**Python**

**Duration: 3 days**

**Course Outline**

# Introduction to Python

Introduction to Python

Features of Python Why Python

# Simple Program

Python shell

Python command

Prepare source File and execute the code

Print “Hello World”

Comments

Help command

# Basic Language Consructs

Data types and Variables

String type

Format method

Operators and Expressions Indentation

# Control Structure

If

While loop

For loop

Break & Continue Statements

# Functions

Simple Function declaration

Function with parameter

Variable Scope

The “global” statement

Function with default arguments

Function with return type

# Data Structures

List

Tuple

Dictionary

Sequences

Set

**Modules** What is module?

Use of modules

Import statement

Global and local module

Standard library module

User defined modules

The dir() Function

# Object Oriented Programming Concepts

Introduction to object oriented concepts

Classes and Objects

The “self” keyword

Methods and Attributes

Constructor and Destructor

Instance and static member

Class Inheritance Super keyword

# Files

What is File Input output? How to open a file How to close a file Read and write data to a file

Pickle Module

**Exception Handling** What is an Exception?

Run time Exceptions try … except statements Multiple except statements Clean up statement (finally)

Raised exceptions

User defined exceptions

# File and Directory handling

File I/O operations

Built-in file and directory handling libraries fileinput stat filecmp and dircmp glob,

zipfile and tarfile pickle and shelve

modules

Serialization using json

# Regular Expression

Introduction to regexps

Special symbols and characters for RE

Metacharacters and Metasymbols

Character classes

Quantifiers and Positions

Searching/Matching a string/pattern

Search and replace operations

Splitting and joining strings Practical examples

# Itertools and Collections framework

Iterators and generators Collections Deque defaultdict

# Testing

Using the unittest module for writing testcases Using doctest

Regressing testing using test module

# Database connectivity using SQLite database file

Introduction to SQLite database file

Connection class

Cursor

Execute method

Fire the SQL statements like select, Insert, Update, Delete

Write parametized query

Join

# Socket Programming

What is Socket Programming? What is protocol? Types of protocol What is “host” and “port” socket class methods of socket class type of socket

**Threading** What is process? What is thread? Thread class

Life cycle of a thread

Methods of thread class

Time class

Synchronization

Lock class methods