PG Department of Computer Science
Mary Matha Arts & Science College Mananthavady

Certificate Course

Python Programming for Beginners

Syllabus

Course Code	Theory	Practical	Time
CCCSPY21-22	10 Hours	15 Hours	3.30 to 4.30

COURSE OUTCOME

- Learn Python for expressing computation
- Familiarize with functions and modules in python
- Understand data visualization concepts of mathematical and statistical concepts
- Learn the techniques for database connectivity and GUI programming in Python

Module 1

Features of Python, Different Methods to Run Python, Basic Elements, Comments, Indentation in Python, Input and Output in Python, import function, Operators in Python, Branching, Iteration, range and enumerate functions, Data types, Built-in methods of lists, sets and dictionaries, Mutable and Immutable Objects. **(5 Hours)**

Module 2

Functions, Recursion, Modules, Built-in Modules, Creating Modules, File Handling, Exception handling, Object Oriented Programming Features of Python. Arrays in Python, Numpy Module, ndarray, Creating Arrays, Two-Dimensional Array, Indexing, Slicing, Iterating, Copying, Splitting, Shape Manipulation, Arithmetic Operations on Arrays. **(6 Hours)**

Module 3

Data visualization: The Matplotlib Module, Plotting Simple Mathematical Functions-famous curves power series-Fourier series-2D plot using colors. Numerical methods: Derivative of a function- numerical integration ordinary differential equation polynomials -finding roots of an equation system of linear equations - least square fitting-interpolation. **(7 Hours)**

Module 4

Connecting to a Database, Basic Operations on Database, Fetching Data from a Database, Transaction Control. GUI Programming using Tkinter, Tkinter Widgets, Layout Managers.

Books and Reference:

1. Taming Python By Programming, Dr. Jeeva Jose, Khanna Publishing
2. Introduction to Computation and Programming Using Python with Application to Understanding Data - John V. Guttag, PHI (2016)
3. https://www.numpy.org/devdocs/user/quickstart.html
4. https://www.tutorialspoint.com/python/
5. Introduction to Computer Science using Python - Charles Dierbach, Wiley (2015)
6. Python for Education by Ajith Kumar B P
7. https://docs.python.org/3/tutorial/index.html
8. https://matplotlib.org/users/pyplot_tutorial.html