

COURSE TEACHING STRUCTURE

Course-Programming and Problem Solving (Python)

Class: FE

Duration: 20+ Hrs.

Category: Hands-on driven

Tag Line: Be ready for the next level python Programming

► **Description:**

At present Python Programming is the most demanding software in the market and to fulfill this need we need to update our self for the same. Start python development from the scratch which will help you to achieve the next level of python development. This course will open the new doors towards the world of modern software development. In this course we will not only introduce students not merely to the coding of computer programs, but to computational thinking, the methodology of computer programming, and the principles of good program design including modularity and encapsulation.

► **This course will help you to build the strong foundation to:**

1. Understand the need of python for the modern industries..
2. Understand the software development with ready to use open source libraries.
3. Understand the beauty of Python Programming from the scratch
4. Tackle the big challenges in programming with smaller code
5. Focus on object oriented paradigm.

► **Who Can Join This Course:**

Anybody who wants to learn Programming and start with one of the most leading programming languages to solve a real-life industrial and social problem.

► **This course will help you to:**

1. Understand how to write programs in python
2. How to use python libraries for problem solving
3. Understanding the basics of Data Science
4. To understand the basic building blocks of web development in python
5. Understanding the prerequisite basics of Machine Learning using python

► **Object of this course:**

1. To understand why Python is a useful programming language for us.

2. To learn how to use data structures like lists, tuples, and dictionaries and tuple in Python programs.
3. To understand how to use indexing and slicing to access data.
4. To learn how to use loops and decision statements in a better way.
5. To learn how to use functions and about arguments in Python.
6. To learn how to make package and modules for reusability.
7. To learn how to read and write files in Python.
8. To learn how to design object-oriented programs with Python classes.

► **Outcomes of this course:**

1. Understand the concepts of various components to design their own solutions.
2. Students will be able to manipulates the code available on open source community.
3. Students will be able to understand the reusability of the code for future projects.
4. Students will be able to make their own modules and packages using python.

► **SYLLABUS:**

Sr.no	Topic	Duration (Hrs)	Remarks
1	Introduction to python and its evolution <ul style="list-style-type: none"> • Introduction to trainer • Why python • Features of python • Advantages and disadvantages • Intro to versions of the python • Installation and environment setup 	1.30	
2	Installation setup and error solving <ul style="list-style-type: none"> • Intro with most available IDE • Data types in python and hands-on 	1.30	
3	Controll Structures in python <ul style="list-style-type: none"> • ip/op in python • operators in python <ul style="list-style-type: none"> • Relational Operators • Logical Operators • Identity Operators • Bitwise Operators • Assignment Operators 	1.30+	It may be continue in next session.
4	Numbers and String Operations <ul style="list-style-type: none"> • Playing with numbers • In-session assignments • Hands-on with strings (Slicing and indexing) • In-session and off-session assignments. 	1.30	
5	Decision Control Statements If and if else	1.30	

	<ul style="list-style-type: none"> • Different notations and hands-on • In-Session Assingment • Nested If else • off-session assingment 		
6	<p>Loops in python</p> <ul style="list-style-type: none"> • While loops and hands-on • Break • Continue • In-session assignment • For Loop in python • hands-on with for loop • Range function and hands-on 	1.30	
7	<p>Python built-in data structure</p> <ul style="list-style-type: none"> • List and Hands-on • Tuple and Hands-on • Dictionary and Hands-on • Set and Hands-on 	1.30	
8	<p>Function and anonymous function</p> <ul style="list-style-type: none"> • Introductions to some built-in functions • Creating the functions • Diff of functions and procedure • Functions and its arguments • anonymous function and hands-on • global and local variables and hands-on • Off-session Assignment 	1.30+	It may be continue in next session.
9	<p>Python modules and Packages</p> <ul style="list-style-type: none"> • Creation of own modules • Hands-on on modules • Intro to some built-in Modules • Intro to Random function and In-Session Assignment • Creation of own Packages 	1.00	
10	<p>Exception handling and OOP</p> <ul style="list-style-type: none"> • Intro to exception • Try and Except block • Finally • User define exception • Intro to OOP • Classes and Object • Constructor • Static members • Inheritance (All) and Hands-on 	1.30	
11	Project_1 based on previous topic	1.30	
12	File Handling and Gui in Python	1.30	

13	Hands-on with Tkinter	1.30	
14	Project_2 based on 11 (Gui)	1.00+	It may be continue in next session.

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