COURSE DESCRIPTION CARD - SYLLABUS

Course name
Computer Programming Basics [N1IŚrod2>PP]

Course

Field of study
Environmental 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
part-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
20

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

2,00

Coordinators

dr inż. Rafał Brodziak
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Lecturers

Prerequisites

1. Knowledge: Basic knowledge of computer science in high school. 2. Skills: Operating a personal computer, including basic knowledge of office programs. 3. Social competences: Awareness of the need to constantly update and supplement knowledge and skills.

Course objective

The aim of the course is to equip the student with the skills to collect, collect, store and process information and perform engineering calculations using an integrated programming environment and the high-level Python programming language.

Course-related learning outcomes

Knowledge:
1.The student has knowledge of the use of programming environment, with particular attention to their use in environmental engineering

Skills:
1. The student uses an integrated programming environment and a high-level programming language to

collect and process data and information
2. Student creates and uses computational functions in a programming language
3. The student uses standard programming language libraries for data analysis
4. The student integrates data from various external sources, e.g. text files
Social competence
1. The student is aware of responsibility for his/her own work]
2. The student is focused on acquiring knowledge in the field of using new programming libraries

Social competences:
-

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Two final colloquiums in the computer room, the first one in the middle of the semester, the second one during the last classes. Passing threshold: 50%. Detailed scoring criteria and grading scale are provided before colloquiums.

Programme content

During classes, students work at individual computer workstations, carrying out programming tasks in Python. The scope of content includes issues of an integrated programming environment, discussion of data types, expressions and instructions, control structures, built-in and user functions, loops and iterations, error and exception handling, operations on text files, the use of external libraries and object-oriented programming.

Course topics

The scope of topics covered :
1. Integrated development environment
2. Data types, expressions and instructions
3. Control structures
4. Built-in and user functions
5. Loops and iterations
6. Errors and their handling - exceptions.
7. Text files
8. External libraries
9. Object-oriented programming

Teaching methods

Carrying out tasks together, solving tasks given by the teacher - practical exercises, problem solving.

Bibliography

Basic:
1. Matthes E., Python : instrukcje dla programisty, Wydawnictwo Helion, 2024/2020
2. Bell A., Python : uczymy się programowania. Wydawnictwo Helion, 2019

Additional:
1. Danjou, J,. Python na poważnie. Wydawnictwo Naukowe PWN, 2019
2. Severance Ch. R. , Python dla wszystkich: Odkrywanie danych z Python 3, tł. Wójtowicz A. ONLINE, https://py4e.pl, Wydanie trzecie, 2023-08-04

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	20	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00