



Python Basic to Advanced

Duration: 40 Hours- 15 Days

**Each Session Time: 1 & ½
Hour (90 Minutes)**

DAY-WISE SCHEDULE &
LEARNING ACTIVITIES

Day 01: Introduction to Python

- ❖ What is Python?
- ❖ History and Philosophy Java
- ❖ Key Features of Python
- ❖ Installing Python
- ❖ Basic Syntax and Structure
- ❖ Running Python Scripts
- ❖ Input and Output Operations
- ❖ Comments



Day 02: Variables and Data Types

- ❖ Numbers
 - ❖ Integers, Floats, Complex Numbers
- ❖ Strings
- ❖ Boolean Values
- ❖ Type Conversion
- ❖ Type Casting
- ❖ Type Checking
- ❖ Variables and Keywords
- ❖ Identifiers



Day 03: Operators

- ❖ Arithmetic Operators
- ❖ Comparison Operators
- ❖ Logical Operators
- ❖ Assignment Operators
- ❖ Bitwise Operators
- ❖ Operator Precedence
- ❖ Operator Associativity



Day 04: Control Flow

- ❖ Conditional Statements (if, else, elif)
- ❖ Nested if-else Statements
- ❖ Loops (for, while)
- ❖ Loop Control Statements (break, continue)
- ❖ Iterating over Sequences
- ❖ The pass Statements
- ❖ The Assert Statement



Day 05: Functions

- ❖ Defining Functions
- ❖ Function Parameters & Arguments
- ❖ Default Arguments
- ❖ Keyword Arguments
- ❖ Variable-length Arguments (args, kwargs, etc)
- ❖ Return Values
- ❖ Scope of Variables (Local and Global)
- ❖ Recursive Functions



Day 06: Lists

- ❖ Creating Lists
- ❖ Accessing Elements
- ❖ Slicing
- ❖ List Operations
 - ❖ append,
 - ❖ insert,
 - ❖ remove, etc.
- ❖ List Comprehension
- ❖ List Methods
- ❖ Nested Lists



Day 07: Tuples

- ❖ Creating Tuples
- ❖ Accessing Element
- ❖ Slicing
- ❖ Tuple Immutability
- ❖ Tuples Operations
- ❖ Tuples Packing and Unpacking
- ❖ Tuples Methods



Day 08: Dictionaries

- ❖ Creating Dictionaries
- ❖ Accessing Elements
- ❖ Add, Modify, Remove Elements
- ❖ Dictionary Methods
- ❖ Dictionary Comprehension
- ❖ Nested Dictionaries
- ❖ Iterating Over Dictionaries



Day 09: Sets

- ❖ Creating Sets
- ❖ Set Operations
 - ❖ union,
 - ❖ intersection,
 - ❖ difference, etc.
- ❖ Set Methods
- ❖ Set Comprehension
- ❖ Frozen Set



Day 10: Input and Output

- ❖ Input Functions
 - ❖ `input()`,
 - ❖ `raw_input()`
- ❖ Output Statements (`print()`)
- ❖ Formatted Output
- ❖ Command-Line Arguments



Day 11: File Handling

- ❖ Opening and Closing Files
- ❖ Reading and Writing Files
- ❖ Appending to Files
- ❖ File Modes
- ❖ Text Files and Binary Files
- ❖ Error Handling
- ❖ File Operations
 - ❖ Seek
 - ❖ Tell



Day 12: Regular Expression

- ❖ Basic Regular Expressions
- ❖ Metacharacters & Special Sequences
- ❖ Regular Expression Functions
- ❖ Regular Expression Methods
- ❖ Regular Expression Patterns
- ❖ Matching Text
- ❖ Searching Text



Day 13: OOPS

- ❖ Classes and Objects
- ❖ Inheritance
- ❖ Polymorphism
- ❖ Encapsulation
- ❖ Method Overloading
- ❖ Method Overriding
- ❖ Magic Methods



Day 14: Modules and Packages

- ❖ Creating Modules
- ❖ Importing Modules
- ❖ Using the **`__name__`** special var
- ❖ Creating Packages
- ❖ Package Structure
- ❖ Module Search Path



Day 15: Exception Handling and Debugging

- ❖ Try-except-finally Blocks
- ❖ Raising Exceptions
- ❖ Custom Exceptions
- ❖ Assertions
- ❖ Logging Exceptions
- ❖ Debugging Techniques
- ❖ Using Python Debugger

