Curriculum for the course of

PYTHON

Course Instructor –

**Learning Objectives**

This course will serve as a comprehensive introduction to various topics in Python. This course is a proper blend of theory, mathematical derivations and the practical hands on session for each and every concept. Throughout the course participants will Master the fundamentals of writing Python programs in order to implement the concepts learned during the course.

**Learning Outcomes**

At the end of the course participants should be able to -

* Write programs in python easily.
* Explore how to work with lists and sequence data.
* Design his own game.
* Perform read and write files using Python.

**Prerequisites**

There are no prerequisites required for the course. But a little knowledge of programming and high school mathematics is a benefit for candidate.

**Schedule**

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| --- | --- | --- | --- |
| **No** | **Topic** |  | **Total hours** |
| 1 | Python Basics – Introduction, Indentation, Variables, Data types, Operator, Lists, Looping Statements, Conditional Statement, Function etc. | 12 |  |
| 2 | Error handling and File handling in Python | 3-4 |  |
| 3 | OOP Concept – Class and object, Inheritance, Data Hiding | 3-4 |  |
| 4 | Advance Python – Competitive Programming, Coding in hacker rank, Projects |  |  |
| 5 | Application On Python – Web Scraping Python, Python GUI, Pygame |  |  |

**CURRICULUM**

1. **Introduction**
2. Download and Install Python
3. Brief Introduction about Python
4. **Indentation**
5. What is Indentation?
6. Importance of Indentation
7. How to give Indentation in Python
8. **Variables**
9. What are Variables?
10. Creating Variables
11. Rules for Variable Name
12. Assigning value to Multiple Variables
13. How to output Variables
14. **Data Types**
15. Integers
16. String
17. Floating-point numbers
18. List
19. **Operator**
20. Use of Operators
21. Arithmetic Operators
22. Assignment Operators
23. Comparison Operators
24. Logical Operators
25. **Looping Statements**
26. For Loop
27. range() function
28. Looping through String
29. break statement
30. continue statement
31. Nested Loops
32. **Conditional Statement**
33. If statement
34. If-else statement
35. elif statement
36. **Lists**
37. What is list in Python?
38. Use of List
39. Different Operations on List
40. **Function**
41. Creating a Function
42. Calling a Function
43. Passing arguments to a Function
44. Arbitary arguments
45. Passing a list as an argument
46. Pass statement
47. **Error handling**
    1. Try block
    2. Except block
    3. Finally block
    4. Raise an exception
48. **File handling**
    1. File Open
    2. read(), readine(), close() methods.
    3. File Write
    4. File Delete
    5. Delete Folder
49. **Class and object**
    1. Create Class
    2. Create Object
    3. \_\_init\_\_() function
    4. Changing Object Properties
50. **Inheritance**
    1. What is Inheritance?
    2. What are parent class and child class?
    3. Creating Parent Class
    4. Creating Child Class
    5. Use of Super() Function
51. **Data Hiding**
    1. What is Data hiding?
    2. Use of Data hiding
52. **Advance Python** 
    1. Competitive Programming
    2. Coding in hacker rank
53. **Projects**
    1. Calculator
    2. Rock, Paper and Scissors
    3. Sound Detection app

1. **Application On Python**
   1. Web Scraping Python
   2. Python GUI
   3. Pygame