CANOPUS DATAWEB

PYTHON SYLLABUS (ONLINE)

CORE PYTHON

Module : An Introduction To Python

Objective:

This module will provide you with a fundamental grasp of python programming, as well as information on the virtual environment, package management, and version differences in python programming, as well as thorough information on python installation and environment configuration for working with python.

Topics:

- Why should we learn to Program?
- What makes Python such a good choice?
- The uniqueness of Pythons syntax compared to other programming languages.
- Installation of Python IDE.

Hands-on:

- ➢ How to set up a Python programming environment.

Module : Fundamentals Of Python

Objective:

This module will teach you the fundamentals of Python syntax as well as in-depth knowledge of Input/Output [I/O] operations, variables, operators, datatypes, and data structure.

Topics:

- Python Syntax Overview, Indentation, comments
- Python Data Structures and Data types
- String operations in python
- Simple Input and Output

- Output and Input Formatting
- Operators in Python

Hands-on:

➢ How to write a basic Python code, variable declaration datatypes, and operators usage.

Module : Python Programming Flow (Condition Statements)

Objective:

In this module, you will get a detailed understanding of conditional statements,control statements of python.

Topics:

- Conditional operators
- If statements
- If else statements
- If else if statements
- Exception Handling

Hands-on:

➢ How to use conditional and control statements in python.

Module : Python Programming Flow (Looping Statements)

Objective:

In this module, you will get a detailed understanding of conditional looping and control statements of python.

Topics:

- Indefinite iteration (While Loop)
- Definite iteration   (For Loop)
- The range statement
- Break and Continue statements
- Assert

Hands-on:

➤ How to use conditional, looping and control statements in python.

Module : Functions and Modules in Python

Objective:

This module will educate you how to write functions in Python, as well as the scope of variables, functions with arguments, keyword arguments, lambda functions, and modules.

Topics:

- Syntax of Function
- Function with *args & **kwargs
- Scope of variables
- Lambda function with map, filter, reduce method
- DocString
- Modules and standard Modules

Hands-on:

➤ How to create and use functions and different types of argument, lambda function, and modules in python.

Module : File Handling in Python

Objective:

This module will provide you a thorough knowledge of file concepts such as create, read, write, update, and delete operations in Python.

Topics:

- File Opening modes
- Context Manager in python
- File Operations
  - Open
  - Create

- o   Read

- o   Write

- o   Update

- o   Delete

Hands-on:

➤   How to create and use file operation in python.

Module: Exception Handling in Python

Objective:

In this module, you'll learn how to handle exceptions in Python and how to create your own exception classes.

Topics:

- Types of Errors in python
- Exception handling with
    - o   try … except
    - o   try … except… finally
    - o   try … except… else
- Multiple Exception
- Raising Exception
- User-defined Exception

Hands-on:

➤   How to create and use built-in and user-defined exception handling in python.

Module: Regular Expression with Python

Objective:

This module will provide you a thorough grasp of how to write Regex in Python.

Topics:

- Regex Syntax

- Quantifiers
- Metacharacters
- Special Sequences
- Sets
- Python re module
- Methods with regex usage

Hands-on:

➢ How to use and write regex in python.

Module: Data Structures in Python

Objective:

This module will provide you a thorough grasp of Python's List, Dictionary comprehension, and Specialized Sorts.

Topics:

- Lists, Tuples, Sets and Dictionary
- Comprehensions
  - List
  - Nested List
  - if statement
  - if … else statement
  - Nested if … else statement
- Sorting
  - List
  - Dictionary

Hands-on:

➢ How to use comprehensions and sorting on data structures of python.

ADVANCED PYTHON

Module: Generators And Iterators

Objective:

In this module, you will get a detailed understanding of iterators, generators, decorators, in python.

Topics:

- Iterator
- Generator
- Decorator

Hands-on:

- ➢ How to use core concepts and application of core concepts in python.

Module: Advanced data Structure/ collections in Python:

Objective:

In this module, you will get a detailed understanding of advanced data structures in python.

Topics:

- Deque
- namedtuple
- ChainMap
- Counter
- Ordered Dictionary
- Default Dictionary

Hands-on:

- ➢ How to use advanced data structure in python.

Module: Oops in Python

Objective:

This module will provide you a thorough grasp of Python's Object-Oriented Programming Concepts.

Topics:

- Oops Concepts with programming syntax
- Class
- Object
- Polymorphism
- Encapsulation
- Inheritance
- Types of Methods in python
- Property decorator

Hands-on:

➢ How to use Object-oriented programming concepts in python.

Module: GUI programming with Python

Objective:

In this module, you will get a detailed understanding of developing the GUI application using the Tkinter module with python.

Topics:

- Introduction
- Components and Events
- An Example GUI
- Widgets
- Layout Management
- MessagesBox, Dialog
- Database Handling

Hands-on:

➢ How to develop a GUI application with Tkinter and python.

Module: MySQL with Python

Objective:

In this module, you will get a detailed understanding of SQL statements and database connection along with CRUD operation using python.

Topics:

- SQL statements & Operations
- Create
- Read
- Update
- Delete
- Python – SQL connector package installation
- Python with CRUD Operations
- Commit & Rollback
- SQL Related Exception Handling

Hands-on:

➢ How to use and manipulate data in a database using python.

Module: Data Science with Python

Objective:

In this module, you will get a Basic understanding of data science modules in python.

Topics:

- Pandas – Series and Dataframe
- Numpy
- Matplotlib

Hands-on:

➢ How to use data science modules of python.

The Project With Python:

Objective:

In this module, you are going to develop an application for one real-world scenario.

Topics:

- Creating own applications with combination of following frameworks
    - mySQL
    - Tkinter App
    - Console oriented Core app

Objective:

In this module, you are going to develop an application for one real-world scenario.