Macrosoft

Vzdelávanie s trvalým efektom

DOCUMENT

Course syllabus

CATEGORY

Java, Python courses

TRAINING FORMAT

In Bratislava or online with a lecturer

PRICE EXCL. VAT

1 013,01 €

PRICE INCL. VAT

1 246,00 €

including 23 % VAT

PDF SYLLABUS

Python Programmer with AI Assistance

Clear overview of course topics, training scope and key information.

Python Programmer with AI Assistance - a package of courses is intended for those who want to acquire the basics of programming in Python using artificial intelligence. In the course, you will learn the basics of Python and advanced programming, which you will expand with programming with AI assistance. Python is an ideal programming language even for beginners. The package of courses covers work with artificial intelligence - general familiarization with basic terms and chatbots such as ChatGPT or Gemini. You will then learn to apply AI when developing applications in Python. The package contains the courses: Python programming - basics in the scope of 2 days Python programming - advanced in the scope of 2 days Introduction to working with artificial intelligence in the scope of 2 days AI assistance when programming in Python in the scope of 2 days

COURSE CONTENT

01 **Installation of Python and PyCharm IDE**

creating first scripts running a program in PyCharm IDE running a program on Linux

02 **Python Language**

characteristics of the Python language history of the language and its use

03 **Lexical Structure of Python**

comments and whitespace identifiers, literals operators and separators keywords

04 **Data Types and Variables**

Boolean data type numbers and strings None data type

Macrosoft

Vzdelávanie s trvalým efektom

05 **Working with Strings**

creating strings basic string operations string formatting

06 **Operators and Expressions**

types of operators (logical, relational, arithmetic) precedence and associativity of operators

07 **Program Flow Control**

conditions loops

08 **Containers in Python**

tuples, lists, dictionaries, sets

09 **Dates and Time with the PyQt Library**

QDate, QTime and QDateTime classes universal time summer and winter time

10 **Creating Charts with the Matplotlib Library**

creating and exporting charts line, bar, pie charts

11 **Working with Excel Files with the Openpyxl Library**

reading and writing data formulas, images and charts

12 **Working with Images with the Pillow Library**

image manipulation image export watermark creation

13 **Creating a GUI with the PyQt Library**

principles of graphical user interface basic components (QLabel, QPushButton, QSlider) event programming working with graphics

14 **Creating Web Requests with the requests Library**

GET, POST, HEAD requests working with JSON data authentication

15 **Web Applications with the Flask Library**

basics of web applications routing templates

Macrosoft

Vzdelávanie s trvalým efektom

16 **Functions**

types of functions creating functions anonymous functions

17 **Object-Oriented Programming**

OOP principles classes, objects and methods inheritance

18 **Modules**

meaning of modules, built-in modules working with modules creating custom modules

19 **Packages**

meaning of packages working with packages

20 **Files and Directories**

writing to files reading from files with command working with CSV files

21 **Exceptions**

errors in a program catching and creating exceptions

22 **Practical Examples**

creating charts, working with images simple graphical and web application

23 **Python Language Basics - Review**

lists (arrays), tuples and working with them working with strings, formatting, string module dictionaries and working with them

24 **Working with Files**

basics of working with files opening files for reading and writing working with files

25 **Errors and Exceptions**

familiarization with exceptions types, raising, catching and handling exceptions

Macrosoft

Vzdelávanie s trvalým efektom

26 **Object-Oriented Programming**

OOP basics, classes, properties and methods constructors and destructors inheritance and multiple inheritance

27 **Debugging**

use of the debugger for testing, finding errors, but also understanding a program written by another programmer

28 **Introduction to Working with Artificial Intelligence AI**

definition and history of AI, key areas and applications

29 **Use of AI**

creative writing, creation of images, music, video and code, robotics

30 **Theoretical Basics**

machine learning, neural networks, deep learning networks

31 **Large Language Models (LLM)**

definition of LLM, creation of language models, use of existing models

32 **Chatbots**

Copilot, Gemini, ChatGPT, DeepSeek

33 **Prompts**

definition of prompts, principles of prompt creation

34 **Practical Examples**

text summarization, translations, information mining, document analysis

35 **Functions and Modules**

types of functions, creating functions, anonymous functions, importing and using modules

36 **Object-Oriented Programming**

OOP principles, classes, objects and methods

Macrosoft

Vzdelávanie s trvalým efektom

37 **Working with Files**

reading from a file, writing to a file, exception management

38 **AI Assistance When Programming in Python**

39 **Tools and Frameworks in Python**

Ollama, LangChain, LangFlow, Hugging Face Transformers

40 **Gradio**

creating dashboards for LLM applications

This document serves as an informational overview of the course syllabus. Current dates, venue and availability are listed at Macrosoft.sk.

https://www.macrosoft.sk/en/courses/python-ai-programmer