**Two-Day Python Workshop**

This is a full hands-on workshop with 80 % practice and 20% theory

**DAY -1**

**9 to 9.30 am**

**Session 0 : WARM UP and Interaction**

**9.30 am to 10.30 am**

**Session 1: An Introduction to Python**

Introduction and Importance

Python Versions (2.x & 3.x)

Installing Python (in Windows/Linux)

IDLE and IDEs for Python

Getting Help

Python distributions – pip, Anaconda, python(x,y), Active Python

**10 minutes Break**

**10.40 am to 11 am**

**Session 2: Hands-on - Installation of Python & Development setup**

**11 am to 12 pm**

**Session 3: Basics of Python Programming**

Basic Syntax and Indenting

Identifier Naming Conventions

Python Reserved Words

Built-in functions

Numbers

Integers

Decimal

Octal

Hexadecimal

Float

complex

Arithmetic Operations

Input and Output Operations

**10 minutes Break**

**12.10 pm to 1 pm**

**Session 4: Basics of Python Programming**

String Operations

**1 pm to 2 pm LUNCH Break**

**2 pm to 3 pm**

**Session 5: Language Components**

Relational Operators

Logical Operators

Boolean Operations-True or False

Bit Wise Operators

Type Conversions

Control Operations

If, else and elif

range and xrange functions

**10 minutes Break**

**3.10 pm to 4 pm**

**Session 6: Language Components**

Loops

for and while

break, continue, pass and sys.exit

**3.10 pm to 4 pm**

**Session 7: Collections**

Lists

Tuples

Sets

Dictionaries

Comprehensions

**10 minutes break**

**4.10 pm to 5 pm**

**Session 8: Functions**

User-defined functions

Default Arguments

Keyword and Optional Arguments - variadic functions

Scope -Global versus local variables

Lambda (Anonymous) functions

Purpose and Advantage

Usage and Rules

Higher-Order Functions

Map

zip

Filter

Reduce

**DAY -2**

**9 am to 9.15 am QWICK RECAP**

**9.15 am to 10.30 am**

**Session 9: Module**

import statement

Function aliases

Basic essential modules – sys, math, time, os

Importing user-defined .py files

Importance of .pyw and .pyc files

**10 minutes break**

**10.40 am to 11.40 am**

**Session 10: Exceptions**

Types of Errors

Error Handling in Python

The Exception Model

Exception Hierarchy

Handling Multiple Exceptions

raise

Assert

**Debugging**

Using pydevd

**10 minutes break**

**11.50 am to 1 pm**

**Session 11:**

**Working with Files**

**Flat files**

**Non-Flat files**

Pickle files

Shelve files

CSV files

Excel files

XML files

JSON files

YAML files

**Iterators and Generators**

Iterators

Iter protocol

Generators

**1 pm to 2 pm Lunch Break**

**2 pm to 3 pm**

**Session 12:**

**Web Services**

**Consuming REST API**

**Using urllib, urlib2 and request modules**

**Logging**

Necessity of Logging

Logging to a file

Formatting logs

Advanced logging

**10 minutes break**

**3.10 pm to 4 pm**

**Session 13: Regular Expressions**

Simple Character Matches

Special Characters

The Dot Character

Greedy Matches

Grouping

Matching at Beginning or End

**10 minutes break**

**4.10 pm to 5 pm**

**Session 14:**

**OOP in Python**

Creating Classes

Instance Methods

Constructors & Destructors

Special Methods

Class Variables

Inheritance

Purpose, usage and types

Polymorphism

Method Overriding

Operator Overloading

Custom Exception Classes

Default Decorators- Static and Class Methods

**Unit Testing**

Importance of TDD

doctest

Unit testing with Unittest