Python Basics

Duration : 3 Days

Session 1: Introduction to Python (3 Hours)

- Overview of Python and its applications
- Installing Python and setting up the environment
- Running Python scripts and interactive mode
- Variables, Data Types (int, float, str, bool)
- Basic I/O operations (print, input)

Session 2: Control Flow (3 Hours)

- Operators (Arithmetic, Comparison, Logical, Assignment)
- Conditional Statements (if, elif, else)
- Loops (for, while)
- Break and continue statements

Session 3: Data Structures – Lists & Tuples (3 Hours)

- Lists: Creating, Accessing, Slicing, Modifying
- List methods (append, pop, sort, reverse, etc.)
- Tuples: Characteristics, Accessing elements
- Iterating through lists and tuples

Session 4: Strings and Dictionaries (3 Hours)

- String operations (concatenation, slicing, formatting)
- String methods (strip, split, replace, find, etc.)
- Dictionaries: Keys, Values, Accessing & Modifying
- Dictionary methods (items, keys, values, update, etc.)

Session 5: Functions and Modules (3 Hours)

- Defining and calling functions
- Arguments and Return values
- Lambda functions
- Importing and using modules (math, random, datetime)
- Writing and importing custom modules

Session 6: File Handling (3 Hours)

- Reading and Writing files
- Handling different file formats (txt, csv, json)
- File handling best practices
- Exception Handling (try-except-finally)

Session 7: Object-Oriented Programming (OOP) Basics (3 Hours)

- Introduction to OOP
- Classes and Objects
- Attributes and Methods
- Inheritance and Polymorphism

Session 8: Mini Project & Revision (3 Hours)

- Hands-on project (Simple CRUD application using files)
- Review of key concepts
- Q&A and troubleshooting