

Subject card

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| Subject name and code | Introduction to Programming, PG_00150257 | | | | | | |
| Field of study | English Studies | | | | | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | | | 2024/2025 | | |
| Education level | Master's studies | Subject group | | | Obligatory subject group in the field of study 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 | 1 | Language of instruction | | | Polish Polish 90% English 10% | | |
| Semester of study | 2 | ECTS credits | | | 4.0 | | |
| Learning profile | academic | Assessment form | | | | | |
| Conducting unit | Division of Corpus Linguistics and Glottodidactics -> Institute of English and American Studies -> Faculty of Languages -> Rector | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | Kamil Soliwoda | | | | |
| | Teachers | | Kamil Soliwoda | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 60.0 | 0.0 | 0.0 | 0.0 | 60 |
| | 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 | 60 | | 0.0 | | 36.0 | 96 |
| Subject objectives | The aim of the course is to familiarize students with basic programming techniques and methods, using the Python programming language as an example. | | | | | | |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [FAMU2_K02] Is prepared to recognise the importance of knowledge and skills in English Studies in solving cognitive and practical problems and to seek the advice of a supervisor in their chosen place of work in the event of difficulty in solving problems on their own. | The student is ready to identify encountered cognitive and practical difficulties and seeks assistance when facing problems. | [SK2] presentation/project/paper/report [SK5] implementation of a problem task |
| | [FAMU2_W12] Knows and understands the main development trends in literature, in particular with regard to research into English-language literature. | The student knows the application of the acquired skills in basic programming in their daily work as an English philologist. | [SW4] test/exam - oral or written [SW2] presentation/project/paper/report [SW5] implementation of a problem task |
| | [FAMU2_K01] Is ready to critically evaluate the extent of their knowledge and skills, in particular in the field of English-language linguistics and literature and English. | The student is aware of their own knowledge and skills limitations and understands the need for lifelong learning, as well as deepening and complementing acquired knowledge and skills. They set directions for their own development and learning. | [SK2] presentation/project/paper/report [SK5] implementation of a problem task |
| | [FAMU2_U04] Can select and apply information and communication techniques (ICT) during the acquisition and processing of information for research and professional purposes within the framework of English Studies. | The student is capable of analysing and interpreting gathered data using computer programs (e.g., Excel, Google Sheets), as well as creating and editing text documents, multimedia presentations, and reports. | [SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] implementation of a problem task |
| [FAMU2_U10] Can independently plan and implement their own lifelong learning and guide others in this area within the framework of English philology and their chosen field of professional activity. | The student possesses the ability to plan their own work and systematically prepare for tasks assigned by the instructor. | [SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] implementation of a problem task | |
| Subject contents | <ul style="list-style-type: none"> • The concept of a program. Installation and introduction to the Python language environment. • Basic variable types. • The concept of functions in programming. • Controlling a program using conditional statements in programming. • Loop structures in Python: for and while loops. • Advanced data structures: lists, tuples, sets, and dictionaries. • Input-output operations and file handling in Python. • The concept of algorithms and flowcharts. • Basic search and sorting algorithms. • The divide and conquer technique in programming. • Basic text algorithms. • The concept of recursion in programming. • Managing libraries in Python. • Regular expressions in Python. • Handling text files in Python. • The JSON format and its use in Python. • Application of libraries: numpy, nltk, matplotlib, seaborn, pygal. | | |
| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Test | 51.0% | 60.0% |
| | Project | 51.0% | 20.0% |
| | Participation | 51.0% | 20.0% |

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| Recommended reading | Basic literature | <p>P. Broda, D. Smołuca, Informatyka. Podrecznik czesc II, Wyd. Operon, 2006.</p> <p>M. Dawson, Python dla kazdego. Podstawy programowania, Wyd. Helion, 2010.</p> <p>T. Gaddins, Python dla zupełnie poczatkujacych, Wyd. Helion, 2019.</p> <p>E. Grubiel, G. Hardt-Olejniczak, E. Kołczyk, H. Krupicka, M. M. Sysło, Informatyka czesc I, Wyd. WSiP, 2002.</p> <p>A. Sweigart, Automatyzacja nudnych zadan z Pythonem. Nauka programowania, Wyd. Helion, 2015.</p> <p>A. Szepietowski, Matematyka dyskretna, Wyd. UG 2004.</p> <p>P. Wroblewski, Algorytmy, struktury danych i techniki programowania, Wyd. Helion, 2010.</p> |
| | Supplementary literature | <p>T. H. Cormen, Ch. E. Leiserson, R. L. Rivest, Wprowadzenie do algorytmow, Wyd. Naukowe PWN, 2012.</p> <p>P. Krugiolka, Linux. Jak dostroic bestie do swoich potrzeb, Wyd. Helion, 2012.</p> <p>E. Matthes, Python. Instrukcje dla programisty, Wyd. Helion, 2016.</p> |
| | eResources addresses | <p>Podstawowe</p> <p>http://www.pygal.org/en/stable/ - Access: 15.07.2024</p> <p>https://edabit.com - Access: 15.07.2024</p> <p>https://seaborn.pydata.org/ - Access: 15.07.2024</p> <p>https://exercism.io/ - Access: 15.07.2024</p> <p>https://matplotlib.org/stable/index.html - Access: 15.07.2024</p> <p>https://www.codecademy.com - Access: 15.07.2024</p> <p>Adresy na platformie eNauczanie:</p> |

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| <p>Example issues/ example questions/ tasks being completed</p> | <ol style="list-style-type: none"> 1. Concept of a program. Installation and introduction to the Python environment: <ul style="list-style-type: none"> • What is a computer program? • What are the steps to install the Python environment on different operating systems (Windows, macOS, Linux)? • Introduction to IDEs (e.g., PyCharm, VS Code, Jupyter Notebook). 1. Basic variable types: <ul style="list-style-type: none"> • What are the basic data types in Python (int, float, str, bool)? • What operations can be performed on different data types? • Exercise: Write a program that takes integer inputs from the user and performs basic arithmetic operations. 1. The concept of functions in programming: <ul style="list-style-type: none"> • How to define functions in Python? • What are arguments and return values in functions? • Exercise: Write a function that calculates the factorial of a number. 1. Controlling the program using conditional statements in programming: <ul style="list-style-type: none"> • How do if, elif, and else conditional statements work? • Exercise: Write a program that checks if a number is even or odd. 1. Loop structures in Python: for and while loops: <ul style="list-style-type: none"> • How do for and while loops work? • Exercise: Write a program that displays numbers from 1 to 10 using both types of loops. 1. Advanced data structures: lists, tuples, sets, and dictionaries: <ul style="list-style-type: none"> • What are the differences between lists, tuples, sets, and dictionaries? • Exercise: Write a program that sorts a list of numbers and removes duplicates. 1. Input-output operations and file handling in Python: <ul style="list-style-type: none"> • How to open, read, and write text files in Python? • Exercise: Write a program that saves user data to a text file. 1. The concept of an algorithm and a flowchart. Basic search and sorting algorithms: <ul style="list-style-type: none"> • What is an algorithm and how to create flowcharts? • How do sorting algorithms (e.g., bubble sort, quicksort) and search algorithms (e.g., binary search) work? • Exercise: Write a program implementing bubble sort. 1. Divide and conquer technique in programming: <ul style="list-style-type: none"> • What are the basic principles of the divide and conquer technique? • Exercise: Write a program that implements the quicksort algorithm. 1. Basic text algorithms: <ul style="list-style-type: none"> • How do basic text processing algorithms (e.g., pattern matching in text) work? • Exercise: Write a program that finds all occurrences of a given pattern in a text. 1. The concept of recursion in programming: <ul style="list-style-type: none"> • What is recursion and how to use it in programming? • Exercise: Write a recursive function that calculates the nth term of the Fibonacci sequence. 1. Managing libraries in Python: <ul style="list-style-type: none"> • What are the methods for managing libraries in Python (pip, virtualenv)? • Exercise: Install and import the numpy library in your project. 1. Regular expressions in Python: <ul style="list-style-type: none"> • How to define and use regular expressions in Python? • Exercise: Write a program that checks if a user-provided email address is valid. 1. Handling text files in Python: <ul style="list-style-type: none"> • What are the methods for reading and writing text files? • Exercise: Write a program that reads data from a text file and displays it on the screen. 1. JSON format and its usage in Python: <ul style="list-style-type: none"> • How to work with JSON files in Python (reading, writing, modifying)? • Exercise: Write a program that reads data from a JSON file and displays it in a table format. 1. Using libraries: numpy, nltk, matplotlib, seaborn, pygal: <ul style="list-style-type: none"> • What are the uses of numpy, nltk, matplotlib, seaborn, pygal libraries? • Exercise: Write a program that uses the numpy library for numerical data processing and the matplotlib library for creating charts. <p>Sample Projects:</p> <ul style="list-style-type: none"> • Project 1: Write a program for managing contacts that allows adding, deleting, and searching for contacts. The program should save data to a text file. • Project 2: Create a text analysis application that counts words, sentences, and letters in a given text and displays the most frequently occurring words. |
| <p>Work placement</p> | <p>Not applicable</p> |

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