

# Python Foundation



Detailed  
Course Syllabus

## 1. Python Basics

- a. Background Part 1 (IO Devices, CPU and Memory)
- b. Background Part 2 (Computer Organization)
- c. Why Do We Need Programming Languages
- d. Python Introduction
- e. Python Standard and Implementations
- f. How Python Programs Are Executed
- g. Python Programming Terminology
- h. Python Installation and First Program
- i. Comments in Python

## 2. Variables and Data Types

- a. Variables in Python
- b. Swap two Variables
- c. Id() in Python
- d. Type() in Python
- e. List Introduction
- f. Tuples in Python
- g. Set in Python
- h. Dictionary in Python
- i. Type Conversion in Python

## 3. Input and Output in Python

- a. print() in Python
- b. input() in Python

## 4. Operators

- a. Arithmetic Operators in Python
- b. Logical Operators in Python
- c. Identity Comparison Operators in Python
- d. Membership Test Operators in Python

- e. Bitwise Operators in Python Part 1
- f. Bitwise Operators in Python Part 2
- g. Arithmetic Progression nth Term in Python
- h. Geometric Progression nth Term in Python
- i. Sum of Natural numbers
- j. Find Last Digit in Python

## 5. Flow Control

- a. if, else and elif in Python
- b. Even-Odd in Python
- c. Largest of three in Python
- d. Leap Year in Python
- e. Calculator Program in Python

## 6. Functions

- a. Functions in Python
- b. Applications of Functions
- c. How Functions Work?
- d. Default Arguments
- e. Keyword Arguments
- f. Variable Length Arguments
- g. Parameter Passing in Python
- h. Returning Multiple Values in Python
- i. Global Variables in Python
- j. Find First Digit in Python
- k. Prime Factorization

## 7. Loops

- a. Loops In Python
- b. While Loops in Python
- c. range() in Python
- d. For Loop In Python
- e. Table of A Number
- f. Break In Python
- g. Continue In Python

- h.** Nested Loop in Python
- i.** Square Pattern in Python
- j.** Printing Triangle Pattern in Python
- k.** Inverted Triangle in Python
- l.** Pyramid Pattern in Python
- m.** Count Digits
- n.** Factorial in Python
- o.** GCD in Python
- p.** LCM in Python
- q.** Fibonacci Numbers in Python
- r.** Check for Prime in Python
- s.** All Divisors in Python
- t.** Optimizations of All Divisors and Prime

## 8. String

- a.** Strings in Python
- b.** Escape Sequences and Raw Strings
- c.** Formatted String in Python
- d.** String Operations Part (1)
- e.** String Operations Part (2)
- f.** String Comparison in Python
- g.** Pattern Searching in Python
- h.** Check For Palindrome In Python
- i.** Reverse A String in Python
- j.** Decimal to Binary Conversion
- k.** Binary to Decimal Conversion

## 9. List

- a.** Slicing (List,Tuple And String)
- b.** Get Smaller Elements
- c.** Separate Even and Odd
- d.** Comprehensions in Python
- e.** Average or Mean of A List
- f.** Count Distinct Elements in A List
- g.** Check if a list is Sorted