1. Introduction to Python & Python Fundamentals

Python Interpreter and its Environment

Python programming building blocks like Variables

Data Types and their functions

2. Python Basics

Arrays, Lists and Tuples

Dictionaries and Sets

Array and List related functions

Arithmetic Operators

Assignment Operators

Comparison Operators

Logical Operators

Conditional/ ternary Operators

3. Python Control Structures

If Statements

While construct

For Statements

Looping Techniques over data structures

The range() function

Break and Continue Statements

Statements and else clauses in loops

Pass Statements

List Comprehensions

4. Functions

Local variables

Default Argument Values

Returning Values

Keyword & Positional Arguments

Arbitrary Argument Lists

Unpacking Argument Lists

Lambda Forms

Documentation Strings

5. Modules

Executing modules as scripts

The Module Search Path

Building Modules

‘Compiled’ Python files

various Standard Modules/libraries

The dir() function

Debugging Python Code

Logging in Python

Unit testing in Python

Static code analysis

6. I/O & Exception handling

Standard Input and Output I/O

File I/O

Python File & Directory functions

Introduction to subprocess module

Handling Exceptions

Raising Exceptions

Userdefined Exceptions

Cleanup Actions

Try/finally clauses

An Overview of Python

* What is Python?
* Interpreted languages
* Advantages and disadvantages
* Downloading and installing
* Which version of Python
* Where to find documentation

The Python Environment

* Structure of a Python script
* Using the interpreter interactively
* Running standalone scripts under Unix and Windows

Getting Started

* Using variables
* String types: normal, raw and Unicode
* String operators and expressions
* Math operators and expressions
* Writing to the screen
* Command line parameters
* Reading from the keyboard

Flow Control

* About flow control
* Indenting is significant
* The if and elif statements
* while loops
* Using lists
* Using the for statement
* The range() function

Array Types

* list operations
* list methods
* Strings are special kinds of lists
* tuples

Working with Files

* Text file I/O overview
* Opening a text file
* Reading text files
* Raw (binary) data
* Writing to a text file

Dictionaries and Sets

* Dictionary overview
* Creating dictionaries
* Dictionary functions
* Fetching keys or values
* Testing for existence of elements
* Deleting elements
* Sets And Frozen Sets

Functions

* Syntax of function definition
* Formal parameters
* Global versus local variables
* Passing parameters and returning values

Sorting

* The sorted() function
* Alternate keys
* Multiple keys
* Lambda functions

Errors and Exception Handling

* Dealing with syntax errors
* Exceptions
* Handling exceptions with try/except
* Cleaning up with finally

Modules and Packages

* What is a module?
* The import statement
* Function aliases
* Packages

Regular Expressions

* RE Objects
* Pattern matching
* Parsing data
* Subexpressions
* Complex substitutions
* RE tips and tricks

Highlights of the Standard Library

* Working with the operating system
* Grabbing web pages
* Sending email
* math and random
* Accessing dates and times with datetime
* Working with compressed files

An Introduction to Python Classes

* About o-o programming
* Defining classes
* Constructors
* Instance methods
* Instance data
* Class methods and data
* Destructors

Conclusion