



**Foundation for Scientific Research & Technological Innovation (FSRTI)**

(A Constituent Division of Sri VadrevuSeshagiri Rao Memorial Charitable Trust) Regd. Office: H.No 13-405, Alkapuri, Hyderabad, 500102, INDIA

website: [www.researchfoundation.in](http://www.researchfoundation.in)

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## **Title: Introduction to Python Programming**

This course is useful for students, IT professionals, researchers and scientific community. Python is a general purpose and high-level programming language and allows to focus on core functionality of the applications by taking care of common programming tasks. Python is an accessible language for new programmers because the community provides various introductory resources. This language useful to speed up software development and simplify software maintenance. This course is useful for developing desktop GUI applications, web applications,

In this course, you'll learn the fundamentals concepts of the Python program, along with programming best practices. You'll learn to represent, and store data using Python data types and variables and use conditionals and loops to control the flow of programs. You'll connect the power of complex data structures like lists, sets, dictionaries, and tuples to store collections of related data. You'll define and document your own custom functions, write scripts, and handle errors. Finally, you'll learn to use modules in the Python Standard Library and other third-party libraries for solving real-world applications.

## **COURSE CONTENT**

**Module-1: Introduction to Python:** Learn the fundamentals of computing in Python, which including Installation of Python, variables, operators and writing and debugging your own program.

**Module-2: Data Structure:** Learn the complex ways of handling datasets, including files, lists and dictionaries for building complex problems.

**Module-3: Conditional Loops:** Learn about loops, command line arguments, if, else, elif, and switch case statement, and other statements that is useful to check condition and change the behavior of the program accordingly.

**Module-4: Strings & Functions:** to learn about the strings, user defined functions, function parameters, Lambda functions in Python.

**Module-5: Files & Exception Handling:** to learn the file handling commands, copy file, and exception handling in Python.

**Entry level minimum requirements:** Students with Basics of Mathematics and any programming language.

**Suggested Reading Material:**

1. Introduction to Python for Computational Science and Engineering: (A beginner's guide) Hans Fangohr, Faculty of Engineering and the Environment, University of Southampton, September 7, 2015
2. Think Python, How to Think Like a Computer Scientist, Allen Downey, Green Tea Press, Needham, Massachusetts, 2012.
3. Head First Python: A Brain-Friendly Guide. Barry, Paul. " O'Reilly Media, Inc.", 2016.
4. Learn Python the hard way: Release 2.0. Shaw, Zed A. Lulu. com, 2012.
5. Introduction to machine learning with Python: a guide for data scientists, Müller, Andreas C., and Sarah Guido. " O'Reilly Media, Inc.", 2016.

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**Instruction Duration : 3 hrs /Week**

**Total Duration : 16 weeks**

**Fee Chargeable : INR 4000 for students from India US\$ 100 for students of other countries**