Syllabus
Python Programming

Python is a programming language that is easy to learn, which is why many novice coders choose it as their first language. You can use it for anything from analyzing data, to creating games and developing websites. Python has also become incredibly popular in the scientific community because scientists use it to calculate complicated equations and analyze data.

Chapter 1 – Getting started with Python Programming

- Introduction to Python
- Python features
    - Scope of Python
    - Python products
- Python Download, Installation and Environment Setup
- First python program execution "Hello World"

Chapter 2 – Variables, keywords and Operators

- Variables and Rules of writing Variables
- Keywords in Python
- Operators
    - Arithmetic operators
    - Logical operators
    - Membership operators
- Basics I/O and Type casting

Example Programs Set 1

Chapter 3 – String data type in Python

- Introduction to Python 'string' data type
- Properties of a string
- String built-in functions
- Programming with strings
- String formatting

Chapter 4 – Control flow statements

- Flow of program control type
- Decision making statements: if-elif-else
- 'for' loop
  - Repetition using for loop: range() function
- 'while' loop
  - Infinite loop
- Loop control keywords: break, continue, pass

Example Programs Set 2

Chapter 5 – Lists and Tuples data type in Python

- Introduction to Python 'list' data type
- Properties of a list
- List built-in functions
- Programming with lists
- Introduction to Python 'tuple' data type
- Tuples as Read only lists

Example Programs Set 3

Chapter 6 – Dictionary data type in Python

- Introduction to Python 'dictionary' data type
- Creating a new dictionary
- Dictionary built-in functions
- Properties of Dictionary

Example Programs Set 4

Chapter 7 – Set data type in Python

- Introduction to Python 'set' data type
- Set and set properties
- Set built-in functions

Example Programs Set 5

Chapter 8 – Functions in Python

- Introduction to functions
- Function definition and return
- Function call and reuse
- Function parameters
- Function recipe and docstring
- *args and **kwargs
- Modules and Packages

Example Programs Set 6

Chapter 9 – Working with files

- Working with text files
  - File objects and different Modes of file
  - Reading, writing and use of 'with' keyword
  - read(), readline(), readlines(), seek(), tell() methods
- Working with CSV files
  - Use of CSV module in Python
  - Reading and writing CSV files

Example Programs Set 7

Chapter 10 – Email sending Automation

- Understanding SMTP
- Sending email with sendmail() function
- Sending email using Gmail
- Email sending with attachment and MIME

Chapter 11 – Exception Handling in Python

- Understanding exceptions
- try, except, else and finally
- raising exceptions with: raise
- Creating your own exception classes

Chapter 12 – Object oriented programming with Python

- OOPs concepts: Classes and objects
- Making of a class and module namespace
- Static and instance variables
- Deep understanding of self and init ()
- Inheritance and Overriding
- Overloading functions
- Operator overloading
- Encapsulation: Hiding attributes

Chapter 13 – Regular Expressions in Python

- Pattern matching
- Meta characters for making patterns
- re flags

Chapter 14 – Database connectivity with Python

- Working with MySQL database
- Working with Sqlite3 database

Example Programs Set 8

Practice Test

Projects

Project 1:- Banking System Application by using Dictionary

Project 2:- Student Database management by using CSV files.

Project 3:- SQL Database project