

Python for Beginners (3 Months)

Duration: 3 Months (~120 Hours)

Mode: Live Online / Classroom

Designation after completion: Junior Python Developer

Tools & Technologies: Python 3.x, Anaconda/Jupyter, PyCharm/VS Code, GitHub

Certifications prepared: PCAP – Certified Associate in Python Programming

Detailed Syllabus (12 Weeks)

Week 1

- Installing Python (Anaconda, PyCharm, VS Code)
- Python syntax, keywords, variables
- Printing, comments, input/output
- Assignment → Write a script to take user input & display profile details

Week 2

- Numbers, Strings, Booleans
- Type conversion (int ↔ float, string parsing)
- Operators: arithmetic, relational, logical, bitwise
- String formatting (f-strings, .format())
- Assignment → Build a BMI calculator

Week 3

- If-else ladder, nested conditions
- For loops, while loops
- Break, continue, pass
- Iterating over lists, strings, ranges
- Assignment → Multiplication table generator

Week 4

- Functions, parameters, return values
- Default & keyword arguments
- Local vs global scope
- Lambda functions
- Assignment → Calculator with functions
- Mock Interview 1

Week 5

- String slicing, indexing
- String methods (split, join, replace, strip, find)

- Escape characters, raw strings
- Regex basics
- Assignment → Validate email & phone numbers

Week 6

- Lists: append, extend, remove, sort
- Nested lists & list comprehensions
- Tuples: immutability, slicing
- Sets: union, intersection, difference
- Assignment → Student marksheet with lists & sets

Week 7

- Dictionaries: keys, values, items
- Adding, updating, deleting keys
- Nested dictionaries
- Iterating dictionaries
- Assignment → Contact book with dictionaries

Week 8

- File handling (read/write text & CSV)
- File modes (r, w, a, rb, wb)
- Exception handling basics
- Assignment → Store student records in CSV
- Mock Interview 2

Week 9

- Importing built-in modules (math, random, datetime)
- Writing & importing custom modules
- Package structure & pip usage
- Assignment → Random password generator

Week 10

- Classes & objects
- Constructors (`__init__`)
- Instance vs class variables
- Methods (instance, class, static)
- Assignment → BankAccount class

Week 11

- Encapsulation & access modifiers
- Getter & setter methods
- Destructor (`__del__`)
- Inheritance basics (single, multiple)

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- Assignment → Student → GraduateStudent model

Week 12

- Revision of all topics
- Mini Projects: Student Report System, To-Do List Manager, Billing System
- Mock Interview 3