

Course Description

This course is designed for developers with experience in other languages who need to get up to speed on Python. At the end of this course, the students will know the essentials of the Python language, how to use Python's module system to structure code, and how to approach the development of Python programs.

We'll cover the core Python language and the standard library in detail. This course will cover various skills including text manipulation, modular programming, working with and retrieving data, interacting with files on your computer, and using some of the more popular third-party libraries (and getting them installed when and where we need them).

Importance of the Course

- Understand how to install and use Python
- Understand the fundamental Python programming techniques and tools.
- Discover the history of Python and how it compares to other programming languages.
- Discuss its applications and the types of problems it can solve.

Technologies Overview

- File handling, Exception handling, Command line arguments, modules, and packages
- Linear & Non-Linear Data structures
- API's Integration with Python
- Python for Socket programming, SMTP, MQTT protocols
- Django Python Web frameworks
- Computer vision with python
- Algorithms with Python

Python Basics

| SESSION | CLASS TOPICS |
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| 1 | Introduction to algorithm Design, algorithmic problem-solving. Introduction to programming Python, Core objects and Built-in-Functions, Conditional statements and loops |
| 2 | Example programs :1. Compute the GCD of two numbers. 2. Find the square root of a number (Newton's method) 3. Exponentiation (power of a number) |
| 3 | Functions, Strings, Lists |
| 4 | Example Programs: 1. First n prime numbers 2. Multiply matrices |
| 5 | File handling, Exception handling, Command line arguments, modules and packages |

| SESSION | CLASS TOPICS |
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| 1 | <p>Linear & Non-Linear Data structures in python example Programs:</p> <ol style="list-style-type: none"> 1. Find the maximum of a list of numbers 2. Linear search and Binary search 3. Selection sort, Insertion sort 4. Merge sort, etc., |
| 2 | <p>Tuples, Dictionaries with exercises Example Programs:</p> <ol style="list-style-type: none"> 1. Programs that take command line arguments (word count) 2. Find the most frequent words in a text read from a file |
| 3 | <ol style="list-style-type: none"> 1. Moving duplicate elements from one list to other 2. Factorial 3. Tower of Hanoi 4. Rat in a maze 5. Travelling salesperson problem 6. Chocolate and Wrapper Puzzle(0-1 Knapsack problem) |
| 4 | <p>Object-oriented programming & its concepts in python, Program organization with modules and packages</p> |
| 5 | <p>Understanding and implementing multiprocessing and multithreading using pipes, filters, fork & sub-process. Serialization, unit testing, and file system interaction, Debugging</p> |

Python Programming

API's Integration and database Connectivity

| SESSION | CLASS TOPICS |
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| 1 | Accessing Excel with python, Logging in python, Programming SQL with python |
| 2 | Introduction to IoT and role of python, Handful python API's and Protocols Real-time example Thing speak. |
| 3 | Custom python API's to send SMS, Mail, Social networks, Sports, and weather |
| 4 | Google API's (Speech recognition, Vision API, Maps & navigation) |
| 5 | Python for Socket programming, SMTP, MQTT protocols |

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Training Methodology

The Program is a mix of Theory sessions, Quizzes, Hands-on Sessions, Live Interaction with Experts, Assignments, and Practical Exercises. Maximum Impetus is given to Hands-on Sessions so as to enable the participants with the maximum knowledge transfer and satisfaction. The ratio of the theory, practical sessions will be 30:70.

Program Advantage

- Code with Explanations

Learn everything about Python Programming and the Applications using python programming, with a well-structured curriculum & detailed explanation of the code.

- Assignments

Work on various assignments which will be graded by our Trainer.

- Projects

Solve real-world problems as part of projects and receive valuable feedback from our trainer.

Upon Successful Completion of the Program

Upon completion of the program, the participant will have an in-depth insight into Python and its application. The participants will be able to program in python with Machine Learning Algorithms and develop the code basic/complex on his/her own, thus making the objective of the training program as desired.

Participants also will have access to our TECHNICAL FORUM, thus getting their doubts clarified even after the session is complete. Certificates will be provided upon request.