

Python Syllabus

■ Core Python

- Variables, Data Types (string, int, float, bool)
- Operators, Expressions
- Control Flow (if, for, while)
- Functions (arguments, return, scope, recursion)
- Error Handling (try-except-finally)
- File Handling (read/write JSON, CSV, text files)
- Modules & Packages (import, pip, virtualenv)

■ Data Structures

- Lists, Tuples, Sets, Dictionaries
- String manipulation
- Comprehensions (list/dict/set comprehension)

■ OOP (Object-Oriented Programming)

- Classes, Objects
- Encapsulation, Inheritance, Polymorphism
- Dunder (magic) methods like `__init__`, `__str__`, `__len__`

■ Advanced Python

- Iterators & Generators (yield, custom iterators)
- Decorators
- Context Managers (with statement)
- Lambda & Higher-Order Functions
- Modules like os, sys, datetime, logging

■ Testing & Debugging

- Unit testing (unittest / pytest)
- Debugging with pdb or IDE tools