**Python 3 :**

**Duration : 5 Days**

**Pre-requisties : Any higher level programming(C++,Java,C#...) or scripting language(JS, TS…)**

**Day 1:**

**Module 1 Introduction to Python, Data Types, Quotations**

* Python Interpreter and its Environment
* Python 3.x : Background, Relevance
* Numbers
* Strings
* Declaration of variables

**Module 2 Conditional statements/Control Structures**

* If Statements
* While construct
* For Statements
* Break and continue Statements, and else clauses on Loops
* Pass Statements

**Module 3 Python basic data structures**

* Arrays, Lists and Tuples
* Dictionary and Sets
* List and array slicing

**Module 4 Functions**

* Local variables
* Default Argument Values
* Returning Values
* Keyword & Positional Arguments
* Arbitrary Argument Lists \*
* Documentation Strings
* Unpacking Argument Lists ( unknown number of parameters )
* Lambda Expressions

**Module 5 Functional Programming**

* Lambda Forms
* list comprehension
* isalpha
* map
* apply
* reduce
* filter

**Day 2:**

**Module 6 File handling and other OS interactions**

* Creating and Opening a File
* Reading from a file, writing to a file ( variations )
* Closing a File
* Handling csv files

**Module 7 Modules**

* Executing modules as scripts
* The Module Search Path
* Building modules
* Running a module from the command line
* ‘Compiled’ Python files( .pyc )
* Standard Modules
* The dir() Function

**Module 8 Introduction to OOP**

* Class Definition Syntax
* Implication of **self**
* Class Objects, Instance Objects, Method Objects; Instantiation
* Constructor & Deconstructor
* Inheritance
* Data Member – Class variable/Instance Variable

**Module 9 Exceptions**

* Handling Exceptions
* try-except
* else clause
* finally clause
* Raising Exceptions
* User-defined Exceptions

**Day 3:**

**Module 10 Supplementary Topics**

* closure
* basic debugging
* pickle ( binary files )
* File compression & decompression
* OS, SYS and PPRINT modules

**Module 11 Regular expressions**

* What is regular expression?
* Matching characters
* Compiling regular expressions
* Metacharacters like quantifiers, anchors, character classes, alternator etc.
* Strings and Slices
* Modifying Strings
* Use of triple quotes
* Repetition
* Group extraction and Substitution

**Module 12 MsExcel – Python interface**

* Which module is needed?
* Installation of module
* Read and Write operations covering different Python data structures

**Day 4 & 5:**

**Module 13 REST API access**

\* working with JSON

\* using urllib3

\* accessing urls with urllib3

\* using requests module

\* GET,POST using requests module

**Module 14 SQLite**

* CRUD operations for a sample set of schemas.