
Lab: Structured programming in C / C ++, examples: data input and output, simple calculations, use of conditional instruction, selection instruction, loops, writing and reading a text, binary file, creating functions. Object-oriented programming in C ++, examples: creating classes, single-inheritance, operator overloading, using the STL library. Basics of Python language.

Teaching methods

Lecture: multimedia presentation with theory and examples.
Laboratory classes: practical exercises, problem solving

Bibliography

Basic:
1. Liberty J., Rao S., Jones B, L, - C++ dla każdego, Helion, Gliwice 2011
2. Wróblewski P., Algorytmy, struktury danych i techniki programowania, Helion, Gliwice 2009
3. Sarbicki S., Python. Kurs dla nauczycieli i studentów, Helion, Gliwice 2019.

Additional:
Sedgewick R., Algorytmy w C++, READ ME, Łódź 1999
Kliszewski M., Inżynieria oprogramowania obiektowego, WKT, Warszawa 1994

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	47	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	53	2,00